

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

**Presentation material by Japan 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)



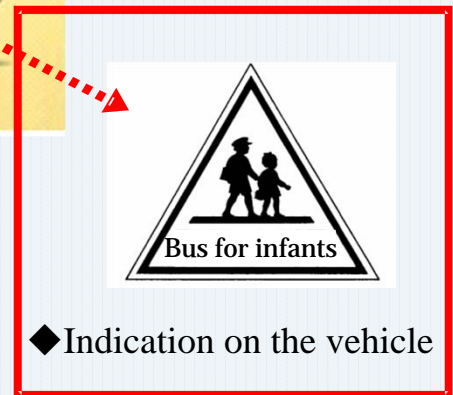
- ◆ Mandatory gangway installation
- ◆ Gangway size requirement
- ◆ Prohibition of installation of areas for standing passengers



- ◆ 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 46th 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.

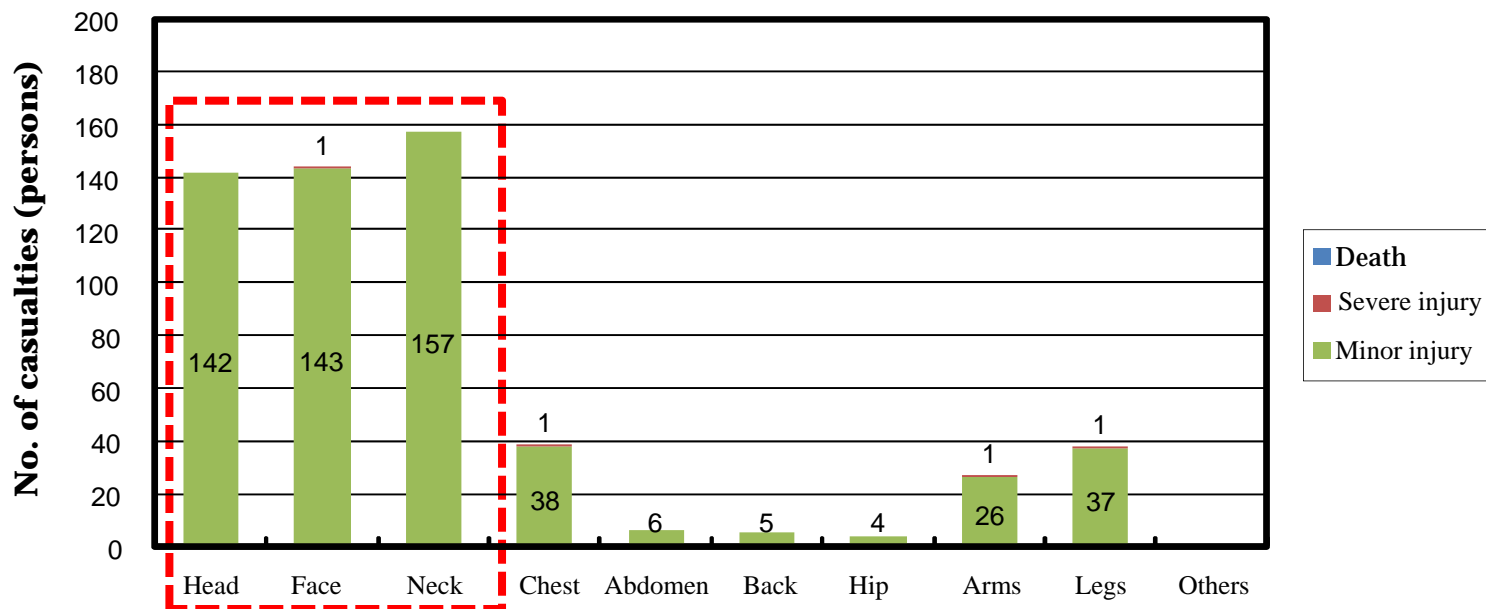
4. Current Status of Accidents Involving Infant-Carrying Vehicles (1/2)

