



الجمعية التونسية للوقاية من حوادث الطرقات  
Association Tunisienne de la Prévention Routière



المنظمة الدولية للوقاية من حوادث الطرقات  
La Prévention Routière Internationale



المنظمة العربية للسلامة المرورية  
Arab Road safety organization

# International Conference Traffic Education: Modern Educational Approaches and Good Practices

## Potential problems and solutions for children's safety



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# Background

- Children in road traffic are defined as persons aged from 0 to 14 years old
- Each phase within childhood is characterized, and consequently defined, by distinctive levels of **physical** and **psychological skills**
- Key reasons that enlarge road safety problem in children:
  - **the child** due to a lack of necessary skills to interact safely in traffic
  - **other road users** (especially car drivers, due to a lack of special care and consideration)
  - **traffic planning and traffic regulation** due to a lack of child-friendly infrastructures, regulations and assistance for children



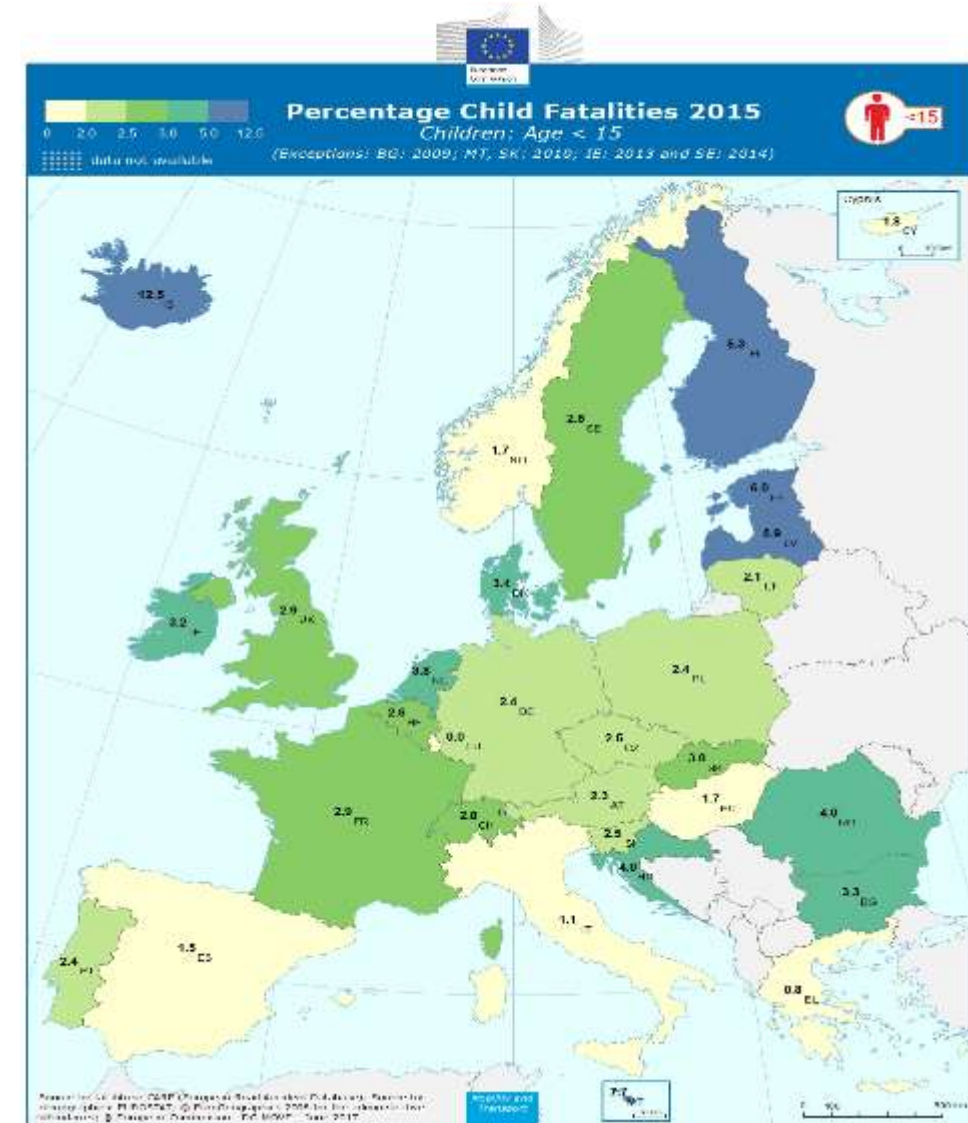
# Objectives

- to present an overview of the extent of **road safety problem** of children in Europe and Internationally
- to present **measures** and **interventions** for enhancing children's safety



# Size and nature of the problem

- Children cannot be considered a **homogenous group** of road users, as their abilities or their mode of transport choice differ considerably.
- **Data** about the mobility patterns of children as road users in general **is scarce**
- **Road traffic injuries** are the second leading causes of death in children between 5-14
- There is a **downward trend** in Europe from **160** fatalities per 1 million inhabitants in 1991 to **51** fatalities per 1 million inhabitants in 2015
- There is still much scope to improve **road safety** for children



