CRS-03-09

Australian Government

Department of Infrastructure, Transport, Regional Development and Local Government

Selection of Size of Child Restraints

Craig Newland

3rd Meeting of GRSP Informal Group on CRS

13 May 2008, SMMT, London

Consumer Knowledge

- Consumers must select and use the appropriate size of restraint for their child
- Information to consumers often presented in terms of mass
- Potential for consumer confusion:
  - Mass of child may not be known
  - Mass range for child restraint may not be known or understood

Study on Feasibility of Age-Based Criteria for Child Restraint Selection

- Conducted by
  Robert Anderson and Paul Hutchinson
  Centre for Automotive Safety Research
  The University of Adelaide, Australia

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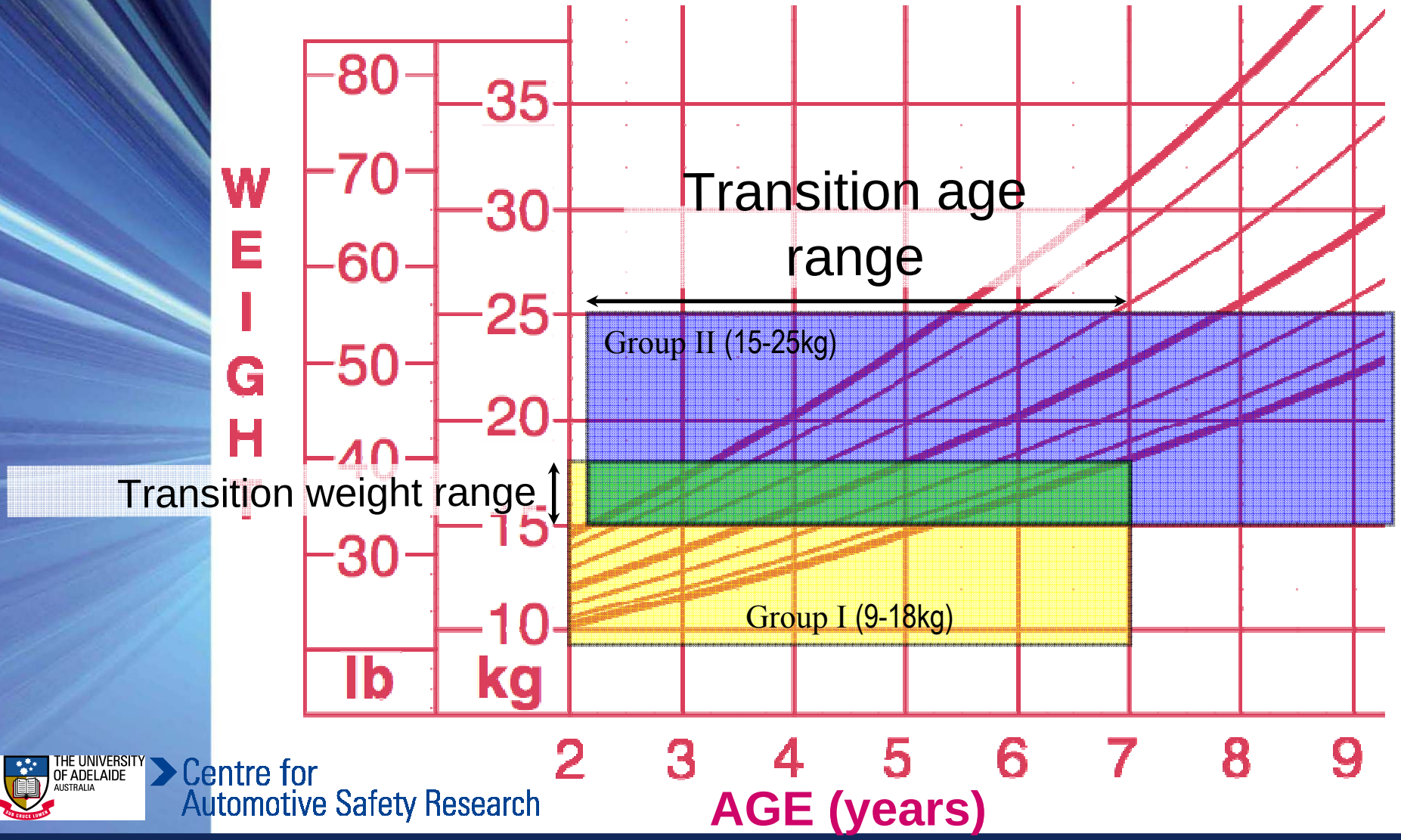
- Reported at 20th ESV Conference, Lyon, France, 2007

THE FEASIBILITY OF AGE-BASED CRITERIA FOR CHILD RESTRAINT SELECTION
RWG Anderson, TP Hutchinson
Paper number 07-0220
The 20th International Technical Conference on the Enhanced Safety of Vehicles Conference (ESV) in Lyon, France, June 18-21, 2007.



