

Evaluation of the Type I Child Car Restraints Fitting Service in WA

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ABSTRACT

Child passenger injury remains a major road safety issue despite advances in biomechanical understanding and child restraint design. In Australia, one intervention with parents to encourage universal and consistent use of the most appropriate restraint as well as draw their attention to critical aspects of installation is the RoadWise Type 1 Child Car Restraints Fitting Service, WA. A mixed methods evaluation of this service was conducted in early 2010. Evaluation results suggest that it has been effective in ensuring good quality training of child restraint fitters. In addition, stakeholder and user satisfaction with the Service is high, with participants agreeing that the Service is valuable to the community, and fitters regarding the training course, materials and post-training support as effective. However, a continuing issue for interventions of this type is whether the parents who need them perceive this need. Evidence from the evaluation suggests that only about 25% of parents who could benefit from the Service actually use it. This may be partly due to parental perceptions that such services are not necessary or relevant to them, or to overconfidence about the ease of installing restraints correctly. Thus there is scope for improving awareness of the Service amongst groups most likely to benefit from it (e.g. new parents) and for alerting parents to the importance of correct installation and getting their self-installed restraints checked. Efforts to inform and influence parents should begin when their children are very young, preferably at or prior to birth and/or before the parent installs the first restraint.

Keywords: child passengers; child restraints; restraint installation; evaluation; parental attitudes

Acknowledgements: this research was funded by the Office of Road Safety, WA.

Introduction and background

Child passenger injury remains a major road safety issue despite advances in child restraint design and high levels of use. In Australia there has been a great deal of emphasis on raising parental awareness of the importance of using restraints that are appropriate to the age and/or developmental stage of children, so that children will have optimal levels of protection as passengers. A critical part of the effectiveness of child restraints is ensuring that the restraint is correctly fitted/installed in the vehicle and is the appropriate restraint for the child's size. As part of the WA Road Safety Strategy 2000-2005, the Type 1 Child Car Restraint (CCR) Fitting Service was established to address the issues of incorrect installation and to guide parents in their choices of appropriate restraints. 'Type 1' services refer to those involving fitting/installing or checking CCR and which do not involve modifications to the vehicle (such as fitting anchor bolts). For vehicle modifications, referral to a Type 2 CCR service is usually required. The Type 1 CCR Fitting Service was funded by the Road Safety Council through the Western Australian Local Government Association RoadWise Program in 2005, initially for 3 years. It was intended to improve children's safety by increasing the number of appropriately trained child car restraint fitters, thereby improving the level of correct installation of restraints as well as increase parental awareness and use of restraint fitting services. In 2010, the Office of Road Safety WA called for a process and outcome evaluation of the Service. This paper reports key results from the evaluation.

The importance of using age-appropriate restraints and correct restraint installation

In Australia, use of restraints with children has increased dramatically in the past thirty years with rates reaching a level as high as 99%¹. However, children's safety as passengers can be seriously compromised by using a restraint that is too big for the child. This is referred to as inappropriate use and has been found to be common particularly among children of booster-seat age, that is, ages 4-7 years²⁻⁶. Using a too-big restraint exposes children to two major risks: slipping out of the restraint in a crash (e.g. 'submarining' under the lap portion of a seatbelt); or being injured by the restraint itself as it comes into contact with more vulnerable parts of the child's body as a result of poor fit (e.g. neck injuries from the sash portion of a seatbelt).

Even where children are placed in the right sized restraints for their ages, failure to correctly install restraints can have a dramatic impact on their safety benefits, reducing these to zero in extreme cases¹. A mounting body of Australian and international research has indicated that the high compliance figures cited above could belie installation errors that may affect 60-90% of restraints for young children⁸⁻¹⁰.

