

Child restraints for children with a disability



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1. Introduction

The aim of this report is to review the child restraint systems for children with a disability that are supplied in Victoria.

The review applies desktop review criteria to assess each child restraint. These criteria provide an interim assessment of two issues: the compatibility of each child restraint to be used in motor vehicles in Australia; and whether the child restraint is likely to meet the intent of the Australian/New Zealand Standard *Child restraint systems for use in motor vehicles* (AS/NZS 1754).

This report does not cover children with a disability who require the use of child restraint accessories or wheelchair devices.

1.1 Victorian Road Safety Road Rules

The Victorian Road Safety Road Rules 2009 (Road Rules 2009), introduced 9 November 2009, exempt people with medical conditions or physical disability from wearing a seatbelt. This exemption includes a child restraint and booster seat.

For the purpose of the Road Rules 2009, the Victorian Government Gazette Notice, 9 November 2009, defines an:

- approved child restraint
- approved booster seat
- approved child safety harness

These definitions only include child restraint systems that comply with AS/NZS 1754. However, there are child restraint systems which do not comply with this standard but are used by children with a disability.

1.2 Australian/New Zealand Standards

Clause 3.12 of AS/NZS 1754:2010 states: "...where child restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard..."

In addition, the Australian/New Zealand Standard *Restraint of children with disabilities in motor vehicles* (AS/NZS 4370:1996) provides procedural standards for the prescriber to use when recommending a suitable child restraint for a child with a disability. AS/NZS 4370:1996 refers back to AS/NZS 1754 for information about actual seat strength testing and other compliance testing.

1.3 Department of Human Services

In Victoria, the Department of Human Services subsidises child restraint systems for children with a disability through the Aids and Equipment Program (A&EP). Parents or carers of children with a disability can also apply to the Vehicle Modification Subsidy Scheme (VMSS), a component of the A&EP, for subsidy to modify the family's primary vehicle, if necessary.

In 2009, questions were raised by VMSS about whether child restraints for children with a disability complied with AS/NZS 1754. The Department of Human Services then sought advice on this issue from VicRoads. Pending this advice, the A&EP subsidy for child restraints for children with a disability was temporarily suspended.

VicRoads agreed to manage this review of child restraint systems for children with a disability.

This report includes:

- a review of child restraint systems available in Victoria for children with a disability
- a summary of the Victorian road rules, Australian Standards, Therapeutic Goods Administration, Australian Design Rules and others
- an analysis of how child restraint systems are prescribed, supplied and fitted in Victoria.

2. Executive summary

In Victoria, children with a disability are usually assessed for their travel needs by an allied health care professional such as an occupational therapist or a physiotherapist.

Each of these is called a prescriber.

The prescriber recommends the most suitable child restraint for the child in accordance with the Australian/New Zealand Standard *Restraint of children with disabilities in motor vehicles* (AS/NZS 4370:1996).

AS/NZS 1754 is a mandatory standard. However, since October 2008, manufacturers of child restraints for children with a disability have been able to comply voluntarily with the following requirements of AS/NZS 1754:

Clause 3.12 states: "where child restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard, see Clause 5.2.2(b) and Clause 6.3(h)."

Clause 5.2.2(b) refers to the test dummy used for dynamic testing and states: "where a child restraint is specified as suitable for children with a specific disability, e.g. hip spica condition, testing shall be performed with the test dummy simulating the form of disability nominated on the child restraint."

Clause 6.3(h) refers to the information to be supplied on the child restraint packaging and states: "if the child restraint is designed for a child with a disability, the occupant's disability and any limitations on the use of the child restraint".

Intent is defined as 'that which is intended: purpose, aim, design'.

In terms of AS/NZS 1754, the scope and objective of restraints for children with a disability, are:

Scope: to specify requirements for restraining devices for child occupants of passenger cars and their derivatives, such devices being intended, when properly selected, correctly installed and correctly adjusted, to reduce the risk of bodily injury in a vehicle impact.

Objective: to provide minimum design, construction and performance requirements for child restraint systems in order to promote the provision of a high level of protection for children travelling in motor vehicles. The child restraint shall retain the child in the restraint, the restraint in the vehicle and minimise the possibility of hazardous impact between the child and the interior of the vehicle.

This review found that in Victoria nine child restraints for children with a disability are available for hire or purchase. Not one of the nine child restraints is certified to AS/NZS 1754, or at least tested to the requirements of Clause 5.2.2(b). The restraints are all supplied from overseas and can all be classified as special purpose child restraints.

It may be possible that some or all of the child restraints identified do not meet the requirements of AS/NZS 1754, especially in relation to intent. To provide an interim measure, for the purposes of this report, each of the

following criteria was applied to the nine child restraints in a desktop review:

- technical data availability, such as testing performance results
- compliance with one or more of the overseas standards for child restraints
- top tether anchorage system or an engineer approved alternative system
- access to the child restraint manual, including guidelines for installation
- access to a local distributor
- child restraint has features to minimise the occupant's motion in the restraint, such as:
 - five or six point harness (as in AS/NZS 1754 Type A, B and D child restraints)
 - side wings or walls to prevent lateral motion of the occupant in a side impact crash
 - sash seatbelt guides – to orient the sash seatbelt over the occupant's chest in a booster seat
 - lap seatbelt guides – to orient the lap seatbelt over the pelvis area of the occupant and to prevent submarining
- child restraint design avoids loading of the occupant's genital area
- child restraint buckle cannot be released by the occupant.

The nine child restraints met these criteria, although there are specific qualifications.

The application of these criteria represents a limited assessment and should be viewed as an interim guide pending further research. The child restraints from overseas need a comparative assessment against AS/NZS 1754 and the overseas standard to which they have been approved to determine their compatibility with the performance requirements of AS/NZS 1754 and for use in motor vehicles in Australia.

AS/NZS 1754 was introduced in 1973 and is widely recognised as the most stringent child restraint standard in the world. It is recognised for its use of the top tether system and is still the only standard requiring side impact testing of child restraints. It is likely some of the child restraints for children with a disability from overseas do not provide adequate side impact protection.

The recommendations made in this report aim to:

- improve awareness and understanding of restraints for children with a disability in Victoria
- strengthen the ability of the prescriber to comply with the requirements of AS/NZS 4370:1996
- help and assist the prescriber to recommend a child restraint for a child with a disability that meets AS/NZS 4370:1996
- improve the supply, fitment and installation of child restraints for children with a disability
- improve the resources and guidance materials for the prescribers, parents, carers, and the community

- provide guidance for future work.

The report makes the following nine recommendations. See section 8 for more information.

Child restraints for children with a disability

1. VicRoads to undertake further research in the next twelve months to assess comprehensively child restraints for children with a disability complying with international standards in comparison to AS/NZS 1754. (See recommendation 8.1.1).
2. That suppliers of child restraints for children with a disability in Victoria conduct an internal review of their arrangements for prescribing, hiring and selling child restraints for children with a disability against the requirements of AS/NZS 4370:1996. (See recommendation 8.1.2).
3. That suppliers request child restraint manufacturers or distributors to provide the following information in English for each child restraint for a child with a disability that is not certified to AS/NZS 1754: (see recommendation 8.1.3)
 - test data
 - standard/regulation compliance certification
 - fitting instructions for the user
 - instructions for the installation in the vehicle
 - labelling on the child restraint
 - instructions for use.

Standards Australia requirements

4. It is recommended that advice be sought from Standards Australia seeking clarification by the appointed committee for AS/NZS 1754 and AS/NZS 4370, about the following items: (see recommendation 8.2.1)
 - requirements for the prescriber

For example, limitations of the prescriber to comply with AS/NZS 4370:1996 due to inadequate information provided with child restraints for children with a disability from overseas; limited ability of the prescriber to seek advice relating to modifying a child restraint, particularly for restraints from overseas
 - requirements for vehicle modifications, including considerations relating to compatibility with motor vehicles in Australia
 - requirements for information to be included with the child restraint from the supplier
 - inclusion of extra padding to be used with the child restraint
 - when modifications to the child restraint require testing and how to decide on the tests to be performed
 - who is required to certify the testing (most likely Crashlab or possibly an equivalent overseas facility)
 - acceptable alternative testing requirements to AS/NZS 1754, if any
 - clarification regarding the definition of intent included in Clause 3.12 of AS/NZS 1754:2010 "...where child

restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard..."

Prescribing, fitment and installation

5. VicRoads to continue supporting the Royal Children's Hospital in providing resource and guidance materials for the prescriber. The resource and guidance material should: (see recommendation 8.3.1)
 - be supplementary to AS/NZS 4370:1996
 - focus on the provision of advice as to how the prescriber can apply AS/NZS 4370:1996
 - include proformas supporting the prescriber to comply with AS/NZS 4370:1996 e.g. letter for parents
 - provide family case studies
 - be supported by training for the prescriber.
6. VicRoads to review its information available for parents, carers and the community regarding child restraints for children with a disability. Information should be: (see recommendation 8.3.2)
 - accessible on the VicRoads website and any related child restraint publications
 - be reviewed on a regular basis be developed in consultation with key stakeholders such as Department of Human Services and the Royal Children's Hospital.
7. VicRoads to promote the inclusion of child restraints for children with a disability in the Child Restraint Evaluation Program. (See recommendation 8.3.3)
8. The RACV include an educational component covering child restraints for children with a disability in their restraint fitters' training course (currently under review). (See recommendation 8.3.4)

Department of Human Services, Aids and Equipment Program (A&EP)

9. Department of Human Services temporarily reinstate the A&EP subsidy for child restraints for the transport of a child with a disability. The prescriber is required to recommend a child restraint in accordance with AS/NZS 4370. Where a child restraint from overseas is recommended it must be one of the child restraints listed in appendix 2 and it must be prescribed in accordance with AS/NZS 4370. (See recommendation 8.4.1)

3. A review of available child restraints for children with a disability

Children with a disability, due to a medical condition or behavioural problem, often require special consideration when being transported in motor vehicles. Children with a permanent disability require long term solutions that need to be reassessed as the child grows, while children with a temporary disability require short term solutions.

This section lists the medical and behavioural conditions and reviews key design elements and modifications of child restraints for children with a disability.

Children with a physical disability

In Australia in 2009, 144,100 children aged 0-14 years were estimated to have a physical or diverse disability¹.

Physical conditions and disorders range from head and trunk control problems (e.g. cerebral palsy, muscular dystrophy), to connective tissue disorders (e.g. spina bifida, osteogenesis imperfecta) and to spinal deformities (e.g. kyphoscoliosis).

Children with these or similar physical conditions often are not able to support their own torso or head in a standard upright seating posture. They may also exhibit abnormal movements or unwanted reflexes which affect their ability to sit and travel in safety and comfort.

Additionally, children with a physical disability often encounter growth, postural and physical development issues which can lead to problems fitting a child into a restraint safely.

These children often require extra support and larger child restraints than those restraints certified to AS/NZS 1754.

Children with a medical condition

Children with burns, orthopaedic conditions, congenital dysplasia of the hip or congenital respiratory diseases, often require short and long term child restraint system options which provide flexibility for:

- seating posture, for example the recline of the restraint may need to be greater than that provided by an AS/NZS 1754 child restraint system
- the size of the child restraint and length of the child restraint harness straps, for example to cater for a child's leg position if they are wearing a plaster cast.

Children with behavioural problems

Over half a million Australians have intellectual disability and a majority (61 per cent) have a severe or profound limitation in core activities required for daily living. People with intellectual disability are a major group of users of disability support services in Australia.

