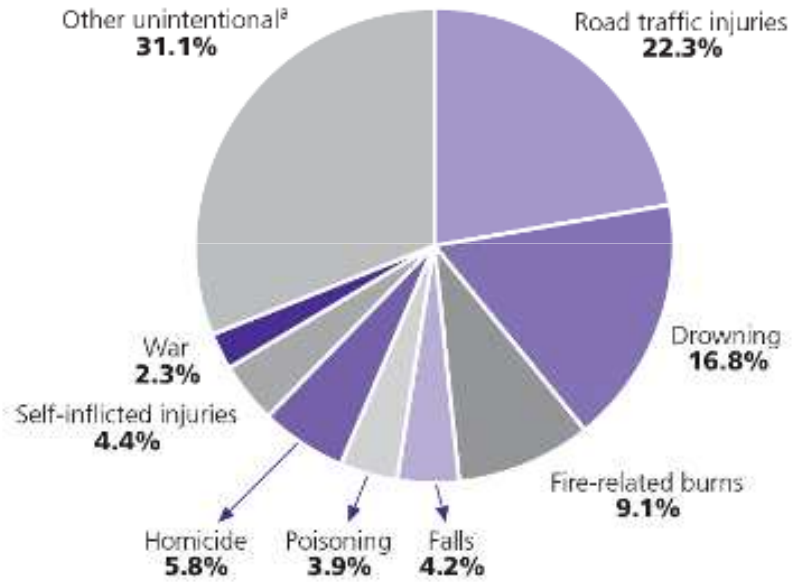
Successful interventions to prevent RTI in children

Dr. Olive Kobusingye
Vice Chair RTIRN
Jakarta Indonesia
26 October 2011

What injuries kill children?

- World Report on Child Injury Prevention 2008
- Children under 18 years old
- Leading causes of unintentional injuries
  - Road traffic injuries
  - Drowning
  - Burns
  - Falls
  - Poisoning

Distribution of global child injury deaths by cause, 0–17 years, World, 2004



[a] "Other unintentional" includes categories such as smothering, asphyxiation, choking, animal and venomous bites, hypothermia and hyperthermia as well as natural disasters.

Source: WHO (2008), Global Burden of Disease: 2004 update.

Leading causes of death in children, both sexes, World, 2004

Rank	Under 1 year	1–4 years	5–9 years	10–14 years	15–19 years	Under 20
1	Perinatal causes	Lower respiratory infections	Lower respiratory infections	Lower respiratory infections	Road traffic injuries	Perinatal causes
2	Diarrhoeal diseases	Diarrhoeal diseases	Road traffic injuries	Road traffic injuries	Self-inflicted injuries	Lower respiratory infections
3	Lower respiratory infections	Measles	Malaria	Drowning	Violence	Diarrhoeal diseases
4	Malaria	Malaria	Diarrhoeal diseases	Malaria	Lower respiratory infections	Malaria
5	Congenital anomalies	HIV/AIDS	Meningitis	Meningitis	Drowning	Measles
6	Pertussis	Congenital anomalies	Drowning	HIV/AIDS	Tuberculosis	Congenital anomalies
7	HIV/AIDS	Protein–energy malnutrition	Protein–energy malnutrition	Tuberculosis	Fire-related burns	HIV/AIDS
8	Tetanus	Drowning	Measles	Diarrhoeal diseases	HIV/AIDS	Road traffic injuries
9	Meningitis	Road traffic injuries	Tuberculosis	Protein–energy malnutrition	Leukaemia	Pertussis
10	Measles	Meningitis	HIV/AIDS	Self-inflicted injuries	Meningitis	Meningitis
11	Protein–energy malnutrition	Fire-related burns	Fire-related burns	Leukaemia	Maternal haemorrhage	Drowning
12	Syphilis	Pertussis	Falls	Fire-related burns	Falls	Protein–energy malnutrition
13	Endocrine disorders	Tuberculosis	Congenital anomalies	War	Poisonings	Tetanus
14	Tuberculosis	Upper respiratory infections	Epilepsy	Violence	Abortion	Tuberculosis
15	Upper respiratory infections	Syphilis	Leukaemia	Trypanosomiasis	Epilepsy	Fire-related burns

Source: WHO (2008), Global Burden of Disease: 2004 update.

