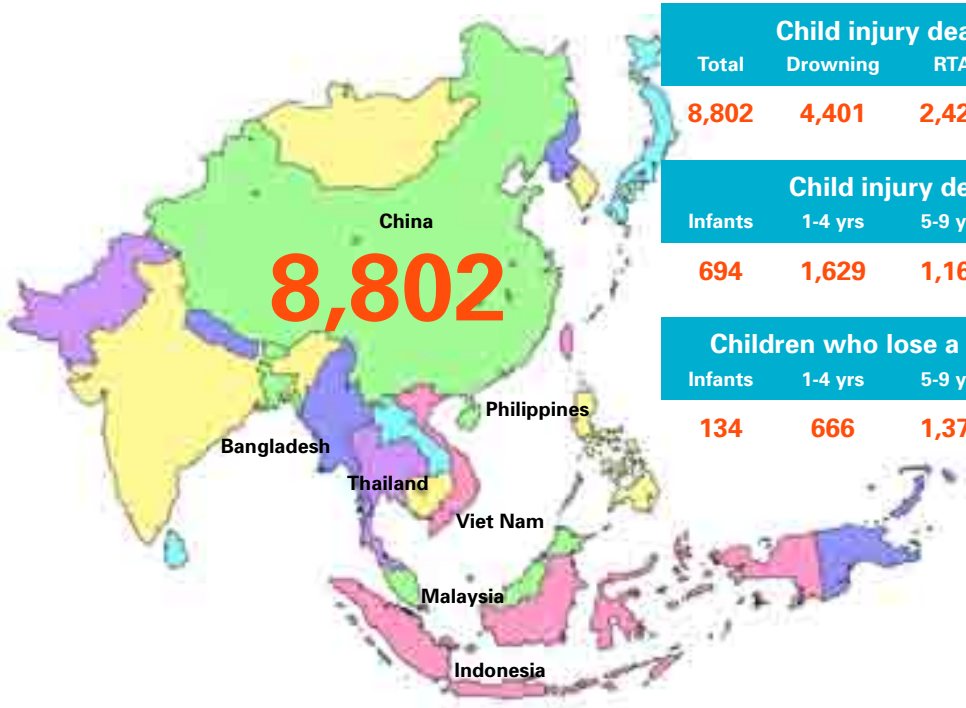
TOWARDS A WORLD SAFE FOR CHILDREN

UNICEF/TASC Conference on Child Injury

Bangkok, Thailand April 21-22, 2004

Child deaths (0-17) from injury in the East and South Asia regions during the 33 hours of the Conference



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
8,802	4,401	2,421	616	1,364

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
694	1,629	1,162	1,456	3,861

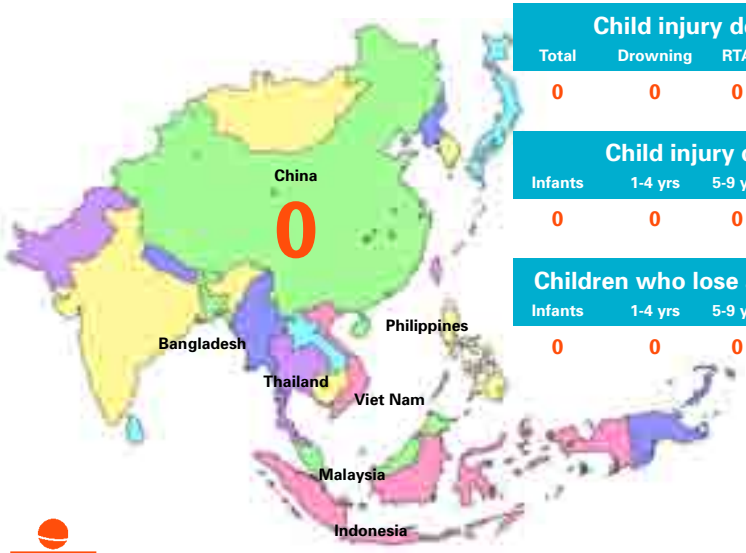
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
134	666	1,379	1,232	686

TASC
The Alliance for Safe Children

unicef

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
0	0	0	0	0

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
0	0	0	0	0

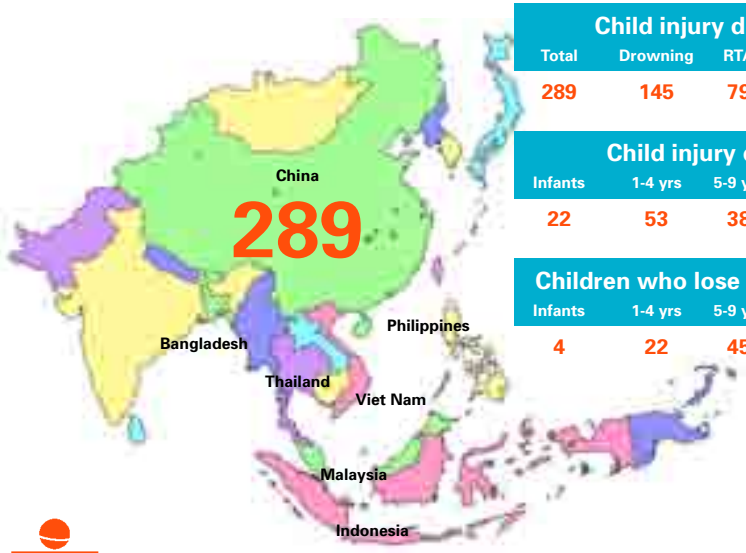
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
0	0	0	0	0

TASC
The Alliance for Safe Children

DAY 1: Beginning of Conference, 8:30

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
289	145	79	20	45

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
22	53	38	48	127

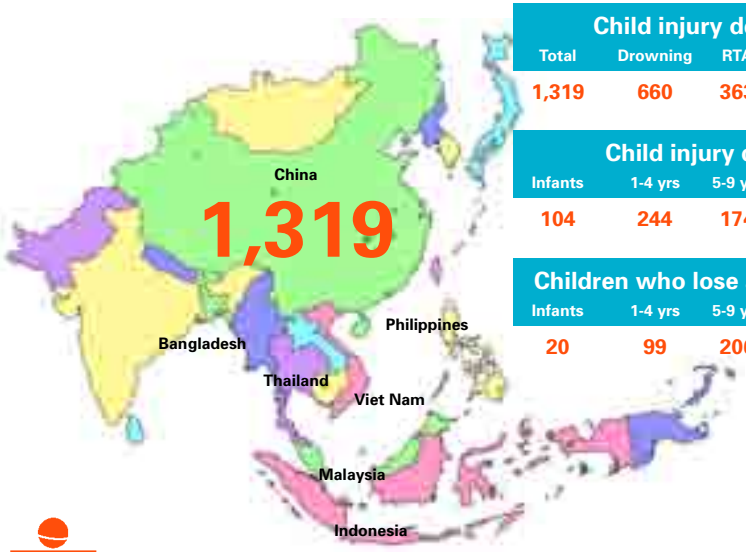
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
4	22	45	40	22

TASC
The Alliance for Safe Children

DAY 1: At end of the keynote speech, 1 $^{1}/_{2}$ hours later

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
1,319	660	363	92	204

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
104	244	174	218	579

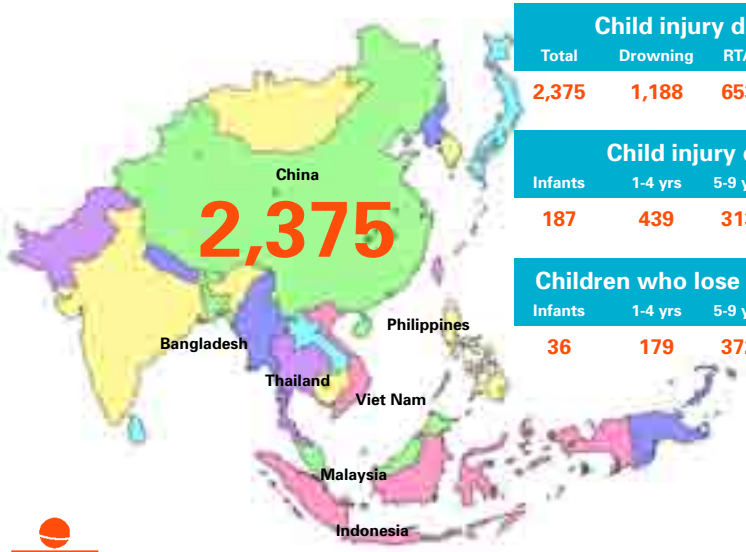
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
20	99	206	184	102

TASC
The Alliance for Safe Children

DAY 1: Start of the afternoon session, 5 hours later

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
2,375	1,188	653	166	368

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
187	439	313	393	1,042

Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
36	179	372	332	185

TASC
The Alliance for Safe Children

DAY 1: End of day 1, 9 hours later

TOWARDS A WORLD SAFE FOR CHILDREN

UNICEF/TASC Conference on Child Injury

Bangkok, Thailand April 21-22, 2004

TASC
The Alliance for Safe Children

unicef

ISBN 974-685-039-3

The Alliance for Safe Children (TASC)
4/1 Sukhumvit Soi 1 Klongtoey Nua,
Vadhana District Bangkok 10110, Thailand
Tel: (66 2) 655-4811
Fax: (66 2) 655-4814
www.tasc-gcipf.org

UNICEF East Asia and Pacific Regional Office
19 Phra Atit Road
Bangkok 10200, Thailand
Tel: (66 2) 356-9499
Fax: (66 2) 280-3563
www.unicef.org

CONTENTS

FOREWORD

Two decades ago, we launched a child survival revolution that aimed at combating infectious diseases and nutritional deficiencies as the leading killers of infants and children. We targeted a handful of diseases and conditions that were responsible for killing the vast majority of infants and children and intervened with focused, affordable and sustainable actions. Millions of lives were saved.

But there is another area of child survival and development that has been neglected for too long an unrecognized epidemic of child injury, which leads to death and disability on a massive scale.

As a result of the success achieved in tackling disease and malnutrition in the East Asia and Pacific region, injury is now responsible for a higher proportion of child deaths and has become more visible. In many countries in the region, injury is now ***the*** leading cause of child deaths and disability, placing a huge burden on families and society.

At the Millennium Summit in 2000, the largest-ever gathering of world leaders adopted a set of Millennium Development Goals (MDGs). One of these goals called for reducing the under-five mortality rate by two-thirds by 2015.

To achieve this in the region, traditional child survival efforts must continue. These include promoting safe motherhood, increasing immunization coverage and providing better nutrition. However, there also has to be a greater focus on child injuries and accidents. Child injury prevention must be given a much higher priority than it is at present if we are to achieve sustainable reductions in child mortality. Many countries in the region have recognized that they will be unable to meet the MDG goal *without* a major focus on child injury.

In industrialized countries, a concerted, collective effort to tackle the problem of child injury has saved the lives of millions of children. They have shown us that the interactions of a child and a car or a pond are just as predictable and preventable as the interaction of a child and a virus or a bacterium. Experience tells us that accidents and injuries are largely preventable with relatively simple and yet effective interventions. Such predictable and preventable childhood deaths and disability must be considered as unacceptable in developing countries as they have become in industrialized countries. Saving children's lives from preventable injury will move us one step closer to reaching the Millennium Development Goals.

Preventing child injury should become one of the core components of our child health and child protection programmes. It need not compete for the same scarce resources at our disposal. Action against accidents and injuries must be made complementary to and supportive of our focus on other programmes.

This publication reports on the Conference on Child Injury held in Bangkok in April 2004, where the issue of child injury was highlighted as a critical problem for many countries in the region. We see this report as a call not only for the region but also for the world, to find ways to reduce the carnage of child injury and deaths from accidents and neglect.

Mehr Khan Williams
Regional Director
UNICEF East Asia and Pacific Region

Ambassador Pete Peterson
President
The Alliance for Safe Children (TASC)

BACKGROUND TO THE UNICEF/TASC COLLABORATION

Every year, appalling numbers of children in the East Asia and Pacific region are killed or disabled by injuries. Preliminary data show that approximately 1.4 million children die each year in this region and that of these nearly half are a result of injuries. What is so disturbing about these figures is that these deaths are as preventable as those caused by infectious diseases. If the same resources were used in preventing accidental injuries as are spent on combating disease, millions of children's lives could be saved.

Child deaths from injury are only the tip of the iceberg. Research shows that for every injured child who dies, there are perhaps 20 more who are disabled, many permanently. This has a devastating emotional and financial impact on the children, their families and society at large.

It was to address this issue of child injury that UNICEF and The Alliance for Safe Children (TASC) began collaborating. TASC is an organization committed to reducing child death and disability from accidents throughout the developing world. The organization focuses on research to develop the evidence base to show the staggering number of child death from injury, and then advocating and communicating the importance of child injury prevention programmes and building alliances, collaborations and networks with international institutions and governments. It also raises funds to support the creation of prevention programmes and technologies and develops human and institutional capacity to address the problem.

What has become very clear to both UNICEF and TASC is that there is a lack of representative data for injuries in most countries outside the developed world. Data that is available is usually unreliable. Most available data in developing countries comes from hospital-based reporting, counting injury deaths at a hospital, which does not reflect deaths at the community level.

Further, this hospital-based reporting system, which is usually the core of the national health information system, is supplemented with only small-scale surveys. These usually have sample sizes well below the level needed to show the complete epidemiology of child death in these countries. As a result, injury does not appear in the survey results and policymakers interpret this lack of appearance as a lack of injury.

UNICEF and TASC initially commissioned desk reviews from several countries in the region to assess their child injury situation. These reviews all noted a lack of representative community-based data and pointed out the need to conduct population-based surveys to assess the true magnitude of the problem and of risk factors. UNICEF and TASC then initiated a set of national injury surveys to define the magnitude and scope of child injury, and to provide measurements to monitor the impact and effectiveness of interventions. The results of this research were presented at Bangkok to provide evidence of injury morbidity and mortality and highlight risk factors so that appropriate action could be taken.

The UNICEF/TASC Conference on Child Injury: Towards a World Safe for Children brought together more than 70 participants from the region and beyond. The Conference focused on three objectives:

- to present the country specific child injury research in the region;
- to promote injury prevention as a major intervention in this region to meet the Millennium Development Goals for reducing child mortality; and
- to build partnerships to address country specific issues for child injury prevention.

The conference brought together one of the largest collections of data on injury death and disability compiled in the developing world. Researchers from seven countries (Bangladesh, China, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam), presented their survey findings on the extent of the child injury problem in their cities/nations. It was one initial step towards bringing about the increased visibility of the issue and further recognition that injury is a leading killer of children in Asia. The knowledge gained from this conference will enable participants to recognize the gravity of the issue in every country and to advocate for the policy change key to reducing child injury.

OPENING SESSION 1

Opening Address

HE Sora-At Klinpratoom
Minister of Social Development and Human Security, Thailand

Mr. Kul Gautam, Mrs. Mehr Kahn Williams, Ambassador Pete Peterson, Distinguished Delegates, Ladies and Gentlemen,

It is an honour for me to open the Conference on Child Injury and welcome you to Bangkok and to Thailand.

We are gathered here to study findings on injuries and discuss strategies and interventions to overcome what is a growing but often underestimated problem for our children.

According to preliminary data collected from the regions, around 2.5 million children under 18 die each year in the East Asia and Pacific region. Nearly two-thirds of these, or 1.5 million deaths, are caused by injuries. What we must realize is that such deaths are *as preventable as those caused by infectious diseases.*

The recent research jointly conducted by UNICEF and The Alliance for Safe Children in several countries in the region has shown that child injury has always been a large component of child mortality.

