Young Researchers Seminar 2013

Lyon, France , June 5-7 2013

Laboratoire d'Economie des Transports
Unité Mixte de Recherche du CNRS n° 5593
Université Lumière Lyon 2 - ENTPE



Child Restraint misuse analysis and usability assessments

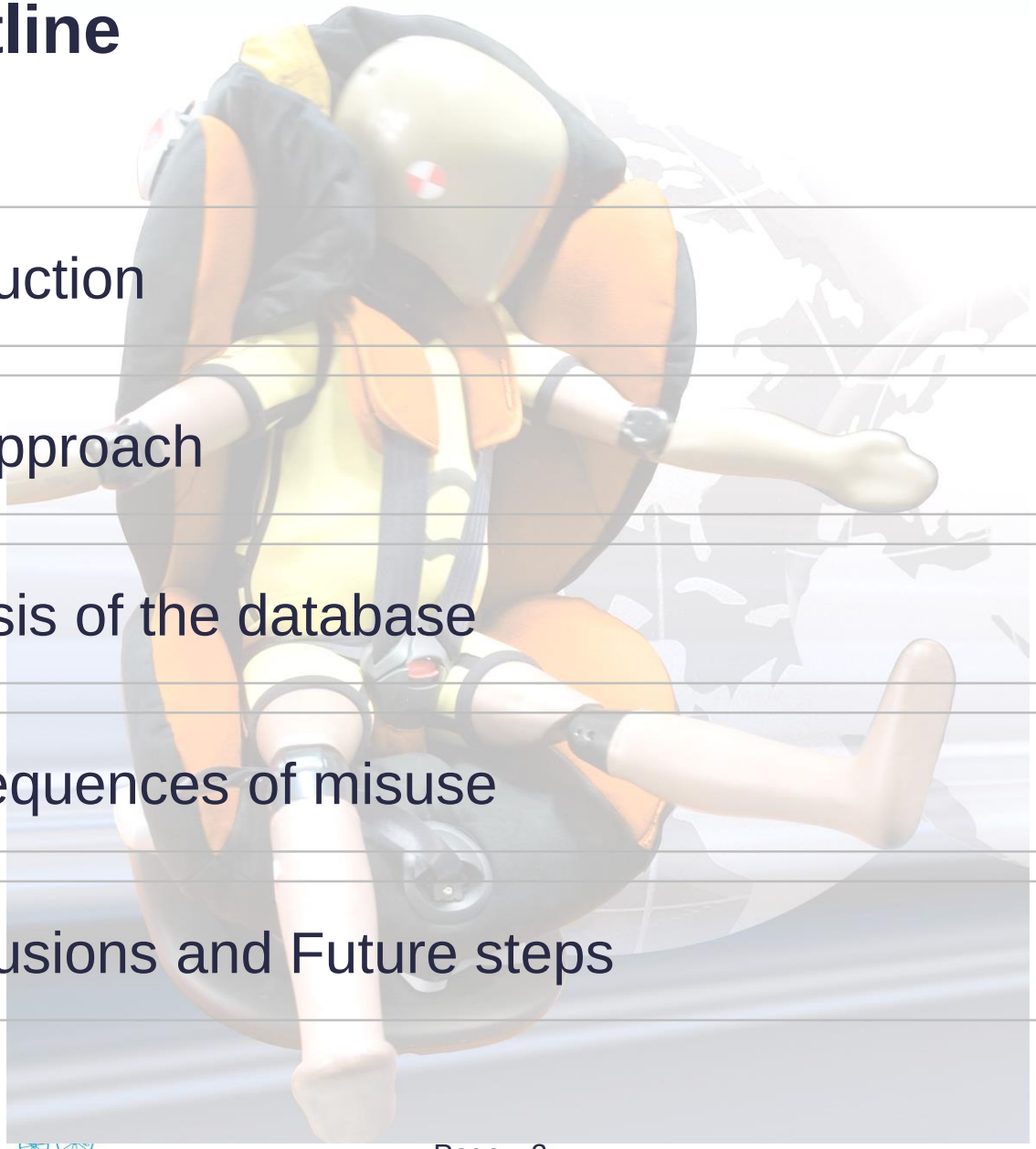
Mark Pitcher

TRL Child Safety Centre

ECTRI
European Conference of Transport Research Institutes

FERSI
Road Safety Research

Outline



1 Introduction

2 The Approach

3 Analysis of the database

4 Consequences of misuse

5 Conclusions and Future steps

Introduction

- Child Restraint Systems (CRSs) have improved in performance in last 30 years
- A poor performing CRS will always perform poorly, no matter how well it is fitted
- However, inappropriate use and misuse of CRSs will degrade its potential for protecting children in car crashes
- CRS “fit and use” checking clinics are held in UK. During which advice is provided on:
  - Appropriateness of the child restraint
  - Compatibility of CRS with their vehicle
  - Attaching CRS to the vehicle
  - Installing child into the CRS

The approach – Develop the form

- In 2010, TRL began coordinating collecting and analysing information gained during checking clinics
- Initial form developed from previous experience
- Form trialled at fit checking clinic
- Form refined, consultation with UK local Government Authorities



The Form

About the Child Seat (Tick one)

Was the child restrained? Yes ☐ No ☐

What type of seat was used? (Tick one)

Forward facing only	Rearward facing only	Two-way	Lateral facing
☐	☐	☐	☐

(Tick one)

Infant Carrier	Carrycot	Safety seat Harness	Safety seat (Impact shield)	Booster seat
 ☐	 ☐	 ☐	 ☐	 ☐

Booster Cushion	Booster Cushion (With shield)	Other (Please state).....
 ☐	 ☐	

The approach – Disseminate the form

- Form distributed Nationally to UK local Government Authorities and road safety professionals
- Forms returned electronically and entered into National Database for Child Restraint Use
- TRL now working with Good Egg to broaden data collection



