

**A multifaceted program to increase the appropriate use and decrease the misuse of child restraints.**

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## Abstract

While the safety benefits of child restraints are well documented, the correct use of appropriate restraints is low in children aged 3-5 years. A systematic review has shown that interventions targeting either families or service providers using education, distribution, enforcement and/or incentives are promising. However, robust, prospective studies are needed to determine the effectiveness of such interventions. We developed the *Buckle-Up Safely* program and evaluated this in a cluster randomized controlled trial involving 27 early childhood services in low socio-economic areas of West and South West Sydney in 2010. After randomisation, a total of 830 families with children attending 13 preschools and long day care centres received the program. The *Buckle-Up Safely* program is a multifaceted education based program targeting educators, children, families and management. The program built on existing services and included: a workshop and follow on programming support for educators developed and conducted by the *Kids and Traffic* team; policy support for services to further develop their safe arrival and departure and excursion policies; family information sessions; distribution to families of a *Buckle-Up Safely* bag containing a DVD with key restraint messages and access to various translated information sheets; free restraint checks at local fitting stations and access to subsidised restraints. A total of 12 staff workshops and 16 family sessions were conducted; 164 subsidised restraints were sold; 204 restraint checks completed and over 800 bags distributed to families. This paper describes the *Buckle-Up Safely* program in detail and addresses the program's uptake and acceptability.

## Key words

Safe road users, education, program evaluation

## Introduction

The safety benefits and injury prevention associated with the correct use of appropriate child restraints for age and size have been well documented. Furthermore, suboptimal restraint use has been reported for 82% of children presenting to hospital following a motor vehicle accident and with **all** children suffering a serious injury who presented to Westmead Children's Hospital, New South Wales from 2002 to 2005.<sup>1</sup>

In New South Wales alone from 2005 to 2009 (inclusive), 27 children aged 0 to 4 years died as passengers in motor vehicle crashes and 1050 were injured.<sup>2</sup> Both inappropriate restraint for age and incorrect use of restraint are widespread. Recent observation studies conducted in New South Wales<sup>3</sup> and South Australia<sup>4</sup> found that 28% to 51% of children aged 0 to 12 years travelling in cars were in an inappropriate restraint for age. In the population referenced study of children in New South Wales 51% were incorrectly restrained and 38% were incorrectly restrained in a serious manner.<sup>3</sup>

Amendments to the Road Rules were adopted in NSW in 2010 that more closely reflected best practice guidelines for travelling with children in cars. The introduction

of legislation has been shown to increase restraint use elsewhere.<sup>5</sup> While the enforcement of the laws without a supplementary educational component was not significantly associated with increased restraint use, supplementary restraint loan schemes and promotion/education have been shown to contribute to additional gains.<sup>6,7</sup>

Programs shown to have promise in increasing the use of appropriate restraints include multifaceted programs incorporating the education, particularly hands-on education, of parents<sup>8</sup> and children and the offer of an incentive to parents (such as free or subsidised restraints).<sup>7</sup> In discussion of implications for practice in the 2009 Cochrane review of interventions designed to increase use of child restraints, the authors cited a need for community based interventions that are replicable and could be sustained under normal field conditions.<sup>7</sup>

Previous research has shown that appropriate restraint use increases with families being educated about the appropriate restraint for age;<sup>9</sup> this effect is even more pronounced when the education is coupled with hands-on education<sup>8</sup> or having had the restraint previously checked by a restraint fitter.<sup>10</sup>

Therefore we sought to develop a program with two aims to increase the protection of child passengers:

- Increase the appropriate use of child restraints for age
- Decrease the misuse of restraints.

This paper describes the *Buckle-Up Safely* program in detail. The study protocol has been published elsewhere.<sup>11</sup> In brief, the *Buckle-Up Safely Study* is a multifaceted cluster randomized controlled trial aimed at increasing appropriate use of restraints for age and decreasing misuse of restraints amongst children aged 3 to 5 years attending 27 early childhood services (preschools and long day care centres) in West and South West Sydney, New South Wales. As this was a controlled trial, half the services received the program while the remainder did not. The program was implemented in 13 early childhood services during the 2010 calendar year.