Preliminary findings from these studies show that today more children die of injuries than any other cause in most countries in the region:

- More children die of drowning than pertussis, measles, diphtheria, plague, cholera, dengue fever and typhoid combined.
- Burns kill twenty times as many children as dengue fever.
- More children die from falls than from tuberculosis.

This data indicates that if countries in our region are to accelerate progress towards achieving the Millennium Development Goal on reducing child and infant mortality, child injury prevention must be considered as a major accompaniment to traditional infectious disease control programmes.

Injuries are also the leading cause of premature loss of productive life, loss of primary caregivers, high medical care costs, permanent disability, and large social costs to families and communities. The economic burden of injury creates difficulties for many of the countries in this region as they undergo rapid economic development.

Similar to other countries in the region, Thailand has also experienced high rates of child mortality because of injuries. While the available data are not representative of the entire country, they strongly suggest that drowning is the leading cause of death during early childhood, while road traffic accidents are the leading cause of death for older children.

Furthermore, injury has been found to be not only the leading cause of child death, but also a leading cause of non-fatal illness.

Thailand has already taken pro-active steps to deal with this issue. At this conference, we will be hearing the results of the Thai national injury survey, which has been conducted to provide an updated picture of the leading causes of injury, death and disability. Together with data and information from other sources, the survey provides us with a national picture of child morbidity and mortality due to injury at the community level. It is based on a carefully selected, representative national sample that follows the sampling scheme of our national census.

Various government ministries, including the Ministry of Social Development and Human Security, the Ministry of Public Health and the Ministry of Transport and Communications have taken action to address the child injury issue. In the second half of this year, a national conference will be organized in order to share in-country experiences on injury prevention.

The Government of Thailand would like to lead the regional response to the challenge of child injury. Our past experiences have shown us that political commitment at the highest level will drive policy changes, resource allocation and effective intervention. With concerted efforts from the government, public and private sectors, and the Thai people, I am sure we will succeed.

Legislation and law enforcement are among the most powerful tools to protect children from being injured. They bring about changes in individual behaviour and improve product design and hazardous environments.

I am pleased to announce that on 30 March 2004, the Thai government started to implement the first ever Child Protection Act, which should substantially reduce the risk of injury to children. This Act provides a strong legal framework for enforcing child protection and safety laws and regulations. The Ministry of Social Development and Human Security plays a critical role in enforcement of this Act.

With this remark, ladies and gentlemen, I wish you success in this important mission and I declare this conference open.

Thank you very much.

The mandate of the Ministry of Social Development and Human Security is to promote social development and create public equity and social justice. Its operations aim to promote and develop quality of life, social security and family and community institutions as well as other performing functions as prescribed by the laws to be the duties and authority of the Ministry of Social Development and Human Security or agencies under the Ministry.

Welcome Address

Ms. Mehr Khan Williams
Regional Director
East Asia and Pacific Region, UNICEF

Excellencies, distinguished participants,

On behalf of the sponsors of this meeting, The Alliance for Safe Children (TASC) and the UNICEF Regional Office for the Asia and Pacific region, I would like to welcome all of you to this two-day conference on child injury.

I would like to extend a special welcome to the Minister of Social Development and Human Security from Thailand, H.E. Mr. Sora-At Klinpratoom, and to the Vice Minister of Health from Mongolia, Dr. Udval Natsag.

I would also like to thank my colleague, Mr. Kul Gautam, Deputy Executive Director of UNICEF, for taking the time to come from New York to attend this conference. His participation reflects UNICEF's commitment to protecting children from preventable accidents and injuries.

UNICEF is very pleased to be working in partnership with TASC on this important subject and we expect that this meeting will further cement our collaboration.

Here, I want to pay a special tribute to Ambassador Pete Peterson and Vi Peterson for their passion and dedication to ensuring that children everywhere are safe from injury.

This meeting will bring together one of the largest collections of data on injury death and disability compiled anywhere in the world. We are especially grateful to the researchers from the six countries – Bangladesh, China, Indonesia, the Philippines, Thailand and Viet Nam – who undertook this massive task and are here to present their findings.

This conference is important for a number of reasons. Twenty-five years ago, a small number of infectious diseases were causing the majority of deaths among children. Once the international community realized this, there was a revolution in our approach to primary healthcare. It focused on vaccinations and basic treatment, and millions of lives have been saved as a consequence. Now that our efforts to eliminate infectious diseases have been largely successful in the East Asia and Pacific region, we are finding that injuries are killing an ever-larger proportion of our children. This conference will enable us to assess the extent of the problem and accelerate action to protect children.

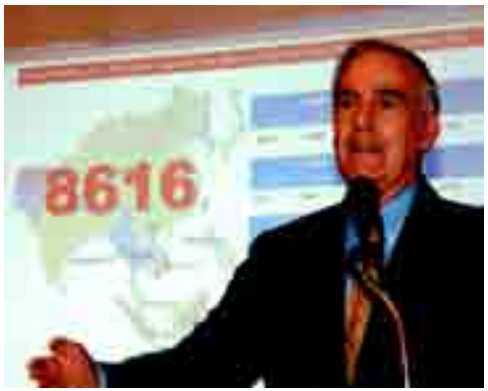
In designing this conference, we have focused on three clearly achievable objectives:

- to present the country specific child injury research in the region;
- to promote injury prevention as a major intervention in this region to meet the Millennium Development Goals for reducing child mortality; and
- to build partnerships to address country specific issues for child injury prevention.

If we succeed in meeting these objectives, these two days will have been well spent.

I look forward with interest to hearing about the results of your research and listening to examples of successful efforts to address the issue of accidents and injuries.

Thank you.



Ambassador Pete Peterson
President,
The Alliance for Safe Children (TASC)

Keynote speech

Mr. Kul C. Gautam,
Deputy Executive Director UNICEF

Thank you for the opportunity to be here with you today to discuss the ongoing but unrecognized epidemic of child injury, which is a growing challenge to the survival and well-being of children in this region.

I want to express UNICEF's deep gratitude to the Royal Thai Government for hosting this conference. And I want to commend our partner, The Alliance for Safe Children (TASC), and specifically its founder and leader, the very energetic and committed Ambassador Pete Peterson.

As His Excellency, Minister Klinpratoom said, it is unconscionable that so many children in this region and around the world die, and even more suffer a lifetime, from preventable injuries.

Last week was the Songkran holiday here in Thailand, normally a very happy occasion. But for thousands of Thais it turned into a sad occasion. According to an article in the Bangkok Post, 590 people were killed and more than 34,000 wounded during the week of Songkran.

While this is very sad, the good news is that the number of deaths and injuries during Songkran this year were less than half compared to previous years. I understand that road safety checkpoints to crackdown on irresponsible driving led to this dramatic result.

So there is hope. Much can be achieved, and quickly, if we follow good policies and practices.

This conference will provide an excellent forum for us to develop an effective plan of action. It will also offer us a chance to learn about survey findings and highlight how we can significantly reduce the carnage of child injury and deaths from accidents and neglect in our region.

Two years ago when SARS struck and this year when the bird flu attacked, countries of this region mobilized into action on a war footing. As we will hear from the case studies being presented at this conference, the frightening epidemic of preventable accidents and injuries, especially among children, demands no less vigorous action.

At this conference, we hope to draw new attention to the importance of strong preventative measures and political will at both the national and international level.

In this regard, we welcome the Royal Thai Government's announcement of the recently adopted Child Protection Act and congratulate our hosts for setting a shining example to other countries in the region and beyond. Thailand's efforts and investments for improving the survival and well-being of children are truly commendable.

For many of us, child injury is often associated with industrialized countries. But research done by The Alliance for Safe Children (TASC) and UNICEF in East and South Asia has shown that child injury has always been a large part of child mortality in this region.

It is not yet recognized, for example, that over 98 per cent of all child deaths from injury occur in developing countries, where most of the world's children live. Mortality rates caused by injury are significantly higher in developing countries than in industrialized countries. The statistics reflect not only larger numbers of children but also higher risks.

Regardless of the overall level of child mortality, whether high or low, injury has always been a significant component of child mortality rates. For every 100,000 children born in industrialized countries, fewer than 135 die from injuries before the age of 15. In the developing world that figure is well over 1,000.

At the historic Millennium Summit in 2000, the largest gathering of world leaders adopted a set of Millennium Development Goals (MDGs). One of these goals called for reducing the under-five mortality rate by two thirds, between 1990 and 2015.

To reach this ambitious MDG of reducing child mortality, we will need to work harder to do what we have always done for the survival of children - promote safe motherhood, increase immunization coverage, provide better nutrition and improve the role and status of women.

But increasingly, it will not be enough for us to just work harder on what we already do - it will also be necessary, to "work smarter". And we need to start doing what we have not done in the past - to focus on child injuries and accidents which lead to massive child deaths and disability.

While our traditional child survival efforts have met with much success, child injury has become increasingly prominent. In many countries it has become the leading cause of child deaths and disability.

Data from a national survey supported by TASC and UNICEF in 2001 showed that injuries are the leading killer of children in Viet Nam. Almost 60 per cent of all deaths there were caused by injury, compared to 12 per cent caused by chronic diseases and 10 per cent by infectious diseases.

More than 27,000 children died of injury in Viet Nam in 2001, or a daily death toll of 74 children. This is equivalent to two school classrooms full of children dying every day.

From infancy to puberty, drowning was the overwhelming cause of death in every age group and far outstripped other causes. Road traffic accidents became the leading cause of child death in the 15-19 age group. This pattern of drowning predominating in early childhood and road traffic accidents in late childhood was also seen in Bangladesh, and appears to be a common pattern in other countries in the region.

Falls, poisoning, burns, animal bites, injuries due to sharp objects and machinery are common causes of nonfatal injury in children. If these injuries were prevented in infants and children, the under-five mortality rate (U5MR) in Viet Nam would fall by almost 40 per cent - from 49 to 29 per cent.

Injuries are a significant contributor to death and disability in all child age groups, and while they have a small impact in infancy, they have a major effect on children from 1 to 4 years old, and the impact grows as the child grows older.

In many countries in this region, injury is one of the leading causes of death for toddlers, and is often the leading cause of death for school age children and adolescents.

Just as HIV/AIDS creates orphans, injury also often leads to the family losing its breadwinner, or its caregiver, with a similar devastating impact on children in the family. The economic cost of injury is a drag on social and economic advancement for many countries in the region.

The World Health Organization (WHO) has calculated that every minute, road accidents worldwide cause 2 deaths, 86 injuries and a loss of nearly $1 million dollars.

The worldwide economic cost of these casualties was recently estimated at $518 billion a year - $100 billion of it incurred by low- and middle-income countries.

At a time when poor countries are struggling against the crushing burden of poverty, HIV/AIDS, armed conflicts and external debt, a loss of $100 billion is a staggering waste.

Speaking on the occasion of World Health Day two weeks ago, on the theme of road traffic safety, WHO Director-General Lee Jong-wook called for immediate action to prevent traffic fatalities in low- and middle-income countries that are projected to increase by 80 percent by 2020.

Here in the East Asia and Pacific region, we are still in the relatively early stages of vehicle ownership. So the problem is only going to get worse.

For example, in 2001, China had only 5 motor vehicles per 1,000 population as opposed to 760 in the United States. And yet China's overall rate of child traffic deaths has already surpassed North American levels.

Studies show that injuries are the leading cause of death among children in many countries of this region. Accidents and injuries are also responsible for the high medical care costs, permanent disability and huge social burden to families and society at large.

It is clear that road safety and child injury prevention must be given a much higher priority than they are given at present if we are to achieve a sustainable reduction in child mortality.

For UNICEF, promoting road safety and injury prevention is a natural fit with our country programmes of cooperation in everything from early childhood development and protection to support for adolescent development.

We need broad-based partnerships with governments, NGOs, the private sector and civil society to develop effective policies and programmes for the prevention of these horrific deaths and injury of children from avoidable causes such as road safety.

For example, in Viet Nam, childhood injury prevention activities have been integrated into the existing UNICEF country programme, which includes development of a school curriculum on child safety, advocacy and mass media efforts to raise awareness concerning the importance of road traffic safety. Practical information is also readily accessible in UNICEF's widely used Facts for Life booklet.

In fact, experience tells us that accidents and injuries are largely preventable with simple and effective interventions. Prevention is highly "do-able" with relatively simple interventions, including painting lines on roads to clearly separate pedestrian and vehicular traffic.

Two decades ago we launched a child survival revolution which aimed at combating infectious diseases and nutritional deficiencies as the leading killers of infants and children. We targeted a handful of diseases and conditions that were responsible for killing the vast majority of infants and children. We knew the numbers, and we intervened with focused, affordable and sustainable actions.

We launched campaigns for breast feeding and growth monitoring; and immunization and oral rehydration therapy. Millions of lives were saved.

The studies we are about to hear in the next two days tell us the story of a neglected area of child survival and development - accidents and injuries that lead to death and disability on a massive scale. We now need to take equally bold steps as we did during the earlier child survival revolution to prevent drowning, transport injury, poisoning and other injury-related causes of death and disability.

Without including injury prevention in our programmes, we stand to lose the enormous investments we have made in immunization, nutrition and maternal and child health care.

In May 2002, the United Nations General Assembly held a Special Session on Children attended by 70 world leaders, the top leadership of United Nations agencies, and thousands of child rights activists, and civil society leaders including many Nobel Prize Laureates.

The outcome document of that Special Session - "A World Fit for Children" - adopted a set of goals for children and youth. One of the specific goals adopted in its Plan of Action asks us to "reduce child injuries due to accidents or other causes through the development and implementation of appropriate preventive measures".

A study on child deaths by injury in rich nations carried out by the UNICEF Innocenti Research Center in 2001 showed that injury was the principal cause of child deaths in every single industrialized country, accounting for almost 40 per cent of deaths in the age group of 1-14. The biggest threat for all children in the OECD countries was road traffic injuries.

Over the past 50 years, child deaths due to injury have been decreased substantially in industrialized countries. For a child born today, the chances of death by injury before the age of 15 are less than half the level of 30 years ago.

The reductions of deaths in these countries were not the natural outcome of economic development. It was a concerted, collective effort that began with recognition of the problem, followed by political commitment and policy change.

A long process of research, lobbying, legislation, environmental modifications, public education and improvements in emergency services have saved millions of lives.

They have shown us that the interaction of a child and a car, or a child and a pond are just as predictable and preventable as the interaction of a child and a virus or a child and a bacterium.

Indeed the experience from these countries has demonstrated that accidents and injures are largely preventable with effective and simple interventions.

Let us be very clear that hundreds of thousands of children will die on our roads, in our ditches and ponds, in our houses and yes, in our schools, in the decades to come in the countries present at this meeting.

Let us also not forget that injury deaths are but the tip of the iceberg; for every injured child who dies, many more live on with varying degrees and duration of trauma and disability; denied the right to be productive citizens.

Such predictable and preventable childhood deaths and disability on such a massive scale must be considered as unacceptable in developing countries as they have become in industrialized countries. We can certainly learn and must apply the lessons of experience from the industrialized countries.

Preventing child injury should become one of the core components for our child health and child protection programmes. Child injury prevention need not compete for the same scarce resources at our disposal. Action against accidents and injuries must be made complimentary to and supportive of our focus on early childhood care, girl's education, HIV/AIDS and other adolescents' programmes.