In Australia, faults and incorrect fitting or use of restraints have been documented for some time, with earlier studies reporting that 39% to 69% of restraints were fitted or installed incorrectly¹¹⁻¹². More recent work suggests the problem persists. A recent multi-state observational study indicated that the majority of observed restraints (79%) had at least one fitting/use fault¹², with the highest rates of misuse occurring in restraints for infants or toddlers. Similarly, a NSW observational study revealed that restraint misuse was higher for younger than older children¹³. This higher level of errors for rear-facing restraints and forward facing child seats (i.e. those for infants and toddlers) may be partly because these restraints are generally more complicated

to install into a vehicle or to adjust correctly on the child compared to booster seats or adult seat belts^{8,12}.

Fitting faults may also be due to psycho-social causes such as parental attitudes, beliefs or previous experience. For instance, parents may feel a strong need to properly secure their newborn infants, and inform themselves very well about how to do this, but may become more complacent or less diligent as the child ages, particularly if they have never had a crash or experience that might highlight restraint issues (e.g. near miss, sudden stop). Alternatively, parental awareness of their own inexperience or lack of knowledge may lead them to seek assistance with the fitting/installation of the initial restraint (typically an infant capsule, or a convertible rear/forward-facing restraint in rear-facing mode) but not second and subsequent restraints. In addition, parents may overestimate the ease of installing restraints and their own skills in doing so. Indeed there appears to be a widely-held perception among parents and carers that installing restraints is a relatively easy task, and many parents report that they install their children's restraints themselves, even though research demonstrates that most do this incorrectly^{11, 14}. Thus, it is not surprising that in both the past and currently, only a small percentage of parents have been found to seek advice and services from approved restraint fitters or specialists⁸, a finding consistent with contentions that parents are inclined to suffer from optimism bias and be unaware of their own need for assistance in relation to child restraints¹³.

In a recent study evaluating the effectiveness of Restraint Fitting Stations in NSW¹, children of respondents who did not use these stations were almost twice as likely to be incorrectly restrained than children of parents who used Fitting Stations. Moreover, it was found that regardless of whether a Restraint Fitting Station was used, as the length of ownership of the particular restraint increased so did the likelihood of incorrect use, suggesting that relevant knowledge may decay or complacency may increase over time. Based on the findings from these studies, it appears that currently as many as two thirds of Australian children may be being carried in vehicles with their safety seriously compromised due to poor fitting/installation of their designated child restraints.

Research into parental attitudes and knowledge regarding child restraints suggests that there are a number of other factors that may contribute to high rates of installation errors and limited use of restraint fitting services. These include the costs (perceived or real) associated with use of professional restraint fitters, limited knowledge about, or access to, approved fitters, and past 'successful' experiences of installing restraints¹¹⁻¹⁴. It also appears that a lack of understanding about the complexity of correctly installing restraints and the consequences of incorrect installation influences whether or not parents will seek assistance in fitting restraints¹⁵.

The Type 1 CCR Fitting Service in WA (referred to as the Service from this point) is an intervention targeting parents in order to improve children's safety by improving their access to, and use of, qualified restraint fitters. Qualified fitters may be employed by private companies (such as a specialist baby goods retailer) or not-for-profit organisations (such as Kidsafe). Around one third of Service providers charge a fee for installing or checking restraints. Of those who do charge, most (60%) set this fee at between \$20 and \$30. The Service was also intended to raise parental awareness about critical child restraint issues such as correct installation and using

restraints of the appropriate size and type for the child. In addition, the Service was aimed at empowering parents by improving their knowledge and skills in relation to installing restraints themselves. At the end of the planned period of funding of the Service, evaluation of its effectiveness was undertaken. Objectives of the evaluation were to determine how well the Service had been implemented, its effectiveness at ensuring parents had access to trained fitters, identifying strengths and weaknesses of the Service as well as barriers to its provision or use. In addition, the evaluation intended to assess the impact of the Service on the correct installation of child car restraints in WA and whether the Service resulted in improvements in parental behaviour and attitudes. Levels of satisfaction for groups involved or affected by the Service (stakeholders, Service providers, Lead Trainers, fitters, parents) were also sought.

