Current child restraint practice in Queensland, new legislation and future challenges

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Abstract

Correct use of child restraints reduces the risk of death and injury. Use of adult seat belts is better than being unrestrained but can result in injury to children who are too small. New Australian legislation extends the requirement for using child-specific restraints until children are 7 years old and thus requires more appropriate levels of protection for these children. As part of a larger study of injury prevention in Queensland, parents of children 0-9 years old were surveyed regarding their restraint practices before the introduction of the new legislation. The restraint status of 18% of the children would not be compliant with the new legislation, with the problem being more prevalent for 5-9 year olds (22%) than 0-4 year olds (16%). A high proportion of older children used an adult seat belt. Very few children aged 0-4 (1.3%) usually travelled in the front seat in contravention of the new requirement, but around 11% of this age group were reported as ever having done so. Usual travel in the front seat was higher among 5-9 year olds (8.5%), with more than half of the 5-9 year olds reported as ever having done so. Given the widespread use of adult seat belts by older children, there is a need to consider improving protection of children in the ‘gap’ between when the requirement for the child to use a booster ceases (effectively age 7) and when the adult belt is likely to actually fit the child (closer to age 9 or 10).
Introduction

The extent to which children are restrained when travelling is generally reported to be 90-99% in Australia (Brown et al. 2005; Charlton et al. 2006; Edwards, Anderson and Hutchinson 2006; Lennon 2005; VicRoads 2003; Whelan et al. 2003). Used correctly, dedicated child restraints have been shown to reduce the risk of injury and death in crashes (Arbogast et al. 2004; Du et al. 2008; Durbin et al. 2005; Durbin, Elliott and Winston 2003) with correct use of the most appropriate sized restraint providing the best protection of all (Brown, Bilston and McCaskill 2003; Brown et al. 2006; Durbin et al. 2005). In addition, seating children 12 years and under in the rear seat of the vehicle appears to significantly lower the risk of injury compared to allowing them to occupy front seats (Braver et al. 1998; Durbin et al. 2005; Lennon, Siskind and Haworth 2008; Smith and Cummings 2006).

While a child wearing an adult belt is much better protected than an unrestrained child, the use of adult belts rather than dedicated child restraints results in many children being less well protected than they could be. Adult seat belts generally offer a poor fit for children who are less than 145cm tall (American Academy of Pediatrics 2008) which corresponds to about 10 or 11 years old (Centres for Disease Control 2000). Children using adult seat belts that are not size-appropriate or too big for them are at increased risk of injury in several ways, compared to children wearing a size-appropriate restraint. The restraint may fail to restrain the child during a crash or sudden stop (eg. ‘submarining’ or sliding out under the lap portion), and poorly fitting adult belts can also result in excessive movement of the child’s body, particularly the head, so that it comes into contact with the interior of the vehicle (Bidez 2001; Brown et al. 2005; Winston et al. 2000). Adult belts may also present the risk that poor fit will lead children to misuse them by moving the shoulder/sash portion to sit under the arm or behind the back, thus changing the dynamics of the belt and reducing its effectiveness.

The use of adult seat belts by children can also result in serious injury from the restraint itself during a crash because poor fit causes the belt to contact more vulnerable parts of the body with force. Thus abdominal or lumbar spine injuries may result from lap belts (Durbin et al. 2003; Santschi et al. 2005) and high spinal injuries from the sash portions of lap-sash belts (Givens et al. 1996; Hoy and Cole 1993). Recent Australian work using crash reconstruction
for child passengers aged 3-8 years suggests that such injuries can be prevented if children are restrained in size-appropriate restraints instead (Bilston, Yuen and Brown 2007).