While we are still searching for many of the answers, we know enough to act. We know that drowning is a leading cause of child mortality and that adult supervision of young children as well as teaching children to swim will reduce mortality considerably.

We know that homes in most countries in this region are very dangerous places for children - full of risks of burns, scalds, poisons, animal bites, falls and other major causes of injury, and that they can be made safer.

We know that schools, and the roads to and from schools, can be very hazardous places for children in terms of risk of injury - and we can and should act to ensure that schools are safer for them.

Today, we consider the loss of a child due to measles as unacceptable because the vaccine to prevent the disease is readily available. So must be the case with the loss of a child to drowning or to road traffic accidents, when we know that teaching children to swim will prevent drowning deaths and wearing helmets can prevent head injury just as effectively as immunizations prevent many infectious diseases.

Saving children's lives from preventable injury will get us one step closer to reaching the Millennium Development Goals. I urge us all to see the data presented here as a regional call to action.

Our conference today was announced at the United Nations General Assembly in New York last week by Carol Bellamy, Executive Director of UNICEF. She addressed the plenary session devoted to road traffic safety as a follow up of two United Nations resolutions. The United Nations Secretary General Kofi Annan's recent report on the global road safety crisis also calls for an urgent international response to this major public health issue.

As promised by our Executive Director, UNICEF stands ready to support and work with national governments to drastically reduce accidents and injuries that destroy the lives and dreams of millions of children. In doing so, we will be investing fully in children to ensure the enduring right of every child, in every generation, to grow to adulthood in dignity, health and peace.

Thank you.

2 OVERVIEW: WHAT WE LEARNED FROM THE SURVEYS

Dr. Michael Linnan, TASC Technical Director

I want to acknowledge my colleagues in each country who have worked so hard and so well to produce a combined dataset that is unprecedented. I'd also like to acknowledge the enormous contribution of Morten Giersing in making the issue of child injury visible both inside and outside UNICEF and in making this dataset a reality.

To my knowledge, this dataset is unique as a first collection across developing countries that

- uses common sampling schemes, questionnaires and definitions;
- has the necessarily large sample sizes for accurately measuring these events;
- is based on nationally representative sampling; and
- reflects the patterns and causes of death and illness at the household level.

Conducting these surveys has taught us many lessons about how to ask questions at the household level such that we get useful and meaningful responses; and about how to examine the chain of events that lead to death and disability in ways that show us how to best prevent them. There are a number of lessons I think are important.

Lesson One: The true picture of child death can only be seen when measured at the community level with household surveys. Current national information systems are mainly hospital and clinic based and they grossly underestimate the true burden of injury, especially in children.

The surveys have shown us a very different picture of mortality and morbidity than previously reported through health information systems that are heavily dependent on hospital and other facility data. It is not a small difference - rather it is a large difference - and there are significant policy implications from this. We need to ask whether we really know what's killing children in developing countries. Don't we have to know that in order to allocate resources, develop and evaluate interventions, and monitor progress towards the Millennium Development Goals?

We have accepted the use of facility-based data supplemented by small-scale surveys by saying that surveys large enough to accurately measure these events are too expensive. We have convinced ourselves that we have models of child mortality that will allow us to 'correct' for what we know is biased data. The surveys show that model – at least in this region – is clearly wrong. We must now ask can we afford to be misled on the real causes of child mortality by depending on data that we know is insufficient and corrected by a model for the region that is wrong? Or, should we accept that this is actually a false economy, and that the price of accurate and representative data is worth it? To date, the average field cost of the surveys is about US$150,000 dollars.

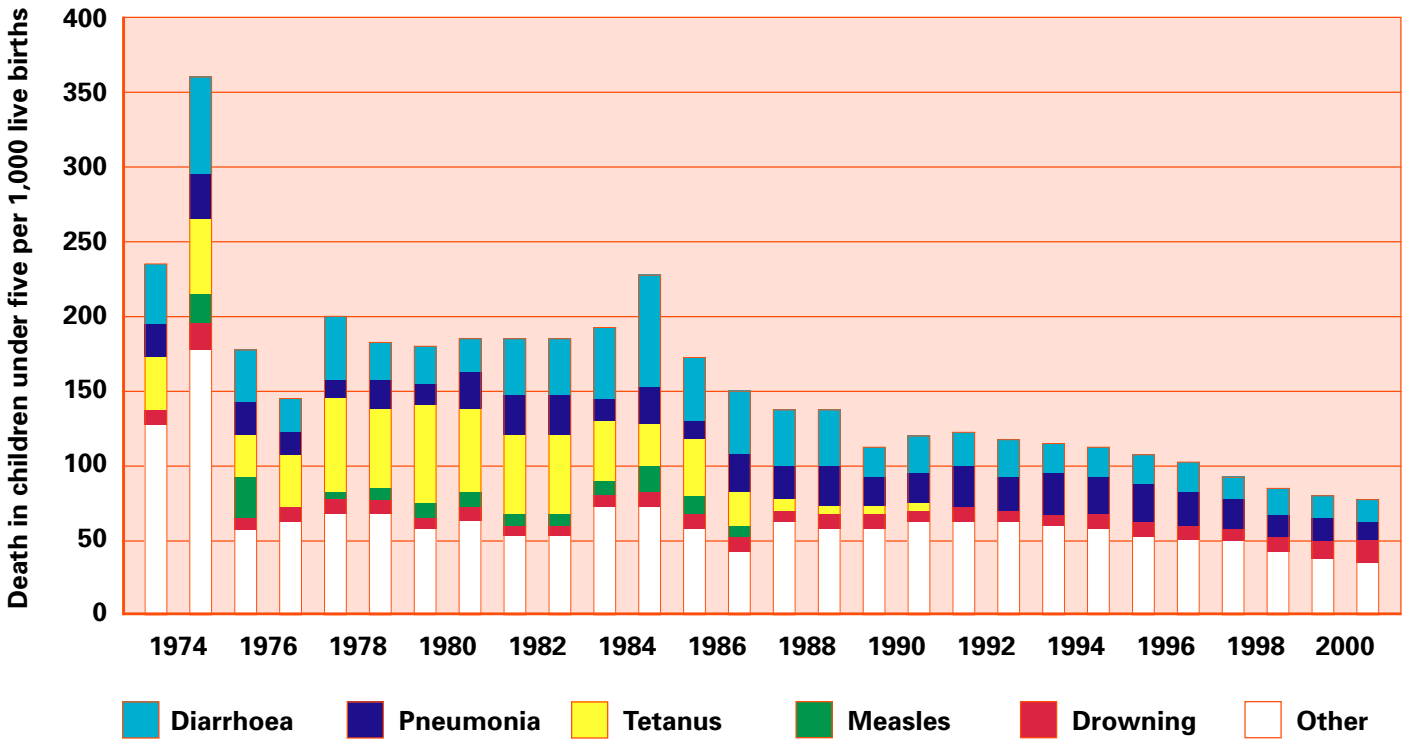
The surveys highlight the following:

- Drowning and many other injuries kill quickly so the dead children are buried and not brought to hospitals.
- Children dying from causes such as pneumonia die slowly and are brought to the hospital where they die and are registered as an infectious death.
- Hospital data show only what is brought to the hospital.
- Drowning and other injury deaths not brought to the hospital are invisible to most current information systems.
- Community-based data is required to truly understand what is happening.

Lesson Two: Injury is not replacement mortality that results from preventing infectious and other causes of infant and child death. It is a primary cause of child death in all countries regardless of the level of child mortality.

There is a misconception that injury appears as a transitional stage in developing countries when infectious and nutritional causes of death are adequately addressed. That is to say, child deaths from injury replace those from pneumonia and diarrhoea as these causes are prevented. The data from Matlab in Bangladesh clearly disprove this. **Figure 2.1** shows that child drowning deaths stayed at a constant level over the thirty year period. Drowning killed about as many children as measles did in the 1970's and 1980's. Measles and tetanus, both vaccine-preventable diseases, were targeted by the Expanded Programme on Immunization (EPI) and vanished as a significant cause of child death by 1990. With interventions in other causes of child death over the twenty-five year period, we decreased under-five mortality by almost five-fold. However, we did not intervene in drowning, and it stayed at the same high level it was for the entire period.

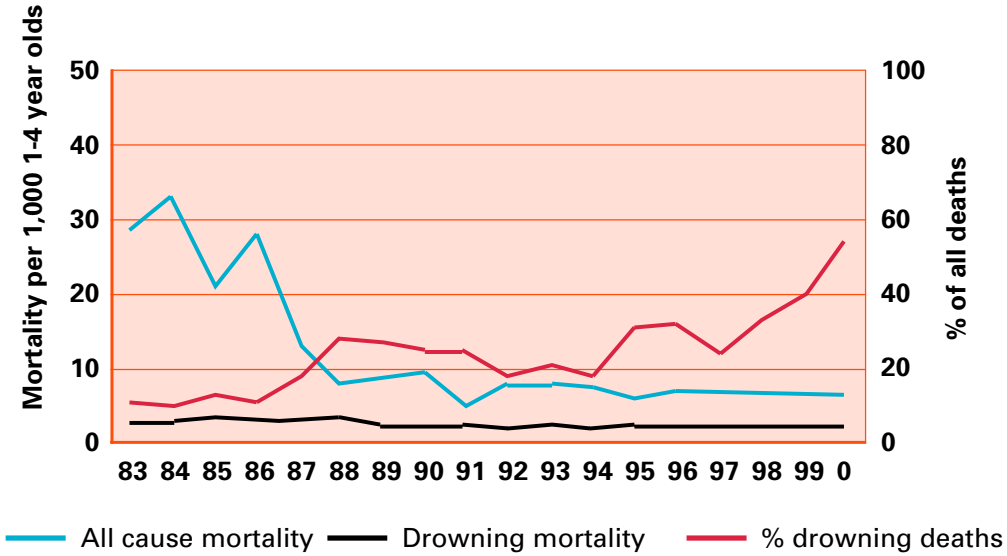
FIGURE 2.1: Child mortality rates in Matlab, Bangladesh 1974-2000



Lesson Three: Ignoring child injury will not make it go away. We need to address it with the same intensity of effort and resources that we used to address the other preventable causes of child mortality.

Matlab also teaches us that we cannot afford to ignore the problem as it only gets proportionally larger and larger. **Figure 2.2** shows that as we successfully intervened in infectious and nutritional causes of mortality and decreased these causes, drownings, which we did nothing about, became the leading killers of children ages one to four. Now, in Matlab, drownings are responsible for over half of all one to four mortality.

FIGURE 2.2: Drowning deaths in 1-4 year olds, Matlab, Bangladesh 1983-2000



Lesson Four: Injury is a stage of life issue. A child's risk of injury is primarily determined by his/her exposure to environmental hazards. Infants have less exposure as they are carried around and closely supervised by mothers and other caretakers and are sheltered from hazards. After learning to walk though, hazard exposure increases dramatically with their independence. Thus, injury is a minor contributor to infant mortality, but a major contributor to child mortality.

Few infants die of injury as compared to infectious and non-communicable causes. **Table 2.1** shows that in Bangladesh, the ratio of infant deaths from infections to injury is 28 : 1. However, the infant takes his/her first steps in month 12, and then becomes independent. Unfortunately, as seen from the same table, all too often the infant's first steps take them directly into environmental hazards and other injury dangers. Over age 1, the ratio of child deaths from infections to injury becomes 1.05 : 1, or essentially equal.

Table 2.1: Ratios of deaths by category in Bangladesh

Age	Infectious	NCD	Injury
Infants 0 - 1	28,000	36,000	1,000
Children 1-17	10,500	8,500	10,000

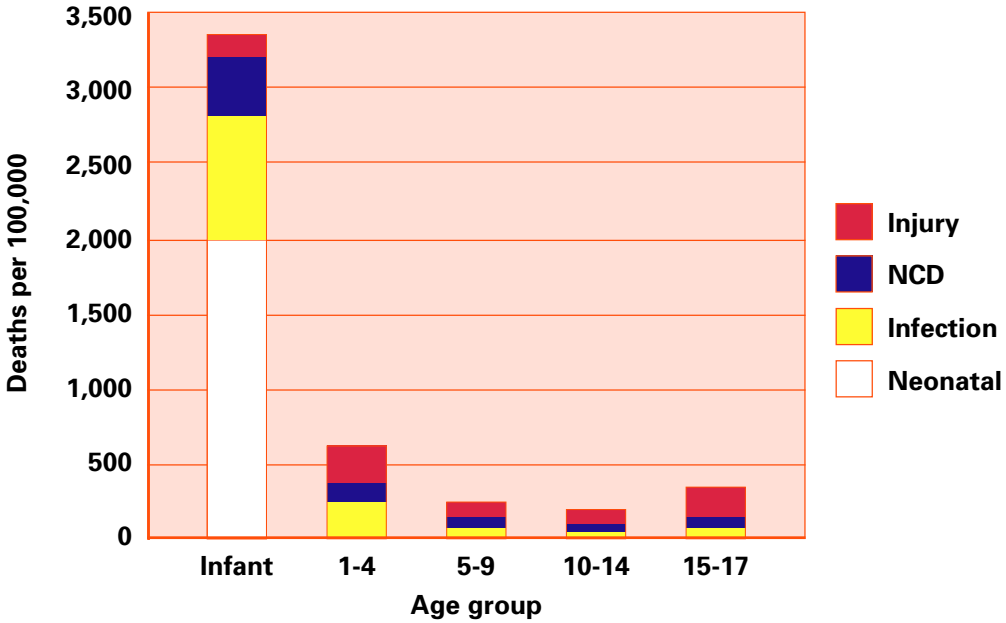
For injury, as well as infectious causes, we again learn that caretakers are the single most important factor in infant and child health. Certainly, we can capitalize on this knowledge by integrating injury prevention into infant health programmes. The person who brings a child in for the nine month EPI visit can be told that the child is about to start walking, and that there is a need to look around the home and take action to prevent injury, such as fencing around the pond nearby or placing rat poisons and insecticides on high shelves out of the child's reach.

Lesson Five: The current emphasis on prevention of under-five mortality needs to be broadened to include all ages of the child's life. Injury is the "low hanging fruit" in all ages after infancy.

The burden of child injury can best be seen by looking at deaths at all stages of a child's life. Figure 2.3 is a composite mortality picture from the countries. It shows us that the largest numbers of deaths are the neonatal deaths occurring in the first month of life. We know how difficult these are to prevent, as they are dependent on good ante- and post-natal care, and, most importantly, by provision of emergency surgical delivery capabilities, which far outstrips the current ability to provide them, especially for the rural women that make up the great majority of pregnant women. As we explore feasible, cost-effective and sustainable models of providing this care, we should also note the other areas where the chart bars are red. This represents the "low hanging fruit" of child death prevention.