In Australia in 2003, 166,700 children aged 0-14 years were estimated to have an intellectual or learning disability².

On average, there is one child with an autism spectrum disorder for every 160 children aged between six and 12 years. This represents 10,625 children in Australia³.

Children with an intellectual disability, autism and behavioural difficulties often need special considerations for safe travel in a motor vehicle. These behavioural problems can create a dangerous situation for the child and other vehicle occupants if they can release themselves from the restraint.

A recent survey of occupational therapists, by the Murdoch Children's Research Institute, showed that 80 per cent of referrals for a child restraint were for behavioural problems.

3.1 Key design elements and modifications of child restraint systems for children with a disability in Australia and overseas

Child restraints for children with a disability may comply with one or more, or none of the following standards

Australian Standards

1. Australian/New Zealand Standard (AS/NZS) 1754 *Child restraint systems for use in motor vehicles*

Overseas Standards

2. US Federal Motor Vehicle Safety Standard (FMVSS) 213 (08 version)
3. Canada Motor Vehicle Safety Standard 213 *Child restraint systems*
4. Economic Commission for Europe (ECE) Regulation 44

In addition to the above standards, the Australian/New Zealand Standard (AS/NZS) 4370:1996 *Restraint of children with disabilities in motor vehicles* provides procedural guidelines for the prescriber in recommending a child restraint for a child with a disability.

AS/NZS 4370:1996 includes guidelines for the prescriber in recommending a modified child restraint, use modification, or special purpose child restraint for a child.

In the case of a modified child restraint, AS/NZS 4370:1996 notes that child restraint manufacturers will not endorse any modifications which are untested. Due to the small market of child restraint systems in Australia, the cost to the manufacturer of additional testing of modifications is uneconomic. As noted in AS/NZS 4370:1996 "unless there is an identified needs group, such as that for children with lower limb hip spica plasters, there is no marketable quantity of a specific design of child restraint that will sustain the costs of performance testing."

1 The Australian Institute of Health and Welfare (AIHW) Survey report 2009

2 <http://www.aihw.gov.au/publications/index.cfm/title/10582> accessed December 2010

3 <http://autismaus.com.au/uploads/pdfs/PrevalenceReport.pdf> accessed December 2010

However AS/NZS 4370:1996 further notes that it anticipated AS/NZS 4370:1996 would assist in promoting the future availability of fully tested child restraints which better meet the needs of children with a disability. This outcome has not been achieved.

Each standard is explained below, and where applicable includes information about modifications and key design elements, and the child restraints available for sale or hire in Victoria.

3.2 AS/NZS 1754 Child restraint systems for use in motor vehicles

The current version of the standard is AS/NZS 1754:2010 and specifies a range of design and performance specifications for devices to restrain and protect children in motor vehicles in a crash.

AS/NZS 1754 also requires dynamic performance tests to be conducted according to AS/NZS 3629 *Methods of testing child restraints*.

The extent of protection of the child provided by child restraint systems is determined by the following criteria in Clause 3.1:

Extent of protection:

- (a) The child restraint shall be capable of protecting the wearer under the dynamic conditions specified in AS/NZS 3629.1
- (b) The child restraint shall minimise the possibility of hazardous impact with the interior of the vehicle.

Three clauses relating to child restraints for children with a disability are included in AS/NZS 1754:

Clause 3.12 states: "where child restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard (see Clause 5.2.2(b) and Clause 6.3(h))."

Clause 5.2.2(b) refers to the test dummy used for dynamic testing and states: "where a child restraint is specified as suitable for children with a specific disability, e.g. hip spica condition, testing shall be performed with the test dummy simulating the form of disability nominated on the child restraint."

Clause 6.3(h) refers to the information to be supplied on the child restraint packaging and states: "if the child restraint is designed for a child with a disability, the occupant's disability and any limitations on the use of the child restraint".

Clause 3.12

Intent is not clearly defined in AS/NZS 1754, however by definition intent is 'that which is intended: purpose, aim, design'.

In terms of AS/NZS 1754, the scope and objective of restraints for children with a disability are:

Scope: to specify requirements for restraining devices for child occupants of passenger cars and their derivatives, such devices being intended, when properly selected, correctly installed and correctly adjusted, to reduce the risk of bodily injury in a vehicle impact.

Objective: to provide minimum design, construction and performance requirements for child restraint systems in order to promote the provision of a high level of protection for children travelling in motor vehicles. The child restraint shall retain the child in the restraint, the restraint in the vehicle and minimise the possibility of hazardous impact between the child and the interior of the vehicle.

This scope and objective encompass the definition of intent. To achieve the scope and objective AS/NZS 1754:2010 requires dynamic performance tests in frontal, rearwards and side impacts, and for Type A, inverted. In addition AS/NZS 1754 requires specific performance requirements for each type of restraint to essentially measure and assess each restraint in relation to the intent of AS/NZS 1754. For example section 4.3 of this report details the dynamic performance requirements for each type of restraint. For all types the restraint must remain largely intact, there must be no load bearing of the genital region of a child, and the restraint must provide a quick release buckle.

Recent changes to AS/NZS 1754

AS/NZS 1754:2010 introduced significant changes in the specifications of child restraint systems. These include:

- introduction of a new type of restraint for children from 4 years to approximately 10 years of age
- maximum and minimum shoulder strap heights for Types A,B,D (linked to shoulder height markers)
- an approximate age and shoulder height marking to guide selection of restraint size (no longer weight based)
- seatbelt path through restraint to be marked in specified colours depending upon restraint type
- requirement for booster seats to ensure lower leg bend is 45 degrees to prevent slouching and submarining
- lateral support for Type F booster seats
- maximum lateral size profile for Type F, to fit three across rear seat of vehicle, including access to buckle
- booster cushions deleted.

Table 1: Types of child restraints included in AS/NZS 1754:2010

Type	Description
A1	Rearward facing restraint with a harness or other means of retaining the occupant of supine length up to 70 cm, and approximately 6 months of age.
A2	Rearward facing restraint with a harness or other means of retaining the occupant of supine length up to 80 cm, and approximately 12 months of age.
A3	Transversely installed restraint with a harness or other means of retaining the occupant of supine length of up to 70 cm and approximately 6 months of age.
B	Forward facing chair with harness, suitable for children approximately 6 months to 4 years of age.
C	Forward facing harness without chair, to be used in conjunction with a booster seat suitable for children approximately 4 to 7 years of age and without a booster seat approximately from 8 to 10 years of age.
D	Rearward facing chair with harness, suitable for children approximately 6 months to 4 years of age.
E	A booster seat used in conjunction with a Type C child restraint and a seatbelt, or with a lap-sash seatbelt, suitable for children approximately 4 to 8 years of age whose height is less than 128 cm.
F	A restraint consisting of either— (i) a booster seat used in conjunction with a Type C child restraint and a seatbelt, or with a lap-sash seatbelt suitable for children approximately 4 to 10 years of age whose height is less than 138 cm; or (ii) a converter used in conjunction with a seatbelt, suitable for children approximately 8 to 10 years of age.

Key design elements of child restraints included in AS/NZS 1754:2010

- recommended overall weight limit of the child restraint is 9 kg
- top tether strap to provide anchorage to the vehicle when the child restraint weighs more than 2 kg
- adequate dynamic performance measured in terms of loads and responses of a specified anthropomorphic crash test device (crash test dummy) during:
 - a frontal impact (velocity change of 49 km/h, and deceleration 24-34g)
 - side and rear impacts (velocity change 32 km/h and deceleration 14-20g), and
 - an inverted position impact (velocity change 16 km/h and deceleration 8-15g). This is for Type A restraints only.
- adequate adjustments for fitment to every vehicle model and seating position for which it purports to be suitable

- fitment of a quick-release buckle system to allow for timely release of an occupant in an emergency situation
- a single length of webbing shall not constitute the harness assembly, and
- the width or spacing of the path for a child harness shall be such that it does not cause the inside edges of the shoulder straps of a Type C child harness to be spaced more than 100 mm apart.

AS/NZS 1754 child restraints available in Victoria

There is an extensive range of AS/NZS 1754 certified child restraints available in Victoria, see appendix one. Some children with a disability are able to use AS/NZS 1754 certified child restraint systems.

Over the next twelve months a new range of AS/NZS 1754:2010 certified child restraints will become available so the prescriber is likely to have an increased range of child restraints suitable for children with a disability.



Picture: Louise is seated in an AS/NZS 1754 certified child restraint, the Safe-n-Sound Meridian.

Modifications

Some AS/NZS 1754 certified child restraints can be modified to meet the individual needs of children with a disability.

Depending on the type of modification, AS/NZS 4370:1996 classifies modifications as either a 'modified child restraint', or 'use modification', or 'special purpose child restraint'.

Common modifications prescribed for AS/NZS 1754 child restraints include:

- extended crotch strap
- additional padding.

Modifying an AS/NZS 1754 child restraint means the child restraint no longer meets the requirements of AS/NZS 1754.

3.3 AS/NZS 4370 Restraint of children with disabilities in motor vehicles

The current version of the standard is AS/NZS 4370:1996 and provides general guidelines for the prescriber when recommending how a child with a disability (up to 45 kg) should be restrained in a motor vehicle.

Definitions are included in AS/NZS 4370:1996 for a modified child restraint, positioning device, special purpose child restraint, use modification and prescriber.

Modifications covered by AS/NZS 4370:1996

Modifying a child restraint is suggested as being appropriate only when the prescriber has assessed that there is no suitable AS/NZS 1754 child restraint suitable for the child.

A modified child restraint is "a child restraint which originally complied with AS/NZS 1754, but which has been structurally changed to suit a specific need." AS/NZS 4370:1996 further notes that "any modification to the manufacturer's instructions for the restraint or its use constitutes non-compliance with AS/NZS 1754."

An example of a structural change involves modifying the foam or plastic shell of the restraint. To comply with AS/NZS 4370:1996 this modification must be done in accordance with the manufacturer's technical instructions and a child restraint testing authority must also provide advice that it is an acceptable modification.

This report has not identified any examples of the child restraint testing authority providing such advice.

AS/NZS 4370:1996 does not allow any modifications to the child restraint webbing or attachments.

Use modification is "an option for the use of a child restraint, which changes the way that the child restraint is designated to be used in the manufacturer's instructions", e.g. padding. The prescriber is advised not to recommend additional padding unless it is essential for a specific positioning purpose. If padding is recommended, it must comply with the material requirements of AS/NZS 1754.

Examples of use modification recommended by the prescriber include:

- reclining a child restraint further than specified by the manufacturer's instructions
- inserting foam padding to provide additional support for the child
- using an extended crotch strap.

3.4 Overseas standards

FMVSS 213 Child restraint systems

The current version is dated October 2008 and specifies requirements for child restraint systems used in motor vehicles and aircraft. Its purpose is to reduce the number of children killed or injured in motor vehicle crashes and in aircraft.

CMVSS 213 Child restraint systems

213.3 Restraint systems for disabled persons (January 2007)

213.5 Restraint systems for infants with special needs (October 2001)

European ECE Regulation 44

The current version is November 2007 (second revision).

Key design elements of child restraints included in overseas standards

The most significant differences between AS/NZS 1754 and internationally certified child restraint systems include:

- Child restraint system anchorage. In North America new child restraints use the LATCH system, and European restraints utilise the ISOfix system. Neither the LATCH nor ISOfix utilise the three or two point seatbelt to anchor the restraint.
- Tether strap – tether straps are required only for specific seats, e.g. forward facing, or as an alternative to other anti-rotation devices, such as legs. There are differences in the positioning requirements for the tether strap and the strength of its attachment point.
- Child restraint system mass – additional weight of the child restraint (> 9 kg) due to increased size and more complex construction of the child restraint
- Belt cutter – necessity for a belt cutter to be carried in the vehicle as the child restraint is not fitted with a 'quick release' buckle system
- Side impact performance – is mandated only in AS/NZS 1754.