While previously Australia led the world in legislation and standards for the restraint of children, this status declined as legislation failed to keep pace with our more detailed understanding of what constitutes best practice in child restraint. Until recently, dedicated child restraints were only required for children under 12 months and placement in the rear seat was not mandated for any age. Informed by findings such as above, in 2007 the National Transport Commission reviewed the Australian Road Rules requirements in relation to restraint of children. As a result of the findings of this review, the National Transport Ministers agreed to endorse changes to the Australian Road Rules (NTC 2008). These changes included that children should be required to use a dedicated restraint until aged at least 7 years. Thus, in addition to the previous requirement for the restraint of infants in rear-facing, top-tethered restraints, new legislation requires the use of a forward or rear-facing, top-tethered restraints for children up to the age of 4 years and booster seats or forward facing top-tethered restraints for children aged 4 to under 7 years (NTC 2008). Rear seating is required for children under 4 years. Children aged 4 under 7 years using booster seats may only be seated in the front seat if all rear seating positions are already occupied by other children aged under 7 years. Victoria introduced the new legislation in late 2009 (VicRoads 2010) and very similar legislation will come into effect in NSW and Queensland from March 2010 (DTMR 2010; RTA 2010).

Though the new legislation will give better guidance to parents as to appropriate restraint for children up to 7 years old, an issue that remains unaddressed is the protection of children in the age ‘gap’ between when the requirement for the child to use a booster ceases (effectively age 7) and when the adult belt is likely to actually fit the child well (closer to age 9 or 10 years, as detailed above). The safety message indirectly conveyed to parents of children aged 7-10 years is that adult belts offer optimal protection for children once they turn 7 years old.

This paper seeks to assess how current restraint practices in Queensland compare with those required by the new legislation and the extent to which this booster seat ‘gap’ affects Queensland children. Data on children’s restraint use and seating position were gathered as part of a larger, computer-assisted telephone survey (N = 1030) which in turn formed part of a multi-component study conducted in Queensland in September-October 2008. This multi-
component study examined injury data and available injury prevention programs/activities as well as surveying community attitudes, beliefs and behaviours in relation to injury and safety in Queensland (Lennon et al. 2009). Neither the final form of the changes to the legislation for child restraint nor the anticipated implementation date had been announced in Queensland at the time of the data collection.

The analyses reported below were conducted to investigate the proportions of appropriate restraint use (for age) as well as seating positions for children 0-9 years old. As the survey was administered well before the change in legislation, these provide a measure of the extent to which parents were already complying with the new requirements and help outline the behavioural changes needed for parents to bring their practices into line with the new legislation, once it came into effect (11th March, 2010 in Queensland).

Method
Random digit dialling was used to generate a pool of potential households for the survey. Sample quotas were set according to a combination of location (urban, regional, remote) as well as respondent’s age (18-24 years; 25-64 years; 65 years or older) or whether the person was a parent of child under 18 years who was living at home (parent). Location was categorised using the ARIA (Accessibility/Remoteness Index Australia, Dept of Health and Aged Care, 2001) accessibility classification. All Queensland postcodes were assigned to one of three categories: urban (ARIA ‘highly accessible’), regional (ARIA ‘accessible’ or ‘moderately accessible’) or remote (ARIA ‘remote’ or ‘very remote’). Taking the desired location proportions into account, the final quotas for the parent group were set as: 125 urban parents (ie 12.5% of the total sample); 100 regional parents (10% of total sample); 25 rural parents (2.5% of total sample). The number of completed interviews obtained for parents of children in the 0-9 years age range were 93 (9% of total sample), 87 (8.5% of total sample) and 21 (2% of total sample) for urban, regional and rural parents respectively (see Table 1).

Insert Table 1 near here
For the overall survey, the random digit dialling technique generated 11,504 calls where a householder answered. Of these, 2,573 were ineligible due to the quota being full and 3,718 refused to participate. It is unclear how many of these refusals were eligible respondents. A conservative estimate of the response rate can be derived by dividing the final number of respondents (N = 1030) by the total number of calls minus calls to ineligible but willing householders, for a result of 11.5% (1030 / 8931). Full details of the various outcomes of calls can be found in the Appendices to the main report of the study (Lennon et al. 2009).

The survey consisted of a set of core questions that were posed to all participants and aimed at capturing beliefs and attitudes towards injury-related issues (Lennon et al. 2009). In addition, questions relating to age-specific injury issues were included for participants within the target age groups (children aged 0-4 years, 5-9 years, 10-15 years and 16-17 years; young adults aged 18-24, mid-aged adults 25-64, and older adults 65 years and older). Parents responded on behalf of children aged under 18 years and received the relevant questions for each age group in which they reported a child living with them. The survey was administered by a social and marketing research company. Ethics approval for the study was provided by the HREC at Queensland University of Technology (Approval number: 0800000489).