Method

The overall evaluation consisted of six sub-studies using both qualitative and quantitative methods to meet the objectives as stated above. Information from the key groups identified as important to evaluating the implementation and impact of the Service was sought, including organisations and individuals carrying out the Service as well as end-users (fitters trained under the Service and parents). Methods for each study are described separately below.

Descriptive analysis of reporting data. Roadwise maintains a database monitoring activities by participating organisations under the Service. This data includes information on the fitter training courses (number conducted each year; location; number of participants) as well as information about Service provision (e.g. number of fittings/installations/checks conducted, number of trained fitters employed). Descriptive analyses were conducted on this data using standard statistical software.

Key stakeholder consultation (by phone and in-person). Eight key stakeholders, including road safety organisations, training agencies, and child health/safety agencies, responded to semi-structured, open-ended questions about their level of involvement in the Service, their perceptions of its effectiveness and value to parents and the community. Themes from these responses were aggregated and summarised.

Structured interviews with organisational Service providers. Members of the Evaluation Team visited a sample of 30 organisations providing Type 1 CCR fitting/checking. Selection of the sample was stratified to ensure inclusion of each of the different types of organisations involved (e.g. specialist baby product retailers, local governments, not-for-profit organisations, child care centres, health agencies, automotive service providers) as well as covering different geographic locations (metropolitan Perth, Northam, Albany, Broome and Bunbury/Busselton).

Managers and owners of the organisations agreeing to participate were asked to select a staff member who was most knowledgeable about how the fitting service they provided was conducted. This staff member was then interviewed on-site. A structured schedule of questions focussing on the organisation's involvement in the Service (sending staff for training; employing trained fitters, completing and supplying data on fitting/checking activities), their reasons for doing so, and their views on the appropriateness, effectiveness and value of the Service was used. Analysis of the material was largely qualitative, summarising themes arising across the interviews.

Focus group with Lead Trainers. Lead Trainers (those qualified to deliver fitter training under the Service) were invited to attend a focus group held in Perth and facilitated by a member of the Evaluation Team. Of the 8 current Lead Trainers in WA, 6 agreed to participate. The semi-structured focus group schedule was designed to elicit views on the effectiveness of the Service in improving parent knowledge and understanding about CCR, the effectiveness of the training course for fitters, the procedures used by organisations to ensure competency of fitters, the requirements for becoming a Lead Trainer, perceptions of barriers to wider implementation of the Service, and suggestions for improving the sustainability or accessibility of the Service. The facilitator noted each of the themes that developed within the focus group, checking these notes for accuracy with the group members as the session progressed. The result was a list of themes on each focus issue.

On-line survey of fitters. Over the duration of the Service, 508 people completed the Fitter Training Program. Of these, contact details were available for 348. An email invitation to participate in the evaluation and containing the link to the on-line survey was sent to each of these fitters. A total of 61 valid responses were returned.

The survey consisted of 40 items addressing fitters' perceptions of the Service and their experiences in delivering it. In addition to descriptive information (e.g. approximate number of fittings conducted per year), 16 statements asked fitters about their level of agreement that the training they received had equipped them with the information or skills specific to the tasks associated with fitting/installing/checking restraints (e.g. 'locate anchorage points within a vehicle'). Response options were on a 4-point scale ('Strongly agree', 'Agree', 'Disagree', 'Strongly disagree'). In addition, 6 items sought fitters' opinions of the effectiveness of the 6 modules of the training manual in developing their skills and knowledge about use or fitting/installation of CCR (3-point response scale, 'Highly effective', 'Effective', 'Not effective'). Fitters were also asked to identify which (if any) of a set of barriers to the implementation of the Service (e.g. 'Low numbers of parents/guardians accessing the Fitting Service') had affected their organisation. A further eight items asked fitters to indicate which of the available support services they had accessed in relation to their fitting work (e.g. 'Child Restraints Information Line', 'support and advice from CCR Coordinator or RoadWise staff'), and which had been useful to them ('Extremely useful', 'Very useful', 'Somewhat useful', 'Not useful'). Additional items asked fitters to indicate whether they thought the Service had been effective in increasing parent knowledge or skills in relation to correct installation of CCR, and whether community awareness of the need for correct installation had been improved as a result of the Service. Analysis of the survey responses was both quantitative and qualitative.

