**Case Report**

**Vehicular lock and key devices: Ethical issues and medical implications**

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Most car models have central lock system which at one instance locks all the doors, the opening into the fuel tank and the car trunk. This helps to ensure that drivers do not have to go about with multiple keys that lock different part of a vehicle. Also, most new generation vehicles have internal levers located below the driver's seat that when pulled releases the catch of the trunk thereby opening it. The access to this lever is available if the door of the car is not locked and then anybody, even playing children can pull on it and thus open the car’s trunk. The potential danger of children operating this lever and opening the trunk is enormous. There are several reports of such children getting into the trunk that they have opened by themselves, closing the hood and then suffocating inside. Usually, this result from innocent game of “hide and seek” that may eventually turn tragic. The cases of trunk entrapment usually end up fatally because there are no release mechanism from inside that a victim can pull and release himself. But due to the frequent reports and subsequent outcry of relatives and victims of trunk entrapment, the automakers developed an internal trunk release device that can enable anyone locked in a trunk to free himself. Again, health campaign efforts by relevant bodies need to be encouraged to educate both parents and children of the inherent dangers of playing in car trunks. Parents are also to ensure that all car doors are locked always and keys kept out of children’s reach.

**Key words:** Children, death car, key, lock and driver.

**INTRODUCTION**

Children playing in and even around cars can be a very dangerous and deadly activity if not properly controlled and supervised by observant adults. These seemingly innocent activities have led to reports of hundreds of young children injuring themselves or even getting killed each year by setting vehicles into motion or by locking themselves inside.

Every week in the U.S.A, it is reported that at the least, about fifty children are run-over in their driveways and in public car parks (Backovers.Kids and Cars.org, 2013). It is also reported that at least about two of these children die (Backovers.Kids and Cars.org (2013). Of particular concern are the small children who excitedly run out of their homes to see off their visitors as they are especially at risk of not been seen by the drivers of the vehicles when their cars are set into motion. They therefore run considerable risks of being run over by these vehicles. Many times, the drivers of these cars could be a parent, a relative or a neighbour.

It is very dangerous to leave children alone in a car/vehicle even for a minute. They can do just about anything. They can suffer from heat strokes, they can even set off the car into motion they can be strangulated by a power automatic window or even be kidnapped by
A particular report by a family described the inherent dangers of the activity of these innocent children. The four year old son of a family inadvertently set off their pick-up van into motion and rolled over their seventeen months old daughter who was playing outside. She died instantly. The little boy apparently started the engine of the car, little realizing the potential dangers in his innocent activity (Shaw, 2013).

Reporter Nancy Carvagal reported a particular story in the Inquirer News of July 18, 2013 of the discovering of the remains of two young boys aged three and four years who had gone missing for about four months before this discovery. It is supposed that maybe these young ones got into the parked car where their bodies were found, then got locked in accidentally, then maybe fell asleep from heat exhaustion and died from severe thirst and dehydration (Carvajal and Gamil, 2013).

Our children need our guidance and protection. We need to be there for them and help to protect them. This incidence of children getting locked up in vehicle trunk has not been previously reported locally.

Does it mean then that the problems do not happen here? Most of the things that we get to hear are oral undocumented reports usually from third parties, stories that probably are not verifiable.

Victims of trunk entrapment fall into two main categories of those who get trapped-in intentionally usually by criminals or those who get trapped unintentionally. The second group mostly involve young children who get locked in while playing. The trunk of a vehicle may ordinary look like a good place for a “hide-and-seek” game by exploring children. But then, the dangers may be enormous, as the combined force of high temperature, high humidity and poor ventilation makes car trunk extremely dangerous T.R.U.N.C (2013).

There is no doubt that the problem exists in our locality, and that it may have gone unreported. Parents and all adults need to be aware of the possibility of these accidents.

Ethical question then arises on the need for all automobile manufacturers to install safety mechanisms on all their vehicles even if it means added costs in the purchasing values of these vehicles.

Save our children, awareness and planning are the keys. Anyone can become a target.

**CASE REPORT**

On a particular uneventful dry and sunny afternoon, a family had received friend who came calling for a brief discussion with the father of the home. All went well and at the end of their talk, the father of the home together with two of his children saw off the visitor to his car which was parked outside the fenced and gated compound of the family. The father of the children stood talking with the home-bound visitor by the opened gate with his back to the playing children in the compound. Meanwhile, the visitor was getting into his car that was parked outside, apparently looking into the compound. But unknown by the two men, the two playing children had apparently opened the door of their fathers parked but unlocked car and had drawn the lever that opens the trunk of the car.

All these while, they were giggling happily at their achievements not realizing the inherent dangers in their playful activity. Encouraged by the older brother, the younger, 3 year old then entered, they now opened trunk of the car and was just about to shut the trunk on himself when the home-bound visitor who was just about to drive off looking through the opened gate raised a strident shout of alarm. The children’s father looked back, saw what was about to happen, quickly rushed to the car and stopped the motion of the trunk from shutting down and rescued the boy. The young boy, still in the mood of play was still trying to shut the trunk of the car despite the raised alarm, from both his father and the visitor. He was subsequently brought out of the car and the right thing then done which was to lock the car properly and keeping the key out of reach.