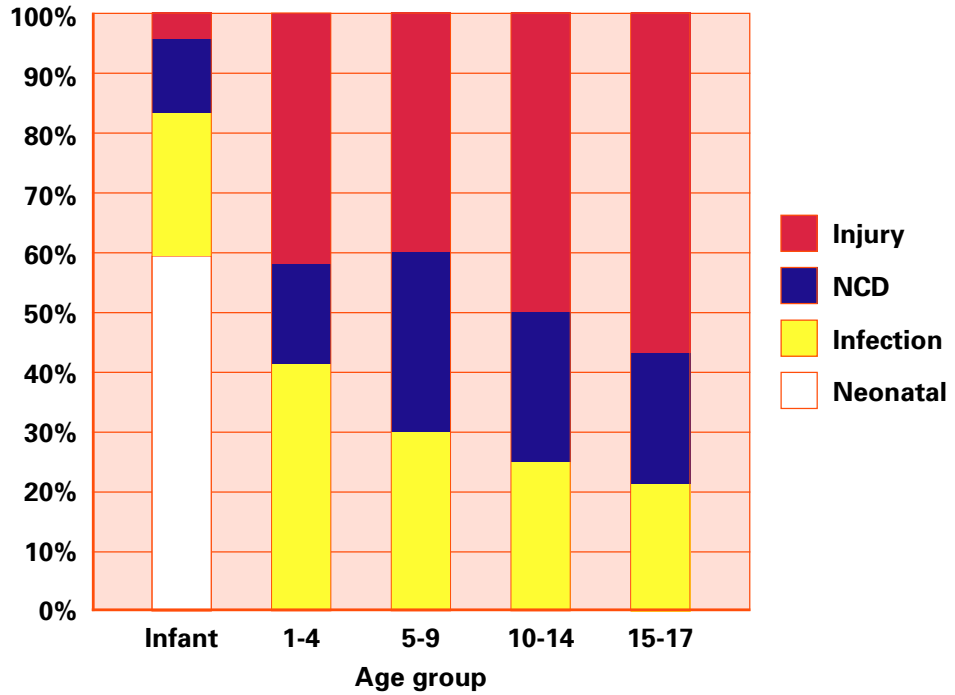
Another picture of the contribution of injury in each stage of life can be seen by looking at proportionate mortality by stage of life. Figure 2.4 shows that injury is a small but significant cause of infant death, mainly with suffocation in early

FIGURE 2.3: Deaths by cause and age group in five countries surveyed in Asia



Countries surveyed were Bangladesh, China, the Philippines, Thailand and Viet Nam.

FIGURE 2.4: Cause of deaths by type and age group for five countries surveyed in Asia



Countries surveyed were Bangladesh, China, the Philippines, Thailand and Viet Nam.

infancy and drownings in late infancy. Thereafter, it equals or surpasses other causes of death, increasing as the child grows older. The current emphasis on prevention of under-five mortality needs to be broadened to include the other ages of the child's life. It is a hollow victory to keep a child healthy and well from infection and strong in physical development with good nutrition to age five only to have him or her die from drowning or a traffic accident later before adulthood. The data from the five countries shows that the majority of all children dying of injury had been fully immunized, and already had the health and educational investments we strive towards at the time they died from injury. In fact, it is a tragic waste of scarce resources.

Lesson Six: The leading killer of parents of children is injury. Loss of either parent has a disastrous effect on children. Loss of a father, the primary wage earner, or a mother, the primary caregiver places a child at great risk. Injury is the leading cause of a child's loss of either parent.

Parenthood is also a stage of life. Parents of infants and young children are themselves in the prime of their early adult lives. For them, injury is by far the leading cause of death in all the surveys. This has a direct impact on the child. Research has shown the most important factor for healthy infants and young children is the presence of the mother, who is the primary caregiver, and secondarily, the father, who is the primary earner.

Loss of the mother places the child at great risk in infancy as breast feeding is suddenly stopped; in later child life they often receive less preventive care and suffer more acute episodes of infections, plus they are at high risk of injury without the close monitoring and supervision of the mother.

Loss of the father places an infant and young child at risk as the family unit is often disrupted and the family often sinks into extreme poverty with its attendant health risks. In late childhood, loss of either parent often causes the child to drop out of school and take on the role of the lost parent for the rest of the family. The concept of the social impact of loss of parents has been most apparent in Africa due to the AIDS epidemic there. However, our surveys clearly show that in Asia, injury orphanhood is a major infant and child health issue, independent of AIDS. In Thailand, with its substantial AIDS epidemic, there were more children orphaned due to injury than due to AIDS. In the other countries, injury caused the vast majority of all parental deaths.

Lesson Seven: Leading causes of death vary depending on the stage of life of the child.

- For children it is drowning
- For adolescents it is road traffic accidents (RTA)
- There are more children than adolescents, so the leading cause of child death (one-17) is drowning
- Suicide is a significant cause of death for older children (15-17)

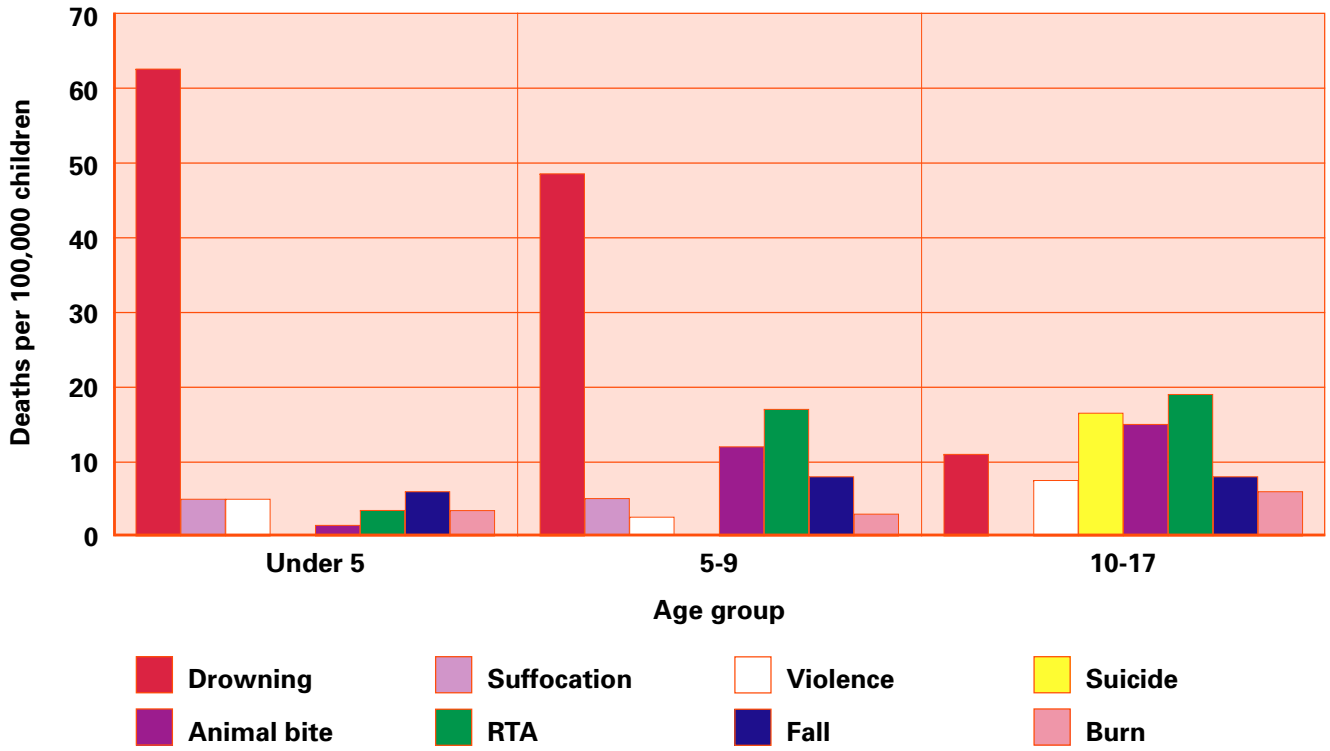
The age pattern of child mortality from injury was similar across all the countries and seems to be universal across East and South Asia (see **Figure 2.5**). In all the countries, suffocation was the leading cause of injury deaths in early infancy, and drownings in late infancy. These death rates were far outstripped by neonatal and infectious causes. However, in early and mid childhood the leading cause of death was drowning, and in adolescence it was RTA. Even within this age pattern was a separate pattern for RTA: For younger children, deaths occur as pedestrians; for middle childhood deaths are largely among bicyclists; and in late childhood and adolescence, deaths occur with children as vehicle occupants or drivers.

Lesson Eight: There is a shift in the leading causes of child death as development progresses.

- In low-mortality countries, injury is the leading killer of children.
- In high-mortality countries, it is a significant killer, but the leading child killers are infectious diseases.
- The transition from a significant cause of death to the leading cause of death occurs somewhere in the middle.
- The surveys show that level to be about the same level of mortality in most countries where UNICEF has national programmes.

From the epidemiologic data across different countries, all of which are at different levels of development and have different basic measures of health, such as under-five mortality rates (U5MR) and life expectancy at birth (LEB), there is another lesson. There is a progression of different causes of child death as development progresses. This is often referred to as the epidemiologic transition

FIGURE 2.5: Types of injury by age, regional composite 2004



when referring to mortality in all ages across entire populations. Simply stated, as development progresses and mortality rates decrease, the predominant causes of mortality shift from infectious causes to non-communicable causes, among which is injury. The surveys show the same thing happens for children. In low-mortality countries, injury is the leading killer of children (U5MR < 30, LEB > 70). In high-mortality countries, it is a significant killer, but the leading child killers are infectious (U5MR 100, LEB < 60). The data implie that the transition occurs somewhere in the middle (U5MR < 70, LEB> 60). This has significant policy implications for UNICEF. Most of the countries UNICEF is working in have U5MRs and LEBs in the range where injury is a very significant cause of child death, and in many, it likely is the leading cause.

Lesson Nine: Things don't count unless you count them. In order to intervene or track progress for child injury, there must be measurable indicators.

You can't prevent something until you can measure it. This lesson is especially important for UNICEF as it seeks to measure progress. This underpins the MDGs. As we analysed five surveys from the two different regions, we found the number of children 0-17 who died of injury. We wanted to compare this to the total number of deaths in children 0-17 for each region. However, we found that this number was not compiled at the regional offices. There was data on the total number of infants who died in each country and each region, as well as the number of children under five, but there was no source of information on the numbers of all children 0-17 who died in each country and in each region. Clearly, this is needed. How can you evaluate progress on the leading killer of children in the region and on reduction of deaths of all children 0-17 in the region without knowing the total numbers of 0-17 deaths? Finally, we could not help but note that there are over 115 indicators for child health in UNICEF's *The State of the World's Children 2003*, yet none track child injury (see **Table 2.2**).

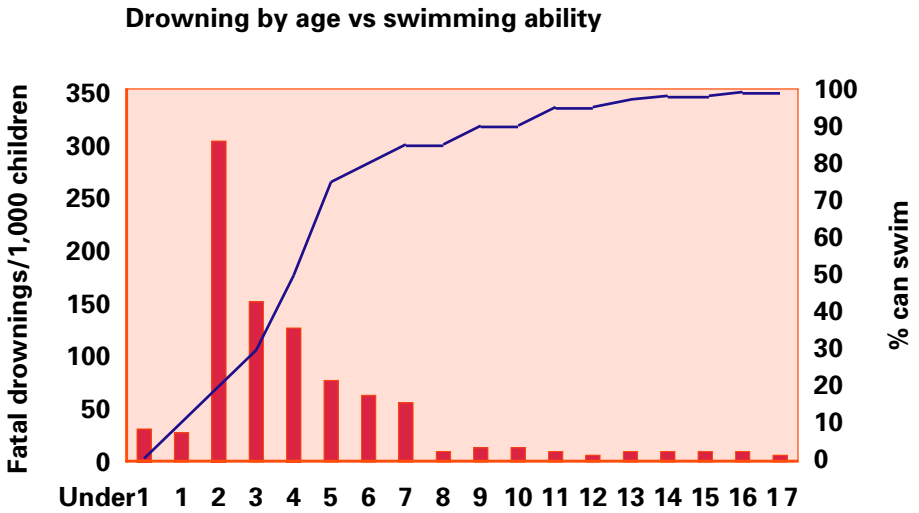
Table 2.2: Indicators in *The State of the World's Children 2003*

Type of indicator	Number of indicators
Basic indicators	14
Nutrition	10
Health	19
HIV/AIDS	17
Education	16
Demographics	14
Women	9
Child Protection	16
Injury	0

Lesson Ten: Drowning, the leading killer of children, can be prevented. This is done by teaching children to swim at the earliest time possible.

Bangladesh demonstrates both the leading problem for child health and one very effective solution. Drowning, the leading killer of children, has a very effective intervention for children five and over. It is called swimming. **Figure 2.6** clearly shows that as children learn to swim, far fewer drown. Bangladesh shows that children in a developing country can universally acquire swimming skills at a very young age, in the absence of sophisticated infrastructure such as pools, certified swimming instructors and life guards. As seen in the figure, most children in rural Bangladesh learn to swim before age five. This comes from a cultural tradition where parents view swimming as a basic and necessary life skill to be taught to their child at the earliest time. Drowning prevention in Bangladesh will do well to focus on prevention of toddlers drowning by increasing adult supervision and reducing hazards, and by encouraging a best-practices approach to early child swimming.

FIGURE 2.6: The main problem already has a solution

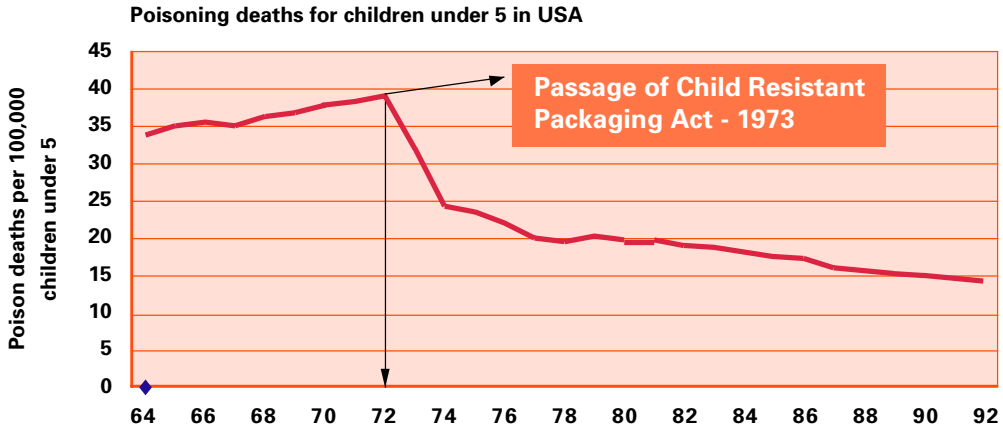


Lesson Eleven: Sometimes good interventions have unintended consequences. Poisoning from drugs and pharmaceuticals that are now available is a cause of child injury death. This can be prevented by using child-proof containers.

Another common cause of child injury death in all five countries was poisoning. The majority of the poisonings were from plants and agricultural chemicals, but the surveys also showed drugs and pharmaceuticals were significant causes of child poisoning. Development organizations have faced the issue of a good intervention having unintended and hazardous consequences before. This was the early experience of the EPI programme when first hepatitis B and later HIV/AIDS were transmitted by unsterile injections. The development community, in large part with UNICEF's leadership, undertook a major programme for adoption of single-use disposable needles and syringes, and began wide-scale use of unit-dose, auto-destruct syringes to combat this problem.

The surveys show that pharmaceuticals used in antenatal and infectious disease programmes, such as ferrous sulphate (iron) and isoniazid (anti-tuberculosis), can find their way into the mouths of young children. Now that over a billion doses of potentially toxic drugs are dispensed each year in MCH and other programmes, it may be time to display the same leadership that was demonstrated with EPI. There is a very effective and cheap solution that has been used for several decades in developed countries. These cost even less than autodestruct syringes. **Figure 2.7** shows the effectiveness of child-proof containers for toxic substances.