Surveys of parents. Two parent samples were surveyed.

A sample of parents previously using the Service was sought through the organisations providing the Service. Parents were invited to complete a brief paper-based survey after they had received a restraint fit, installation or check (140 distributed; n = 69 parents returned valid responses). The questions were designed to capture information about parents' use of the Service (types of restraints, age of child, whether sought fitting, installation or checking). Parents were asked to rate the importance to them of 8 potential reasons for using the Service (e.g. 'To be sure that the restraint was fitted correctly'; 'Expecting first child and no previous experience with installing restraints') on a 4-point scale ('Very important', 'Important', 'Somewhat

important', 'Not important'). Parents rated the effectiveness of the Service in raising their awareness or understanding of 5 statements (e.g. 'Knowing what I need to do to comply with the proposed new child restraint laws') and their level of satisfaction with the advice and assistance that they had obtained ('Strongly satisfied', 'Satisfied', 'Dissatisfied' 'Strongly dissatisfied'). In addition, parents were provided with a description of changes proposed to child restraint legislation in WA. These changes (based on national model legislation) will require that children use an age-appropriate dedicated child restraint until children are at least 7 years old and that they sit in the rear seat where this is possible. The date for these changes to come into effect in WA was October 1st, 2010, well after the study was conducted. Parents were asked whether the changes would necessitate them altering how they restrained their children aged under 7 years. Parents were also asked whether the changes would encourage them to use the Service again. Analysis of the responses was both quantitative and qualitative.

Issues of reach, that is, the extent to which all parents likely to benefit from the Service know about, and can access it, were regarded as important within this evaluation. Hence, a separate sample of parents who had never used the Service was sought. This sample (n = 37 of 60 distributed) was recruited via Mothers' groups, child care centres, and snowball sampling of parents living in the same region as the parents who had used the Service and with children in the same age range. Survey questions focussed on parent perceptions about the ease of installing restraints correctly, the types of restraints they had previously used and/or installed themselves, and their reasons for never having used the Service before (e.g. 'Did not know that the Fitting Service existed', 'My child(ren) use seat belts so no need to fit/check'). In addition, parents were provided with the same description of the proposed changes to child restraint legislation in WA and asked whether these changes would mean a change in how they restrained their children aged under 7 years, or whether they would encourage them to use the Service.

Results

Stakeholder satisfaction with the Service appears to be high, with all stakeholders indicating that the Service positively affects community and parent levels of awareness of child car restraint issues. Similarly, those fitters who participated in the organisational interviews expressed satisfaction with the Service and with the fitter training provided.

Overall, 508 fitters from 250 separate organisations were trained under the Service, almost half (48%) from the Perth metropolitan area, with a further 44% trained in the Kimberley and South West regions (combined). Consultations with stakeholders suggested that there were a number of reasons that organisations chose to provide a fitting service, the most important being organisational commitment to community service and meeting key organisational objectives (such as educating parents of 0-4 year olds, ensuring the safety of newborns, offering quality after-sales service to customers). The responses from the interviews of staff at organisations delivering the Service were consistent with this, with all interviewees commenting that the fitting services they provided were a valuable community service. For some, it was regarded as part of core business, while for others, it was outside these bounds but sufficiently important to commit resources to it. Most fitters reported that they only delivered restraint checking due to the time consuming nature of actually fitting restraints. Moreover, the number of fits or checks delivered varied substantially

between organisations, with some reporting as few as 5 fits/checks per week and others as many as 50-75 per week. Parent education was seen as a very important benefit of the Service to the community. However, the staff members interviewed varied in the extent to which they were personally committed to this aspect, with some fitters indicating that they made sure they assisted and coached parents to install or fit the restraint themselves, while some did not perceive this as something they had time for. The majority fell between these extremes, reporting that they ensured that parents were able to place children into the restraint and adjust it appropriately.

