CLEPA
European Association of Automotive Suppliers

Input for UN IWG CLIV meeting on June 20th, 2024.

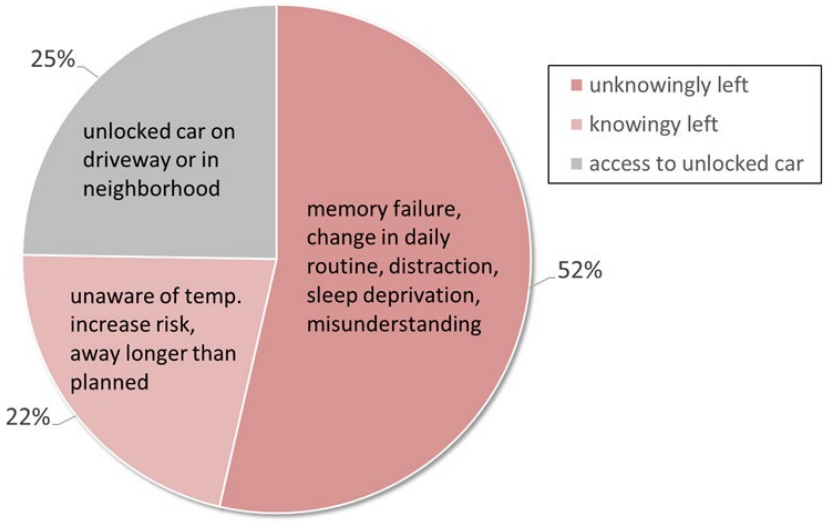
CLEPA Feedback to IWG CLIV Questions

(1) What are the factors driving and leading to the 3 typically known scenarios where Paediatric Vehicular Heatstroke (PVH) is observed in field events globally?

PVH is occurring when a child is exposed to excessive heat in a vehicle, typically because the vehicle is parked in the sun, leading to a significant temperature increase in the vehicle interior. If the child is exposed to the heat for too long it can result in fatal injuries. One also needs to consider children surviving the PVH while suffering from lifelong brain or organ damage.

Three typical scenarios can be identified on why a child can be unattended in a vehicle:

1) Unknowingly left: the child unknowingly remains in the vehicle, either because the caretaker forgot to drop it somewhere during the journey or forgets it at the end of the journey.
2) Knowingly left: the caretaker knowingly leaves the child in the vehicle and underestimates the risk of PVH to occur.
3) Gaining access to an unlocked vehicle: a car is unlocked, and a child gets inside, but doesn't manage to get out again.



(based on US statistics)

Extensive statistical analysis on the US PVH fatality cases can be found under the following link, data from 1998 until today (complied by Jan Null, San Jose State University):
No Heat Stroke (https://www.noheatstroke.org/)

The NHTSA report DOT HS 813 360 has analysed in detail all the 2019 PVH cases in the United Sates resulting in a fatality (52 fatalities reported). It allows to get an insight on the various situations that can occur, leading to a fatal PVH.

Research on PVH cases in Europe, based predominantly on online research, indicates that scenario 1 strongly dominates, while scenario 3 appears to be very rare.

(2) In what type of vehicles is PVH occurring in field events globally?

- The large majority of PVH cases occur in passenger cars.
- A few cases per year are known to occur in vans or small busses, often in the context of daycare or kindergarten related transportation.
- Some isolated PVH cases have occurred in large school buses.

Vehicle specific overview from NHTSA report DOT HS 813 360:

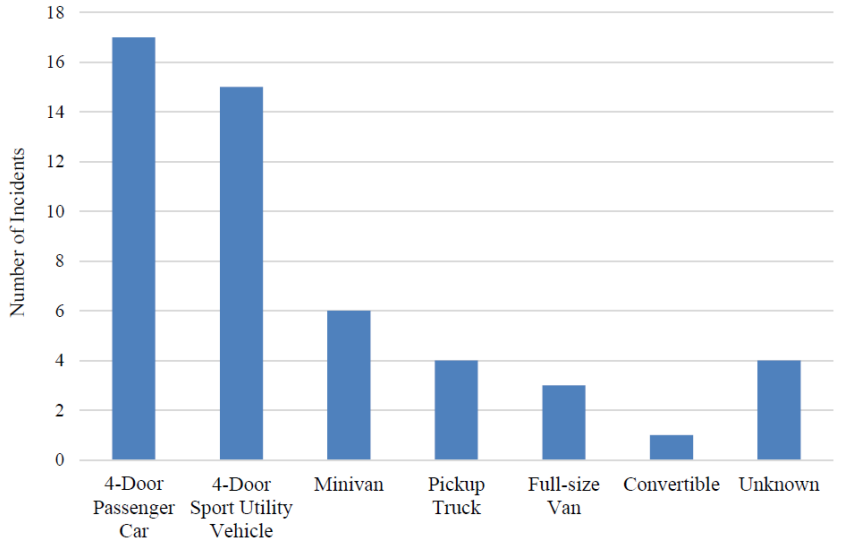
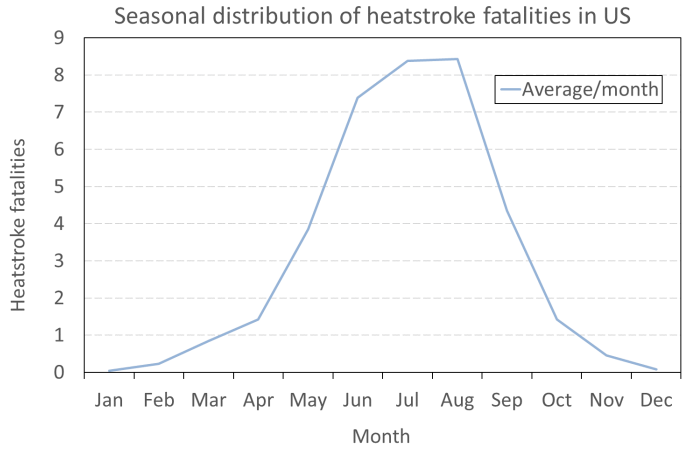


Figure 18. Involved Vehicle Body Type

(3) Under what environmental and vehicle conditions are global field events observed in which PVH occurs?