A total of 201 parents (137 mothers, 64 fathers) of 281 children aged 0-9 years responded to questions about their car restraint practices including the restraint type each child used and the frequency of use, which seating position each child usually occupied and whether the child had ever travelled in the front seat. To assist parents in identifying the restraint type correctly, a description of each restraint was read to the parent and clarifying details were provided for the interviewer to use in the event that parents were still unsure what restraint was being used (see Table 2). Parents were asked how often the child used each type of restraint with response options of ‘frequently’, ‘sometimes’ and ‘never’. In the event that the parent responded ‘always’ to a particular restraint type, the interviewer was instructed to prompt with “is that for every trip in every vehicle?” Only where parents responded ‘yes’ to this prompt were children coded as ‘always’ using the particular restraint type. Demographic information collected included the child’s age, parent’s age and highest educational level achieved, annual household income and location, and family size number of children aged 0-9 years in the family. Categories for the demographic details, proportions of participants falling into each category and comparative Queensland proportions for income and education are
given in Table 1. The interview schedule was designed to allow for the collection of information on up to 3 children in each of the target age ranges from each responding parent.

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Insert Table 2 near here

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Child age (as outlined in the new legislation) was used as the basis for determining the appropriateness of the reported restraint type (see Table 3). Thus children were coded as appropriately restrained if the parent reported that the child ‘always’ or ‘frequently’ used a restraint appropriate to his/her age.

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Insert Table 3 near here

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Analysis included basic descriptive statistics for parent and child demographic data, as well as restraint type and seating position by child age group (0-4 years; 5-9 years) and appropriateness of restraint (determined as previously described). Chi square tests were used to investigate the relationships between demographic factors (location, parent education, household income, number of children aged 0-9 years in the family) and appropriateness of restraint.

Although there is some clustering in our data set (as parents with multiple children in the age groups of interest gave responses for up to 3 children) we reasoned that for the analyses conducted here, there would not be a misleading effect. This is because the parents are a random sample of Queensland parents. Assuming that the randomisation has been carried out appropriately, they will be a mix of parents with one and more children. Thus each parent will be a random observation of parents in the same category, that is, parents with 1 child, 2 children or 3 or more children.
Results

Demographic characteristics of the parent sample are summarised in Table 1. Restraint practices were examined for children in two separate age groups: 0-4 year olds and 5-9 year olds.

Children aged 0-4 years

Data for 153 children aged 0-4 years from 135 parents (89 mothers, 46 fathers) was collected (87 boys, 66 girls). Of these, 142 (93%) were ‘always’ or ‘frequently’ restrained in the same type of restraint. The majority (96, 68%) of these children were reported as using a forward facing child seat with a 6 point internal harness (see Table 4). A further 15.5% used rear facing infant seats, and 15.5% used a booster seat. Only 2 children were reported as restrained in harnesses without a booster seat. Only 1 child in this age group (a very young child) was reported to always use an adult belt alone, and no children always travelled unrestrained. Thus almost all children (99%) who were reported as ‘always’ or ‘frequently’ using the same restraint in this age group used a dedicated child restraint.

There were 11 (7%) children 0-4 years who were reported as ‘frequently’ or ‘sometimes’ using more than one type of restraint. Of these, 2 used a combination of rear facing and forward facing restraints. The remaining children were all reported to use forward facing child seats either ‘frequently’ or ‘sometimes’ but also ‘sometimes’ used boosters, harnesses or adult belts alone. Two of the children (from the same family) were reported to travel unrestrained ‘sometimes’ as well as using forward facing child restraints, boosters or adult belts.

Children aged 5-9 years

A similar set of questions was asked for children in the 5-9 years age group (n = 128, 75 boys, 53 girls), modified to suit the restraint types available for this age group. In all, 94 parents
For 5-9 year old children, 108 (84%) of the 128 were reported as ‘always’ or ‘frequently’ using the same type of restraint. The patterns of reported restraint type for these children (see Table 4) reveal that 29 children (27%) were using booster seats while a further 6 (6%) were reportedly using harnesses. However, the majority (72, 66%) of the older children were always restrained in adult belts alone rather than a dedicated child restraint.