FIGURE 2.7: Poisoning prevention effectiveness, 1964-1992



Lesson Twelve: Knowledge alone is not enough. Skills based on the application of the knowledge are necessary for effective child injury prevention.

UNICEF has done very well with a social mobilization and education approach based on *Facts for Life* as a core component providing parents the knowledge base to raise healthy children. The surveys all showed that with injury, there will be a need for more than knowledge. A practical set of life skills that protect against death, disability and serious injury will be necessary. Based on the patterns of child injury by type and age, and consistent with the child's intellectual and physical development, the skills in **Table 2.3** would provide children with the power to dramatically decrease injury morbidity and mortality rates among themselves and their peers. Given the propensity for parents to learn from their children, these "Skills for Life" would likely have a significant impact on parents' and other adults' injury rates as well.

Table 2.3: Skills for Life

Skill	Age for skill development
Swimming	age 4+
Fire/electrical safety	age 5+
Safe bicycle/road sharing	age 6+
UXO/bomb recognition in war/conflict zones	age 6+
Basic first aid	age 6+
Drowning rescue	age 6+
Drowning resuscitation	age 8+
Trauma response	age 9+

The last lesson: The current model of child mortality used by UNICEF does not fit the actual pattern of child deaths in the East Asia and Pacific region.

The classic under-five mortality pie chart lists the leading causes of under-five death and implies that they are universal for all developing countries. These causes are listed as:

- Perinatal 22%
- Diarrhoea 12%
- Measles 5%
- Other 29%
- Pneumonia 20%
- Malaria 8%
- HIV/AIDS 4%

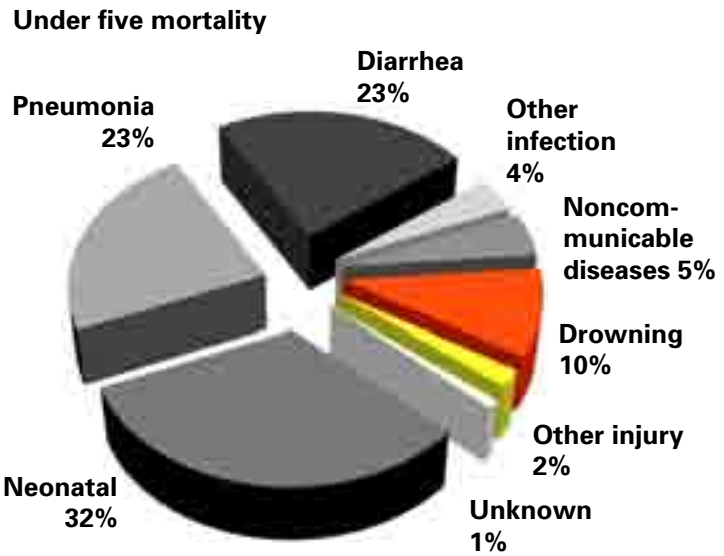
The label "Other" in the standard under-five mortality pie covers almost one third of all deaths (29 per cent). This potentially explains the "child survival paradox" within the recent *Lancet* series on the causes of infant and child deaths in developing countries. Paradoxically, despite a long list of effective interventions, none were targeted against what is now the leading killer of children in the regions that contain the vast majority of all the children in the developing world.

The series noted 23 out of 25 interventions with good evidence of effect and impact; and described a 20-year progression of EPI studies, qualitative and operational research to arrive at these 23. All 23 interventions are aimed at infectious, nutritional and perinatal causes. Injury isn't included separately in the under-five mortality pie and thus is included in the slice called "Other". It is very difficult to create a prevention program called "Other", and in order to encourage intervention in these undefined deaths, it is necessary to label them specifically.

Using the data from the countries surveyed in the East Asia region it is possible to construct a new mortality pie. The new mortality pie is based on the actual causes of child deaths as measured at the household level, and not based on reports of hospitals, vertical programmes, small surveys and adjusted by models inappropriate to the region. This is presented in **Figure 2.8**. This pie provides a new scheme for child mortality in this region.

FIGURE 2.8: A new under-five mortality pie

- East Asia Pacific Region contains 600,000,000 children
- This is 1/3rd of the children in the SOWC listing of developing countries
- Every slice of the pie deserves an intervention



Summary

We can sum up the most important lessons from the six countries surveyed as follows:

- Injury is a significant cause of death in infants and it is either ***the*** leading cause or ***a*** leading cause of child death in all child age groups.
- The major causes of injury vary by age group
  - In early infancy it is suffocation
  - In late infancy it is drowning
  - In early and middle childhood it is drowning
  - In late childhood and adolescence it is road traffic accidents.
- Injury is preventable.
- The data show that there are effective interventions against injury already at work.
- Extracting the mortality from injury in the first five years of life would decrease under-five mortality rates by between 25 and 45 per cent depending on the country.

BANGLADESH

Burden of child injuries: Evidence from Bangladesh Health and Injury Survey, 2003

AKM Fazlur Rahman
Institute of Child and Mother Health (ICMH), Dhaka

Bangladesh has a population of 123 million and the highest population density in the world at 855 persons per sq. km. The Bangladesh Health and Injury Survey (BHIS) 2003, was conducted by the Institute of Child and Mother Health, with the technical and financial support of TASC and UNICEF. It is the largest injury survey ever conducted at the community level in a developing country, with a sample size of 171,366 households and total surveyed population of 820,347. The survey included all age groups; and 43 per cent (352,749) were children under the age of 18. Two methods were used in the surveys:

1. Quantitative: The sample was a nationally representative group that included urban and rural components. Additionally, Dhaka was sampled separately to allow comparison of the slums, urban and peri-urban areas in this mega-city. The studies were of two types:
   - A cross-sectional survey to determine the causes of mortality and morbidity classified as infectious, noncommunicable and injury; and with verbal autopsies administered for all deaths and verbal diagnostics conducted for all serious illness and injury. The definition of serious illness or injury was that requiring seeking health care, or missing three days of school or work.
   - A case-control study to determine the risk factors, vulnerable groups and risk environment for drowning among children. Each drowned child was compared with two controls, matched for age, sex and community.
2. Qualitative: Focus group discussions and in-depth interviews were conducted in areas that had high prevalence of specific injury types (drowning, burns, poisoning, and suicide, they offered an understanding of the cultural, behavioural and other factors related to perception of risk, hazard and prevention of injuries.

Figure 3.1: Proportional mortality by age

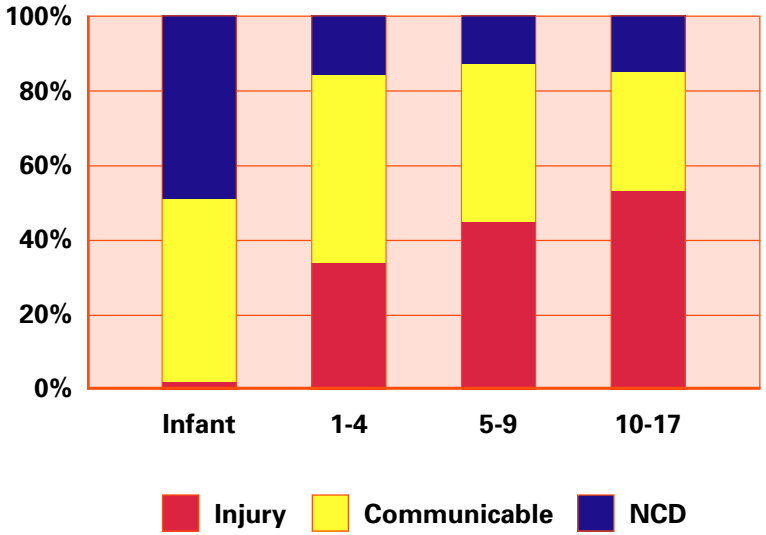
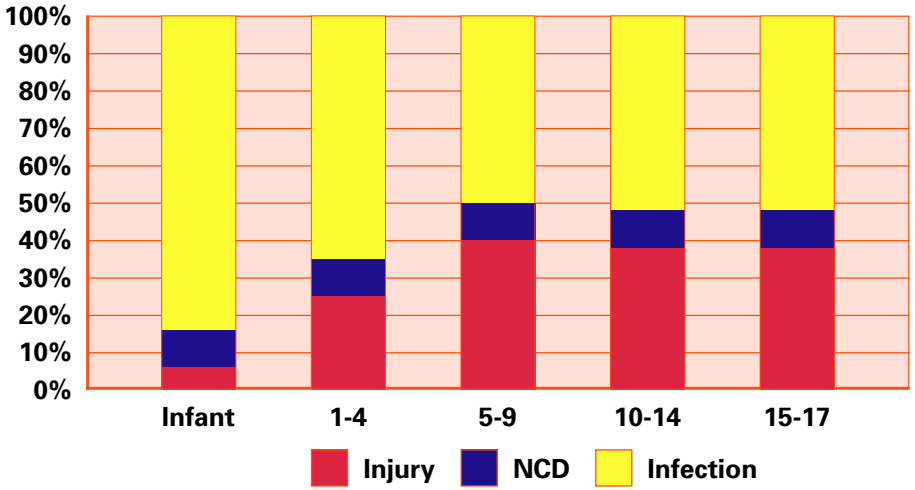


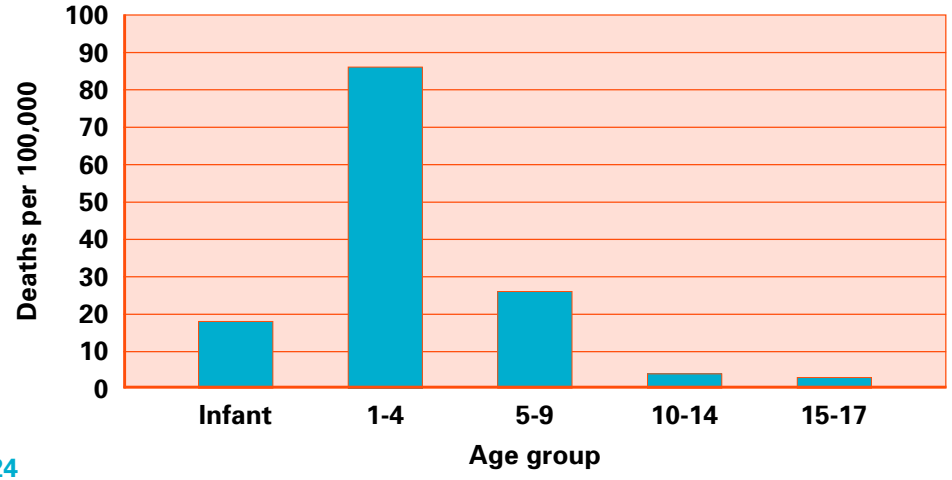
Figure 3.2: Proportional morbidity by age



Drowning

Drowning is the leading cause of death in children aged one to nine and is a particular threat at age one when children are learning to walk. The case-controlled studies showed that there are many risk factors associated with drowning but the risk is greatest when the main caretaker of the child is not the mother.

Figure 3.3: Fatal drowning by age



Transport injuries

In all age groups, those most at risk from traffic accidents are pedestrians and those in nonmotorized vehicles, mainly bicycles. Males have higher rates of transport injury. The sex differences increase as age increases. Few females are killed by RTA after age 10 since in Bangladesh females do not ride bicycles and after this age, most remain home.

Figure 3.4: Fatal RTA by age

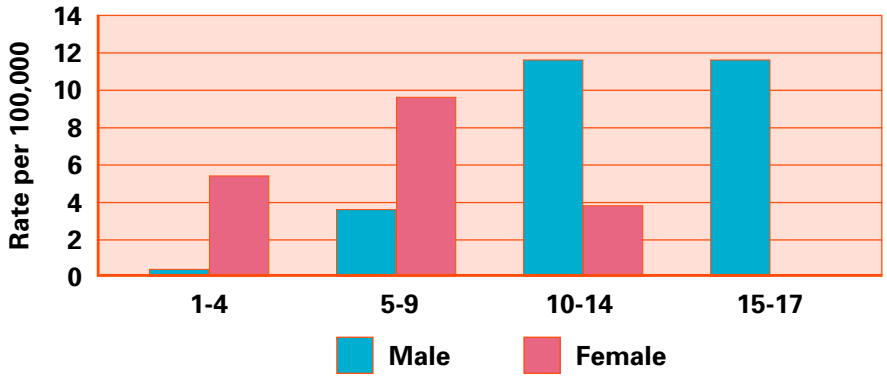
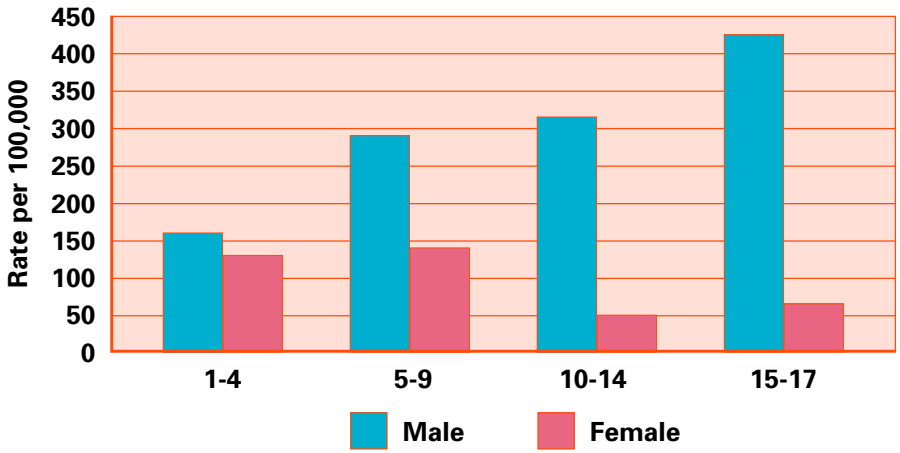


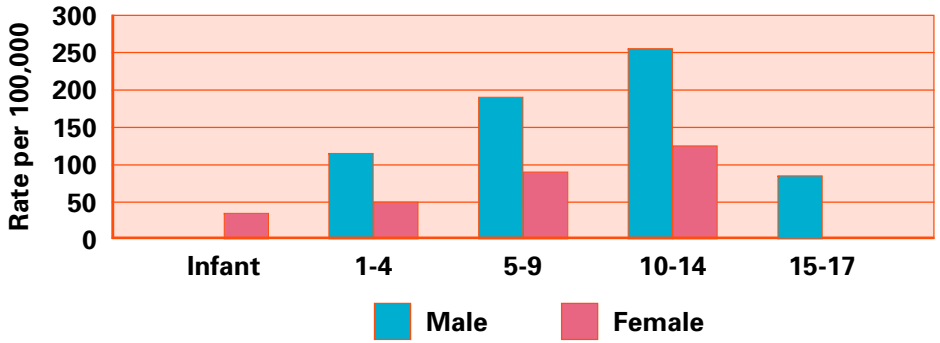
Figure 3.5: Non-fatal RTA by age



Permanent disability

While fatal injury has significant cost, the most costly aspect of injury is in non-fatal injury that results in permanent disability. The leading cause of disability for young children was burns and falls; for older children it was RTA and falls.