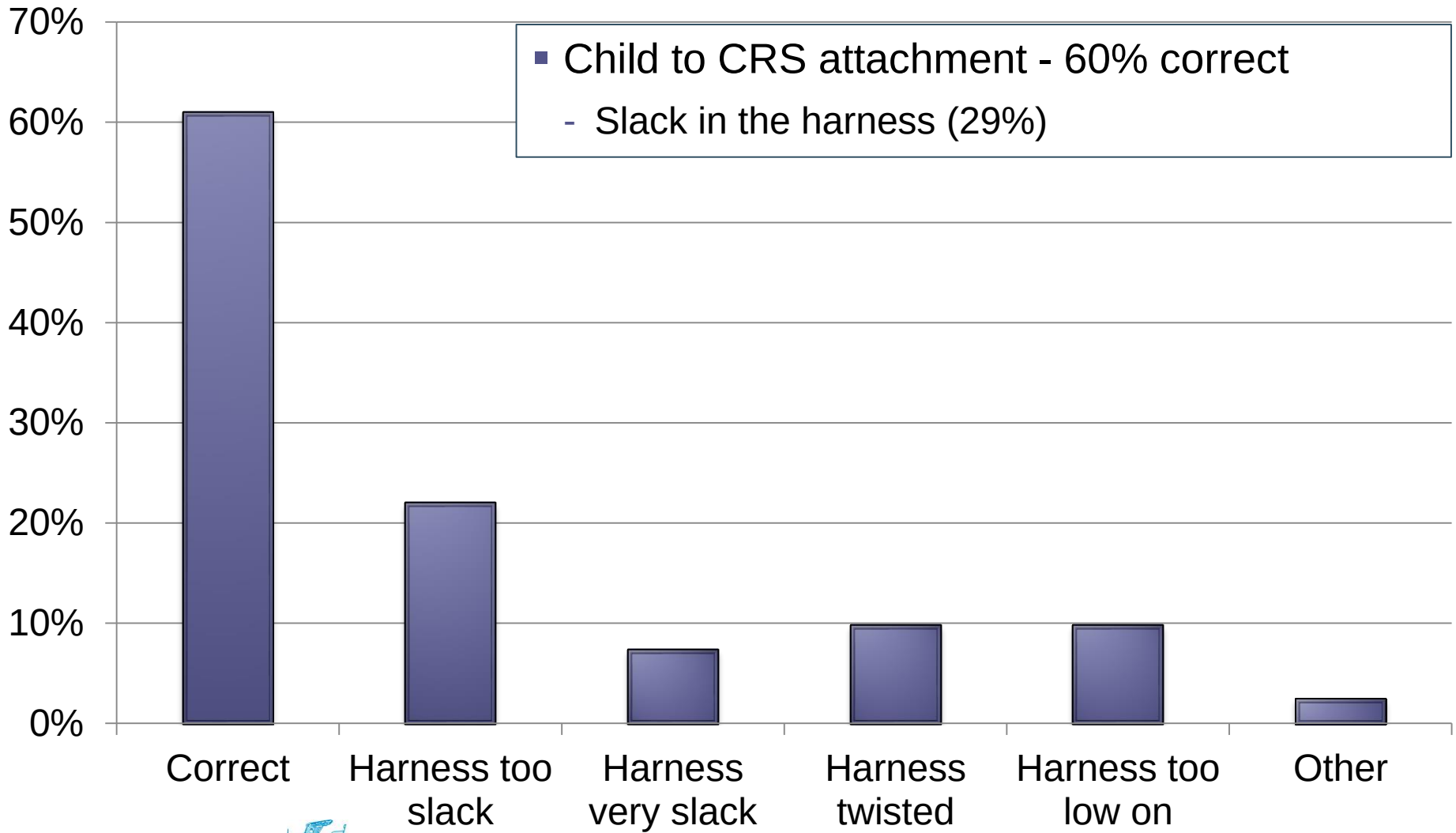
Analysis of the Database

- Analysis of the Database has been conducted
- Form collects information anonymously
  - However age, weight and height of the child are recorded
- This allows the appropriateness of the CRS to be determined
  - 55% knew the child's weight
  - 1% knew child's height, but not weight
  - 21% knew both weight and height
  - 44% knew neither weight or height

Approriate use analysis

- All children using RF CRSs were within Group 0 mass range (<10kg)
