Child Restraint Standards

WHO Road Safety Workshop
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Consumer Organisations

History in advocating safe transport of children in cars
• Raise awareness
• Allow consumers to make informed choice
• Influence Regulations
Consumer Organizations

Umbrella Organizations:

- Consumers International
- ANEC
- ICRT

Participating in

- EURO NCAP
- LATIN NCAP
- GLOBAL NCAP

Child Restraint Systems

- Car child seats or Child Restraint Systems (CRS):
  - Designed to guarantee correct restraint of a child in a passenger vehicle.
  - One of the most important and effective passive safety devices in the vehicle

186,300 children die every year in road accidents

36% of them were traveling as passengers

CRS reduce the risk of death in 80%

Source: FIA toolkit for child safety in cars.
Global Status Report on Road Safety

• Effectiveness of Child Restraint Systems (CRS) varies per category:
  – RWF infant carrier: 90% reduced risk compared to unrestrained
  – Booster seats 77% reduced risk compared to unrestrained

Basic Principles

• Children should benefit same level of protection as adults
• CRS and car manufacturers (OEM’s) share responsibility
  – Car manufacturers facilitate CRS interface, and allow CRS to benefit from built in provisions
  – CRS manufacturers develop compatible CRS that protect children well.
Legal Requirements

• Standards of Approval
  – Set minimal level of protection
    (technical requirements etc)
  – Define car CRS interface
    (ideally ‘plug and play’)

• Laws regarding use of CRS
  – Mandatory use of CRS for children up to certain
    weight/length/age
  – Sanctions when violated

Global Status Report on Road Safety

Countries meeting best practice criteria on child restraint laws

- Green: Child restraint based on age/weight/height and restricts children from sitting on seat
- Yellow: Child restraint criteria based on age/weight/height or child restraint laws combine with
  - Minimum requirements on minimum setting for rear seats
  - Maximum restraint laws on maximum setting for rear seats
- Red: Child restraint laws with restraint based on age/weight/height and law restrictions on level

- Data not available
- Not applicable
Standards

UN-R 44
(and others)

FMVSS213

Standards

UN-ECE 1958 agreement:
Regulation 44
Uniform provisions concerning the approval of restraining devices for child occupants of power-driven vehicles ("Child Restraint Systems")

- 43 contracting parties signed up
- A.o. front and rear impact / roll over test
- Definitions of envelopes, belt length, anchorages
Body proportions

Head proportion:

30% 15%

Changes in body proportion

Newborn 18 months 5 years 9 years 11 years

Source: FIA toolkit for child safety in cars.

Types of CRS

Infant carriers
Group 0+ (<13kg)

Toddler seats
Group 1 (9-18kg)
Types of CRS

- **Booster seats**
  - Group 2/3 (15-36kg)

- **Booster cushion**
  - Group 2/3 (15-36kg)

Installation in car

- **Seatbelt**
- **Isofix**
From Reg 44 to Reg 129

Reg 44:
- Developed in the 1980s and since then many times amended / updated
- Concerns
  - Difficult to understand for consumers
  - Misuse risks (lower level of protection)
  - No encouragement to transport toddlers (>13kg) rearward facing
  - No side impact test procedure

Misuse

Wrong belt routing
Side impact protection

With side protection

Without side protection

Regulation 129

(Enhanced Child Restraint Systems)

- will replace Reg 44 (Child Restraint Systems)\(^1\)
- Main characteristics:
  - Introduction side impact test
  - RWF transport mandatory until 15 months
  - Reduced misuse
  - Stature based classification
  - Q-dummies
  - Improved car compatibility

\(^1\) Required modification of EU Seat Belt Wearing Directive
R44 vs R129

**Regulation 44:** Child Restraint Systems (CRS)
- Mass based classification
- Fixed weight groups
- (semi)Universal / vehicle specific
- Forward facing >9kg
- P-dummies
- No side impact test

**Regulation 129:** Enhanced Child Restraint Systems (ECRS)
- Stature based classification
- Size ranges (not fixed)
- Universal / vehicle specific
- Rearward facing < 15 m
- Q-dummies
- Side impact test

Current Status

**Regulation 44:** Child Restraint Systems (CRS)
- Isofix withdrawn:
  - no new approvals from 1 sept 2017
  - no extensions from 1 sept 2020
- Booster cushions **only group 3**
  (for children >125cm)

**Regulation 129 (i-Size):** Enhanced Child Restraint Systems (ECRS)
- Phase 1: June 2013
  Isofix baby / toddler seats <105cm
- Phase 2: mid 2017
  booster with backrest <135cm, Isofix optional
- Phase 3: t.b.d.
  belted baby / toddler seats

**No new R44 approvals once R129 is finalised**
Challenges

- Low awareness in countries with young (or no) history of mandatory CRS use
- Availability of affordable products
- Weak market surveillance

Way forward

- Apply
  - Usage laws
  - UN Regulations
- Awareness campaigns (local “car seat check” systems)
- Encourage use with incentive schemes
- Consumer Information Programs
  - Several NCAPs include Child Occupant Protection Rating
  - CRS test programs reward best practices
CRS test for Latin America

- Frontal impact (NCAP severity)
- Side impact
- Ease of use

Side impact

Summing up

- Implement UN R44 where no Regulation is in place
- Encourage side protection provisions
- Speed up introduction of LATCH / Isofix seats
- Encourage RWF transport of toddlers
- Allow UN R129 approved products
Thank you!