Over the 2005 to 2010 period, 22 people completed the Lead Trainers' course, with 12 of these then subsequently delivering a total of 80 fitter training courses across the state. Changes to the checklists for data on fittings/checks, inconsistencies in the organisational reporting of data to RoadWise, and the existence of multiple databases resulted in severe limitations to calculating the total numbers of fits and checks carried out under the Service. A conservative estimate is that 8,635 fits/checks were conducted during 2005-2009, but it should be noted that this may represent only half the actual number due to the absence of data for some organisations and potentially high levels of activity for missing organisations.

Lead Trainer perceptions

All Lead Trainers regarded the Service as both appropriate and effective in improving children's safety and in raising parental/community awareness of child car restraint issues. However, the extent to which parents' knowledge and skills were improved by the Service was seen as dependent on the skill levels of individual fitters and their willingness to show parents/carers how to use restraints.

Lead Trainers also agreed that the fitter training course and support materials were of good quality. However, they also noted that the detail involved in the training was overwhelming for some trainees and that this resulted in some not developing sufficient confidence in carrying out fitting subsequent to training. There were mixed views in relation to the practicum component of the training, with some holding the view that this was adequate while others regarded it as insufficient to prepare trainees for the variety of restraints and vehicle combinations likely to be encountered in the field.

Fitters' experiences and perceptions

Survey responses were received from 61 fitters, most of whom (52, 85%) indicated that they were actively performing fittings/checks in their employment.

The majority of the fitters regarded the training they had received as very effective in imparting skills and knowledge to allow them to carry out each of the fitting tasks detailed in the course materials, with 70-98% endorsing either 'Strongly agree' or 'Agree' to each item. Similarly, the training course modules and the manual were rated effective to highly effective by over 90% of respondents. The highest levels of disagreement appeared to be related to compliance plates (24% endorsed 'Disagree') and cargo barriers (25% endorsed 'Disagree'), suggesting that this aspect of the course may not be sufficiently effective for everyone undertaking it. Alternatively, this may be related to the lack of exposure to these tasks.

Overall, the responses to items about the support services offered to fitters after training suggested that each resource had been accessed by at least half of the respondents and found useful. In particular, the training manual was regarded as very useful (86% rated this as 'somewhat' to 'extremely' useful). Other support rated as useful were: the Website resources (RoadWise) (76% 'somewhat' to 'extremely' useful); support/advice from the CCR Project Officer or RoadWise staff (69% 'somewhat' to 'extremely' useful), and the quality of training of Lead Trainers (69% 'somewhat' to 'extremely' useful).

Analysis of the data on the Service revealed that around 40% of the 508 people trained as fitters do not currently offer fitting services, suggesting that attrition may be high. Comments from fitting staff during the organisational interviews suggested a number of reasons that trainees do not go on to become active fitters or cease fitting soon afterwards. These included reasons such as: some staff did not feel competent enough at the finish of the training to take responsibility for installing restraints; loss of confidence over time due to insufficient practice to maintain skills/confidence; changes in job descriptions/roles; time constraints; and low levels of demand for fittings/checks. Some fitters also offered the view that the opportunities to have hands on practice during their training was limited and had meant they needed to supplement this aspect from other means post-training.

This high level of attrition is of concern and suggests that a key aspect of the training program that should be targeted is the extent to which fitters acquire or maintain experience installing a variety of restraints at an early stage. There were a number of suggestions put forward by fitters and stakeholders in this regard. These included the provision of full day of 'hands-on' restraint installation as part of the training, offering practice-focussed supplementary in-service or refresher training, and the use of video cameras to assist fitters in the field (e.g. using the camera function of mobile phones during installations so that a less experienced fitter could consult with a more experienced trainer/mentor).