Figure 3.6: Permanent disability rates by age



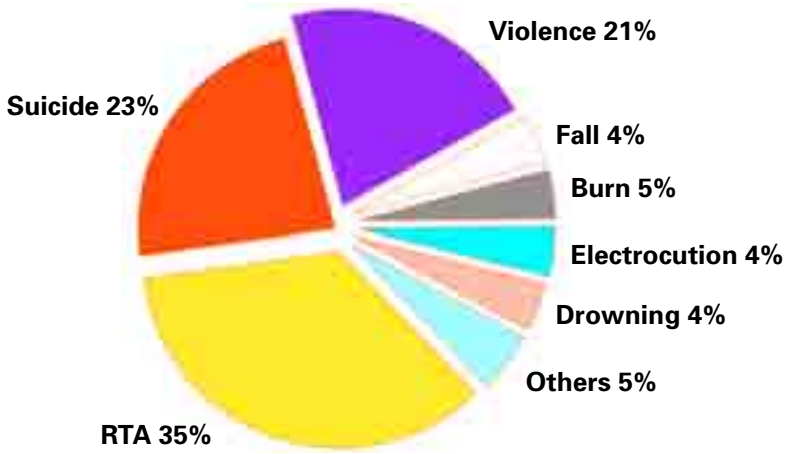
Injury orphanhood

Injuries affect children directly when they are injured but also indirectly by causing death of a mother or father, loss of the child's primary caregiver or primary economic earner. Loss of either of these has severe adverse effects on children. The younger the child is, the more severe the effect. Loss of the mother places the child at great risk in infancy as breast feeding is suddenly stopped; in later child life they often receive less preventive care and suffer more acute episodes of infections diseases, plus they are at high risk of injury without the close monitoring and supervision of the mother. Loss of the father places an infant and young child at great risk as the family unit is often disrupted and the family often sinks into extreme poverty with its concomitant health risks.

In late childhood, loss of either parent often causes the child to drop out of school and take on the role of the lost parent for the rest of the family. Given that most mothers and fathers of infants and young children are in their early and mid twenties, the leading cause of death and permanent disability for them is injury.

This was clearly seen in the Bangladesh data, as the leading cause of death for mothers and fathers with children from 0-17 was injury. Some 43 per cent of mothers of children aged 0-17 die of injuries, more than any other cause. Over 600 married women aged 18 to 19 die from injury annually. This means each day, two infants lose their mothers because of injury. At least 38,000 infants and children (0-17) lost either their primary caregiver (mother) or primary economic provider (father) due to injury in 2003. The causes are both accidental injury as well as intentional injury (suicide and homicide).

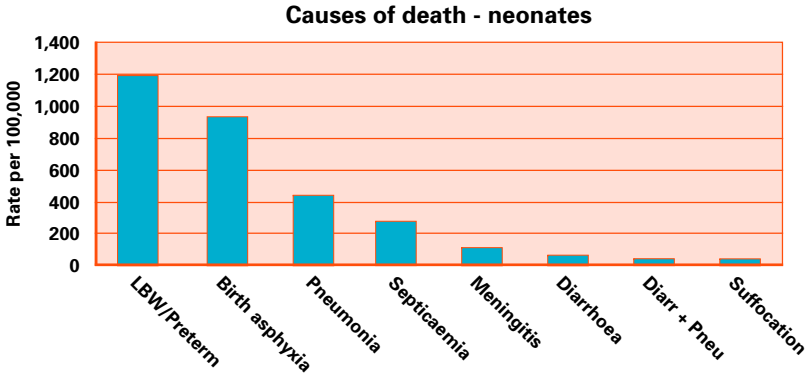
Figure 3.7: Orphanhood due to injury (causes of death for parents of children age 0-17)

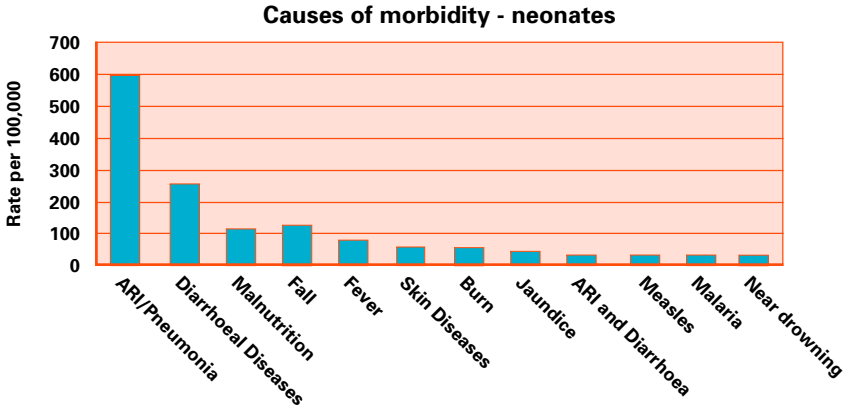


Age group	Mortality	Morbidity

Neonates

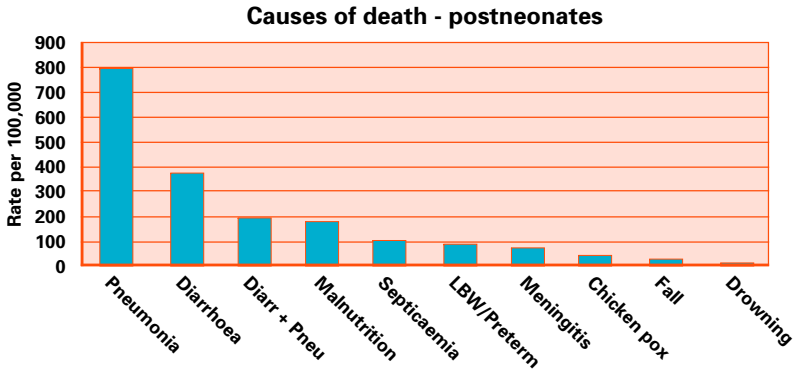
- The leading causes of deaths for neonates were pregnancy or birth related.

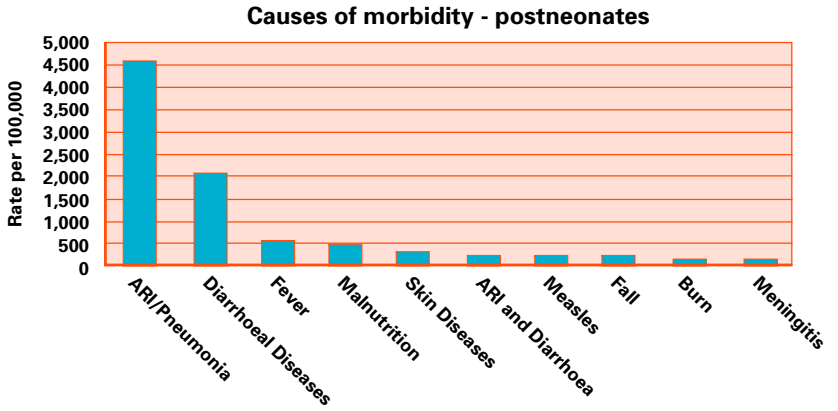




Postneonates

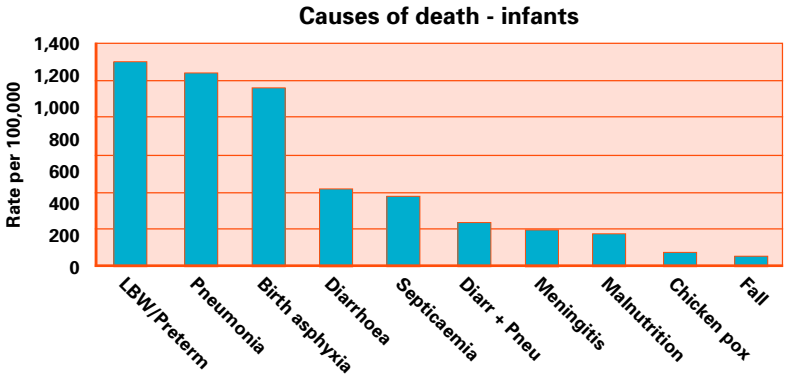
- The leading causes of deaths and illness for postneonates were pneumonia and diarrhoea.

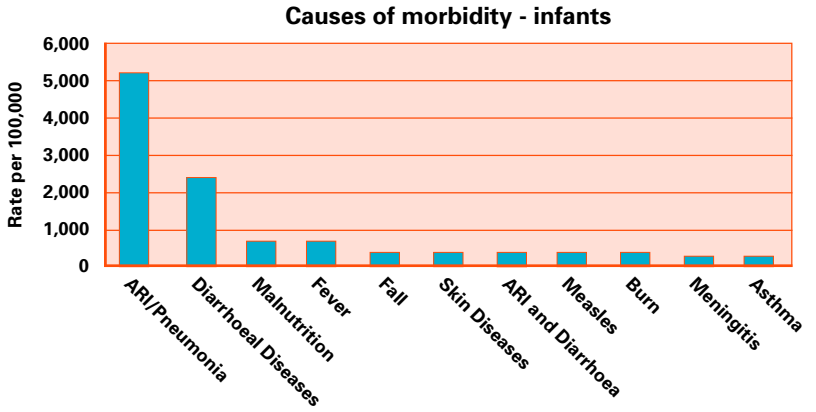




Infants

- Infant death rates through injury are comparatively low; this increases dramatically after the age of one.

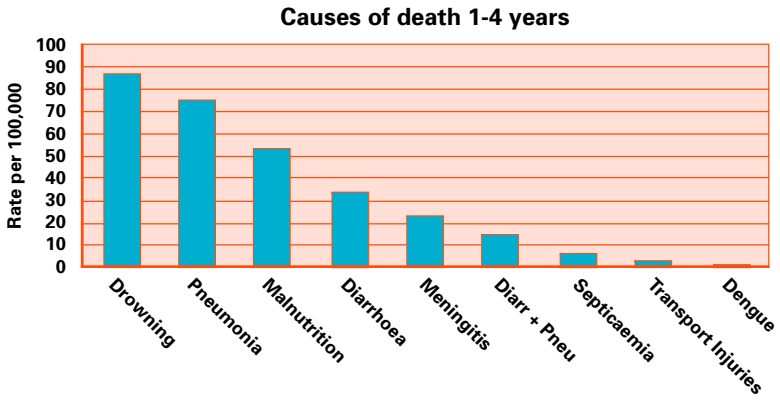


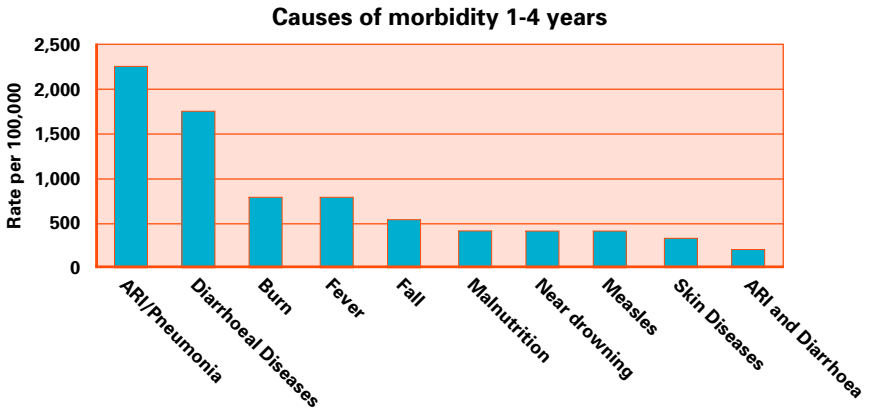


Age group	Mortality	Morbidity

Ages 1-4 years

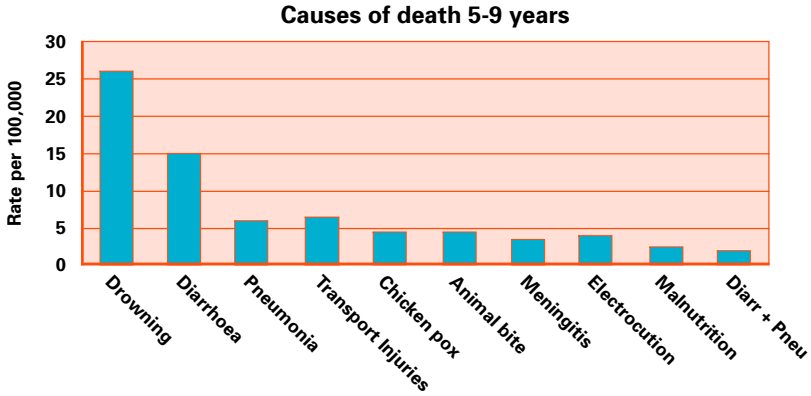
- The leading cause of death among 1 to 4 year olds is drowning and every day, and 33 die from drowning.
- Burns are the leading injury morbidity among children; it is a particular problem between the ages of 1 and 4.

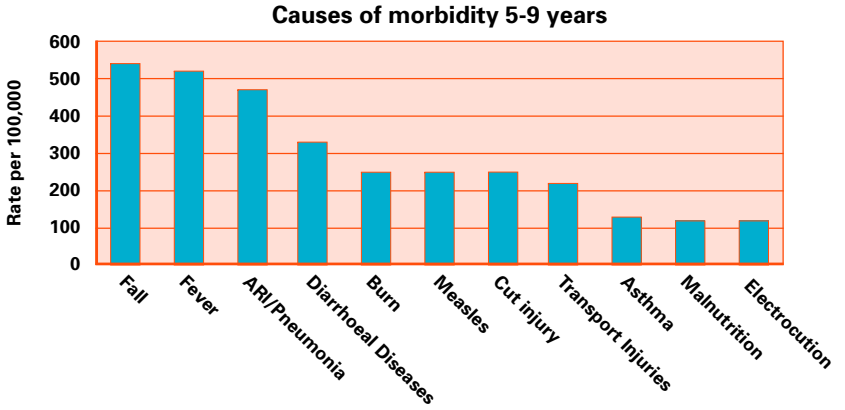




Ages 5-9 years

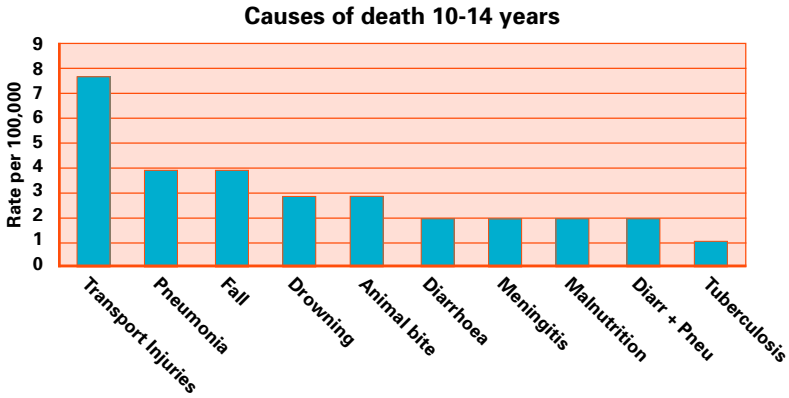
- Drowning is the leading cause of death in 5 to 9 year olds, and every day 9 die by drowning.