**Discussion**

The universal involvement of children in vehicular accident is a well known and documented occurrence and the outcry of how to protect these young ones has been highlighted in various forms (Jackson 1995; Shendurnikar, 2009).

There have been the recurrent suggestions that children should always be properly strapped down in the car seats or in baby carriers if they are younger.

Also, it has been advised that children should never be front-seat passengers and even if they should be, they are always to be properly strapped down.

But then, these advices are often ignored by most adults who are too busy trying to meet the demands of their families.

Also, different kinds of home accidents involving children have been documented in various publications and various protective measures have been suggested to keep safe these young ones.

There are several oral reports and stories of car doors being shut against the fingers of both adults and children, with the authors having been victims in the past.

But a report of a child locking himself/herself in the trunk of a car is a rarity locally and this makes this case a novelty possibility. The child did not succeed in locking himself completely before discovery. But the thought of what could have happened if he had succeeded still haunts the family.
The reported activity took place in a hot dry tropical afternoon and if the boy had succeeded undetected, he could possibly get suffocated quickly under the hot tropical sun.

Do these problems occur in our locality and probably go unreported as not being important? Should we not get involved in the ethical issues of ensuring all cars that are to be imported into our nation to be fitted with safety devices that can prevent these incidences from happening?

Heat stroke

By far too many children have been mistakenly forgotten in hot vehicles or have gotten into a vehicle on their own and then got locked-in accidently. On the average about 38 children die in hot cars each year from heat related deaths when they get trapped inside vehicles (Heat Stroke, 2013).

The brief summary gives a fact sheet of this dilemma

<table>
<thead>
<tr>
<th>Year</th>
<th>Children vehicular heat stroke deaths</th>
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</thead>
<tbody>
<tr>
<td>2012</td>
<td>33</td>
</tr>
<tr>
<td>2011</td>
<td>33</td>
</tr>
<tr>
<td>2010</td>
<td>49</td>
</tr>
<tr>
<td>2009</td>
<td>33</td>
</tr>
<tr>
<td>1991-2011</td>
<td>613 (up to 21/08/2013)</td>
</tr>
<tr>
<td>2013</td>
<td>29</td>
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</tbody>
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Source: (Kids and Cars.org www.kidsandcars.org/heatstroke)

The average number of child vehicular heat strokes deaths per year since 1998 is 38 (one every 9 days) (Kids and Cars.org www.kidsandcars.org/heatstroke).

These deaths are preventable and it is noteworthy to know that a child’s temperature rise 3 – 5 times faster than that of an adult. The temperature inside a parked car can reach 125°F in just minutes. Attempts by parents to leave the vehicle windows slightly open does not slow the heating process or lower the maximum temperature (Child Vehicular Heat Stroke Summary (2012)).

The most dangerous mistake a parent or caregiver can make is to think that it cannot happen to them or their family. The majority of parents think that they can never forget their child/children in a vehicle. But results have shown that in well above 50% of cases of death from heat strokes in children, the parents unknowingly forgot their children in the vehicle and then moved on to other activities (Child Vehicular Heat Stroke Summary, 2012; Gonzalez, 2012; Autry, 2012).

Furthermore, 31.58% of the children got into the vehicle on their own, while about 12% of the cases, the children were knowingly left in the vehicle, while another 2% of the cases were the result of unknown circumstances (Child Vehicular Heat Stroke Summary (2012)).

Memory is a machine, and it is not flawless. If you are capable of forgetting your cell phone, then you are potentially capable of forgetting your child in a vehicle.

The ages of these unfortunate children who have died from vehicular hyperthermia from the USA database (1992 – 2010) have ranged from five days old to 14 years. Thirty-one percent have involved children under the age of one year.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Less than one year</td>
<td>31%</td>
</tr>
<tr>
<td>One year old</td>
<td>23%</td>
</tr>
<tr>
<td>2 years old</td>
<td>20%</td>
</tr>
<tr>
<td>3 years old</td>
<td>13%</td>
</tr>
<tr>
<td>4 years old</td>
<td>6%</td>
</tr>
<tr>
<td>5 years old</td>
<td>7%</td>
</tr>
</tbody>
</table>

Source (Child Vehicular Heat Stroke Summary (2012)).

Therefore, about eighty-seven percent (87%) of children who have died from vehicular heat strokes are three years old and young. Due to this, child safety experts encourages parents to create check sheets for themselves by placing something in the back seat that requires them to open the door every time they get out of their vehicles, such as a purse or briefcase.

Trunk entrapment (car booths) is a particular unrecognized cause of death due to heat stroke in children. There is no report if this frightening incidence had occurred in our locality, but that is not saying that it may not have happened and then went unreported.