Child restraints from overseas available in Victoria

In Victoria, nine child restraints for children with a disability are available for hire or purchase⁴. The restraints are all supplied to Victoria from overseas and can all be classified as special purpose child restraints. Not one of the nine child restraints is certified to AS/NZS 1754, or at least tested to the requirements of Clause 5.2.2(b) of AS/NZS 1754 (refer to section 3.2). However, all of the child restraints comply with at least one of the overseas child restraint standards.

It is possible that some, or all of the child restraints identified, do not meet the requirements of AS/NZS 1754, especially in relation to intent. To provide an interim measure, for the purposes of this report, the following criteria were applied to each of the nine child restraints in a desktop review:

- easy access to technical data (testing performance results)
- compliance with one or more of the overseas standards for child restraints
- a top tether anchorage system or an engineer approved alternative system
- access to the child restraint manual, including guidelines for installation
- access to a local distributor

⁴ This list may not be comprehensive as there may be other child restraints available in Victoria.

- child restraint has features to minimise the occupant's motion in the restraint, such as:
 - a five or six point harness (as in AS/NZS 1754 Type A, B and D child restraints)
 - side wings or walls to prevent lateral motion of the occupant in a side impact crash
 - sash seatbelt guides – to orient the sash seatbelt over the occupant's chest in a booster seat
 - lap seatbelt guides – to orient the lap seatbelt over the pelvis area of the occupant and to prevent submarining
- child restraint design avoids loading of the occupant's genital area
- child restraint buckle cannot be released by the occupant.

The nine child restraints met these criteria. However there are some qualifications.



Picture: Noah is seated in a Columbia orthopaedic car seat

Qualifications

The application of these criteria represents a limited assessment and should be viewed as an interim guide pending further research. The criteria were applied in a desktop review of child restraint features only as they relate to the intent of AS/NZS 1754. It is necessary that further work is undertaken to assess the performance of each restraint to the overseas standard or standards to which they comply in order to make a comparison with the requirements of AS/NZS 1754. For example, AS/NZS 1754 is the only standard in the world requiring side impact testing of child restraints, therefore it is likely a comparison may highlight concerns relating to side impact protection of some restraints supplied from overseas.

There are some qualifications to these recommendations and it is critical that the appropriate child restraint is prescribed and installed correctly. For example, the Recaro Monza Reha has an ISOfix anchorage system. If the vehicle has an ISOfix system, then this child restraint can be installed correctly. Without an ISOfix system it may not be possible to install and anchor the Recaro Monza Reha safely. Some restraints appear to have a five point harness for the child, however these are intended to position the child and the restraint function is provided by the adult three-point belt. Finally, some restraints meet a relevant overseas standard, but the tether strap is intended to hold the child restraint in place while the child is being seated and may not necessarily function as anticipated in AS/NZS 1754. However, child restraints equivalent to those, may not necessarily require a tether strap in AS/NZS 1754. Therefore, education and awareness around these issues is important.

Modifications

The requirements of AS/NZS 4370:1996 as detailed in section 3.3 apply to modifying a child restraint from overseas.

Table 2: Overseas child restraints for children with a disability available in Victoria

Child restraint	Complies with FMVSS 213	Complies with CMVSS 213	Complies with ECE Regulation 44
Columbia orthopaedic	Yes	Yes	Yes
Hippo spica cast	Yes	No	No
Lars	No	No	Yes
Carrot	No	No	Yes
Timy	No	No	Yes
R82 Panda Evo	No	No	Yes
Recaro monza reha	No	No	Yes
Sonja	No	No	Yes
Snug Seat Traveller plus	Yes	No	No

Refer to appendix two and three for detailed information about each child restraint

4. A summary of the Victorian Road Rules, Standards Australia, Therapeutic Goods Administration, Australian Design Rules and others

The legislative and regulatory requirements for the design, use and fitment of child restraint systems in Victoria are complex and constantly changing.

Substantial changes to the Victorian Road Rules and AS/NZS 1754 have been introduced in the past 18 months and are summarised in this section of the report.

4.1 Road Safety Road Rules 2009 (Victoria)

The Victorian Road Safety Road Rules 2009 (Road Rules 2009), implemented on 9 November 2009, include rules for child restraints in motor vehicles. The Australian Road Rules Regulatory Impact Statement 2007 (RIS 2007), which received public comment on the proposed road rule changes, included a comprehensive review of the changes to the child restraint road rules.

The RIS 2007 estimated that the changes to the child restraint road rules could save 3.4 lives and 151 serious injuries to children each year in Australia.

The Road Rules 2009, *Part 16 – Rules for Persons Travelling in or on Vehicles, rule 266*, requires children under seven years of age to be secured in an approved child restraint or approved booster seat when travelling in a motor vehicle:

- Children under six months of age must be restrained in a rearward facing approved child restraint.
- Children six months to under four years of age must be restrained in a rearward facing or forward facing approved child restraint.
- Children four years to under seven years of age must be restrained in a forward facing approved child restraint or approved booster seat.

In addition:

- If a car has two or more rows of seats, children under four years must not travel in the front seat.
- If all rear seats are being used by children under seven years, children aged four years to under seven years may travel in the front seat, provided they use an approved booster seat.

For the purposes of the Road Rules 2009, the Victorian Government gazette notice, 9 November 2009, defines an approved child restraint, approved booster seat and approved child safety harness as those products that comply "with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version."

The relevant Standard is AS/NZS 1754 *Child restraint systems for use in motor vehicles*, versions 1991 to 2004. The Victorian Government gazette notice will be updated in the near future to include AS/NZS 1754:2010.

Medical condition or physical disability

Road Rule 267 (3A) Road Rules 2009 exempts persons with medical conditions or physical disability from wearing

a seatbelt. This includes an approved child restraint and approved booster seat.

Exemptions from wearing a seatbelt in Rule 267 (3A) are:

- (a) a medical practitioner has issued a certificate stating that, because of medical unfitness or physical disability, it is impractical, undesirable or inexpedient that the person wear a seatbelt; and
- (b) the certificate-
 - (i) is signed by a medical practitioner; and
 - (ii) displays a date of issue and an expiry date that is a date not more than 12 months after the date of issue; and
 - (iii) has not expired; and
- (c) the conditions stated in the certificate (if any) and those imposed under subrule (4) are complied with.

(Subrule 4) A certificate issued under subrule (3) or (3A)

 - (a) is subject to the condition that-
 - (a) if the certificate is carried in the vehicle in which the person to whom it applies is travelling; and
 - (b) the certificate is produced by the person, or the driver of the vehicle, when requested to do so by a police officer or authorised person.

4.2 Standards Australia

Standards Australia is the nation's peak non-government standards organisation. It is charged by the Commonwealth Government to meet Australia's need for contemporary, internationally aligned standards and related services.

Standards are published documents with specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently perform the way they are intended. They establish a common language which defines quality and safety criteria.

Section 3 of this report details information about the two Australian standards relating to child restraints for children with a disability. The standards are AS/NZS 1754 and AS/NZS 4370. Both standards have been approved for review by Standards Australia, with the review expected to be completed within two years.

4.3 Australian Competition and Consumer Commission

The Australian Competition and Consumer Commission (ACCC) has issued a consumer protection notice called Consumer Protection Notice No. 21 of 2011 *Child restraint systems for use in motor vehicles*, see appendix four.

This notice makes it illegal to sell or hire any child restraint that does not comply with the AS/NZS 1754: 2000, 2004, 2010. However, since October 2008 this has not applied to child restraints for children with a disability.

The ACCC in its Regulatory Impact Statement (RIS), *Child*

Restraint Systems for use in Motor Vehicles (March 2007) said that it had received advice recommending removing the following AS/NZS 1754 clauses from the child restraint consumer protection notice:

Clause 3.12 states: "where child restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard, see Clause 5.2.2(b) and Clause 6.3(h)."

Clause 5.2.2(b) refers to the test dummy used for dynamic testing and states: "where a child restraint is specified as suitable for children with a specific disability, e.g. hip spica condition, testing shall be performed with the test dummy simulating the form of disability nominated on the child restraint."

Clause 6.3(h) refers to the information to be supplied on the child restraint packaging and states: "if the child restraint is designed for a child with a disability, the occupant's disability and any limitations on the use of the child restraint" shall be on the packaging.

This recommendation was based on "significant supplier confusion and compliance and enforcement difficulties."

The RIS also noted that the inclusion of clause 3.12 "created a degree of confusion amongst suppliers and a general reluctance to supply restraints for children with disabilities for fear that their product may be interpreted not to comply with the Standard."

Instead suppliers were to be encouraged to meet the voluntary standard AS/NZS 4370:1996. It was suggested that by adopting this approach it would avoid confusion in the market and prevent difficulties in interpreting and assessing compliance with the mandatory standard AS/NZS 1754.

The removal of the clauses from the consumer protection notice since October 2008 allows manufacturers of child restraints for children with a disability to voluntarily meet the requirements of AS/NZS 1754. As this is voluntary, there is no evidence that Australian or overseas manufacturers are following this practice.

There are no special purpose child restraints for children with a disability available in Victoria which have been tested according to the requirements of clause 5.2.2(b).

It could be suggested that removing the clauses from the child restraint consumer protection notice encourages and supports the sale or hire of child restraints for children with a disability in Australia which may not meet acceptable standards of safety.

The RIS included an analysis of the risks of industry self-regulation to control the supply of AS/NZS 1754 certified child restraint systems. However, the outcomes listed below appear to be unacceptable in relation to the supply of AS/NZS 1754 child restraints, but acceptable for child restraints supplied in Australia for children with a disability.

In the absence of a mandatory standard, the possible outcomes are:

- products available on the Australian market which do not meet acceptable standards of safety

- insufficient product safety information on child restraints to facilitate ease and safety of use
- loss of certainty for consumers, manufacturers, distributors and retailers that the child restraints on the market provide a sufficient level of safety
- possible wider product choice for consumers
- possible cheaper restraints on the market
- continued conformance with Australian Standards by some industry members as 'good corporate citizens' and to guard against litigation, but other suppliers sourcing cheaper, non-conforming restraints.

The potential costs to consumers include:

- a loss in certainty that the products on sale provide an adequate level of safety. Note: This would be a considerable cost as, since the original mandatory standard was introduced in 1978, consumers have had that certainty in their purchase decision for over a quarter of a century.
- cheaper, inferior and unsafe child restraints could become available and serve to weaken consumer confidence in the market
- consumers bear the cost of injury/death arising from accidents associated with the use of inferior child restraints.

The Therapeutic Goods Administration (TGA) process in Australia is the only form of assessment of child restraints for children with a disability. This does not in any way ensure compliance with any of the requirements of AS/NZS 1754 or enable the prescriber to comply with the requirements of AS/NZS 4370:1996.

The TGA process is explained in section 4.6 of this report.

4.4 The Victorian Charter of Human Rights and Responsibilities Act 2006

The Victorian Charter of Human Rights and Responsibilities Act 2006 (the Charter) is an agreed set of human rights, freedoms and responsibilities protected by law. Government departments and public bodies must observe these rights when they create laws, set policies and provide services. The focus of the Charter is about getting things right at a planning and policy stage.