### **Consultation with families**

Consultation with families and carers of preschool aged children in preparation for this study in 2009 explored their barriers for appropriate restraint use and their preferred sources for information. Their responses supported findings from previous research<sup>12, 13</sup> and highlighted key knowledge deficits and concerns over the logistics involved in transporting multiple children in different cars. The knowledge deficits centred on the appropriate time to progress a child from a forward facing restraint to a booster seat and from a booster seat to an adult seatbelt, the law for travelling with children in cars, and the merits or not of using accessory harnesses with a booster seat. Most parents identified other parents or family as their key sources of information followed by information from NSW Roads and Traffic Authority (RTA) and from their preschool. The lessons learnt from the qualitative research, specifically the gaps in knowledge and that the early childhood educators and the RTA were trusted

sources of information for families and carers when seeking information about child restraints informed the development of the content of the *Buckle-Up Safely* program.

Similarly focus groups conducted in the United States reported the greatest barrier to appropriate restraint use was a lack of knowledge. This lack of knowledge included being unaware of the potential injury associated with inappropriate restraint use, the appropriate restraint for age and the safety advantage booster seats provided over seatbelts alone.<sup>14</sup>

### ***Buckle-Up Safely* program**

The *Buckle-Up Safely* program builds on and brings together existing services and resources in a cohesive approach to ensure consistency of message and potential for sustainability. Table 1 highlights the four core components of the *Buckle-Up Safely* program.

**Table 1 *Buckle-Up Safely* program components.**

<b>Educational support</b>	<ul style="list-style-type: none"> <li>• <i>Kids and Traffic</i> delivered the “Out and About: safe journeys with Kids In Cars” (OAKIC) workshop.</li> <li>• Resources provided to support learning experiences (Table 2).</li> <li>• Ongoing programming support: services were provided with ongoing information for use in newsletters.</li> <li>• Personalised resources such as posters.</li> </ul>
<b>Early childhood service policy development and support</b>	<ul style="list-style-type: none"> <li>• <i>Kids and Traffic</i> offered services ongoing support to update their travel related policies including Safe Arrivals and Departures policies.</li> </ul>
<b>Family information session</b>	<ul style="list-style-type: none"> <li>• Delivered by service director and <i>Kids and Traffic</i> consultant.</li> <li>• DVD screened.</li> <li>• Hands-on demonstration.</li> <li>• <i>Buckle-Up Safely</i> bag given to all families.</li> <li>• Bag included print information, a DVD and voucher for free restraint checks by a certified restraint fitter.</li> </ul>
<b>Restraint distribution and fitting scheme</b>	<ul style="list-style-type: none"> <li>• Limited number of subsidized restraints made available to families (\$50 cost).</li> <li>• Restraints distributed at authorized restraint fitter.</li> <li>• Fitters conducted free restraint checks.</li> </ul>

Several resources were developed and existing RTA brochures were included to ensure consistency of messages across all levels of the program implementation

(Table 2). All resources reflected current best practice principles and the new restraint legislation introduced into NSW in 2010.

**Table 2 Resources utilized in the *Buckle-Up Safely* program.**

<b>Service specific resources support</b>	<ul style="list-style-type: none"> <li>• OAKIC workshop</li> <li>• Suggestions for road safety learning experiences for children and materials to use in the classroom programming activities</li> <li>• Pamphlets and posters (translated into Arabic, Tamil, Hindi, Mandarin, Turkish and Vietnamese)</li> </ul>
<b>Family or carer specific resources</b>	<ul style="list-style-type: none"> <li>• <i>Buckle-Up Safely</i> DVD</li> <li>• RTA brochures (new restraint laws postcard, Child Restraint Evaluation Program (CREP) which provides child restraint safety ratings, Choose Right Buckle Right brochure)</li> <li>• A sheet of frequently asked questions</li> <li>• Voucher for free restraint checks by a certified restraint fitter.</li> </ul>
<b>Restraint checks</b>	<ul style="list-style-type: none"> <li>• <i>Buckle-Up Safely</i> child restraints reference manual, developed by Neuroscience Research Australia.</li> </ul>