# Children's mobility characteristics

- Children are very **mobile**
- Most frequent journeys are to and from **school** and in **leisure** time
- **Transport mode** choice depends on traffic density, distance to school
- Independent and active mobility is increasingly restricted because of parent's **safety concerns**
- While travelling by car is safer for child passengers than walking or cycling, the serious consequences include less independence; **restricted development of skills** and a higher risk of falling



# Child cognitive development in relation to road safety

- **Sensori-motor age group** (up to the age of 2)
  - children focus on coordination of **awareness** and **movement**
  - children at this stage are more drawn **towards** rather than **away** from moving vehicles
- **Pre-operational age group** (2-6 years old):
  - **traffic education** can be attempted but in actual or simulated conditions rather than theoretically in a classroom
  - Difficulties arise when dealing with complex or **combinatorial situations** which require simultaneous processing of more than one feature (e.g. a child will have problems determining whether it is safe to cross the street between two parked cars (learned as dangerous) when the cars are located on a crossing (learned as safe))



# Road safety and social equity

- Statistics show that children whose parents are from **lower income groups** are more frequently involved in traffic crashes
- The child road traffic injury mortality rate per 100.000 population in Europe in 2004 was **1,5 times higher** for children from low and medium income families than for children from high income families
- The situation is even worse in **less developed countries**
- **96%** of children who are killed in traffic crashes living in less-developed countries



# Use of safety belts and child restraints

- An **accident at 50km/h** without child safety seat is equivalent to a free fall from a height of 10 m and that a collision at only 15km/h without a child safety seat can be fatal for children
- **Rearward-facing systems** have been shown to reduce injuries between 90% and 95%
- The use of **child safety seats** has been shown to reduce infant deaths in cars by approximately 71% and deaths to small children by 54%
- For children aged between 4 and 7 years, booster seats reduce injury risk by 59%





# Solution #1: Education

- New strategies/projects should aim at educating children on the dangers they face in everyday life and need to give more weight to the influence of **parents, peers** and **teachers**
- There is a fine line between what can be learned **unaided** and learning that requires **guidance**
- **Schools and parents** need to work together particularly on a subject that may be seen as peripheral but which has life-saving potential



# Solution #2: Educational systems

- Safe Kids Organisation
  - a **network of associations** which help provide information to families with the aim of reducing fatalities amongst young people
  - **commence** by educating the public about dangers faced in everyday activities through statistics
  - provide **safety equipment** such as helmets and child safety seats
- Children's Traffic Club
  - focuses on reducing child fatalities is the UK
  - the website comprises games and activities aimed at 3 to 4 year old which see as the optimum age for intervention

**SAFE**  
**KIDS**  
**WORLDWIDE™**



# Solution #3: Intervention programmes – campaigns (1/3)

## "Gehen geht" (walking works)

- a project by the Lower Austrian Environmental Consulting company
- It aims at increasing the safety of children on their way to kindergarten or school
- The parents of pre-school children are encouraged, by various means, to use environmental friendly modes for these journeys
- children become accustomed to the traffic environment and learn how to behave safely in traffic and are thus prepared for walking to school on their own
- traffic is reduced around kindergartens and around schools



# Solution #3: Intervention programmes – campaigns (2/3)

## “EUCHIRES” - EUrope CHild REstraint System

A European project which aims to:

- **increase** the knowledge of how to use child-restraint seats correctly;
- **encourage** children to “make themselves safe” when going by car;
- **change behaviour** with respect to the use of seat belts; wearing seat belt and the use of child restraint seats should become a routine from early childhood on and
- **reduce** the number of traffic fatalities due to lacking or incorrect seat-belt use.



# Solution #3: Intervention programmes – campaigns (3/3)

## Car Free Schools

A campaign carried out in Danish schools in 2009 and 2010 which

- **aimed** to make travelling to school a safer activity for children
- **addressed** the means of transport used by families, living in a residential area, for the school
- In each school a **map** was created with routes for cycling and walking to school in 2.5 km sections
- **Measures** such as traffic calming around schools and giving priority to bikes and pedestrians were implemented as a consequence of the project



# Solution #4: Road environment

- Traffic calming measures
  - The objective is that children of school age do not encounter cars in their play areas or in places where they habitually walk
  - In exceptional cases, vehicles travelling at a maximum speed of walking pace are tolerated
- Crossing measures
  - improve visibility conditions at junctions
  - Reducing the number of parking spaces on a given surface
  - the installation of so called “pavement-noses” at junctions
  - Crossing distances should be short



