

Informal document GRSP-53-08  
(53rd GRSP, 13-17 May 2013  
Agenda item 17)

# Development of Guidelines for Improvement of Vehicle Safety Regarding Infant-Carrying Vehicles

**Presentation material for  
53rd session of GRSP &  
104th session of GRSG**

# 1. General Description of Infant-Carrying Vehicles

## **(1) What is an infant-carrying vehicle?**

Motor vehicle that transports infants (of ages 3 to 6) between home and preschool/kindergarten

## **(2) Status of use of infant-carrying vehicles**

- An infant-carrying vehicle carries 10 to 50 infants and 1 or 2 adults (preschool/kindergarten teachers, etc.) in addition to the driver.
- Transports infants from home to preschool/kindergarten and from preschool/kindergarten to home.
- Operated in early morning and early evening (hours with a relatively heavy traffic).
- Operated in the vicinity of the preschool/kindergarten.
- Operated at low speeds (motorways are not used).
- Infant passengers may sit with personal items on (school bag, water bottle, etc.).



## **(3) Number of infant-carrying vehicles owned**

Number of infant-carrying vehicles owned in Japan: 17,800 (as of March 2009)

## 2. Standards Applicable to Infant-Carrying Vehicles

- ◆ Seat size requirement (\*1)
- ◆ Prohibition of installation of folding seats
- ◆ Exemption from the seat belt installation requirement (\*2)



- ◆ Mandatory gangway installation
- ◆ Gangway size requirement
- ◆ Prohibition of installation of areas for standing passengers



- ◆ Mandatory platform installation
- ◆ Requirement on platform size, etc.



- ◆ Emergency exit size, etc.



- ◆ Indication on the vehicle

(\*1) Seat size: Depth 230 mm or more & 270 mm or less

(\*2) Reasons for the exemption include:

- \* Infants not able to fasten/unfasten their own belts; difficult to exit in emergency situations.
- \* Infant body build depends on age; difficult to designate a specific configuration of the belt.
- \* Passengers accompanying infants (preschool/kindergarten teachers, etc.) would have to assist them with fastening/unfastening of belts, if installed.

### 3. History of Discussions on Safety Measures, Etc.

- Mothers of infants, etc. requested that the installation of seat belts be mandatory for the infant-carrying vehicles.
- Discussion started after grasping the current status of accidents and the infant behaviors in collisions:
  - 2009: Current status of accidents involving infant-carrying vehicles grasped; A survey on accidents involving infant-carrying vehicles in other countries conducted at the 46<sup>th</sup> session of GRSP (Informal document No. GRSP-46-41, Dec. 2009);
  - 2010: Investigation on safety of infant-carrying vehicles (collision experiments) conducted;
  - 2011: A hearing survey to stakeholders conducted and the direction of the measures discussed;
  - 2012: WG on Infant-Carrying Vehicles established, and specific safety measures discussed (a total of 4 meetings held);
  - March 2013: The Guidelines developed.
- The members of the WG consist of academic experts, research institutes, automakers, auto parts makers, etc., and it is also attended, as observers, by preschools/kindergartens using infant-carrying vehicles.