Twenty children (16%) in this age group were reported as using more than one type of restraint ‘frequently’ or ‘sometimes’. No children were reported to travel unrestrained. For the majority of this group, parents reported that the child used a booster seat at least ‘sometimes’ and either adult belts alone or harnesses ‘sometimes’.

**Appropriateness of restraint**

Table 4 shows the breakdown of restraint types by age for those children reported as ‘always’ or ‘frequently’ using the same restraint type. The shaded section represents inappropriate restraint type for age under the new legislation. Overall, 12% of the children aged 0-9 years who were reported as always using the same type of restraint were using a restraint inappropriate for their age. For the 0-4 year olds, 11% were inappropriately restrained compared to 14% of 5-9 year olds. The majority of the inappropriately restrained 0-4 year olds were 3 year olds using booster seats, while for the older aged group, inappropriately restrained children were all 5 or 6 year olds using seat belts.

For the children who were reported as using more than one type of restraint, 9 children aged 0-4 years, and 11 children aged 5 or 6 years old were reportedly travelling in restraints inappropriate to their ages at least some of the time. Combining these figures with those for children who used only one type of restraint suggests that 17.8% of the total sample of children were inappropriately restrained at least some of the time (16% of 0-4 year olds; 22% of 5-9 year olds).
No differences in the proportion of children appropriately restrained were found according to household income, parent’s highest level of education or location. However, likelihood of appropriate restraint was significantly associated with number of children aged 0-9 years in the family, $\chi^2 (2, n=281) = 10.667$, p < .01, with sole children more likely to be appropriately restrained (89%) than children from families with two or three children (86% appropriately restrained) or four or more children (63% appropriately restrained).

**Occupying the front seat**

Most of the children (95.4%) were reported as usually travelling in the rear seat. For the 0-4 year olds, only 2 children (1.3%) usually occupied the front seat and this was also the case for 11 (8.5%) of the 5-9 year olds. Left or right rear seats were favoured, with 77% of the younger group and 76% of the older children usually occupying these positions. When it came to ever having occupied the front seat, around 11% of the 0-4 year old children compared to almost half of the 5-9 years olds were reported as ever having done so.

**Discussion**

Parental behaviour in relation to the restraint of younger children in cars was encouraging and in keeping with research from other states as well as Queensland data obtained using other methods. Over 98% of 0-4 year old were reportedly restrained, and most used the same type of restraint on every occasion. Moreover, consistent with findings from NSW (Bilston et al. 2008), South Australia (Edwards, et al. 2006) and observational studies in Queensland (Lennon 2005), the majority of children under 5 years old are secured in dedicated child restraints and high proportions are using the right sized restraint. However, it appears that for the small proportion of parents who report using more than one type of restraint (7%) with their children of this age group, the majority used an inappropriate restraint at least some of the time. This suggests that an age-appropriate restraint is available to such parents and that interventions should be aimed at encouraging consistently safe behaviours.

Older children appear to be less well protected than their younger counterparts. Though a high proportion of older children were reported as using the same restraint for every trip, this
was typically an adult seat belt. While booster seat use appeared common among the 5 and 6 year olds it apparently falls off sharply by the 7th year, which is consistent with studies from other states (see also Charlton, et al. 2006). Ideally children should continue to use boosters until they reach a height of at least 1.45m tall (American Academy of Pediatrics 2008), which corresponds to at least the 9th year or older for most children (Centres for Disease Control 2000).

In contrast to the younger children who were using more than one type of restraint, older children using a variety of restraints tended to use more age-appropriate restraints such as boosters as the alternative at least some of the time.

Ever having travelled in the front seat was also much more common amongst the 5-9 year olds than the younger children. This is probably related to the types of restraints most commonly used in the two age groups. Top tethered restraints (rear facing infant restraints and forward facing child restraints) must be used with an anchor bolt and these are typically located in the rear of vehicles.