Most parts of the Charter came into effect from 1 January 2007, with the public sector required to comply from 1 January 2008. The Charter includes four key principles – freedom, respect, equality and dignity.

Respect includes *Protection of families and children* (section 17): "families are entitled to be protected by society and the State. Public authorities should keep this in mind when carrying out their duties. Children have the right to protection according to their best interests, without discrimination."

The vulnerable status of children is recognised in section 17, which affirms the right of all children to protection that is in their best interests. A child is a person who is under 18 years old.

The Charter provides a useful tool to assess and respond to complex issues. It should be considered in any future

review of legislation and policy impacting on child restraints for children with a disability.

4.5 Australian Design Rules

Australian Design Rules (ADRs) are national vehicle standards which stipulate the minimum performance requirements and design standards for a particular vehicle. All vehicles, whether newly manufactured in Australia or imported as a new or used vehicle must comply with the relevant ADRs as at the year of manufacture, prior to the supply to the Australian market.

There are over seventy ADRs covering a wide variety of safety requirements such as occupant protection, seat and seatbelts, child restraint anchorages, brakes, tyres, lights and a range of other features.

The ADRs are published in a number of volumes known as editions. Currently there are two editions in force:

- The Second Edition covering vehicles manufactured on or after 1 January 1969 to 30 June 1988
- The Third Edition covering vehicles manufactured on or after 1 July 1988.

In Australia, motor vehicles can be categorised as either pre-ADR (manufactured prior to 1969) or post-ADR (manufactured from 1969 onwards).

After a road vehicle is first registered and used on Australian roads, the relevant state or territory government's legislation generally requires that it continue to comply with applicable ADRs as at the time of manufacture.

ADR 34: *Child Restraint Anchorages* was mandated for passenger cars manufactured on or after 1 July 1976. ADR 34 specifies accessibility and strength requirements for vehicle child restraint anchorages and is governed by the Second Edition Australian Design Rules.

ADR 34/01: *Child restraint Anchorages and Child restraint Anchor Fittings* was mandated for passenger cars manufactured on or after 1 January 1995 and are governed by the Third Edition Australian Design Rules.

For the purposes of harmonisation with the European regulations (with some exclusions) vehicles, since 1 July 1988, may also comply with ADR 5/00 *Anchorages for Seat Belts and Child Restraints*.

Vehicle modifications

In Victoria, modifications to motor vehicles affecting the structural integrity of the vehicle, its handling characteristics, or its compliance with the Australian Design Rules (ADRs) and other relevant standards for registration, may require a Vehicle Assessment Signatory Scheme (VASS) approval certificate. This certificate is also commonly known as an engineering certificate for vehicle modification certification. A VASS signatory is a qualified engineer endorsed by VicRoads to perform certification services.

In Victoria, vehicle modifications requiring a VASS approval certificate include:

- changes to seat anchorages
- seatbelt anchorages
- strengthening child restraint anchorages
- new seating positioning relative to an existing seatbelt.

Vehicle Standards Bulletins (VSBs) are national codes of practice providing information on design, manufacture, sale, modification, maintenance, import and repair of road vehicles. The VSBs are designed to be used in conjunction with the administrative requirements of the jurisdiction in which a person wishes to either register a vehicle or to obtain approval for a modification for an already registered vehicle. Administrative requirements may include processes for vehicle registration, obtaining modification approvals, vehicle inspections and payment of fees and charges.

In Victoria the administrative requirements used in conjunction with VSBs include VicRoads Vehicle Standards Information (VSI)s. VSI 17 *Child restraint anchorages* (2000) provides a guide for the fitment of child restraint anchorages to vehicles built prior to 1 July 1976 or other vehicle types which are not fitted with child restraint anchorages, see appendix six.

VSI 17 enables child restraint anchorages to be installed in some instances without the requirement for a VASS approval certificate. However, if there is any doubt about the installation VSI 17 advises contacting a professional engineer (VASS).

Strengthening child restraint anchorages

ADR 34 requires child restraint anchorages to be tested either statically or dynamically. The static test requires a test load of 3.4 kN which purports to correspond to the upper tether strap load of 7 kN in the dynamic test specified in Australian Standard AS 3629.3-1991 "Methods of Testing Child Restraints Part 3 Dynamic Testing of Upper Anchorage Components". The 7 kN anchorage strength reflects an agreed industry position established in the 1970s that is compatible with the rear parcel shelf strength and the strength of the specified attachment bolt.

The upper tether strap works with the three-point belt to restrain the child and child restraint. It is not possible to equate the strength of the anchorage point to a weight limit for the child and child restraint. Crash forces are distributed between the tether strap and three-point belt depending on the crash characteristics and belt configuration.

If a tether strap were to fail in a crash because of the weight of the child and child restraint, it will have likely attenuated some of the energy of the seat and child and contributed to protecting the child.

The top tether strap also functions as an anti-rotation device and to restrain the seat from loading the child, when the child is restrained by the adult three-point belt.

Child restraints for children with a disability may be heavy and/or used with children in a relative high body mass range. This requires the vehicle to have additional child restraint anchorages installed or additional devices installed to cater for the additional weight and impact requirements. In Victoria, this strengthening of child restraint anchorages is not covered in a VSI and therefore requires a VASS approval certificate.

4.6 The Therapeutic Goods Administration (TGA)

Overseas imported child restraints for children with a disability are required to comply with the TGA requirements for Class 1 Medical Devices.

The TGA is a division of the Australian Government Department of Health and Ageing and is responsible for administering the Therapeutic Goods Act and associated legislation including:

- The Therapeutic Goods Act 1989 (the Act)
- The Therapeutic Goods Regulations 1990
- The Therapeutic Goods (Medical Devices) Regulations 2002
- Therapeutic Goods Orders (TGOs)
- Excluded Goods Orders
- Medical Device Standards Orders (MDSOs)
- Conformity Assessment Standards Orders (CASOs), and
- The Australian Regulatory Guidelines for Medical Devices (ARGMD).

Under the Therapeutic Goods Act, for a medical device to be supplied for sale in Australia it must be included on the Australian Register of Therapeutic Goods (ARTG). It is the responsibility of the manufacturer and their sponsor⁵ to have a medical device included on the ARTG. The ARTG is a record of the devices that can be supplied in Australia as well as a record of all the sponsors who are legally responsible for the medical devices on the market.

For a medical device to be included in the ARTG, the TGA must be satisfied that evidence exists appropriate to the perceived risks of the device to support its safe and effective use, and that an appropriate system is in place for monitoring the ongoing performance and safety of the device. For a Class I medical device, such as specialised child restraint for children with a disability, this is achieved by obtaining an Australian Declaration of Conformity.

It is the responsibility of the manufacturer/sponsor to obtain the declaration and supporting evidence, which must be maintained by the manufacturer and be available to the TGA on request.

There are six general essential principles that apply to all devices. There are a further eight essential principles about design and construction that apply to devices on a case-by-case basis at the discretion of the manufacturer. The essential principles set out the requirements relating to the safety and performance characteristics of medical devices.

The most common way to demonstrate that a child restraint for children with a disability complies with the essential principles is to provide evidence of compliance with a standard published by an international standards agency, such as the US Federal Motor Vehicle Safety Standard FMVSS 213, the Canadian CMVSS 213 or the European ECE Regulation 44.

A checklist is available through the TGA which manufacturers may complete to demonstrate how they have complied with the essential principles for a particular medical device. The completed checklist is sent to the TGA and the medical device is added to the ARTG.

Consideration should be given for declaring that a child restraint is not a medical device and the ramifications of that decision. Although a child restraint for a child with a disability may be prescribed and/or managed within a health system by allied health professionals, a child restraint is not intrinsically a medical device.

The fact that child restraint standards are referenced as a method for demonstrating compliance with the TGA points to the possibility of simplification whereby compliance with AS/NZS 1754, its intent and/or AS/NZS 4370 is used by authorities responsible for vehicle and road safety to regulate child restraint use.

However, at present the TGA process may provide a method for ensuring quality control and documentation management, for example that is otherwise absent.

⁵ The sponsor is the person or company responsible for the importation of medical devices into Australia, and/or the supply of medical devices in Australia. The sponsor must be a resident of Australia or be an incorporated body in Australia and conducting business in Australia where the representative of the company is residing in Australia

5. An analysis of how child restraint systems are prescribed, supplied and fitted in Victoria

Regulatory bodies, child restraint manufacturers, modifiers, suppliers of child restraints, occupational therapists and physiotherapists, community health organisations, parents and carers and regulatory affairs consultants in Victoria, and child restraint fitters and installers have been consulted in preparing this report.

The consultations provided a comprehensive overview for the supply, recommendation, adaptation and fitment of child restraints for children with a disability.

5.1 The current practice in Victoria

Children with special travel needs are usually assessed by an allied health care professional such as an occupational therapist or a physiotherapist.

Each of these is called a prescriber.

The prescriber generally recommends the most suitable child restraint for a child with a disability, although parents and carers often seek advice and recommendations from:

- their physician and or paediatrician
- family support groups
- other parents and carers of children with a disability
- teachers from their child's special school
- their psychologist (behavioural issues)
- major retail outlets, manufacturers and distributors
- community and government organisations such as Technical Aid to the Disabled Victoria (TADVIC), VicRoads, RACV, the Australian Child Restraint Resource Initiative (ACRI), Independent Living Centre (ILC), Scope Victoria etc.

The prescriber in Victoria should provide child restraint recommendations and advice as per AS/NZS 4370:1996. Recent research however has highlighted the difficulties faced by occupational therapists in prescribing child restraints for children with a disability, refer to section 5.5.

Hospitals

The Royal Children's Hospital (RCH) in Melbourne has played a leading role in providing advice, and developing and distributing resource materials relating to child restraints for children with a disability. Other active groups in Victoria include SCOPE, Yooralla and Special Developmental Schools.

In 2009, the Royal Children's Hospital established a Victorian working group *Transportation of children and youth with additional needs* with representatives from industry, practice and state government.

Westmead Children's Hospital in Sydney and TranSPOT (NSW) also publish resource materials supporting the prescriber in recommending the most appropriate restraint option for children with a disability.

5.2 Supply of child restraints in Victoria

The supply, including sale and hire, of AS/NZS 1754 child restraint systems in Victoria is provided through specialist baby and children stores, major retailers, some restraint fitters, and internet providers. Special purpose child restraints however are only accessible through a small group of suppliers, which include:

- Hemco Industries
- Wheelchairs Victoria
- Functional Adaptive Supportive (FAS) Therapeutic Equipment
- Medifab
- Mobility Plus Australia
- Dejay Rehabilitation and Mobility Equipment
- Royal Children's Hospital Equipment Distribution Centre (hire only)
- The Independent Living Centre (hire only).

It is also noted that child restraint systems for children with a disability can be purchased from online public auction sites and international distributors and manufacturers.

The products supplied often include child restraint accessories. Child restraint accessories are not covered in the scope of this report, however some common examples used by children with a disability include:

- child seatbelt comforters/child restraint liners
- the Safe-Fit
- the Securap
- lockable seatbelt buckle protectors
- positioning devices used in conjunction with a standard seatbelt system to provide additional postural support systems, such as the mobility supporter, harnesses and E-Z-On vests.

Subsidies for child restraints for children with a disability

Child restraints

The Department of Human Services subsidises child restraints for children with a disability through their Aids and Equipment Program (A&EP), up to a maximum of \$850.

To receive a subsidy, the child must be assessed by an occupational therapist and have a long-term or permanent disability. To apply for the subsidy, parents complete an A&EP form and submit the required supporting assessment documents.