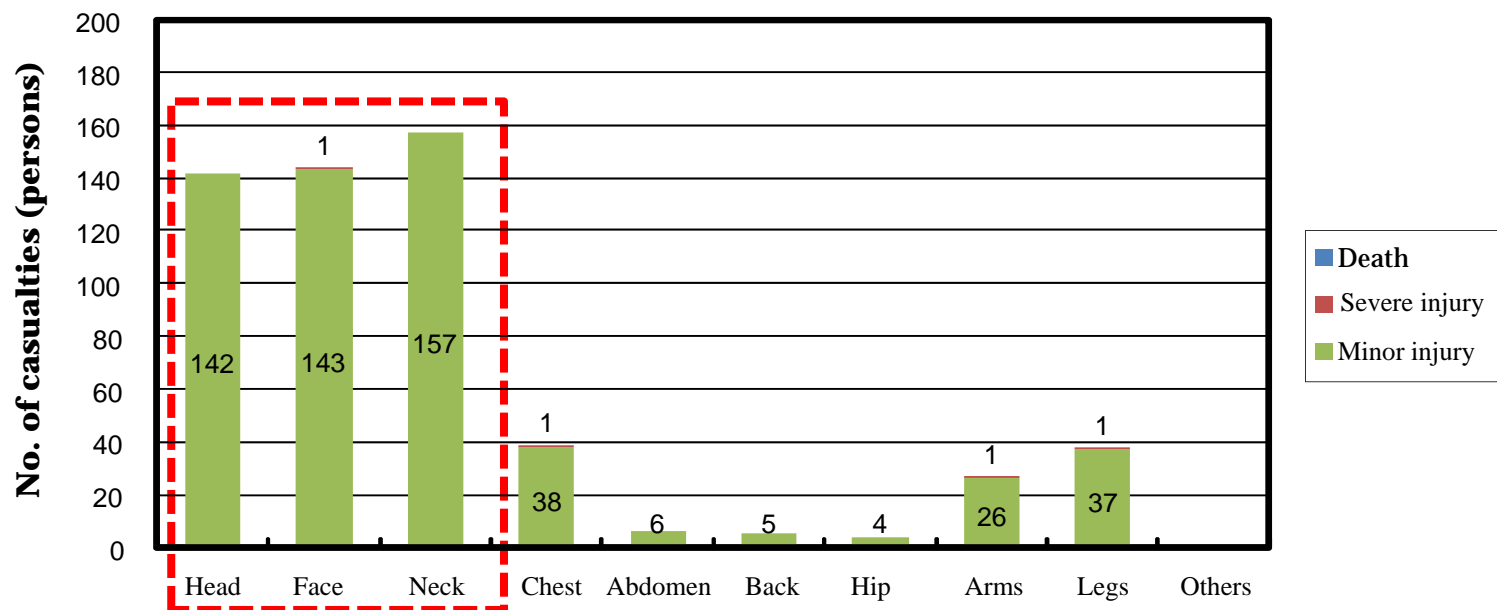
## 4. Current Status of Accidents Involving Infant-Carrying Vehicles (1/2)

Using data on traffic accident statistics recorded during 6 years from 2003 to 2008, vehicle-to-vehicle accidents, single vehicle accidents and person-to-vehicle accidents involving buses/microbuses and minivans, etc. registered as infant-carrying vehicles that were carrying passengers age 6 and younger were analyzed.

### ◆ Collision Areas on Infant-Carrying Vehicles

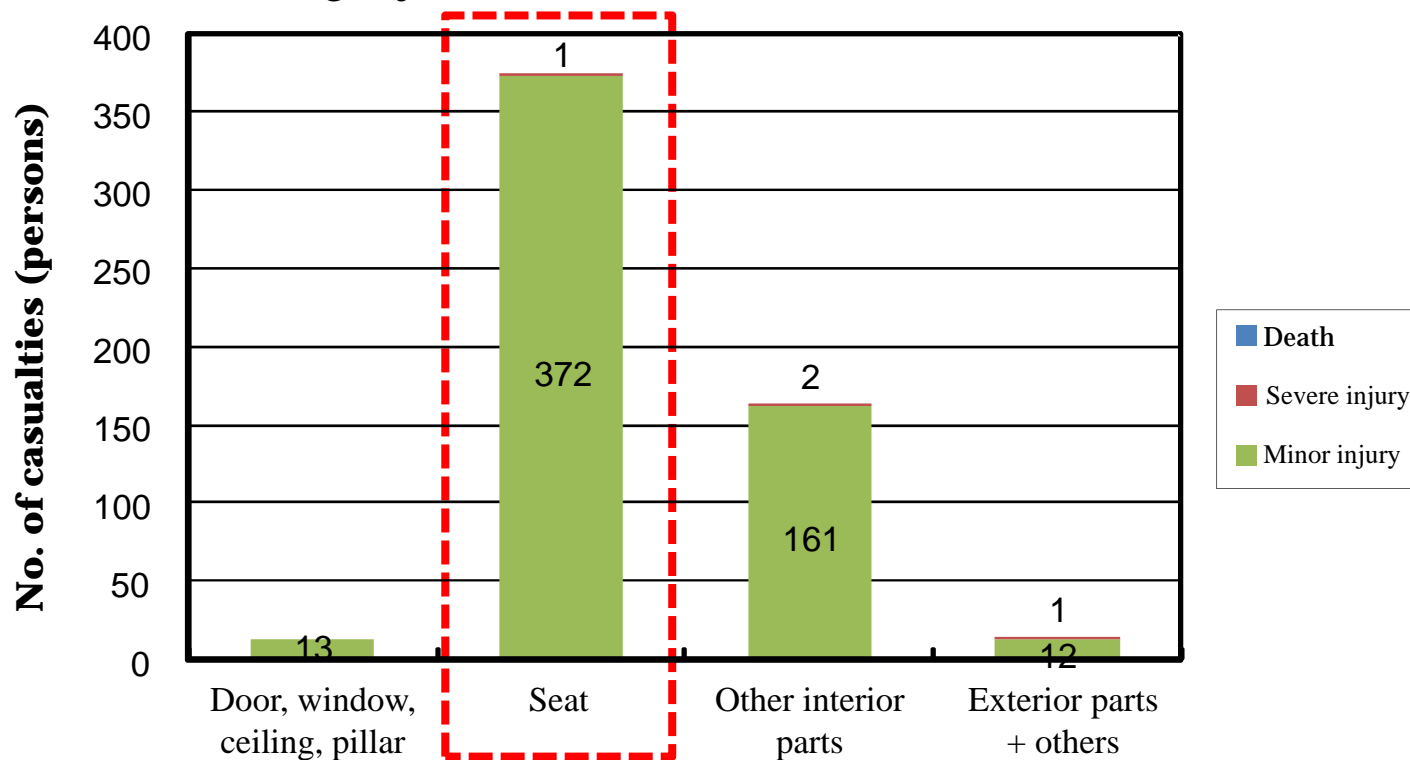
	Front	Right front corner	Left front corner	Right side	Left side	Rear	Right rear corner	Left rear corner
No. of vehicles involved in accidents	393 (29.7%)	229 (17.3%)	206 (15.6%)	125 (9.4%)	176 (13.3%)	109 (8.2%)	46 (3.5%)	39 (2.9%)