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

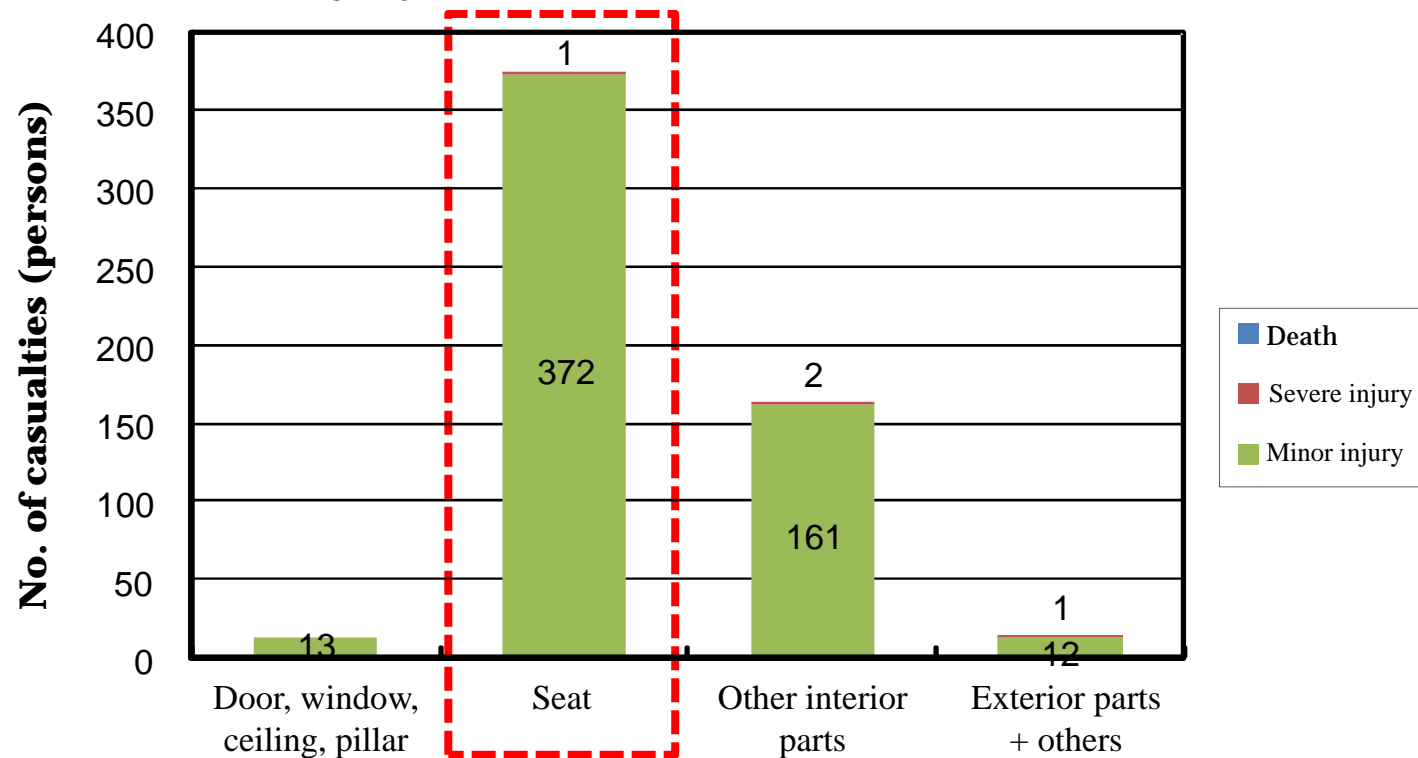
| | Front | Right front corner | Left front corner | Right side | Left side | Rear | Right rear corner | Left rear corner |
|---------------------------------------|----------------|--------------------|-------------------|---------------|----------------|---------------|-------------------|------------------|
| 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

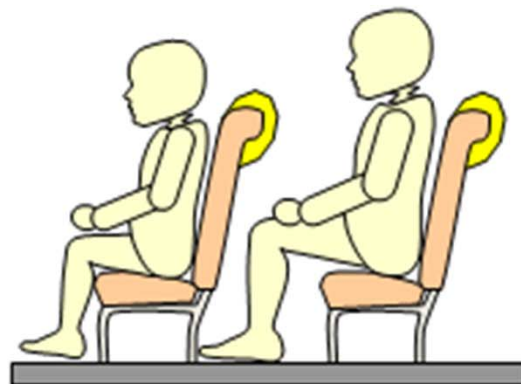
- ✓ Events in which the head, face, and/or neck is injured by the seat in front (minor injuries)

◆ 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:

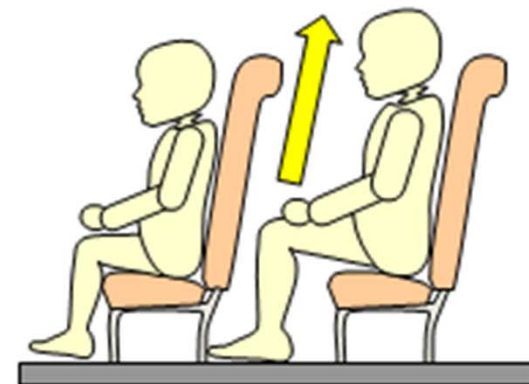
- ✓ Shock-absorbing material to be added to the rear of the seatback;
- ✓ Seatback height to be increased by about 100 mm

(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)

6. Concept and Purpose of the Guidelines

- The Guidelines, while giving consideration to the current usages of infant-carrying vehicles, show the direction in which the motor vehicle manufacturers, etc. should develop their infant-carrying vehicles to improve their safety.
- Since no seat belts suitable for infant seats installed in infant-carrying vehicles currently exist, the Guidelines will facilitate development of such seat belts suitable for the infant seats (the motor vehicle manufacturers, etc. shall aim to develop them in the next 3-5 years).

Thank you for your attention.



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