Vehicle modifications

Parents or carers of children with a disability can also apply to the Vehicle Modification Subsidy Scheme (VMSS) for subsidy to modify the family's primary vehicle, if necessary.

A subsidy of up to \$10,000 over a seven year period is available for vehicle modifications through the VMSS. The vehicle must be under 10 years old and, or has been driven for fewer than 160,000 km. The application criteria for the vehicle modification subsidy is the same as for the child restraint subsidy.

Other Victorian Government funding sources include:

- flexible support packages provided by the Department of Education and Early Childhood Development
- individual support packages run through the Department of Human Services
- the Transport Accident Commission (for road trauma clients).

In addition to the A&EP, the prescriber and the family may also apply to community or philanthropic organisations for assistance with funding of child restraint systems for a child with a disability.

5.3 Fitment and installation of child restraints for children with a disability

AS/NZS 4370:1996 requirements

AS/NZS 4370:1996, clause 1.4 (e) requires the prescriber to ensure that the installation and use of the child restraint is demonstrated to the carer/s.

This should include advice that:

- I. the child restraint or recommended method of transporting the child should not be changed without further advice being sought from the prescriber
- II. the child restraint and the installation of the restraint should be maintained in good order
- III. the carer/s should check that the restraint is fastened and correctly adjusted for each child on each journey.

If recommending a modification to the foam or plastic shell of the child restraint, the prescriber must follow the manufacturer's technical instructions for such a modification and to seek advice from a child restraint testing authority that the modification is acceptable.

AS/NZS 4370:1996 also requires the prescriber to provide appropriate advice and written instructions for installation and use in accordance with AS/NZS 1754 and, in addition written instructions for the installation and use of the child restraint in its modified form.

Current practice

AS/NZS 1754 certified child restraint

The prescriber is able to easily comply with the requirements of AS/NZS 4370:1996 when recommending an AS/NZS 1754 certified child restraint. If no modifications are recommended and provided the child restraint has been fitted and installed correctly, and that it is used in accordance with the manufacturer's instructions, it will offer the child good protection in a crash.

In some instances the prescriber will install the child restraint in the vehicle; in other instances the prescriber will refer the family to a child restraint fitter.

Modified child restraint and use modification

If the prescriber recommends modifying an AS/NZS 1754 certified child restraint, the prescriber is able to directly contact the child restraint manufacturer to seek advice. As all AS/NZS 1754 child restraints are manufactured in Australia by eight companies, it would be relatively easy for

the prescriber to contact the child restraint manufacturer.

However, if the recommendation involves modifying the foam or plastic shell, the prescriber needs to also seek advice from the Australian child restraint testing authority, Crashlab, that the modification is acceptable.

There are no reported examples in Victoria of the prescriber contacting the child restraint testing authority. This may be due to the prescriber not being aware of this requirement.

Some of the child restraints from overseas listed in appendix two are provided with detailed manufacturer's technical instructions for fitment, installation and use. This includes the manufacturer's technical instructions for installation of foam pads and any other accessories provided with the child restraint.

If the prescriber recommends modifying the foam or plastic shell of a child restraint from overseas they may not be able to comply with the requirements of AS/NZS 4370:1996 as it is difficult to seek advice from the a manufacturer located overseas, or the relevant child restraint testing authority.

Restraint fitting services in Victoria

The fitting of child restraints in Victoria is not prescribed or regulated in legislation. However, VicRoads plays a lead role in providing educational materials for the community about the importance of correctly fitting and using child restraints.

The Royal Automobile Club of Victoria (RACV) restraint fitters' network was established by RACV in conjunction with VicRoads in 1990. VicRoads continues to support the RACV network through the provision of advice and resources used in their training.

In addition, Victoria also has a strong independent network of restraint fitters. Many of these fitters have been trained by the Australian Child Restraint Resource Initiative (ACRI) and receive support and advice from ACRI.

VicRoads is presently reviewing the child restraint courses available in Australia to identify options for a course to meet the future needs of the RACV and the Victorian community.

To date, VicRoads has reviewed all of the accredited child restraint courses offered in Australia. Content about child restraints for children with a disability is not covered in any of these courses.

5.4 Current resource materials

The resource materials available to the prescriber generally include information about:

- modifying a child restraint
- road rules for children travelling in vehicles, including exemptions
- information about AS/NZS 1754 and AS/NZS 4370:1996
- suppliers of child restraints for children with a disability
- available child restraint systems
- seatbelts and accessories
- letter proformas for use by the prescriber to comply with AS/NZS 4370:1996.

RCH Restraint of children with disabilities in motor vehicles

- First published in 2000
- Currently under review with an updated version expected 2011
- Written for occupational therapists in Victoria
- Aims to provide a summary of occupational therapists responsibilities in relation to AS/NZS 1754 and AS/NZS 4370:1996 when prescribing child restraints.

Westmead Hospital Guidelines for transporting children with special needs (reviewed April 2006)

- First published in 1998
- Written for clinicians, occupational therapists and health professionals in NSW
- Twenty seven pages of comprehensive information about child restraints for children with a disability, available products (at the time of printing), prescribing advice, related contacts, information brochure
- Accessible online⁶.

TRANSPOT Transport Safety Guidelines for People with Disability 2010 (CD)

- First published in 2002
- Written for occupational therapists, physiotherapists and psychologists in NSW
- 108 pages of information including guidelines and checklists to enable assessment of need and the identification of the most suitable option and solution for restraining a person with a disability as a passenger in a motor vehicle in New South Wales.

In all instances the guidelines are written in accordance with AS/NZS 4370:1996 recommending the prescriber consider the following human aspects for consideration:

- nature of the disability or condition
- the age and weight of the child
- the level and ability of cooperation offered by the child in being restrained
- the ergonomics of the child in relation to the child restraint system

- the physical ability of the parent/carer to safely position the child in, and remove the child from the child restraint system
- lifestyle
- the distance and duration of travel
- vehicle transport requirements (i.e. shared vehicles with respite care, other parent, grandparent etc) and thus ease of child restraint transferral between vehicles
- other vehicle occupants, and
- financial constraints.

5.5 Recent research

The Murdoch Children's Research Institute has recently investigated current knowledge and practice of Victorian paediatric occupational therapists in relation to recommending child restraints for children with additional needs. This project was funded by the Australian Association of Occupational Therapists Victoria.

A survey was completed by 102 paediatric occupational therapists and the primary findings of this study are presented in table four.

Table 4: Challenges faced by occupational therapists in Victoria

Statement	Percentage response (%)
Inadequate funding for appropriate equipment	84.5
Large amount of time taken to make and implement recommendations	64.3
Lack of knowledge regarding legal requirements to prescribe car seats for children with additional needs	60.7
Low demand for service, therefore limited opportunity to develop expertise	59.5
Lack of knowledge regarding commercially available car seating or restraint options	56

⁶ www.chw.edu.au/parents/kidshealth/disability/transporting_children_with_special_needs.pdf

6. Limitations of this report

The scope of this report has used limited criteria to undertake a desktop review of each of the nine child restraints available in Victoria for children with a disability. These criteria identify if each of the nine child restraints are likely to be compatible for use in motor vehicles in Australia and at the same time likely to comply with the intent of AS/NZS 1754.

These criteria include:

- easy access to technical data (testing performance results)
- compliance with one or more of the overseas standards for child restraints
- a top tether anchorage system or an engineer approved alternative system
- access to the child restraint manual, including guidelines for installation
- access to a local distributor
- child restraint has features to minimise the occupant's motion in the restraint, such as:
 - a five or six point harness (as in AS/NZS 1754 Type A, B and D child restraints)
 - side wings or walls to prevent lateral motion of the occupant in a side impact crash
 - sash seatbelt guides – to orient the sash seatbelt over the occupant's chest in a booster seat
 - lap seatbelt guides – to orient the lap seatbelt over the pelvis area of the occupant and to prevent submarining
- child restraint design avoids loading of the occupant's genital area
- child restraint buckle cannot be released by the occupant.

A comprehensive program of research is required to establish how well each child restraint meets the requirements and intent of AS/NZS 1754 and is compatible for use in motor vehicles in Australia. To perform such a comprehensive assessment requires restraint experts and relevant authorities to develop criteria to be used for such an assessment.

7. Further issues to be addressed

To achieve a comprehensive assessment of the child restraints for children with a disability, a review of the practice, testing and design of special purpose child restraints complying with international standards needs to be assessed.

This assessment requires the following issues to be addressed:

- Review the international standards, regulations and guidelines governing child restraints for children with a disability.
- Interview key personnel and authorities involved in the manufacture, supply and regulation of child restraints for children with a disability in North America and Europe.
- Identify methods used to attach child restraints to the vehicle, the testing required and the performance of the special purpose child restraint system in the testing.
- Development in the implementation of the ISOfix/ LATCH systems in Australia and compatibility implications for child restraints for children with a disability being supplied from overseas with this type of attachment system.

8. Recommendations

This section details recommendations for child restraints for children with a disability based on the review of:

- child restraints currently available in Victoria for children with a disability
- legislative and regulatory requirements relating to child restraints for children with a disability
- the prescribing, supply, fitment and installation of child restraints for children with a disability.

Together these recommendations aim to:

- improve the awareness and understanding of child restraints for children with a disability in Victoria
- strengthen the ability of the prescriber to comply with the requirements of AS/NZS 4370:1996
- help and assist the prescriber to recommend a child restraint for a child with a disability that meets AS/NZS 4370:1996
- improve the supply, fitment and installation of child restraints for children with a disability
- improve the resources and guidance materials for the prescribers, parents, carers, and the community
- provide guidance for future work.

8.1 Child restraints for children with a disability

A number of issues relating to child restraints for children with a disability which do not comply with AS/NZS 1754 arose throughout this review. This included compatibility of the child restraint in motor vehicles in Australia, the likelihood of the child restraint in meeting the intent of AS/NZS 1754, and the ability for the prescriber to meet the requirements of AS/NZS 4370:1996.

The following recommendations are provided in relation to child restraints for children with a disability.

Recommendation 8.1.1

VicRoads to undertake further research in the next twelve months to assess comprehensively child restraints for children with a disability complying with international standards in comparison to AS/NZS 1754. An element of this research should examine the anchorage strength requirements as they relate to the potentially higher combined child restraint and child mass demands when transporting children with a disability and/or the role of the tether strap in restraining the child restraint and reducing unintended loading of the occupant.

Recommendation 8.1.2

That suppliers of child restraints for children with a disability in Victoria conduct an internal review of their arrangements for prescribing, hiring and selling child restraints for children with a disability against the requirements of AS/NZS 4370:1996.

Recommendation 8.1.3

That suppliers request child restraint manufacturers or distributors to provide the following information in English

for each child restraint for a child with a disability that is not certified to AS/NZS 1754:

- A verified copy of the satisfactory performance of the child restraint to an accepted dynamic test protocol. Possible protocols include AS/NZS 1754 Section 4 Performance (which refers to the dynamic test protocol as set out in AS/NZS 3629.1). Restraints from overseas must have evidence provided with them that they have been tested to FMVSS 213 Section 5.1 Dynamic Performance, or ECE R44 Annex 9.
- Evidence that the child restraint is compatible with the motor vehicle restraint systems in Australian vehicles (i.e. use the standard three point lap-sash seatbelt installed in the rear seat with a top tether anchorage system or an engineer approved alternative anchorage system).
- Installation and fitment instructions and instructions for any vehicle structural modifications in English, for the child restraint to enable compliance with AS/NZS 4370:1996.