Parent perceptions of the Service

Parent users of the Service.

Parents who had used the Service (n = 67) indicated that their experience(s) had been positive, with many having subsequent restraints fitted/checked after the first. More than half (55%) indicated that they had first become aware of the Service through word-of-mouth recommendations, with a further 34% identifying an agency (e.g. child health, Kidsafe, hospital) as their source of information. Parents were asked how important various reasons for using the Service were to them. Responses indicated that the four most important (i.e. rated as either 'Very important' or 'Important') reasons or factors were that parents were expecting a first child and had not had any experience with fitting a restraint (97%), to be sure that the restraint was correctly fitted (100%), to be sure that they had the most appropriate restraint for the child (83%) and to make sure that the restraint complied with the proposed new laws (86%). 'Recommendation from a healthcare professional' was rated as 'Very important' or 'Important' by 68% of parents. Almost three quarters of parents (74%) indicated that difficulties with fitting or installing the restraint had been important in their decision to use a fitter.

Most parents reported that the first restraint they had used was either an infant capsule (42%) or a convertible child restraint (54%). The majority indicated that the

fitter had shown them how to check/install the restraint (98% 'Strongly agree' or 'Agree') and got them to demonstrate that they could perform this task (91% 'Strongly agree' or 'Agree'). Around 42% of parents indicated that they had used the Service for a second/subsequent restraint, the majority of these (60%) being for converting a convertible restraint from rear-facing to forward facing mode. All these parents agreed that the fitting service had been useful, and the majority (92%) indicated that they had been shown how to install/check this second restraint.

Parent non-users of the Service

A total of 35 parents who had never used the Service responded to the non-user version of the survey. Of these, 24 (68%) reported that they were aware that the service existed. However, a large proportion (72%) indicated that they didn't know whether there was a fitting service in their area. As with the parents who had used the Service, most parents reported that the first restraint they had used was either an infant capsule or a convertible restraint (97% of parents). A large proportion reported either installing this restraint themselves (37%) or that their partner had done so (49%). Consistent with this, 80% of parents indicated that they agreed or strongly agreed with the statement 'I had enough skill/knowledge to install this type of restraint myself at the time.' Of these, almost all (93%) also reported that they had not had any difficulty installing the restraint, with only 2 parents reporting that they did have difficulty. Five parents (18%) indicated that they thought they did not have enough knowledge to install the restraint, and of these, 3 also reported experiencing difficulty installing the restraint. The remaining 2 parents indicated that they had not had trouble with the installation. Sixty percent of parents were reporting their experiences with installing a second restraint, and results were similar to those for the first restraint, with 97% reporting these were installed by themselves or their partners and 95% agreeing that they had the requisite skills or knowledge to do so. However, 4 parents (19%) reported that they had experienced difficulty installing the second restraint.

The main reason (48% of responses) these parents have never used the Service was that they or their partners had previously been successful in installing child restraints themselves. All the parents giving this response had previously indicated that they knew the Service existed. Eight (23%) parents indicated that they did not believe that the Fitting Service was necessary, presumably because they had not experienced difficulty installing restraints themselves or because they were confident that they knew all they needed to know about installing restraints (or both). However, lack of awareness of the Service or what it entails appears to be another important barrier, with 28% parents citing this reason for not using the service.

In terms of their awareness of the impending legislative changes, 68% said they knew changes were about to occur. However, 66% of the parents thought the changes would not alter how they restrained their under-7 year olds and 51% did not think the changes would encourage them to use the Service in the future.

Discussion

Overall, the provision of a child restraint fitting service in Western Australia seems to have been a positive and useful activity. Stakeholders, fitters trained under the program, Lead Trainers delivering the training courses and parents using fitting services each agreed that the Service was valuable and effective in providing skills or knowledge about CCR.