  - However all were <1 year-old
- All children using Group I FF CRSs were >9kg
  - However 8% were <9 months old
- 1 case child >18kg using Group I FF CRSs
- Several cases of children <15kg using Group II/III booster seats
  - These children were > 3 years-old
- Trend is still to transfer to next stage as soon as possible
  - Especially RF to FF
  - Integral to Non-integral

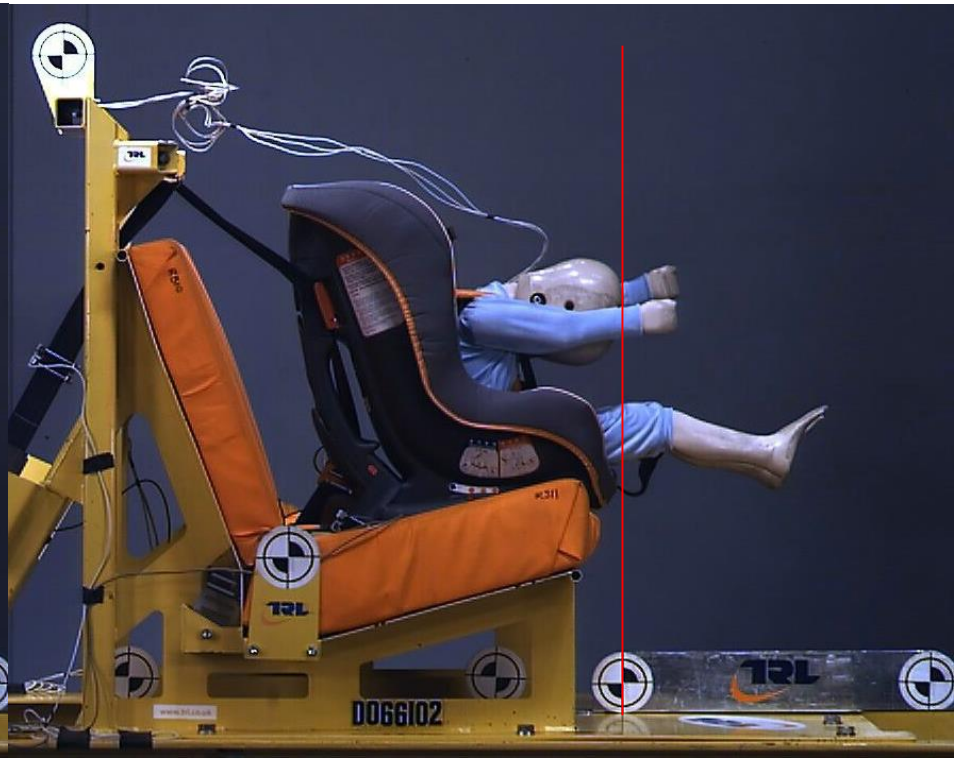
Misuse analysis – Child to CRS attachment