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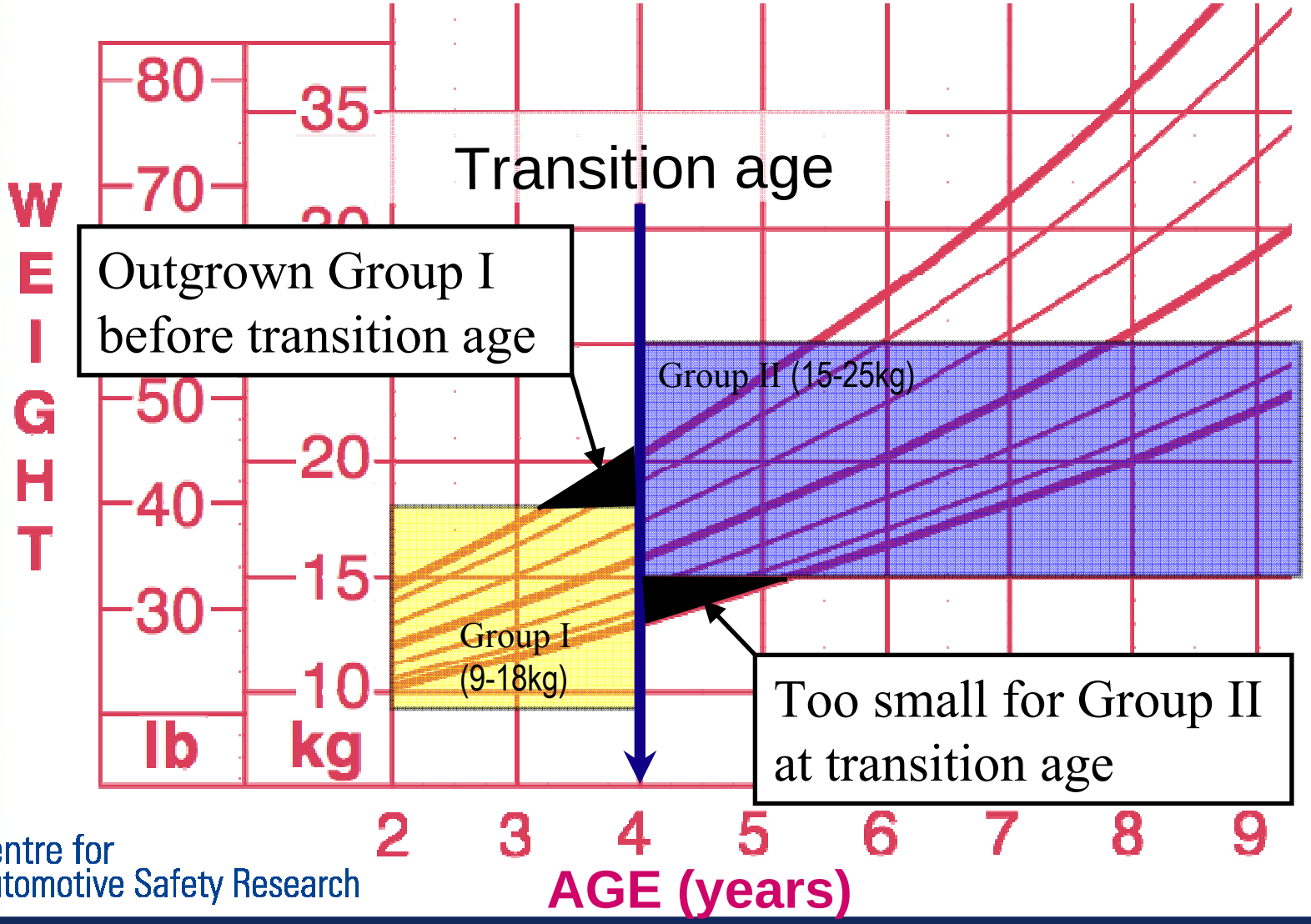