As noted above, the high level of attrition of fitters was of concern and suggests that there are shortcomings to the training that require attention. The main aspect of training that participants commented on was that of practical experience in installing a variety of restraints. At the time of the evaluation, it was understood that the Office of Road Safety WA, in consultation with key stakeholders, had developed two education units of competency in restraint installation and advice on correct child restraint use to achieve national accreditation. In addition, the Community Services, Health and Education Training Council, WA, had progressed plans to incorporate the Fitters course into the relevant courses/units in the Vocational Education and Training sector (e.g. TAFE/Registered Training Organisations) and Higher Education sector (Universities) in the metropolitan and regional/remote locations of Western Australia. Thus it is anticipated that future training of fitters will be offered through recognized training organizations and towards an accredited qualification. It is clear from fitters' comments that future training should incorporate a high level of practice, or alternatively, that refresher training that focuses on this aspect should be offered more extensively. While the move to national recognition and a more standardised delivery of training is a positive step in recognizing fitters' skills and professionalizing the types of services that fitters offer, it does not necessarily address the identified shortcoming in practice. It may thus not offer a solution to the attrition.

The results from the surveys of parents using the Service were particularly positive, indicating that parents perceived the provision of CCR fitting/checking as important, useful, and worth paying a fee to obtain. Many had also used the Service more than once, thus adding weight to their statements. While it is an indirect measure, parents' strong endorsement of having been shown how to install or check their restraints and practising this with fitters suggests that the educative component of the Service is usually carried out by fitters. It is difficult to comment on the extent to which this has improved the overall knowledge and skill level in the community as we do not have measures of this. Moreover, the proposal to change the legislation for children's restraint had been announced at the time of the evaluation and may have made some parents, particularly first-time users of the Service, more sensitive to child restraint issues. However, the responses suggest a positive influence on knowledge and skill level from using the Service.

Responses from the parents never having used the Service were consistent with the published literature in this area. A proportion of parents (and it is unclear how large this proportion is in WA) believes that restraints are easy to install, that they know all they need to know about how to do this, and that fitting services are thus unnecessary. However, as noted previously, research in other parts of Australia suggests that around 40% of child restraints are installed incorrectly and a concerning proportion of children travel in restraints that are unsuited to their size. Combined with a lack of awareness of the existence of the Service, this arguably presents a substantial barrier to extending the reach of the Fitting Service. Moreover, almost 60% of this group of parents thought the new legislation would not encourage them to use the Service.

In 2008 there were around 31,000 births in WA¹⁶. If we assume 40% of these were to first-time parents, this suggests that around 12,500 new parents each year could benefit from the Service. However, optimistic interpretation of the data on use of the

Service suggests that only 25% (estimated 3,500) of these parents actually use it. Thus there is wide scope for improving parent awareness of the Service and its benefits among first-time parents.

The high level of incorrect installation indicated from other studies suggests that parents do need guidance both in selecting the most suitable restraint and in installing it correctly. Given the high levels of parents accessing the Service on multiple occasions, and the apparently reinforcing effects of 'successful' installation reported by non-users of the Service, we would suggest that efforts to inform and influence parents should begin when their children are very young, preferably at birth or during the antenatal period, and/or before the parent installs the first restraint. It may be effective to link promotional material or activities with such services as antenatal classes, child health checks/clinics or similar.

There are several important limitations to this evaluation, the two most important of which are highlighted here. First and foremost is that many of the measures of effectiveness used in this evaluation are indirect and rely on self-reported perceptions and opinions rather than objective data. While in the design phase it was noted that the skills and knowledge of both fitters and parents would be more objectively obtained via tests or demonstrations of competence, these methods were not deemed viable in an evaluation of this type, and the Evaluation team believed neither group would find such measures acceptable. As data is not normally collected as a routine part of the Service being evaluated, we were not able to access alternative objective measures. A second limitation is that all the data collected in this evaluation is arguably from sources likely to be positively predisposed to the Service. The methods used in the evaluation attempted to mitigate these two limitations by using multiple methods and obtaining information from all groups affected by the Service. In the interviews and focus groups, participants appeared to be giving their views honestly and openly and a number of suggestions for improvement were made by participants, most of which were incorporated into the final report and the recommendations. The extent to which the methodology has achieved this purpose is left to the reader to judge.