### ◆ Injured Body Parts of Injured Infants



## 4. Current Status of Accidents Involving Infant-Carrying Vehicles (2/2)

### ◆ Vehicle Structures Causing Injuries to Infants



#### Results:

- ◆ Among the collision areas on infant-carrying vehicles, the frontal area (including the left and right front corners) accounted for the most, at about 60%.
- ◆ As for the injured body parts, the “head”, “face” and “neck” accounted for 70-80% of all the body parts; and the “seat” accounted for the majority of the vehicle structures causing such injuries.



## 5. Guidelines on Safety Measures

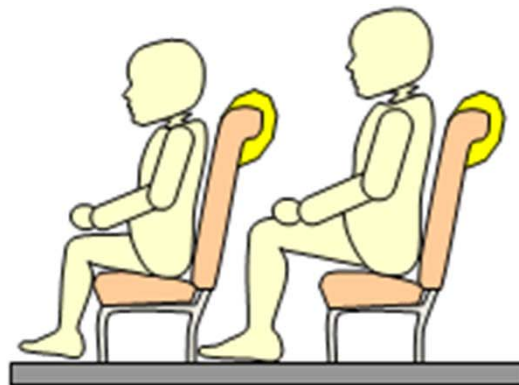
### ◆ Events that need early improvement of safety

- ✓ Events in which the head, face, and/or neck is injured by the seat in front (minor injuries)

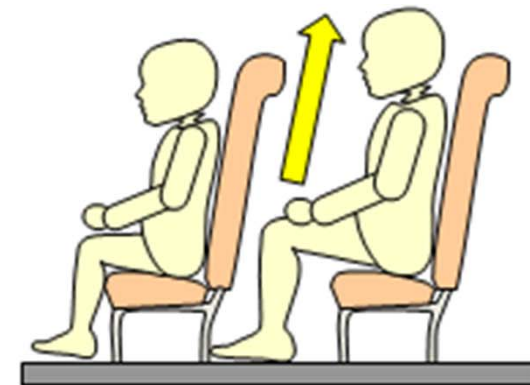
### ◆ The Guidelines request that motor vehicle manufacturers develop vehicles, by March 2015, in which the following safety measures are implemented with the accidents involving infant-carrying vehicles taken into account:

- ✓ Shock-absorbing material to be added to the rear of the seatback;
- ✓ Seatback height to be increased by about 100 mm  
(height from the seating surface to the top of the seatback to be about 470-490 mm).

Note: Installation of seat belts not to be required until those suitable for infant seats in infant-carrying vehicles are developed.



Addition of shock-absorbing material  
to the rear of the seatback



Change of the seatback height  
(About 470-490 mm)

# Thank you for your attention.



- **Attachments:**
  - **Guidelines for Improvement of Vehicle Safety Regarding Infant-Carrying Vehicles**