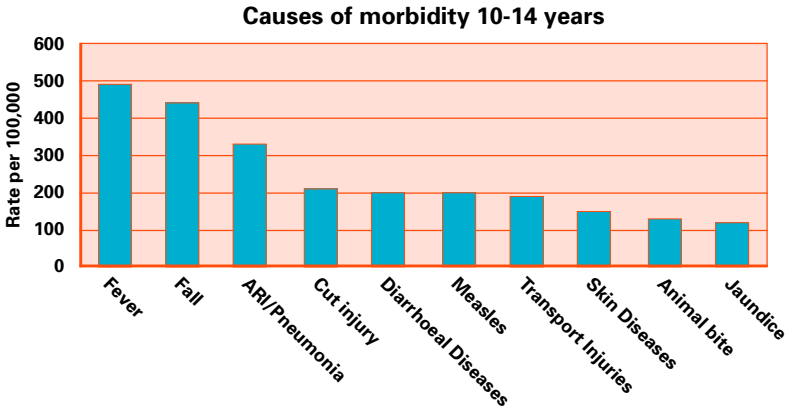




Ages 10-14 years

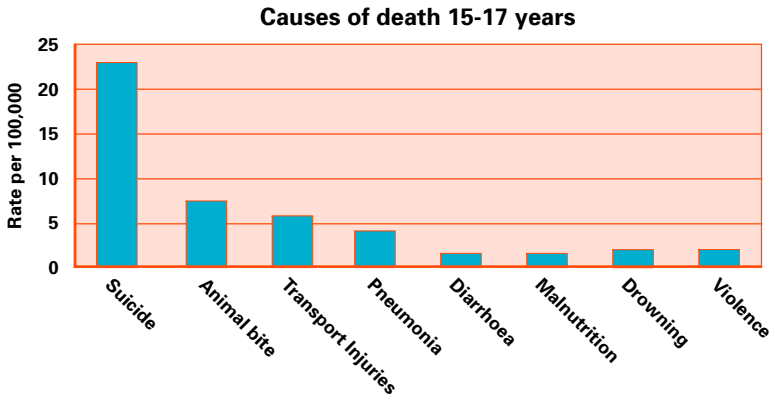
- The leading cause of death in 10-14 year olds is road traffic deaths, mainly as pedestrians and bicyclists.
- Permanent disability rates are high in all age groups and rise to a peak in the 10-14 year age group.

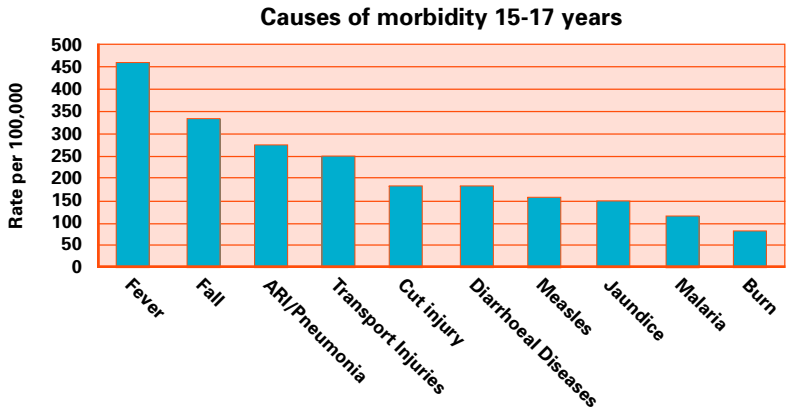




Ages 15-17 years

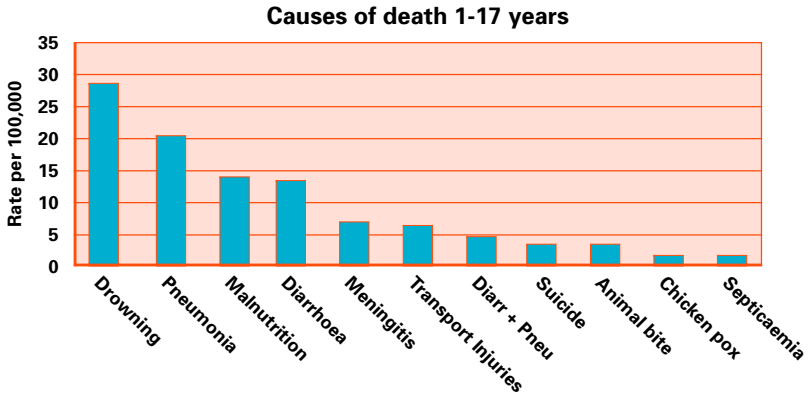
- The leading cause of death in 15-17 year olds is suicide. Ten children commit suicide every day.

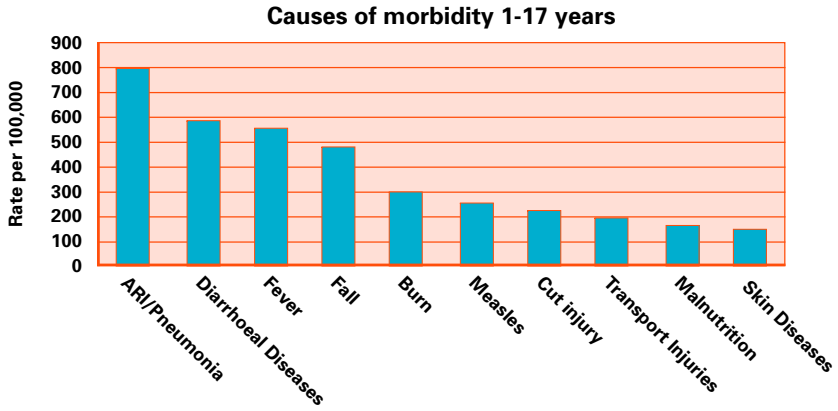




Ages 1-17 years

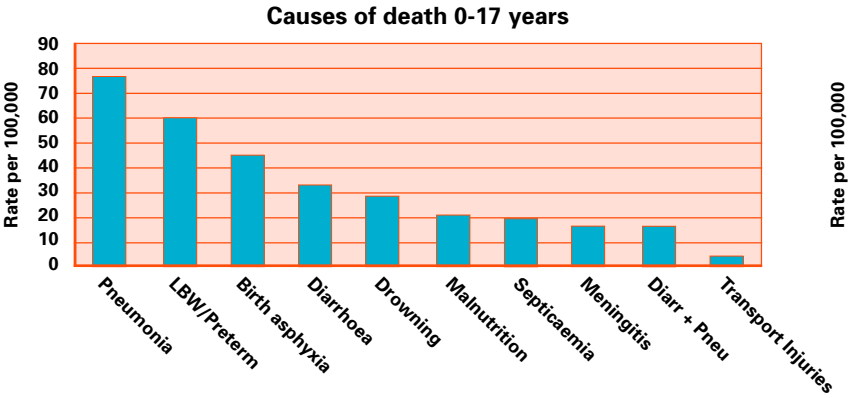
- The proportion of deaths from injury increases from 30 per cent between the ages of 1 and 4 to over 50 per cent between the ages of 5 and 17.
- Among children between 5 and 17, transport accidents and falls are the leading injury causes of morbidity.

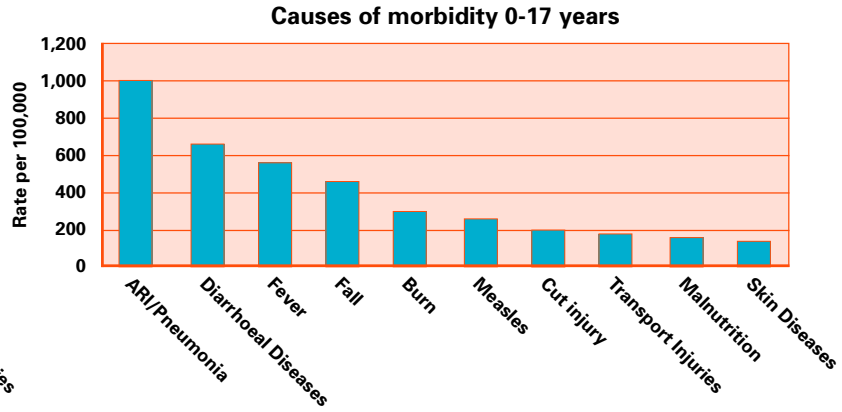




Ages 0-17 years

- Injury kills over 80 children every day in Bangladesh.
- Injury morbidity is not a significant issue with infants. However, in children aged 1 to 4, the rate of injury morbidity rises to 17 per cent and peaks at 33 per cent for children between the ages of 5 and 9.





Community perception regarding injuries

- The main cause of drowning was a lack of awareness and supervision. This fit with the epidemiologic evidence.
- Most took place in nearby water reservoirs. This fit with the evidence from the case control studies.
- Risk was highest with children over 10 years old. This was a dangerous misconception as the highest risk was at the age of one year.
- Many people sought treatment from indigenous herbal medicine practitioners/traditional healers rather than medical care. The care received was not appropriate, but given the common use of these practitioners, they may serve as first providers if trained properly.
- Suggested preventive practices included looking after children, keeping children away from water, developing swimming skills under adult supervision, tying waist bells on children and placing barriers around water bodies. All of these were appropriate and would be important parts of intervention programs,
- Burns are a very serious issue for young children and transport injuries and falls are common in older children. These injuries were regarded as common and were seen fatalistically as ‘they just happen’.
- Poisoning and suicide are regarded as tragic but sinful events - a social stigma is attached to such injuries.

Qualitative study conclusion

There was a disconnection between the predominant belief of knowledge in the community regarding the causes and risk groups with that found in the quantitative study. There appeared to be a wide gap in knowledge and appropriate practices for first aid or first response action. Most of the practices cited as used for first aid would not be helpful, and many of them increased the risk of death or complications. Clearly, this will be an area of great need for action.

Prevention of child injuries: Programmes and interventions in Bangladesh

Dr. Kayode S. Oyegbite
Chief, Health & Nutrition,
UNICEF-Bangladesh

Bangladesh's MDG target is to reduce the under-5 mortality rate to 31 (per 1000 live births) and to reduce infant mortality to 22 (per 1000 live births) by 2015.

Bangladesh

The green delta of 147,470 sq. km. is pierced by at least 230 rivers and their tributaries.

HH: 19,398,000

Population: 123.1 million

U5 pop: 16,086,080

U18 pop: 55,770,180

International Boundary
Divisional Boundary
District Boundary
River/Bay of Bengal

N

UNICEF Prevention of Child Injuries: Programmes and interventions in Bangladesh

Responses to address the issue of child injuries

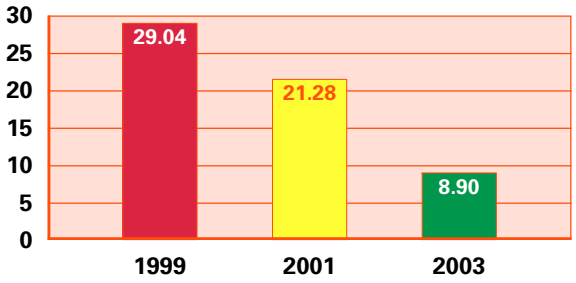
The national survey has explored the burden and we now better understand the magnitude and perspectives of injury. Injury is now on the agenda for strategic and programmatic interventions for achieving MDGs by Government and Development Partners.

- It has been included in the Health Sector Programme (HNPSP) 2003-2006 of the Ministry of Health & Family Welfare, and a joint Government-Partners annual work-plan (2004) has been developed to address the issue.
- The Government of Bangladesh is funding an Accident Research Center. It has requested funding but requires collaboration and technical support.
- Injury also has a special focus in the National Plan of Action for Children developed by the Ministry of Women and Children's Affairs.
- A new sub-project for Injury Prevention and Control has been created for the UNICEF Bangladesh country programme.
- Drowning prevention has been identified as one of the five priority areas of Community Integrated Management of Childhood Illness (IMCI) interventions.

Planned activities in 2004

1. Advocacy and sensitization of policy planners, programme managers, journalists, professionals and community people through dissemination of survey findings and mass communication.
2. Develop strategies and a National Plan of Action.
3. Collect information on various aspects of injuries through research and studies: to understand the risks of drowning when learning to swim and identify the best practices; and to identify the risk factors, socio-economic and health impact of major childhood injuries.

Figure 3.8: Drowning rates in Sherpur, pilot intervention



The project framework will be designed based on the experience of Bangladesh Safe Community Project at Sherpur, where drowning has been significantly decreased after three years intervention.

Approaches and interventions in pilot areas

1. GIS mapping of the areas and to identify the risk spots and risk groups;
2. Orient the health care staff/community volunteers on burden, risks of injuries and on preventative measures to:
   a. Sensitize the families and communities on risks and safety measures
   b. Provide necessary support to the community to identify and modify the risk environment;
   c. Establish linkages with other programmes like EPI, IMCI, ECD, Education and Child Protection;
   d. Develop local level networking and collaboration with multi-sector actors including NGOs;
   e. Develop injury MIS and surveillance system;
   f. Train high school students on prevention and first aid of injuries and use them as change agents in the community;
   g. Strengthen health facilities for injury management and capacity building of health care providers/community volunteers on first aid;
   h. Collaboration with transport sector, local administration and police for law enforcement and other transport injury issues.

Special programme for drowning and other unintentional childhood injuries

1. Counsel parents and family members to ensure constant supervision of young children by a responsible adult.
2. Counsel fathers and elder family members to share child rearing with the mother.
3. Tying bells to the waist of children for tracking child's movement;
4. Motivate and support families and communities to undertake environmental modifications such as:
   a. Filling in ditches;
   b. Erecting fences around ponds, around the house or on the way to water bodies;
   c. Building safe bridges for crossing canals and small water ways;
   d. Other necessary modifications for the prevention of falls, burns, poisoning etc; and
   e. Organize special community meetings after an injury death.
5. Special programme for Drowning Prevention - teaching swimming skills to children under close adult supervision.

Programmes for intentional injuries especially suicides

- A special programme to be designed based on more quantitative and qualitative research to understand the underlying factors, identify the risk groups and risk behaviours etc.;
- Partnership with psychiatrists and social scientists is needed;
- Exploration of differences in approach in urban versus rural environments is needed;
- Coordination and collaboration of the Ministry of Health, Ministry of Social Welfare, Ministry of Women and Children Affairs, Ministry of Education, Ministry of Youth and Sports etc.

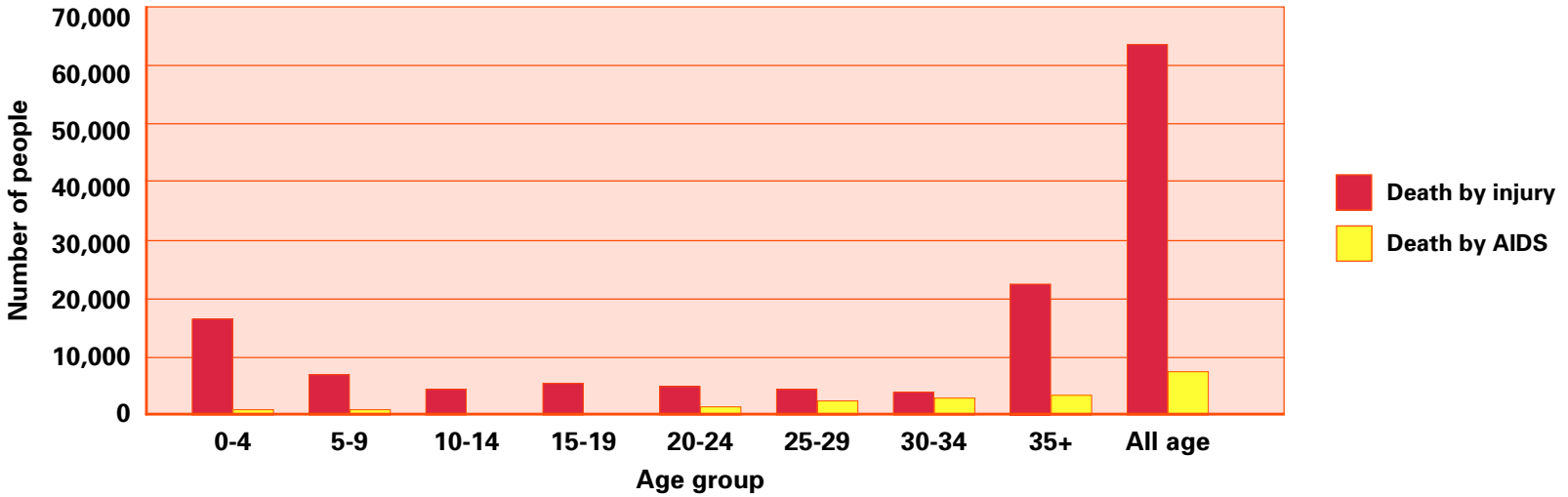
Challenges

- Mobilization of Resources;
- Designing acceptable and effective interventions with community ownership;
- Capacity building and institutionalisation of the systems and integration of the program within the existing health system. The GO-NGO field workers are already burdened with many activities like immunization, family planning, nutrition etc.
- Effective collaboration and co-ordination among multi-sectoral partners;
- Ownership of the program by the Government, NGOs, Civil Society
- Lack of risk modification initiatives because of poverty and other resource constraints

UNICEF's work in prevention of childhood injury is still in its infancy. The BHIS was completed only this year and revealed that much more has to be done to reduce child mortality and morbidity by injury. In order to reach the MDG targets, prevention of childhood injury must be a priority in Bangladesh.