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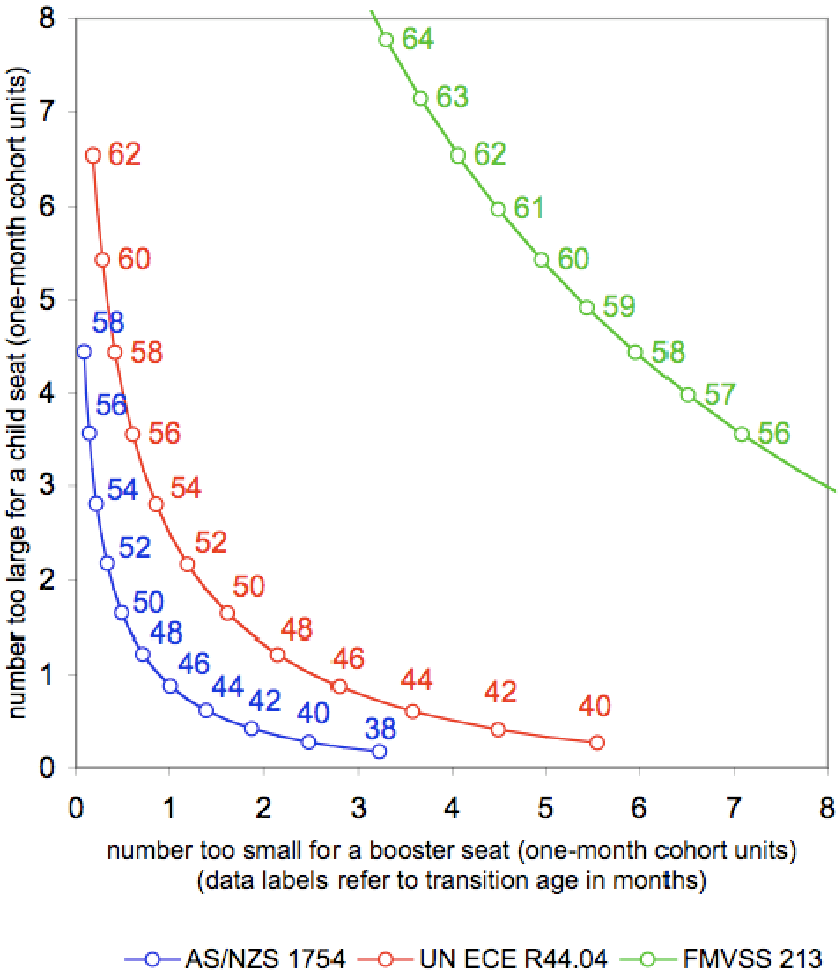
Trade-Off

- For a given set of mass specifications (mass ranges) for child restraint groups, selection of a transition age determines the number of children that are too small or will have outgrown the restraint at the transition age.
- The above technique can be applied to the transition between each of the restraint groups.
- The following graph looks at the trade-off for transition age selection for children moving from Group I to Group II restraints.



Age based transitions from FFCR (Group I) to Booster (Group II).
Number too large for a FFCR v. number to small for a booster by transition age.

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Rates of correct restraint specification using aged-based transitions

Standard	Transition ages	Percentages correctly classified			Percentage of children under 8
		Infant carrier	FFCR	Booster	
AS1754: 2004	6 m, 4 y, 8 y	99.0	93.5	85.4	89.8
UN ECE R44.04	12 m, 4 y, 8 y	90.4	95.4	93.2	93.7
FMVSS 213	12 m, 5 y, 8 y	90.4	80.1	84.8	83.7

Discussion

- This technique can be applied to variables other than mass – for example, height of children versus age could also be considered in this way.
- It is feasible to specify the age of children for the transition between restraint types. Mass ranges may need to be suitably adjusted to minimise trade-off.
- Age based specification may be easier for consumers to grasp and remember.

Alternative Approach

- Draft changes to AS/NZS 1754 (the Australian Standard for child restraints for use in motor vehicles) propose the use of height as the method to determine child restraint selection.
- The marking of maximum and minimum shoulder height lines on the child restraint has been proposed.
- Growth chart data can be used to minimise difficulties in accommodating the mass variation in children of a given height.

Proposed Changes to Australian Requirements for Child Restraints

- Deletion of mass-based categories
- Shoulder height marking on child restraint
  - mock-up examples (illustrative only; revisions to standard not finalised; may be subject to further amendment)