References

- [1] Brown, J., Finch, C. F., Hatfield, J., & Bilston, L. E. (2011). Child restraint fitting stations reduce incorrect restraint use among child occupants. *Accident Analysis and Prevention*, 43 1128-33
- [2] Brown, J. Bilston, L.E., McCaskill, M.E., & Henderson, M. (2005) Identification of injury mechanisms for child occupants aged 2-8 in motor vehicle accidents. *Final project report to MAA NSW, Sydney, Motor Accidents Authority*
- [3] Brown, J., McCaskill, M. E., Henderson, M., et al. (2006). Serious injury is associated with suboptimal restraint use in child motor vehicle occupants. *Journal of Paediatric Child Health*, 42, 345-349.
- [4] Edwards, S A., Anderson, R. W. G., & Hutchinson, T. P. (2006). A survey of drivers' child restraint choice and knowledge in South Australia. *Centre for Automotive Safety Research*.
- [5] Koppel, S., Charlton, J., Fitzharris, M., Congiu, M., & Fildes, B. (2008). Factors associated with the premature graduation of children into seatbelts. *Accident Analysis and Prevention*, 40, 657-666.
- [6] Lennon, A. J. (2005) "Where do children sit in Australian passenger vehicles? Results of an observational study" *In Proceedings 2005 Australasian Road Safety Research Policing and Education Conference*, Wellington: NZMOT and NZ Police.
- [7] Henderson, M. (1993). Children in car crashes: An in-depth study of car crashes in which child occupants were injured. Sydney, *Child Accident Prevention Foundation of Australia*, [5] Decina, L. E., & Knoebel, K. Y. (1997). Child safety seat misuse patterns in four states. *Accident Analysis and Prevention*, 29, 125-132.

- [8] Eby, D. W. & Kostyniuk, L. P. (1999). A statewide analysis of child safety seat use and misuse in Michigan. *Accident Analysis and Prevention*, 31(5), 555-566.
- [9] Wren, J., Simpson, J., Chalmers, D., & Stephenson, S. (2001). Child vehicle restraint use in Dunedin: A pilot study using short interview and inspection method. *Press Release*
- [10] Glanvill, L. (2000). Child restraint issues in Victoria. *Royal Automotive Club of Victoria*, Noble Park, Victoria.
- [11] Paine, M., & Vertsonis, J. (2001). Survey of child restraint use in New South Wales. *Paper presented at the International Technical Conference on the Enhanced Safety of Vehicles*, Amsterdam, The Netherlands, 4-7 June, 2001
- [12] Koppel, S., & Charlton, J. (2009). Child restraint system misuse and/or inappropriate use in Australia. *Traffic Injury Prevention*, 10, 302-307.
- [13] Bilston, L. E., Du, W., & Brown, J. (2011). Factors predicting incorrect use of restraints travelling in cars: A cluster randomised observational study. *Injury Prevention*, 17, 91-96
- [14] RACQ (1999). Child restraint advice and fitting service in Queensland, Brisbane. *Royal Automobile Club of Queensland*.
- [15] Will, K. E., & Geller, E. S. (2004). Increasing the safety of children's vehicle travel: From effective risk communication to behaviour change. *Journal of Safety Research*, 25, 263-274.
- [16] ABS (2010) *National regional profile: Western Australia*. Available at:
<http://www.abs.gov.au/AUSSTATS/abs@nrrp.nsf/Latestproducts/5Population/People12005-2009?opendocument&tabname=Summary&prodno=5&issue=2005-2009>