Our data suggests that parents of children aged from 5 to under 7 years will be the most affected by the new legislation as they will be required to continue using booster seats with their children for another 12-24 months. For those parents who currently use a booster seat with their 6-7 year old children at least sometimes, this will probably not represent a difficulty, and we might expect that those parents will simply become more consistent in their use. However, parents who currently abandon boosters in favour of adult belts when the child is aged 5 years or younger may present more of a challenge both in terms of convincing parents of the need to continue to use a child specific restraint and in securing child cooperation. This may be particularly the case if the child has already started using a belt before the legislation is enacted (as was the case for around one third of the 5 and 6 year olds in this sample). It is this group of parents that interventions will need to target. Public education campaigns or more targeted education approaches may be the most effective method of intervention to do this. Such approaches or the use of education in combination with incentives/supply of booster seats have been shown to be effective in encouraging
greater use of booster seats in age appropriate children in the USA (see Ehiri et al. 2006; Ehiri, King et al. 2006 for systematic reviews of intervention studies). There is also evidence in Australia that knowledge about the appropriate transition thresholds for the use of boosters (Charlton, et al. 2006) influences their appropriate use.

The new legislation does not address the protection of children in the ‘gap’ between when the requirement for the child to use a booster ceases (effectively age 7) and when the adult belt is likely to actually fit the child (closer to age 9 or 10 years). In our sample, over 80% of children 7-9 years old were ‘always’ using seat belts suggesting that the majority of parents do not persist with boosters beyond the child’s 7th birthday. While there are booster convertible seats beginning to appear on the market to suit taller, heavier children, these are currently not common (and are expensive) and it is doubtful that parents of children aged 7-9 years will be familiar with them. Moreover, given that the new legislation specifies restraint type only for children up to 7 years old, the safety message indirectly conveyed to parents is that adult belts offer optimal protection for children once they turn 7 years old.

Similarly, the legislation requires rear seating only for children aged under 7 years. Analyses of crash statistics have shown that rear seat passengers have a reduced risk of death and injury when compared to front seat passengers (Braver, Whitfield and Ferguson 1998; Durban, et al. 2005; Lennon, et al. 2008; Starnes 2005) and most road authorities have previously recommended rear seating for children aged under 12 years. Although almost all the children in this study were reported as usually travelling in the rear seat, almost half of the 5-7 year olds had reportedly ever travelled in the front seat. Observational and survey data from other Queensland studies (Lennon 2005, 2008) suggest that the levels of usual front seating reported in our study may be an underestimate as parents of primary-school aged children may be more likely to allow children to occupy front seats on short trips, such as the trip to school, placing them at greater risk on a regular basis. Moreover, this behaviour suggests that parents are less aware of the crash risk for short trips. Effecting change in risk perception could be much more challenging than encouraging a longer duration for booster seat use, though it might be expected to move these perceptions towards the desired direction.
In addition to raising the age at which rear seating for children is required, better protection of children (particularly those in the booster-to-belt gap) could be offered by improved vehicle standards. Currently the vehicle testing requirements for front seat restraints are more rigorous than that for rear seats. Over recent years this has resulted in improvements such as the introduction of belt height adjustment, pretensioners and load limiters to front seat restraints but not to rear ones. The benefits to children (and other rear seat passengers) could be improved by requiring the same standards of testing for rear restraints as for front seat restraints. Modifying the standards of testing required would allow these improvements to be extended to rear seat passengers and might be one way of addressing the restraint-size gap referred to earlier as adjustable belts are more likely to fit a near-adult-sized child.

This study used self-reports obtained by telephone interview. A limitation of self-reported data is that parent responses may suffer from social desirability bias, and thus our results may provide a more optimistic view of restraint practices than is actually the case. In addition, though restraints were described in some detail to parents, it is also possible that some parents may have misidentified the type of restraint reported. As the study did not have other methods of verifying the accuracy of parents identification (such as pictures) this represents another potential limitation.

Though random digit dialling is useful in reducing bias in the selection of telephone numbers, households without a land-based telephone line (estimated at under 10% of Australian households) obviously could not be included in our study, which may limit the generalisability of the findings.

In conclusion, the pre-legislation practices reported here suggest that compliance with the new legislation would require change in the restrain status of about 20% of children in Queensland. However, the widespread use of adult seat belts by children aged 7-9 or 10 years who are likely still too small for optimal fit needs to be addressed in future legislation. Additional advances may involve changes to the Australian Standards for child restraints and to vehicle standards testing as well as attention to better informing and educating parents.