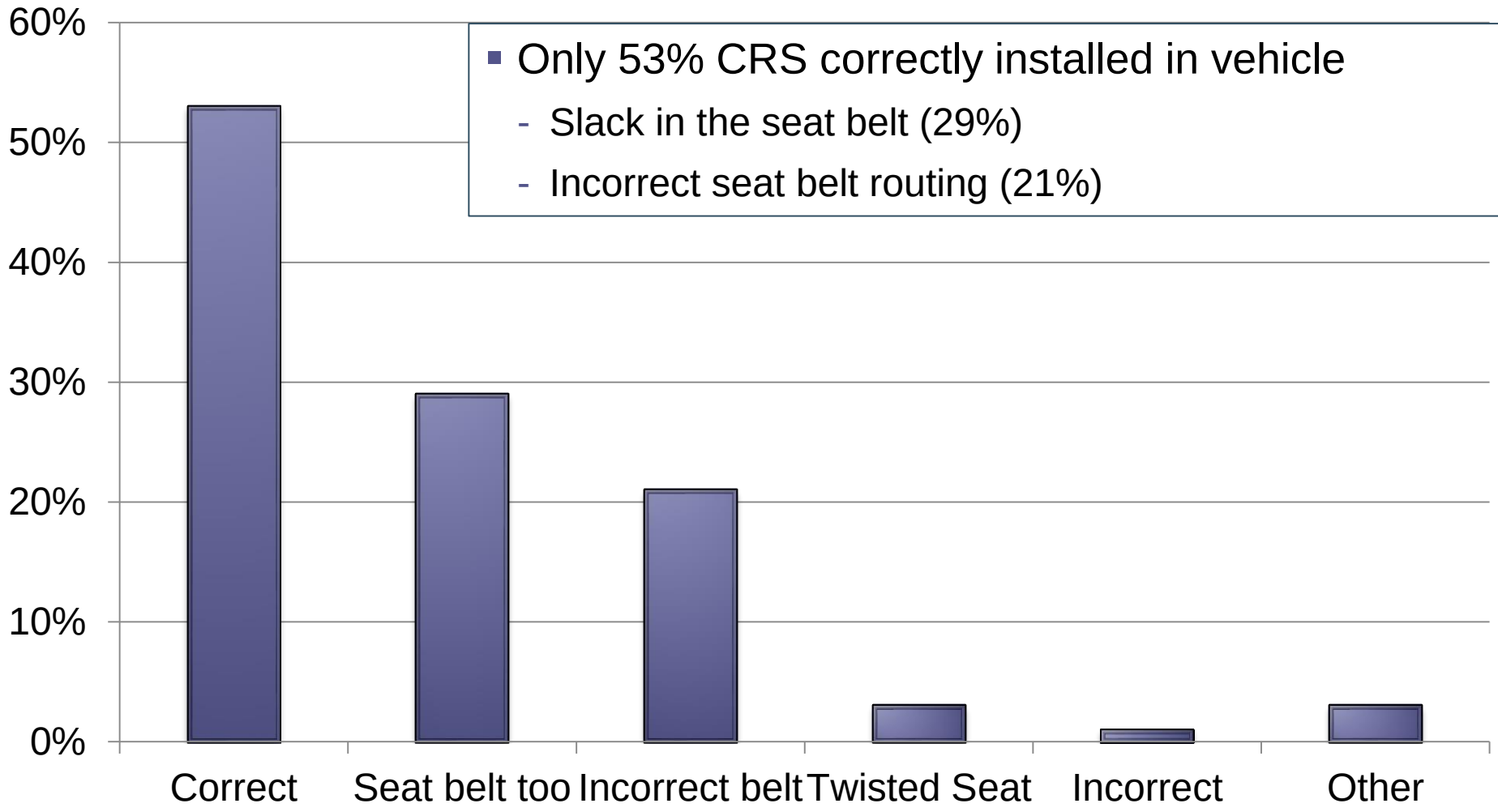
Misuse analysis – Child to CRS attachment