There is a clear seasonal effect on the PVH risk (sunny season, higher ambient temperature, more and longer sunshine duration).

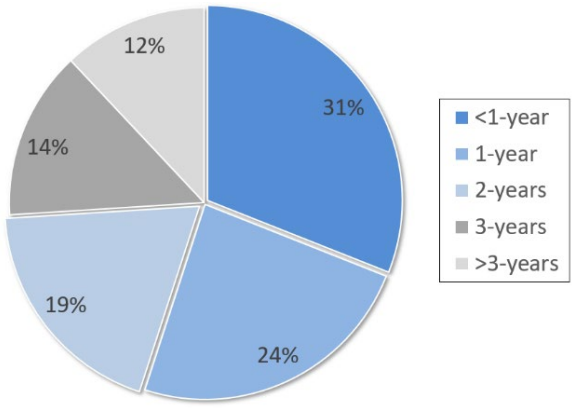


(based on US statistics)

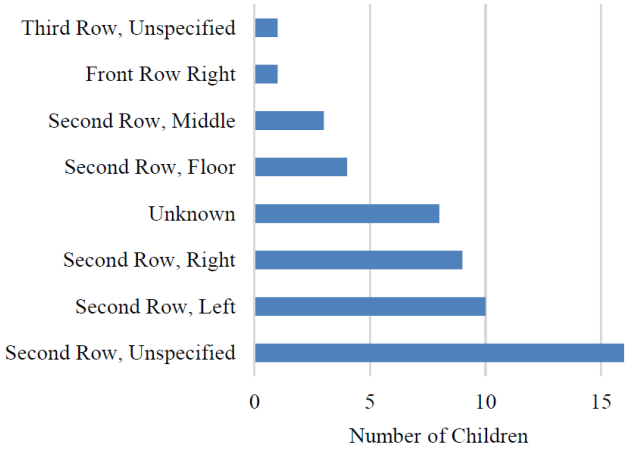
The temperature inside a vehicle parked in the sun can reach a critical level within 15-20 minutes.

(4) What age groups does PVH affect and how are the victims seated/oriented in the vehicle?

PVH victims are predominantly children, and almost 75% are 2 years old or younger (US data).



The NHTSA report DOT HS 813 360 found the following information on seating locations and CRS usage:



Restraint Type	Restrained in CRS	Not Restrained	Unknown Whether Restrained	Total
Forward-Facing CRS	15	1	0	16
Rear-Facing CRS	12	1	0	13
CRS, Unknown Type	9	0	0	9
None	0	7	0	7
Unknown	0	0	7	7
Total	36	9	7	52

(5) What are possible solutions/countermeasures which address the underlying safety concerns observed in the field?

Public education on the PVH risks is a good starting point. However, key root causes of the incidents for the dominating scenario 1 are memory failures, distraction, and misunderstandings. That's where education and information campaigns have their limits, and that's why technical solutions can help to compensate for human weaknesses in the rare cases where these occur, leaving a child exposed to a PVH risk.

- Passenger cars have entered the market offering technical solutions/countermeasures, with different capabilities:
  - "indirect" sensing: based on a door opening-logic; the system can assume that a child may have been installed in the vehicle at the start of the journey; a reminding alert is triggered at the end of the journey (e.g. "check rear seat" message in the display).
  - "direct" sensing: sensing technology to check for the presence of a child/human still in the car after the driver has left/locked the vehicle. If presence is detected, the vehicle can trigger a local warning and, depending on its capabilities, also initiate other warning messages (e.g. to a smartphone).

- For vans/buses there are solutions/countermeasures available for aftermarket installation:
  - Push-button at the rear of the bus: the driver has to walk to the rear of the bus and push the button at the end of the journey. The assumption is that a driver would then see a child that might still be in the vehicle.
  - Direct sensing systems that work similar as for passenger cars.

- There are also child-seat based approaches, as original equipment, or aftermarket installations. Sensors in the CRS or on the buckle/harness can detect that a child may still be in the CRS. The CRS/sensors then communicate this information towards the vehicle or a smartphone.

(6) How will the IWG structure the work to address PVH in the following areas:
a. New vehicles vs. existing fleet?
b. Privately-owned passenger vehicles vs. third-party school buses/vans?

Some general CLEPA comments on the sub-items a)-b):

a)
- New vehicles: OEM factory installation, e.g. based on regulatory requirements (GTR or UN Regulation).
- Existing fleet: requires aftermarket solution – addressable under authority of WP29?

b)
- Vehicle categories have to be discussed within the scope of a potential regulation: M1, M2, M3 (N is probably not really relevant).
- Some countries (e.g. South Korea, Japan) have specific national legislation requiring the fitment of certain countermeasures to third-party buses/vans used for the transportation of young children.