References


**Author biographies**

Alexia Lennon is a behavioural researcher and lecturer in road safety at the Centre for Accident Research and Road Safety, Queensland (CARRS-Q), which is part of the QUT Institute of Health and Biomedical Innovation. She joined CARRS-Q after having completed her doctorate with The University of Queensland in 2003. Her research interests include high...
risk road user behaviours (speeding and aggressive driving) as well as child injury prevention, particularly improving child passenger safety.

Kirsteen Titchener joined CARRS-Q as a postdoctoral researcher in 2007. She received her PhD from the University of Plymouth in the UK and holds a Bachelor of Science degree with first class honours in psychology. Kirsteen focuses her research on better understanding public perceptions of risk for risky health and driving behaviours. Her areas of research include injury prevention, affective and cognitive attitudes about risk, influences on risky choice, statistical analysis techniques and the internal representation of sounds.

Narelle Haworth is Professor in Injury Prevention and Rehabilitation at the Centre for Accident Research and Road Safety-Queensland (CARRS-Q), which is part of the QUT Institute of Health and Biomedical Innovation. She has led research projects in almost all areas of road safety, including studies of driver impairment, restraint use, road user behaviour in developing countries, improvement of data collection methodologies, driver and rider training and licensing, and heavy vehicle and motorcycle safety. She has contributed to the development of road safety policies in several States of Australia.

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**Table 1: Characteristics of parent sample (for parents with at least 1 child aged 0-9 years)**

<table>
<thead>
<tr>
<th>Location</th>
<th>n</th>
<th>% of parent sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan</td>
<td>93</td>
<td>46</td>
</tr>
<tr>
<td>Regional</td>
<td>87</td>
<td>43</td>
</tr>
<tr>
<td>Remote</td>
<td>21</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>% of parent sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fathers</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>
### Number of children aged under 18 years in family (living with responding parent)

<table>
<thead>
<tr>
<th>Number of children</th>
<th>n</th>
<th>% of parent sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 child</td>
<td>73</td>
<td>36.3</td>
</tr>
<tr>
<td>2 children</td>
<td>76</td>
<td>37.8</td>
</tr>
<tr>
<td>3 children</td>
<td>43</td>
<td>21.4</td>
</tr>
<tr>
<td>4 children or more</td>
<td>9</td>
<td>4.5</td>
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### Age of parent

<table>
<thead>
<tr>
<th>Age of parent</th>
<th>% of parent sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25 years</td>
<td>20.9</td>
</tr>
<tr>
<td>26-35 years</td>
<td>36.3</td>
</tr>
<tr>
<td>36-45 years</td>
<td>36.8</td>
</tr>
<tr>
<td>46-55 years</td>
<td>4.5</td>
</tr>
<tr>
<td>56-60 years</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Household income

<table>
<thead>
<tr>
<th>Household income</th>
<th>% of current parent sample</th>
<th>% of Queensland population²</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $35,000pa</td>
<td>14.9</td>
<td>Under $33,748</td>
</tr>
<tr>
<td>$35,000-$65,000</td>
<td>25.4</td>
<td>$33,400-$62,348</td>
</tr>
<tr>
<td>$65,000-$90,000</td>
<td>14.9</td>
<td>$62,400-$88,348</td>
</tr>
<tr>
<td>$90,000-$120,000</td>
<td>18.9</td>
<td>$88,400 or more</td>
</tr>
<tr>
<td>&gt; $120,000</td>
<td>17.9</td>
<td></td>
</tr>
<tr>
<td>Income not stated</td>
<td>8</td>
<td>Income not stated</td>
</tr>
</tbody>
</table>

### Highest level of parent’s Education

<table>
<thead>
<tr>
<th>Highest level of parent’s Education</th>
<th>% of current parent sample</th>
<th>Approx % of Queensland population³</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school or lower</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>Technical/trades/certificate</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>University degree or higher</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

²Income figures are for couple families with children based on Australian Census 2006;
³Education figures are from Australian Census 2006 for persons aged 20-54 years.
Table 2: Questions and response options for restraint type and seating position for children aged 0-9 years

Question 1 stem: In your opinion, on a scale of ‘frequently’, ‘sometimes’ or ‘never’, how often does [insert child’s name] currently use each of the following types of restraint either in the family car or another vehicle? (For interviewer: if parent responds “always” prompt with “is that for every trip in every vehicle?” Only record as “always” if answer is ‘yes’ to prompt)

An infant restraint that faces BACKWARDS and is attached to the vehicle using an adult belt system and a top tether and has an inbuilt harness. (For interviewer: Includes a “baby capsule”, and convertible seats in rear-facing mode. Key characteristic is that child faces the BACK of the car).