**Out and About: Safe Journeys with Kids in Cars (OAKIC) education program and policy support**

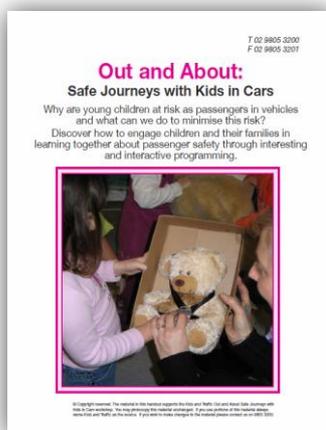
*Kids and Traffic*, the NSW Early Childhood Road Safety Education Program, Macquarie University, is funded by the RTA’s Centre for Road Safety. The *Kids and Traffic* team have delivered professional development workshops for educators at children’s services, information sessions for families and offered support in the planning and implementation of road safety education in children’s services for approximately twenty years. They are well known within the early childhood sector and have more than 3200 services registered with their program. In close consultation with experts in restraint research, *Kids and Traffic* developed an enhanced OAKIC program (Figure 1) to be delivered as a professional development workshop focusing on programming approaches and ideas for learning experiences associated with the correct use of appropriate restraints. Early childhood educators were then encouraged and supported to implement the program and adapt it to suit the service’s approach to educational programming (Figure 2). In line with best practice models in early childhood education and injury prevention, services were offered ongoing support to integrate road safety within their programs throughout the period of the study and beyond.

At least one early childhood educator from each service attended an OAKIC workshop, with 12 workshops being conducted during the study period. All educators present at the workshops were encouraged to share the workshop content with absent educators. Services were also given posters to display that supported the key

messages of the program and used diagrams and photographs to illustrate messages rather than high text content. These posters were translated into six other languages (Figure 3) as determined by service enrolment and each service was encouraged to display the posters to reflect the needs of families attending the service.

Included in the program was the offer of support to service directors to incorporate the correct use of appropriate restraints for a child's age into their 'safe arrival and departure', 'excursion' and 'safe travel with children' policies. Early childhood educators were also given clear, concise information about appropriate restraint use for age and were encouraged to include the information in their newsletters and ongoing communication with families.

**Figure 1 OAKIC Workshop**



**Figure 2 Children using one of the *Buckle-Up Safely* learning experiences.**



## Family information sessions

Each service hosted at least one family information session, some offered two sessions; in total 16 family information sessions were conducted across the 13 services.

A script appropriate for adult education was developed and pilot tested to ensure consistency of messages across the services. All sessions were led by the same *Kids and Traffic* consultant in collaboration with the service director. A DVD, developed specifically for the program, was played at the beginning of each session. The DVD explained the rationale behind the 2010 restraint legislation and recommended best practice. From there the discussion moved to an explanation of the law and addressed key questions that had arisen from the focus groups: being able to identify a good fit of the child with the restraint; knowing when to progress from one restraint to another; addressing the points to consider when using an accessory harness with booster seats and knowing when a child can legally sit in the front seat of a car. The family session was designed to present a clear message about choosing a restraint based on age and the importance of using the seat

correctly. Responses to frequently answered questions were scripted and clear responses provided as required.

A hands-on explanation of key safety features of a forward facing restraint and a booster seat then proceeded and families were encouraged to ask questions.

During the family session participants were informed of the limited offer of subsidised restraints (at a cost of \$50) to parents of children attending the service. The appropriate restraint for their child was discussed with each parent. As not all families attended the information sessions a *Buckle-Up Safely* bag was distributed to all families whose children attended the service. More than 800 bags were distributed.

**Figure 3 Translated versions of the *Buckle-Up Safely* posters**



### Subsidised restraints and restraint checks

Families at each service were offered a choice of three restraints for purchase at a subsidised cost. The restraints on offer were a convertible forward facing restraint/booster seat and two booster seats. All restraints rated highly in the Child Restraint Evaluation Program (CREP) (run by a consortium of government agencies and motorist organisations). A limited number of restraints were made available to the services and distributed through local fitting stations. Throughout the program 164 restraints were sold to families, averaging 13 restraints per service and this was extended on request to up to 20 seats at one service. In addition to this offer all families received a voucher for a free restraint check at a local participating restraint fitter. In total, 204 restraints were checked off-site, including the subsidised restraints. This voucher system was funded by the RTA. In NSW a statewide restraint fitting station network exists and is coordinated by the RTA. Prior to the rollout of the program, local restraint fitters were invited to an information session where the key elements of the *Buckle-Up Safely* program were described. All restraint fitters received an updated restraint reference manual. The restraint reference manual provided all restraint fitters with current best practice advice about correct use of appropriate restraints: how to install the restraints correctly and how to check that the

child is correctly secured in the restraint. It helped ensure all families participating in the *Buckle-Up Safely* program received consistent advice.