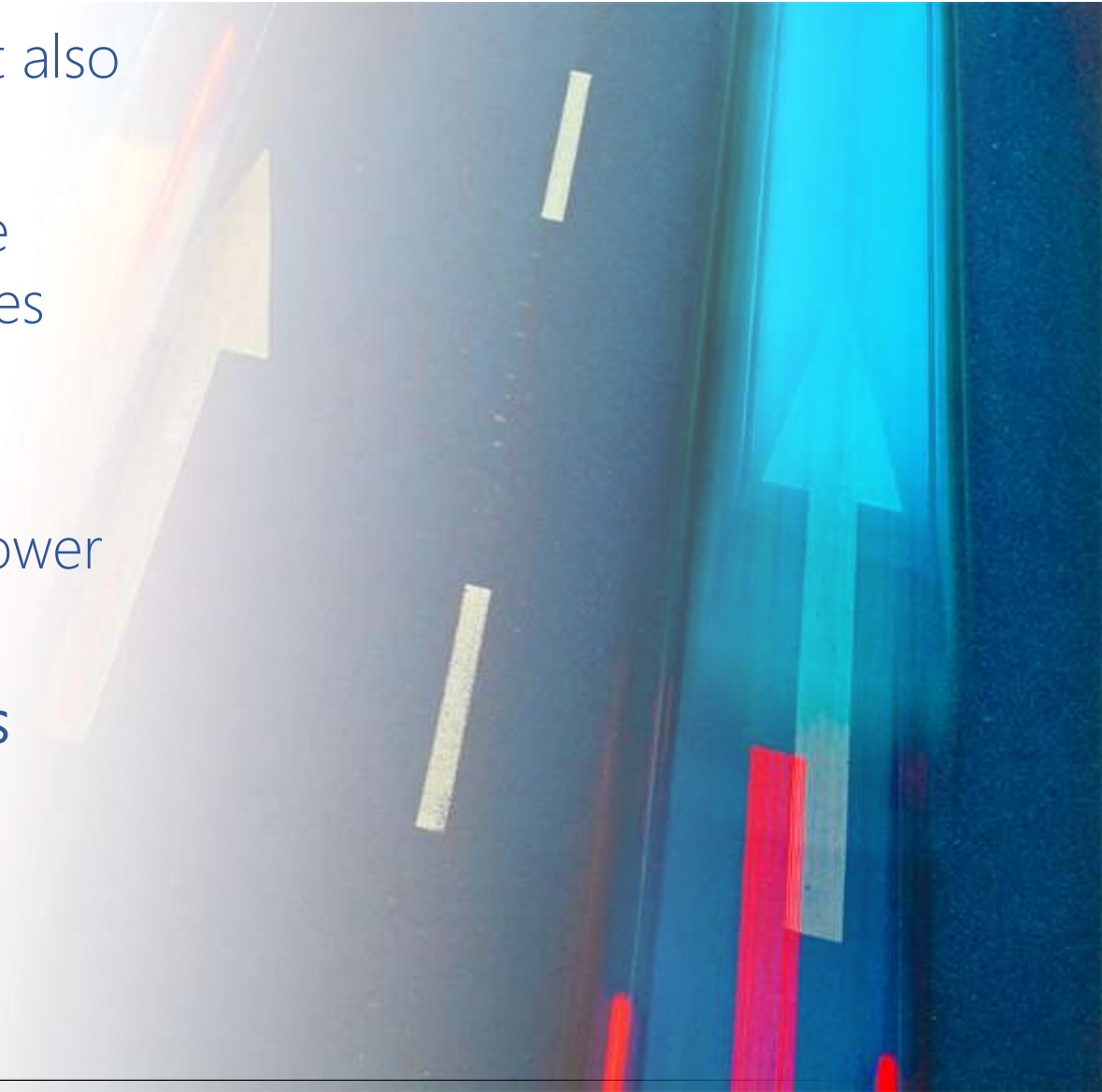
# Solution #5: Equipment

- Features to be included in a vehicle:
  - Improved Emergency Braking System (EBS)
  - Electronic stability control (ESC)
  - Intelligent Speed Adaptation (ISA)
  - Intelligent Transport Systems (ITS)
- Protective equipment
  - Helmet in bicycles
  - Seat belts
  - use of rear-facing child **safety seats** is recommended as the safest type of restraint for the youngest children



# Conclusions (1/2)

- **Decreasing** number of child fatalities in traffic but also decreasing number of children
- The **safety of vehicles has improved** but there are compatibility issues for vehicles of different masses and between vehicles and non motorised users
- Highest percentage of child traffic fatalities is for **children as car passengers**, though they bear a lower risk than child pedestrians or cyclists
- Children from lower **socioeconomic backgrounds** have a higher risk of becoming traffic casualties
- The **mobility behaviour** of parents influences the behaviour of children





# Conclusions (2/2)

- **Intervention programs** should take income level, location and children's roles as road users into account
- **Measures** are more likely to be effective if they take account of human factors
- **Education:** parents, peers and teachers have significant influence on the younger generations
- **Infrastructure:** Traffic calming, speed reducing, visibility enhancing measures are most effective
- **Vehicles:** Driver Assist systems and child safety seats are effective, though airbags can endanger children
- **Law:** Strict laws, regulations and enforcement are needed





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