8.2 Standards Australia requirements

This report noted that Standards Australia has approved the review of AS/NZS 1754 and AS/NZS 4370:1996. It is important that stakeholders such as VicRoads and Department of Human Services contribute to and inform this review.

Recommendation 8.2.1

It is recommended that advice be sought from Standards Australia seeking clarification by the appointed committee for AS/NZS 1754 and AS/NZS 4370, about the following items:

- requirements for the prescriber
For example: limitations of the prescriber to comply with AS/NZS 4370:1996 due to inadequate information provided with child restraints for children with a disability from overseas; limited ability of the prescriber to seek advice relating to modifying a child restraint (particularly for restraints from overseas)
- requirements for vehicle modifications, including considerations relating to compatibility with motor vehicles in Australia
- requirements for information to be included with the child restraint from the supplier
- inclusion of extra padding to be used with the child restraint
- when modifications to the child restraint require testing and how to decide on the tests to be performed
- who is required to certify the testing (most likely Crashlab or possibly an equivalent overseas facility)
- acceptable alternative testing requirements to AS/NZS 1754, if any.
- clarification regarding the definition of intent included in Clause 3.12 of AS/NZS 1754:2010 "...where child restraints are designed for children with disabilities requiring special needs, the child restraint shall comply with the intent of this Standard..."

8.3 Prescribing, fitment and installation

It was identified that the prescriber may experience difficulty in complying with AS/NZS 4370:1996. Factors that have impacted on their ability to fulfil these requirements include:

- the frequency of prescribing
- access to professional development
- access to and knowledge of AS/NZS 4370:1996
- lack of knowledge about available child restraints and special purpose child restraints
- lack of an expert body to access for further information and give advice, where necessary.
- access to funding

In addition the report identified that there is no training available for restraint fitters relating to child restraints for children with a disability.

Recommendation 8.3.1

VicRoads to continue supporting the Royal Children's Hospital in providing resource and guidance materials for the prescriber. The resource and guidance material should:

- be supplementary to AS/NZS 4370:1996
- focus on the provision of advice as to how the prescriber can apply AS/NZS 4370:1996
- include proformas supporting the prescriber to comply with AS/NZS 4370:1996 e.g. letter for parents
- provide family case studies
- be supported by training for the prescriber.

Recommendation 8.3.2

VicRoads to review its information available for parents, carers and the community regarding child restraints for children with a disability. Information should be:

- accessible on the VicRoads website and any related child restraint publications
- be reviewed on a regular basis in consultation with key stakeholders such as Department of Human Services and the Royal Children's Hospital.

Recommendation 8.3.3

VicRoads to promote the inclusion of child restraints for children with a disability in the Child Restraint Evaluation Program.

Recommendation 8.3.4

The RACV restraint fitters training course in Victoria (currently under review) include an educational component covering child restraints for children with a disability.

8.4 Department of Human Services, Aids and Equipment Program (A&EP)

Parents and carers applying for Department of Human Services, A&EP subsidy to assist with the purchase of a child restraint for their child are required to submit an A&EP general application form. The parents (or carer) also need to submit an assessment of the child by an occupational therapist (the prescriber) recommending the appropriate child restraint. The prescriber is required to recommend a child restraint in accordance with AS/NZS 4370:1996.

The nine child restraints for children with a disability identified as available for hire or sale in Victoria were assessed against the following criteria:

- easy access to technical data (testing performance results)
- compliance with one or more of the overseas standards for child restraints
- a top tether anchorage system or an engineer approved alternative system
- access to the child restraint manual, including guidelines for installation
- access to a local distributor
- child restraint has features to minimise the occupant's motion in the restraint, such as:
 - a five or six point harness (as in AS/NZS 1754 Type A, B and D child restraints)
 - side wings or walls to prevent lateral motion of the occupant in a side impact crash
 - sash seatbelt guides – to orient the sash seatbelt over the occupant's chest in a booster seat
 - lap seatbelt guides – to orient the lap seatbelt over the pelvis area of the occupant and to prevent submarining
- child restraint design avoids loading of the occupant's genital area
- child restraint buckle cannot be released by the occupant.

With some qualification, the nine child restraints listed in appendix two met all of the above criteria.

Recommendation 8.4.1

Department of Human Services temporarily reinstate the A&EP subsidy for child restraints for the transport of a child with a disability. The prescriber is required to recommend a child restraint in accordance with AS/NZS 4370. Where a child restraint from overseas is recommended it must be one of the child restraints listed in appendix 2 and it must be prescribed in accordance with AS/NZS 4370.

The Department of Human Services will need to review the outcomes of the further research to be undertaken by VicRoads in the next 12 months and any impacts this may have for the A&EP subsidy.

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Appendix one: Child restraint and booster seat product tables 2011

Forward facing child restraints

Model	Maker
Commander	ZuZu
Discovery Plus	Safe-n-Sound
Toddler Rider	Babylove

Convertible child restraints (rearward and forward facing)

Model	Maker
Carrera, Emperor, Nomad	Mother's Choice
Cleo	Go Safe
Compaq Deluxe	Safe-n-Sound
Ezyswitch, Conquest	Babylove
F1-304 Grande, Delta, Ultimate	Babylove
Galaxy, Safe Keeper, Sleep-n-Recline, Empire	Safe-n-Sound
Guardian Plus, Super Safeguard	Safe-n-Sound
Hybrid	Cargo
Meridian AHR Tilt and Adjust	Safe-n-Sound
Milan, Capri	Hipod
Platinum AHR Air Cushion	Safe-n-Sound
Prelude	Babylove
Premier, Royale	Safe-n-Sound
Turnatot, Turnatot Delux, 360 degrees	Infa-Secure
Twilight	ZuZu

Combination (forward facing child restraint and booster seat)

Model	Maker
Explorer	Safe-n-Sound
Ezy Combo	Babylove
Marathon	Cargo
Maxi Rider, Maxi Rider AHR	Safe-n-Sound
Optimus, Tribute	Infa-Secure
Prospect 2 in 1	Safety 1 st
Racing Kid, Roamer Plus	Infa-Secure
Senator	Hipod
Trek 8, Comfy Cruiser	Infa-Secure
Xceed	Infa-Secure

Booster seats

Model	Maker
Advance, GoSafe	IGC Dorel
Air Child	Wonderland
Astra, Urban	Safe-n-Sound
Barcelona, Boston	Hipod
Caval, Daisy, Happy Hippo, Jet, Flower Girl	Babylove
Cindy 2, Senitel, Spartan	Infa-Secure
Classic, Sport, Silhouette	Safety 1 st
Cleo, Knight	Go Safe
EzyUp	Babylove
First Years	Learning Curve
Hi Line SG	Safe-n-Sound
Imperial Silhouette	Mother's Choice
Le Vanti	Infa-Secure
Pegasus, Pegasus Dix	Safe-n-Sound
Quantum	Babylove
Travale, Voyager	Infa-Secure
Vario Max, Vario Kid	Infa-Secure

Booster cushions

Model	Maker
Air Child Cushion	Wonderland
BL700, Happy Hippo, Charcoal, Flower Girl	Babylove
Focus	Go Safe
Nova, Mobility	Safe-n-Sound
Sunshine, Mario	Infa-Secure
Zoom Traveller	Mother's Choice

VicRoads product tables are updated by VicRoads every six to eight months and are available at vicroads.vic.gov.au/ChildRestraints.

Appendix two: Comparison of child restraints for children with a disability compatible for use in Australian motor vehicles

	Columbia	Hippo Spica Cast	Timy	Snugg Seat Traveller Plus	Carrot	Lars	R82 Panda Evo	Sonja	Recaro Monza Reha
Technical data availability	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compliance with one or more of the overseas standards for child restraints	✓	✓	✓	✓	✓	✓	✓	✓	✓
Top tether anchorage system or an engineer approved alternative system	✓	✓	●	✓	✓*	✓	✓	●	+
Access to the child restraint manual, including guidelines for installation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Access to a local distributor	✓	✓	✓	✓	✓	✓	✓	✓	✓
Child restraint has features to minimise the occupant's motion in the restraint, such as:									
Five or six point harness (as in AS/NZS 1754 Type A, B and D child restraints)	✓	✓	✗**	✓	✓**	✓**	✓**	✓**	✓**
Side wings or walls to prevent lateral motion of the occupant in a side impact crash	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sash seatbelt guides – to orient the sash seatbelt over the occupant's chest in a booster seat	N/A	N/A	✓	N/A	✓	✓	✓	✓	✓
Lap seatbelt guides – to orient the lap seatbelt over the pelvis area of the occupant and to prevent submarining	N/A	N/A	✓	N/A	✓	✓	✓	✓	✓
Child restraint design avoids loading of the occupant's genital area	✓	✓	✓	✓	✓	✓	✓	✓	✓
Child restraint buckle cannot be released by the occupant	✓	✓	✓	✓	✓	✓	✓	✓	✓

● The Timy and Sonja restraints both meet overseas standards. However at this stage it is unclear how well the lower attachment system would perform under the tests in AS/NZS 1754 or other impact conditions. Further work will be undertaken to assess this issue.

* The tether strap system may provide only limited restraint of the seat in a crash.

** The 4 or 5 point harness functions to position the child in the restraint and may not provide protection in a crash. The restraint of the child is achieved through the use of a three-point seatbelt + ISOFix variant would be suitable if compatible with vehicle, but not tether strap.

Appendix three: Description of child restraints for children with a disability

The table below provides information on key design features, the recommended size and weight ranges, and where to purchase or hire the restraints from. All of the child restraints presented in the table meet the definition of special purpose child restraint in accordance with AS/NZS 4370:1996.

AS/NZS 1754 certified child restraints may be suitable for use by children with a disability. As per AS/NZS 4370:1996, the first consideration for the prescriber is to recommend an AS/NZS 1754 certified child restraint for a child with a disability (refer to appendix one). These products have been tested to the performance requirements of AS/NZS 1754. However, in some instances the prescriber may recommend a modified child restraint or use modification in accordance with AS/NZS 4370:1996.

For example, children with hip spica are often prescribed use modification with the use of an extended crotch strap with a compatible AS/NZS 1754 certified child restraint (e.g. Safe-n-sound safeguard, guardian or maxi-rider).



One feature of some of the child restraints is a swivel base. The Timy and Sonja restraints both have this feature, for example, which may help in assisting a child in and out of the restraint. However, the swivel base prevents the use of a top tether strap. In both the Timy and Sonja the restraint is anchored by a bar that fits between the seat base and the back.

Note: Some of the child restraints presented in this table have optional extras. The use of those optional extras may in some circumstances interfere with the safety performance of the child restraint. The prescriber should consider if the optional extra changes the anchorage system or the harness system of the child restraint.