## Discussion

The *Buckle-Up Safely* program took elements of existing services and resources and then built on those resources and integrated the components to create a comprehensive multifaceted education based program targeting correct use of appropriate restraints. Table 3 illustrates how those existing services and resources have been enhanced and supplemented to create the *Buckle-Up Safely* program.

**Table 3 Enhancement of existing services formed the bases for Buckle-Up Safely program delivery.**

<b>Existing resources</b>	<b>Enhanced program</b>
<b>Kids and Traffic Program</b>	<ul style="list-style-type: none"> <li>• Updated program focusing on restraint use including additional ideas for resources and learning experiences for children.</li> <li>• Presented family information sessions.</li> <li>• Ongoing programming and policy support.</li> </ul>
<b>RTA printed material</b>  As created by the RTA highlighting the new 2010 restraint legislation, including translated versions as available	<ul style="list-style-type: none"> <li>• Supplementary print material in A4 and poster size translated into 6 languages (Figure 3).</li> </ul>
<b>Child Restraint Evaluation Program (CREP)</b>	<ul style="list-style-type: none"> <li>• Brochure from the 2010 program supplied to all families.</li> </ul>
<b>Restraint fitters</b>  <ul style="list-style-type: none"> <li>• original restraint manual</li> <li>• network of restraint fitting stations</li> </ul>	<ul style="list-style-type: none"> <li>• Restraint reference manual updated by study investigators and distributed to restraint fitters.</li> <li>• Voucher system funded by the RTA and given to all families.</li> <li>• Subsidised seats distributed through local fitting stations.</li> </ul>
<b>Early childhood services</b>  <ul style="list-style-type: none"> <li>• Commitment to educational programming.</li> <li>• Adherence to accreditation principles.</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented learning experiences adapted from the OAKIC workshop.</li> <li>• Combined literacy and numeracy content into road safety programming</li> <li>• Family sessions hosted on site.</li> <li>• Managed the subsidised restraint program.</li> </ul>

Multifaceted community based injury prevention programs are most likely to be effective when they are designed to be moulded to suit the needs of the reference community;<sup>15, 16</sup> are part of a long-term strategy; have effective focused leadership; and involve multi-agency collaboration.<sup>16</sup> Previous research suggests that programs specifically targeting restraint use are most likely to be effective when they combine

education with incentives<sup>7</sup> and offer hands-on education.<sup>8, 17</sup> The *Buckle-Up Safely* program is part of a multi-agency collaboration involving early childhood services and a number of RTA funded programs and resources, offers hands-on education and incentives to families, and can be tailored to suit the information needs of the family and services while keeping core messages consistent.

The relevance of the program to families was heightened in three ways. First, the program was shaped to address the key points of education deficits and areas of confusion reported by parents in our consultation. Second, information presented reflected best practice and the restraint legislation introduced in 2010 in NSW. Third, posters were translated into six different languages to reflect the languages of families attending the services.

To facilitate message uptake it was essential that the form of delivery of the key messages as well as the messenger were credible for the audience. Educators at the services acknowledged the experience *Kids and Traffic* consultants had in working with early childhood services and commented that “*It was a huge benefit to see the resources and see they had used them in other settings – it meant we knew we could do it too!... Phenomenal program – the staff, children and parents were all educated*” The *Kids and Traffic* consultants were seen as appropriate agents to deliver the message, facilitating the uptake and endorsement of the program at each service. The RTA, being a recognized authority on restraint use, and its funded services of authorized restraint fitters also provided a credible source for the families. These elements facilitated the uptake and acceptance of the program and its messages amongst early childhood educators and families.

As the program was based on existing Government funded services, the opportunity for program sustainability is clear. However, one key program aspect least likely to be sustained is that of access to low cost, affordable, good quality child restraints. All other areas of the program have the capacity for ongoing replication across NSW. The relative importance of these components will be considered in a detailed process evaluation and the business case evaluated for wider adoption.

## Conclusion

The *Buckle-Up Safely* program offers a comprehensive, cohesive approach to educating families, children and early childhood educators in the correct use of appropriate restraints. It successfully incorporated and built upon existing services and resources and delivered them to families using a cohesive, structured and consistent approach that supports opportunities for ongoing program delivery. The results of the trial evaluating the effectiveness of the program will be released in 2011.

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