Evidence for interventions

- Simply reproducing safe strategies that are relevant to adults will not protect children sufficiently.
- Prevention programs that take into account the vulnerability of children.
- Prevention programs should be multi-disciplinary.
- The most successful have been those that combine:
  - Legislation, regulation and enforcement;
  - Product modification;
  - Environmental modification;
  - Education and skill development; and
  - Appropriate emergency medical care.
- The World Report grades interventions as: effective, promising, insufficient evidence, ineffective or harmful.

Road traffic injuries: Facts

- 720 children die from road traffic crashes every day.
- Globally, road traffic injuries are the leading cause of death among 10-19 year olds.
- In ***low-income and middle-income countries*** most traffic deaths are among pedestrians, passengers in vehicles or on two-wheelers.
- In high-income countries most traffic deaths are novice drivers.
- The most common non-fatal injuries sustained by children are head injuries and fractured limbs.
- Road traffic injuries are a leading cause of disability for children.

RTI: What works?

- Minimum drinking-age laws.
- Lower BAC limits for novice drivers and zero tolerance.
- Graduated driver licensing systems.
- Helmets.
- Seat-belts, child-restraints.
- Speed reduction.
- Separating road users.
- Daytime running lights.

Infrastructure designed to protect children

- Separation of VRUs from motorised traffic
  - Areas around schools, etc
  - No-vehicle areas
- Protected walking areas

Traffic calming

- Management of speed by engineering the road with the purpose to bring the design of the road in accordance to the desired speed is called “Speed management by design” or “Traffic calming”.

Speed reduction

- Research has shown that speed control works only when enforcement levels are ***high, visible, and sustained over time***.

- Where the perceived risk of being caught speeding beyond the limit is low, then speed limits are ignored.

Not so fast!

- At >50 km/h, every 1 km/h reduction in the av speed reduces crashes by 2%.
- In rural areas with a 60 km/h speed limit, relative risk of crash involvement with injuries to car occupants doubles, or more, for each increase of 5 km/h of traveling speed above 60 km/h. As speeds increase, so do the number and severity of injuries, …the higher the speed at impact, the greater the likelihood of serious or fatal injury.

Not tough enough…

- Pedestrians have a 90% chance of surviving car crashes at 30 km/h or below, but less than a 50% chance of surviving impacts at 45 km/h or above.
- The probability of a pedestrian being killed rises by a factor of eight as the impact speed of the car increases from 30 km/h to 50 km/h.

Alcohol: keep out of reach of children

- Reviews of the effectiveness of BAC limits have found they reduce alcohol-related crashes, though the magnitude of these effects varies considerably.
- WRRTIP recommended upper limits of 0.05 g/dl for the general driving population and 0.02 g/dl for young drivers and motorcycle riders.

Seat belts

- When used, seat-belts reduce the risk of serious and fatal injury by between 40% and 65%.
- Enforcement increases seat-belt use if it is selective, highly visible and well publicized, sustained,& repeated several times during a year.
- Challenges for LMICs: weak enforcement, more VRUs, public transport vehicles often have no seat-belts, people travel on the backs of pick up trucks.

Child (occupant) restraints

- Age appropriate child seats
- Properly secured
- Positioning within the car
- Increasing importance in countries where motorisation increases numbers of children travelling in cars

Helmets

Motorcycle, bicycle

Very important in contexts of high percentages of 2-wheelers in fleets

- Laws
- Standards
- Enforcement

Visibility

- Daylight running lights
- Also:
  - Street / roadside lighting
  - Pedestrian visibility – dress, bags
  - 2- and 3-wheelers' brightly coloured or retro-reflective helmets or stickers

Improved emergency care

- Access to care for children
- An equity & programmatic issue

Role of education

To educate or not, that is the question…

Research opportunities

- How to implement interventions to scale
- How much do they cost?
- Why are some resisted?
- What risks are not covered by existing interventions?