People are being trapped in car trunks/booths and it is important to increase our awareness and to take our personal safety in our hands.

The life changing and saving events

Janette Fennel of Leawood tells a most remarkable and awe-some story of an event that occurred in October 1995, at San Francisco, California USA that changed her life forever. Her husband, herself, together with their 9 month old son had just returned home at midnight when masked armed robbers rolled under the descending garage door before the garage door could come all the way down. She and her husband were ordered at gunpoint to get into the car trunk without their baby and were driven to a remote area, robbed and abandoned in the trunk. Trapped inside the pitch black trunk, they tore apart the trunk interior and amazing they found a buried
release cable. Using it, they freed themselves and escaped (McLoughlin and Fennell, 2000).

That terrifying experiences of being kidnapped at gunpoint and locked inside a car trunk made her to recognize the fact that any manufacturer who produces a product that could trap people inside was obliged to provide a means of escape. She subsequently founded the organization T.R.U.N.C. (Trunk Releases Urgently Needed Coalition) and the Kids and Cars Organization in 1996 and her effort paid off when in the year 2001 the U.S congress passed a law requiring release devices to be installed in every vehicle to be sold in the USA.

But despite this law, children still got trapped in car trunks and deaths/injuries still occur (Stenquist, 2013; Leamy, 2011).

As late as June 17, 2011, two brothers aged 2years and 4years old died when they climbed into the trunk of their mother’s car and got trapped inside (Stenquist, 2013). Also, by July 2011, an eight years old boy when exploring the trunk of a car that his parents just bought got stuck in the trunk and died in the heat (Leamy, 2011). T.R.U.N.C revealed that at least 260 people, 37 of whom were children aged 14 and under have died in 229 incidents of trunk entrapments since the year 1970. The organization also revealed that the average age of children who died in unintentional trunk entrapment is 4years old. And those children are likely to die when trapped unintentionally than intentionally. Also, they revealed that in both intentional and unintentional entrapment, younger children aged two years to six year are more likely to die than children aged 7 – 14 years old who are more likely to be non-fatal.

They reported that hyperthermia (heat stroke) or in combination with asphyxiation are the most common causes of death associated with unintentional trunk entrapment deaths. Boys and girls have been victims in an equal ratio (4).

Unintentional entrapment can occur during children games while intentional entrapment occurs mostly during car thefts, kidnapping, rape and burglary or child abduction.

**Ethical issues raised by the case**

An internal glow-in-the-dark trunk release devices has been mandated to be installed in all vehicle models of year 2002 and newer models by the U.S Federal Regulations. The car safety group founded by Mrs. Fennel reported that to the best of the organization’s knowledge, that there has not been one death in the trunk of a car equipped with this device (Stenquist, 2013; Leamy, 2011).

This then means that cars built before year 2002 may not have this device installed in them and then there will be no chance of escaping from inside the trunk if one gets trapped.

Several automakers are been encouraged to recall older models and have them fitted with this internal trunk releases. These devices can even be installed by the buyers themselves. They cost just ten dollars ($1 = N160; $10 = N1,600).

This amount of money will help to ensure that none of our young ones will die when trapped in a car trunk. But then, we are still importing used cars from foreign lands and most of these cars are not fitted with these safety devices from the onset. The factory fitted devices are probably only in the newer models. The importers do not even fix in the retrofitted devices before selling them. These cars are imported in their thousands and there is no Federal Agency that ensures this safety mechanism is in place. The end result is that our children are still exposed to the risks of being trapped in car trunks.

Are there incidents of car trunk entrapments in our nation? There is paucity of data for this review even internationally (Waller and Eribes, 2000).

Requesting for this technology will translate into millions of money a fear in added costs to the buyers. But, then how much more money can equate the live of a dear child? Therefore, safety should be the industry’s top priority, particularly as concerning the safety of our children, not the volume of added costs of carmakers.

But spokes-person for the automakers is saying that the technology is now available, but the issue is that they are not readily available to the market (http://www.CNN.com/2007/LIVING/wayoflife/07/24/left.to.die.ap/index.html).

So, the question arises that whether the market force is even aware of the products.

It is therefore very unethical to have those used cars imported into our nation and do not fix in the safety devices in them. Or at the least, make available the retrofit kits to buyers who will then have them fitted into their “new used” cars.

Again, the awareness of this potential problem should be broadcast to the general public by the Federal Road Safety Commission, especially now, that case of kidnapping abounds in the society. A committee must be set up to look into the problem and advise the Government of the day and then possibly form an agency to monitor this issue as soon as possible.

i.) Awareness and planning are the keys. SAVE OUR CHILDREN.

ii.) Children cannot be left alone or unsupervised for even a few minutes

iii.) Never leave your car keys where children can access them

iv.) Always make sure your car is locked so that children cannot access a car unsupervised.

v.) Do not underestimate your children capabilities. If there is a way in, they will figure it out.
vi.) Tell your children about the dangers of a car, especially the car trunk.

REFERENCES