Special purpose child restraints

Product and Standard	Design features	Recommended Size Range	Available from:
Columbia orthopaedic car seat 	<ul style="list-style-type: none"> • Forward facing (fixed) • Height adjustable • Padded head supports • Seat depth extender • Four lateral positioning foam pads 	Model 2000 Body weight: 9.1 to 46.3 kg Height: less than 152.4 cm Model 2500 Body weight: 18.1 to 59.0 kg Height: 137.2 to 167.6 cm	FAS Paediatric Mobility
Hippo spica cast car seat 	<ul style="list-style-type: none"> • Rearward or forward facing • Reclinable • Shorter seat depth 	Rearward facing reclinable Body weight: 2.3 to 15 kg Forward facing reclinable Body weight: 9 to 15 kg	Britax Dejay Rehabilitation Mobility Equipment
Timy 	<ul style="list-style-type: none"> • Forward facing • Swivel base • Reclinable • Height and angle adjustable footrest • Additional position padding for head and torso • Support tray option 	Model standard: Intended for children between 3 and 12 years and Body weight: to 36 kg Model Maxi Body weight: up to 49kg	Medifab

Product and Standard	Design features	Recommended Size Range	Available from:
<p>Snug Seat Traveller plus</p> 	<ul style="list-style-type: none"> • Forward facing • Optional padded abductor • Height adjustable headrest • Reclinable • Support padding • Buckle guard • Optional seat extension 	<p>Body Weight: 10 to 47.5 kg</p> <p>Height: up to 142.2 cm</p>	<p>Dejay Medical and Scientific</p>
<p>Carrot car seat</p> 	<ul style="list-style-type: none"> • Forward facing • Slightly reclinable • Foot rest • Seat extension • Swivel base • Available in three sizes 	<p>Designed for children between 3 and 15 years</p> <p>Body Weight: 15 to 36 kg</p>	<p>Medifab</p>
<p>Lars car seat</p> 	<ul style="list-style-type: none"> • Forward facing • Swivel base • Sliding motion of sub frame • Lateral supports • Adjustable hip supports • Width and depth adjustments • Back height adjustment • The sub frame has a height and angle adjustable footrest • Tilting bracket allowing the seat to be tilted up to 25 degrees. • Hip strap • Foam padded tray • Two seat variants 	<p>Body Weight: up to 36 kg.</p>	<p>Liberty rehab</p>
<p>R82 PANDA EVO</p> 	<ul style="list-style-type: none"> • Forward facing • Swivel base • Range of head supports • Lateral supports • Foot plates • Frame installation required 	<p>Body weight 9 to 36 kg</p>	<p>Independent Living Centre NSW GDS Mobility GTK Rehab Mobility Plus</p>

Product and Standard	Design features	Recommended Size Range	Available from:
<p>Sonja car seat</p> 	<ul style="list-style-type: none"> • Forward facing • Swivel base • Three sizes available 	<p>Model SSCS-1: Body weight: up to 30 kg</p> <p>Model SSCS-2: Body weight: up to 45 kg</p> <p>Model SSCS-1: Body weight: up to 60 kg</p>	FAS
<p>Recaro Monza Reha car seat</p> 	<ul style="list-style-type: none"> • Forward facing • Tray option • Depth extension • Wedge support inserts 	<p>Body weight: 15 to 50 kg</p> <p>Height: 94 to 150 cm</p>	FAS

Note: This list represents the child restraints for children with a disability identified as for sale or hire in Victoria. There may be other child restraints for children with a disability available which have not been identified in this report.

Appendix four: Consumer protection notice: Child restraint systems for use in motor vehicles

COMMONWEALTH OF AUSTRALIA

COMPETITION AND CONSUMER ACT 2010

Consumer Protection Notice No. 21 of 2011

SAFETY STANDARD: CHILD RESTRAINT SYSTEMS FOR USE IN MOTOR VEHICLES

I, DAVID BRADBURY, Parliamentary Secretary to the Treasurer, pursuant to subsection 105(1) of Schedule 2 to the *Competition and Consumer Act 2010*, hereby:

- (a) **REVOKE** the Consumer Product Safety Standard declared under section 65E(1) of the *Trade Practices Act 1974* by Consumer Protection Notice No. 12 of 2007;
- (b) **DECLARE** that, in respect of consumer goods of a kind specified in Division 1 of the Schedule to this Notice, the standards approved by Standards Australia specified in Division 2 of the Schedule, as varied by Division 3 of the Schedule, are safety standards for the purposes of section 106 of Schedule 2 to the *Competition and Consumer Act 2010*.

THE SCHEDULE

Division 1: Particulars of the consumer goods

The following consumer goods are specified:

- (1) Child restraints for use in motor vehicles, being devices to reduce the risk of bodily injury to a child passenger in the event of a motor vehicle impact.
- (2) Components:
 - (a) to restrain a child in a child restraint;
 - (b) to anchor a child restraint to a motor vehicle; and
 - (c) to restrain a vehicle seat.
- (3) Booster seats for use in motor vehicles, being devices:
 - (a) for raising a child's position in a motor vehicle; and
 - (b) for adapting an adult seat belt for use as a child restraint; and
 - (c) having a back above the seating plane.
- (4) Booster cushions for use in motor vehicles, being devices:
 - (a) for raising a child's position in a motor vehicle; and
 - (b) for adapting an adult seat belt for use as a child restraint; and
 - (c) having no back above the seating plane.

Note: This safety standard does NOT apply to motor vehicle child restraints designed for children with a disability or to items that are an integrated feature of a motor vehicle.

Division 2: The Standards

Australian/New Zealand Standard AS/NZS 1754:2010, *Child restraint systems for use in motor vehicles*, published 24 February 2010 as amended by, and incorporating, all amendments approved and published by Standards Australia prior to the date of this instrument;

or

Australian/New Zealand Standard AS/NZS 1754:2004, *Child restraint systems for use in motor vehicles*, published 8 November 2004 as amended by, and incorporating, all amendments approved and published by Standards Australia prior to the date of this instrument;

or

Australian/New Zealand Standard AS/NZS 1754:2000, *Child restraint systems for use in motor vehicles*, published 1 February 2000 as amended by, and incorporating, all amendments approved and published by Standards Australia prior to the date of this instrument.

Division 3: Variations

Australian/New Zealand Standard AS/NZS 1754:2010 (as amended) is varied by:

- (1) Deleting the text "passenger cars and their derivatives," and replacing with "motor vehicles," in the first sentence of clause 1.1;
- (2) Deleting the second sentence of clause 1.1;
- (3) Deleting clauses 2.3; 2.4; and 2.5; and
- (4) Deleting clauses 3.12; 5.2.2(b); and 6.3(h).

Australian/New Zealand Standard AS/NZS 1754:2004 (as amended) is varied by:

- (1) Deleting the text "passenger cars and their derivatives," and replacing with "motor vehicles," in the first sentence of clause 1.1;
- (2) Deleting the second sentence of clause 1.1;
- (3) Deleting clauses 2.4; 2.5; and 2.6; and
- (4) Deleting clauses 3.12; 5.2.2(b); and 6.3(h).

Australian/New Zealand Standard AS/NZS 1754:2000 (as amended) is varied by:

- (1) Deleting the text "passenger cars and their derivatives," and replacing with "motor vehicles," in the first sentence of clause 1.1;
- (2) Deleting the second sentence of clause 1.1;
- (3) Deleting clauses 2.4; 2.5; and 2.6; and
- (4) Deleting clauses 3.12; 5.2.2(b); and 6.3(h)

Dated this 2nd day of May 2011.

DAVID BRADBURY

Parliamentary Secretary to the Treasurer

Appendix five: Victorian Government Gazette Notice

Road Safety Act 1986

ROAD SAFETY ROAD RULES 2009

Approved Child Restraints, Approved Booster Seats and Approved Child Safety Harnesses

1. Purpose

This notice sets out the child restraints, booster seats and child safety harnesses that are approved for use under the Road Safety Road Rules 2009 (in this notice referred to as the Road Rules).

2. Authorising provision

This notice is made under rule 266(7) of the Road Rules which states that an approved child restraint, an approved booster seat, and an approved child safety harness means a child restraint, booster seat and child safety harness, respectively, approved, for the purposes of the Road Rules, by the Roads Corporation by notice in the Government Gazette.

3. Commencement

This notice comes into operation on 9 November 2009.

4. Expiry

This notice expires on 9 November 2019.

5. Revocation

The notice published in Government Gazette No. S 174 on 1 December 1999 entitled 'Approved child restraints' is revoked.

6. Definition

In this notice, relevant Standard means Australian Standard AS 1754 – 1991: Child restraint systems for use in motor vehicles.

7. Approval of child restraints

- (1) For the purposes of the term approved child restraint in the Road Rules, except in rules 266(4)(a), 266(5)(a), 266(6)(a) and 266(6)(b), I, George Mavroyeni, delegate of the Roads Corporation, approve a rearward or forward facing child restraint with an inbuilt harness which –
 - (a) is designated as a Type A1, Type A2, Type A3, Type B or Type D child restraint under the relevant Standard or any later version; and
 - (b) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and (c) is marked with an official standards mark certifying compliance with that version of the relevant Standard.
- (2) For the purposes of the term approved child restraint in rule 266(4)(a), I, George Mavroyeni, delegate of the Roads Corporation, approve –
 - (a) a device (whether or not it has a back) that is forward facing and raises a child's position in a motor vehicle, thereby enabling the existing adult seatbelt to become suitable for the child, which –
 - (i) is designated as a Type E (Booster Seats and Booster Cushions only) child restraint under the relevant Standard or any later version; and
 - (ii) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and
 - (iii) is marked with an official standards mark certifying compliance with that version of the relevant Standard; and
 - (b) a forward facing booster cushion, intended by the vehicle manufacturer to form an integrated part of the vehicle, which enables the existing adult lap-sash seatbelt to become suitable for a child, and which is certified as complying with clause 34.8 of Australian Design Rule 34/01 – Child Restraint Anchorages and Child Restraint Fittings.
- (3) For the purposes of the term approved child restraint in rules 266(5)(a), 266(6)(a) and 266(6)(b), I, George Mavroyeni, delegate of the Roads Corporation, approve –
 - (a) a rearward or forward facing child restraint with an inbuilt harness which –
 - (i) is designated as a Type A1, Type A2, Type A3, Type B or Type D child restraint under the relevant Standard or any later version; and (ii) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and
 - (iii) is marked with an official standards mark certifying compliance with that version of the relevant Standard; and
 - (b) a device (whether or not it has a back) that is forward facing and raises a child's position in a motor vehicle thereby

enabling the existing adult seatbelt to become suitable for the child, which –

- (i) is designated as a Type E (Booster Seats and Booster Cushions only) child restraint under the relevant Standard or any later version; and
- (ii) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and
- (iii) is marked with an official standards mark certifying compliance with that version of the relevant Standard.

8. Approved Booster Seats

For the purposes of the term approved booster seat in the Road Rules, I, George Mavroyeni, delegate of the Roads Corporation, approve the following –

- (a) a device (whether or not it has a back) that is forward facing and raises a child's position in a motor vehicle, thereby enabling the existing adult seatbelt to become suitable for the child, which –
 - (i) is designated as a Type E (Booster Seats and Booster Cushions only) child restraint under the relevant Standard or any later version; and
 - (ii) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and
 - (iii) is marked with an official standards mark certifying compliance with that version of the relevant Standard; and
- (b) a forward facing booster cushion, intended by the vehicle manufacturer to form an integrated part of the vehicle, which enables the existing adult lap-sash seatbelt to become suitable for a child, and which is certified as complying with clause 34.8 of the Australian Design Rule 34/01 – Child Restraint Anchorages and Child Restraint Fittings

9. Approval of child safety harnesses

For the purposes of the term **approved child safety harness** in the Road Rules, I, George Mavroyeni, delegate of the Roads Corporation, approve a forward facing harness without chair that –

- (a) is suitable for use with an adult seatbelt; and
- (b) is designated as Type C (Approved Child Safety Harness) under the relevant Standard or any later version; and
- (c) complies with the version of the relevant Standard that was in force at the time of manufacture in Australia, or importation into Australia, as the case may be, or any later version; and
- (d) is marked with an official standards mark certifying compliance with that version of the relevant Standard.