Slack in the harness (29%)





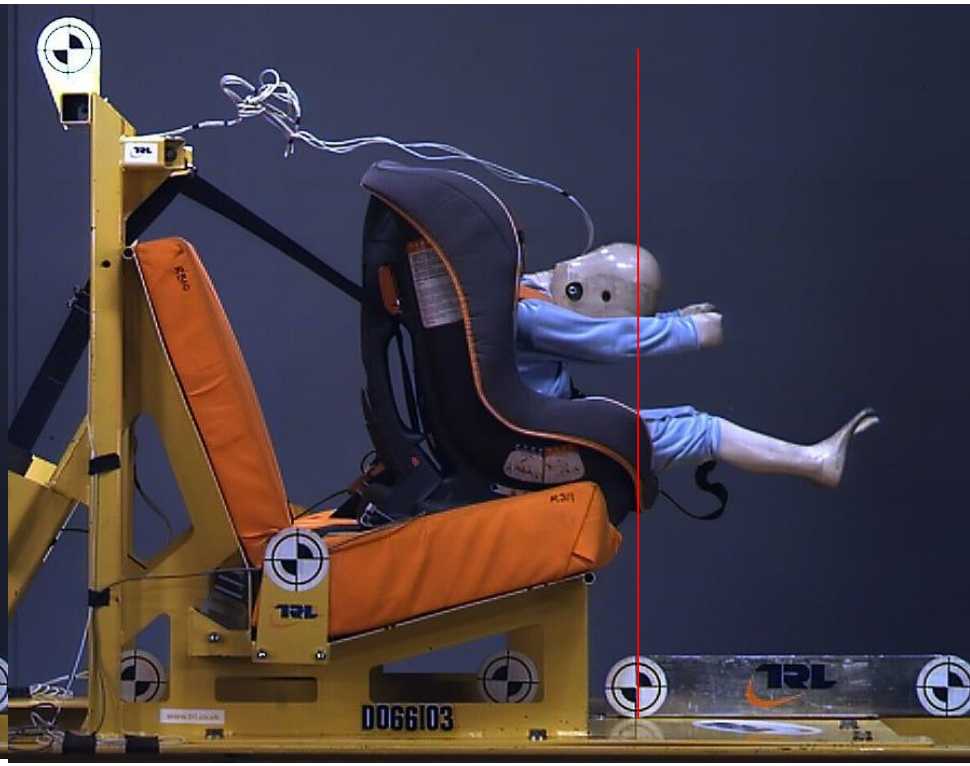
Misuse analysis – CRS to vehicle attachment



Misuse analysis – CRS to vehicle attachment

Slack in the seat belt (29%)





Conclusions and future steps

- Misuse analysis shows that although parents are becoming more aware of need to restrain children appropriately
  - However education is still required
- TRL and Local Government Authorities checking clinics
  - Provide education to the public
  - Collect information on child restraint use
- Increase National Database for child restraint use
  - Allow future broader analysis of restraint use
- This study is important to monitor new Regulation
  - Different classifications and labelling into the retail environment

Acknowledgements

TRL Child Safety Centre would like to thank the following:

- The UK THINK campaign
- Local Authorities of Birmingham, Hull, Wokingham, Bracknell and Cambridgeshire
- Road Safety GB
- The Participating Fire Services and Police Services
- The AA and the RAC
- The Child Accident Prevention Trust (CAPT).
- The BPA, Britax, Graco, Halfords and Tesco
- Good Egg