A child restraint that faces FORWARDS and is attached to the vehicle using the belt system and a TOP TETHER and has an in built harness. (For interviewer: Includes convertible seats in forward facing mode. Key characteristics are that it has internal 6 point harness (child does not use seat belt), and is attached to the car with tether).

A booster seat (For interviewer: does not have an internal harness or top tether).
  Does this booster have a high back? Yes, no
  What kind of belt does your child use with the booster? Lap only, lap/sash, harness

A harness either in the family car or another vehicle? (Interviewer: these are bought separately and attached to the car with an anchor bolt)

An adult belt

How often is [insert child’s name] currently unrestrained either in the family car or another vehicle?

Question 2: In the family car, where would [insert child’s name] most often sit? Front seat, rear seat next to a window, centre rear, other (specify)

Does [insert child’s name] ever sit in the FRONT passenger position in the family car or in any other car? Yes, no, not sure/don’t know
<table>
<thead>
<tr>
<th>Child age</th>
<th>Age-appropriate restraint(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 6 months</td>
<td>Rear facing infant restraint with top tether, 6 point internal harness</td>
</tr>
<tr>
<td>6 months - 4 years</td>
<td>Rear-facing infant restraint with top tether, 6 point internal harness Forward facing child restraint with top tether, 6 point internal harness</td>
</tr>
<tr>
<td>4 – 7 years</td>
<td>Forward facing child restraint with top tether, 6 point internal harness Booster seat with lap-sash (adult) seat belt or child 4 point harness Child 4 point harness (worn with adult lap belt)</td>
</tr>
<tr>
<td>7 years or over</td>
<td>Booster seat with lap-sash adult seat belt or child 4 point harness Child 4 point harness (worn with adult lap belt) Adult seat belt</td>
</tr>
</tbody>
</table>
Table 4: Proportions of children aged 0-9 reported as ‘always’ or ‘frequently’ restrained in the same type of restraint (restraint type by year of age). Shaded area represents inappropriate restraint for age in current sample.

<table>
<thead>
<tr>
<th>Child age in years</th>
<th>&lt;.5</th>
<th>.6-&lt;1</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rearfacing</td>
<td>7(78)</td>
<td>5(56)</td>
<td>4(13)</td>
<td>6(17)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Forward facing</td>
<td>1(11)</td>
<td>4(44)</td>
<td>25(84)</td>
<td>28(78)</td>
<td>19(64)</td>
<td>18(64)</td>
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<td></td>
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<tr>
<td>Harness alone</td>
<td>1(3)</td>
<td>1(4)</td>
<td>1(7)</td>
<td>1(5)</td>
<td>2(11)</td>
<td>2(7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booster</td>
<td>1(3)</td>
<td>2(5)</td>
<td>10(33)</td>
<td>9(32)</td>
<td>9(60)</td>
<td>16(62)</td>
<td>3(14)</td>
<td>1(6)</td>
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<tr>
<td>Adult seat belt</td>
<td>1(11)</td>
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<tr>
<td>belt alone</td>
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<td></td>
<td></td>
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<td>5(33)</td>
<td>10(38)</td>
<td>17(81)</td>
<td>15(83)</td>
<td>25(93)</td>
</tr>
<tr>
<td>No restraint</td>
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</tr>
<tr>
<td>Totals</td>
<td>9(100)</td>
<td>9(100)</td>
<td>30(100)</td>
<td>36(100)</td>
<td>30(100)</td>
<td>28(100)</td>
<td>15(100)</td>
<td>26(100)</td>
<td>21(100)</td>
<td>18(100)</td>
<td>27(100)</td>
</tr>
</tbody>
</table>