Notes:

1. The later versions of the relevant Standard are Australian/New Zealand Standard AS/ NZS 1754:1995 Child restraint systems for use in motor vehicles; Australian/New Zealand Standard AS/NZS 1754:2000 Child restraint systems for use in motor vehicles; and Australian/New Zealand Standard AS/NZS 1754:2004 Child restraint systems for use in motor vehicles.
2. Words and phrases in this notice have the same meanings as in the Road Safety Act 1986 and the Regulations under that Act.

Dated 9 November 2009

GEORGE MAVROYENI

Executive Director

Road Safety and Network Access

Roads Corporation

Child Restraint Anchorages

For further information please write to the Manager, Vehicle Safety Branch
60 Denmark Street, Kew, 3101 or contact your local Registration Office.

January 2000

Passenger cars manufactured on or after 1 July 1976 were required to be fitted with child restraint anchorages complying with the applicable Australian Design Rules (ADRs). This requirement has progressively been introduced to apply to most new passenger vehicles.

However, some people may wish to fit a child safety seat or basinet restraint to an older car or other vehicle types which are not fitted with child restraint anchorages. This information sheet may be used as a guide where child restraint anchorages need to be fitted to such a vehicle. Anchorages fitted in accordance with these guidelines should provide an acceptable level of safety.

If any doubt exists about the strength or position of the anchorage you should contact a Professional Engineer or a Restraint Fitting Station for guidance. A list of recognised professional engineers is available from any VicRoads registration office and further information on restraint fitting stations is available from RACV enquiries, phone 9790 2190 (008 134 126 for country callers) or VicRoads on 13 11 71.

Anchorages may be fitted to most cars which do not already have complying anchorages by drilling an 8.5mm (5/16") diameter hole through a suitable part of the parcel shelf structure and installing an anchorage bolt and reinforcing washers supplied by the child restraint manufacturer.

The following guidelines together with any supplied by the child restraint or anchorage manufacturer should be followed.

The anchorage hole should be:

- within 40mm of the centre line of the seating position in which the restraint is being installed;
 - back from the rear edge of the seat squab at a distance which will ensure that the top tether strap of the child restraint can be correctly adjusted, (usually about 200mm) while also ensuring that the rear window does not interfere with the attachment and disengagement of the anchorage fitting to the anchorage bolt,
 - drilled through a structurally sound section of metal and be no less than 50mm from any punched out or perforated section of metal, (eg speaker holes); and,
 - drilled through a substantially flat section of metal so as to ensure that the reinforcing washer or plate is brought to bear closely on the underside of the parcel shelf;
- If the anchorage is to be fitted to the floor pan of a vehicle without parcel shelves, such as station wagons or similar, further precautions as listed below are necessary. If any doubt exists, you should consult a Professional Engineer for further advice.
- The bolt hole must be drilled through the fixed metal floor of the vehicle. Spare wheel covers, and timber or false metal floors are not suitable.
 - Care must be taken not to drill through the fuel tank, fuel lines, brake hoses or any other safety item;
 - The anchorage should be located:
 - (a) so that the strap will be positioned at the shallowest angle possible generally at least 200mm to the rear of the seat back, and;
 - (b) so that no part of the anchorage mounting located under the floor contacts any components such as brake or fuel lines, hand brake cables or drive shafts.

- The strength of the seat back and any catches must be sufficient to withstand any loads imposed on them particularly those applied by the restraint tether strap in an impact;
- Adequate protection should be provided to prevent any load in the vehicle damaging the child restraint or its straps or causing injury to the vehicle occupants, particularly in an impact situation. Additional tie down arrangements or cargo barriers to secure heavy objects in vehicles such as station wagons or vans where the load space is not separate to the occupant space are strongly recommended.
- Sometimes it is necessary to use adaptor brackets to achieve a correct line of action between the restraint tether strap and the anchorage. Child restraint manufacturers generally provide a range of such accessories.

Child restraints may be fitted to the front seat of utilities and panel vans. However, it is strongly recommended that this be avoided wherever possible. If possible an additional seat or suitable support frame to secure child restraints should be installed in these vehicles.

Most child restraint seats etc. require a seat belt directly in front of the anchorage to stabilise the restraint. If such a seat belt is not available, an additional belt with separate anchorages can be installed in the centre rear position of the car (see Vehicle Standards Information No 15 which deals with installing additional seat belts).

Appendix seven: Glossary of terms.

ACCC: the Australian Competition and Consumer Commission.

A&EP: the Aids and Equipment Program of the Department of Human Services, Victoria, which subsidises child restraints for children with a disability.

Anchorage point: the part of a vehicle at which the restraining forces of a child restraint are transferred to the vehicle.

Ancillary equipment: support/assistance equipment including devices such as breathing/respiratory equipment, external bracing etc.

ARTG: Australian Register of Therapeutic Goods.

AS/NZS 1754:2010: Australian / New Zealand Standard on Child restraint systems for use in motor vehicles.

AS/NZS 3629:2010: Australian / New Zealand Standard on Methods of testing child restraints.

AS/NZS 4370:1996: Australian / New Zealand Standard on Restraint of children with disabilities in motor vehicles

Child restraint evaluation program: gives consumers independent and consistent information on the levels of occupant protection from injury in a crash provided by child restraints and the ease with which they can be used correctly.

Child restraint testing authority: the NSW Roads and Traffic Authority (RTA) test facility Crashlab is Australia's only accredited child restraint compliance test agency. Crashlab is accredited to the National Association of Testing Authorities, NATA. There are several product certification agencies in Australia, such as SAI Global and BSI, able to organise certification of specific products.

For the imported specialised child restraint, there are several conformity assessment agencies who are able to deal with child restraints to ECE Reg 44 such as TNO, the Netherlands and TUV, Germany.

Children with a disability: children with a medical condition, behavioural problem or physical disability, who do not require the use of ancillary equipment or a wheelchair device.

CMVSS 213: Canadian Motor Vehicle Safety Standard on Seat Belt and Child restraint System Regulations.

CPSS: Consumer Product Safety Standard.

Child restraint: a child restraint is a device used in conjunction with an adult seatbelt to restrain a child passenger of a motor vehicle in the event of a vehicle impact and thus minimise the risk of bodily injury (as per AS/NZS 1754:2010).

Essential principles from the Therapeutic Goods Administration:

General principles:

1. Medical devices not to compromise health and safety
2. Design and construction of medical devices to conform to safety principles
3. Medical devices to be suitable for intended purpose
4. Long term safety
5. Medical devices not to be adversely affected by transport or storage
6. Benefits of medical devices to outweigh any side effects.

Principles about design and construction:

7. Chemical, physical and biological properties
8. Infection and microbial contamination
9. Construction and environmental properties
10. Medical devices with a measuring function
11. Protection against radiation
12. Medical devices connected to or equipped with an energy source
13. Information to be provided with medical devices
14. Clinical evidence.

Extended crotch strap: available for purchase by request from Britax Childcare Pty Ltd.

E-Z-On vest: webbing H-harness style restraint used as a postural restraint in conjunction with the adult seatbelt. Available in four sizes, each with three zipper positions.

FMVSS 213: US Federal Motor Vehicle Safety Standard on Seat Belt and Child restraint System Regulations.

ILC: the Independent Living Centre is a statewide service of Yooralla that provides impartial information and advice on Assistive Technology to enhance the quality of life for people with disabilities across Victoria. There are also ILC centres in other Australian states.

ISO: International Standards Organisation.

ISOfix: the system required for the restraint of the child restraint in Europe. This is in ECE Regulation 44 for child restraints, which defines vehicle and child restraint attachment points for use by child restraint in passenger cars in Europe.

LATCH: Lower Anchors and Tethers for Children. The United States and Canada use a different system of vehicle and child restraint attachment points to Europe. This system is known as LATCH. The LATCH system has some similarities to ISOfix but this system, as the name implies, mandates use of a tether strap. This system is defined in FMVSS 213 and CMVSS 213.

Mobility supporter: formerly known as the TREC. A fully adjustable seating frame that provides support during transport. It is used in conjunction with the adult seatbelt and includes variations for use in different vehicle types (e.g. high back bus seats).

Modified child restraint: a child restraint which originally complied with AS/NZS 1754, but which has been structurally changed to suit a specific need.

NATA: National Association of Testing Authorities. NATA accreditation is required for a test agency to undertake compliance testing of devices such as child restraints.

OT: Occupational Therapist.

R266: Victorian Road Safety Road Rules 2009, Rule 266 Wearing of seatbelts by passengers under 16 years old, under PART 16 – Rules for persons travelling in or on motor vehicles.

R267: Victorian Road Safety Road Rules 2009, Rule 267 *Exemptions from wearing seatbelts*, under PART 16 – Rules for persons travelling in or on motor vehicles.

RACV: Royal Automobile Club of Victoria.

RIS (2007) Regulatory Impact Statement for the Victorian Road Safety Rules 2009 (the Road Rules).

Road Rules: Victorian Road Safety Road Rules 2009.

RTA: The NSW Roads and Traffic Authority.

Safe-Fit: a seatbelt sash guide suitable for use with a lap-sash seatbelt for children 18 kg to 32 kg.

Securap: a chest cross-strap which fits over the harness straps of a child restraint. This restricts the child's ability to remove arms from harness straps.

Special purpose child restraint: a child restraint which is specifically designed and designated as suitable for use by a child with a disability, but which may or may not comply with AS/NZS 1754.

TGA: Therapeutic Goods Administration of the Australian Government Department of Health and Ageing. Flow charts summarising the process for supply of a medical device in Australia is available at <http://www.tga.gov.au/devices/guidelines.htm>.

TransPOT: acts as a resource in liaising with organisations, providing information and assisting in developing training for transport safety needs for people with disabilities.

ECE Regulation 44: uniform provisions concerning the approval of restraining devices for child occupants of power-driven vehicles (Child restraint system) – European child restraint standard.

Use modification: an option for the use of a child restraint, which changes the way that the child restraint is designated to be used in the manufacturer's instructions, e.g. use of padding or adjustment of straps.

VASS: Victorian Vehicle Assessment Signatory Scheme aims to ensure all modified, imported and individually constructed vehicles meet construction and safety standards. Any vehicle modifications are required to be assessed by an experienced engineer.

VMSS: vehicle modification subsidy scheme, a component of the A&EP.

Appendix eight: Suppliers of child restraints for children with a disability

The following organisations sell and/or hire child restraints for children with a disability in Victoria.

Dejay Rehabilitation and Mobility Equipment

Dejay Victoria
Unit 1, 34-36 Buckland Street
Clayton Victoria 3168

Functional Adaptive Supportive (FAS) Therapeutic Equipment

6 Bate Drive
Braeside Victoria 3195

GTK Rehab

11/14 Boden Road
Seven Hills NSW 2147
www.gtkrehab.com.au

Hemco Industries

Hemco Park
118 Learmonth Street
Ballarat Victoria 3353

The Independent Living Centre

Yooralla's Independent Living Centre
705 Geelong Road
Brooklyn Victoria 3012

Independent Living Centre (ILC) Blackburn

54 Railway Road
Blackburn Victoria 3030

Medifab

www.medifab.com.au

Mobility Plus Australia

1/23 Bell Street
Preston Victoria 3072

Royal Children's Hospital Equipment Distribution Centre

Royal Children's' Hospital
Flemington Road
Parkville Victoria 3052

Wheelchairs Victoria

8 Kinwal Court
Moorabbin Victoria 3189

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Lecturer, School of Occupational Therapy, Latrobe University

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Appendix ten: References

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