However, it is clear that injury is the single greatest unmet priority for child health in Bangladesh. One objective measure of the importance of injury as a leading cause of child death and disability can be seen in the following graph. HIV/AIDS, has recently achieved high visibility in the eyes of the government and donors. A comparison of the relative risk of death from HIV/AIDS and injury can help show why preventing child injury must be a high priority for the UNICEF country programme.

FIGURE 3.9: If Bangladesh had an HIV epidemic similar to Thailand, injury would still be the highest priority for prevention



Graph has 2002 HIV rates from Thai Ministry of Health AIDS program applied to Bangladesh population. Injury rates are from BHIS 2003 data.

BEIJING, CHINA

Beijing Child Injury Survey

Prof. Guang Zeng, Chinese Center for Disease Control and Prevention

The Chinese government is committed to the Millennium Development Goal of decreasing child mortality. It is also one of the goals in "China's Children Development Plan 2001-2010". The government knows that in recent decades, the pattern of disease and death has changed.

The one-child family makes China a "special case" for child injury research. However, there is no accurate national incidence data for child injury and also a lack of systematic analysis of injury morbidity and risk factors in China. Thus, Beijing was chosen as the pilot location by TASC, UNICEF and the Chinese Government for the national survey.

Why start in Beijing? China's size (1.3 billion people, more than 500 million children) means any "national" survey must be done in stages. Using Beijing as the pilot provided advocacy, visibility and ensured government commitment.

Beijing doesn't represent China. In Beijing the figures are:

- Population = 14 million
- Infant mortality = 5.5 per 1,000 live births (2002)
- Under 5 mortality = 6.9 per 1,000 live births (2002)
- Life expectancy = 77 years (2002)
- Fully immunized children = 99.5 per cent
- Antenatal care rate = 99.5 per cent
- Maternal mortality = 14/100,000 (2001)
- Family size = 2.8 persons (due to the one child policy)

Except for maternal mortality, Beijing's figures are about the same as Stockholm and better than London, New York and Paris. This stems from the well-enforced one-child family policy, the policy of enforcing the resident permit system to keep non-residents from living in Beijing and the enormous concentration of social service providers. Consequently, in Beijing parents are universally well educated, all pregnant women get full antenatal services; children have virtually 100 per cent immunization coverage, and parents take their one, allowed child to the doctor at every episode of any illness or injury.

Beijing is a highly developed city

Because of concentration of healthcare services, a well-educated population, and one-child families, the mortality and morbidity rates are very low, similar to developed countries;

Because of the very low mortality rates, injury was treated as a continuous variable, and analyzed according to level of severity in descending order:

- Death
- Permanent disability
- Hospitalization greater than 10 days
- Hospitalization one to nine days
- Sought care, or missed one day of work or school

The survey

Purpose

- To assess injury mortality, morbidity, disability, economic burden, risk factors, and to compare these with other diseases (the definition of injury or disease is something that requires medical care or causes at least one day of school or work to be missed);
- To test and standardize data collection and analysis, as the pilot study for the further injury surveys;
- To provide child injury information for the Beijing Government to plan their specific interventions; and
- To build technical capacity for injury research.

Methods and scope

- Retrospective survey with face to face interviews;
- Probability proportional to size sampling;
- 28,084 households, 81,604 respondents including 13,058 children;
- 92 per cent residents of Beijing, 8 per cent migrants; and
- Inclusion criteria for disease or injury: seeking medical care, or missing at least one day of school or work.

The survey was intended to look at unintentional injury. A different survey method is needed to obtain data on suicide and assaults, as they are more sensitive issues. Other data indicate that suicide is a significant issue for children and adolescents.

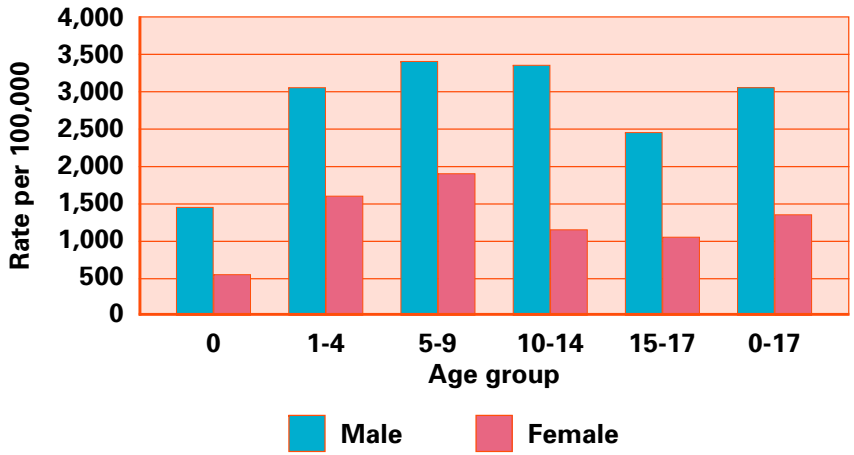
Mortality results

- The numbers were too small for meaningful analysis by age and sex;
- Injury was the leading cause of child death (43 per cent); and
- Drowning caused two thirds of injury deaths and RTA caused one third.

Morbidity results

The numbers of Beijing children who were injured seriously enough to seek care or miss one day of school or work, were hospitalized or were disabled in 2003 are staggering. Rates for males were almost twice those for girls.

Figure 3.10: Injury morbidity by age and sex



Age group	Children injuried in 2003	Children injuried per day
Infants	690	two per day
1-4 years	8,600	24 per day
5-9 years	14,300	39 per day
10-14 years	17,500	48 per day
15-17 years	9,500	28 per day
Total all ages	**50,600**	**139 per day**

The three leading causes of nonfatal child injury were falls, animal bites and RTA.

Figure 3.11: Nonfatal injury by cause

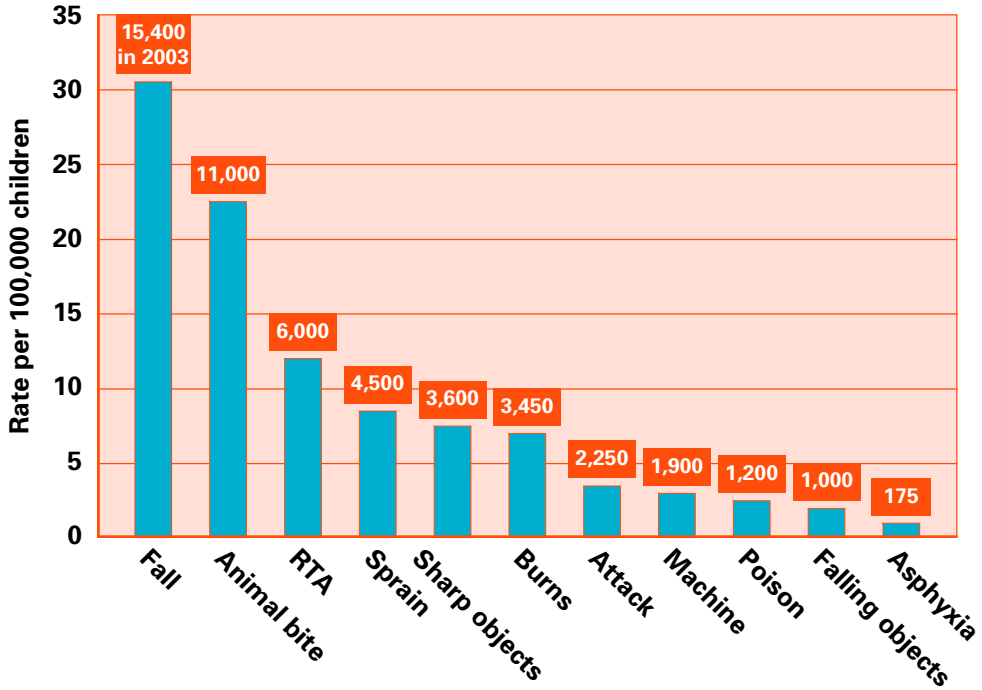
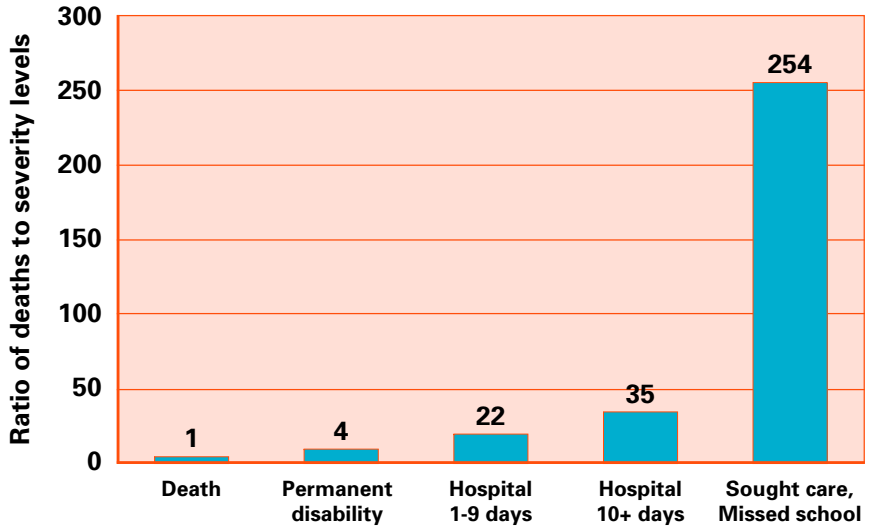


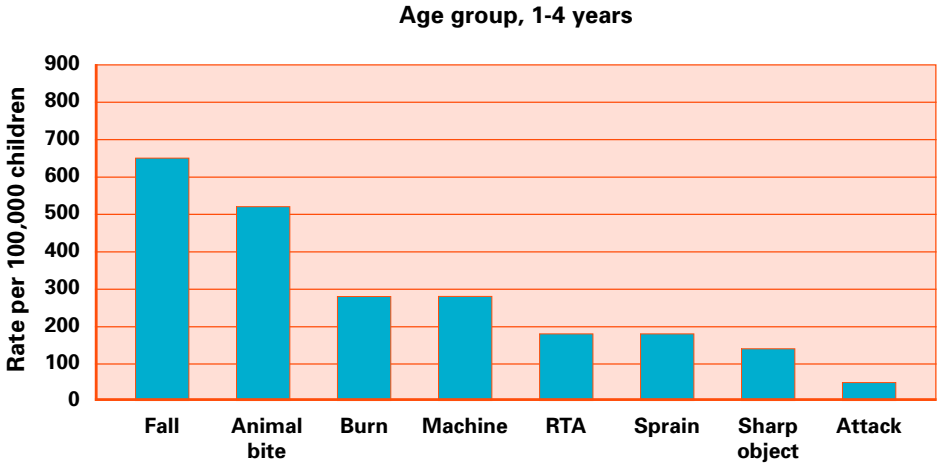
Figure 3.12: Death is the tip of the iceberg



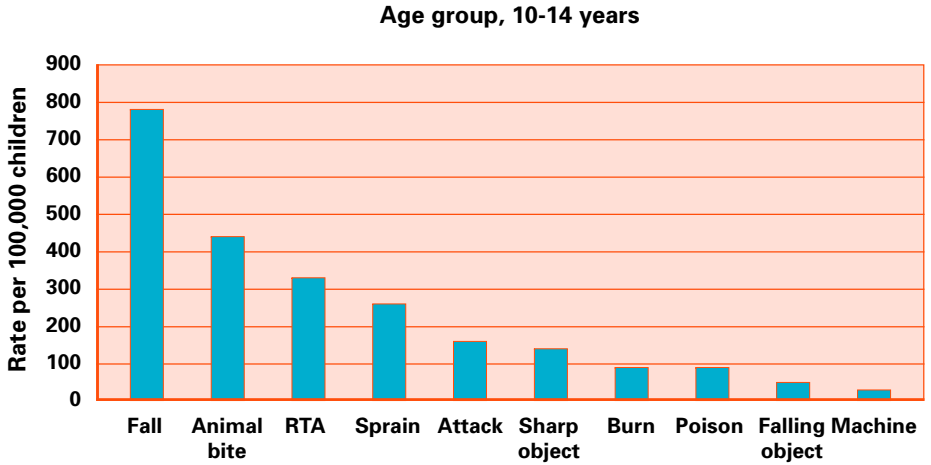
For every one child death from injury, four children were permanently disabled, 22 were hospitalized for one to nine days, 35 hospitalized for 10 days or longer, and 254 who sought care, or missed one day of work or school due to injury. For 2003, this meant that:

- 172 children died, about one every two days
- 690 children were permanently disabled, or about two per day
- 3,800 children were hospitalized for 10 days or more, or about 11 per day
- 6,000 children were hospitalized between one to nine days, or about 16 per day
- 43,800 children sought care or missed one day of school or work, or about 120 per day

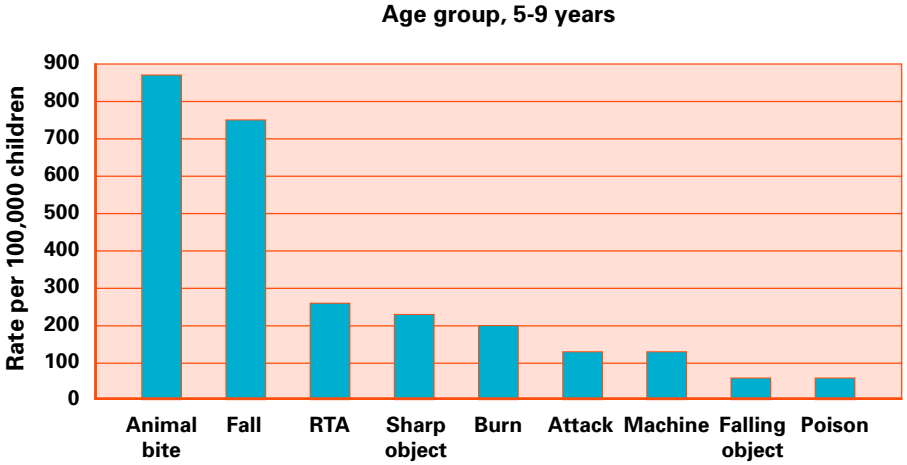
Figure 3.13: Leading causes of injury morbidity



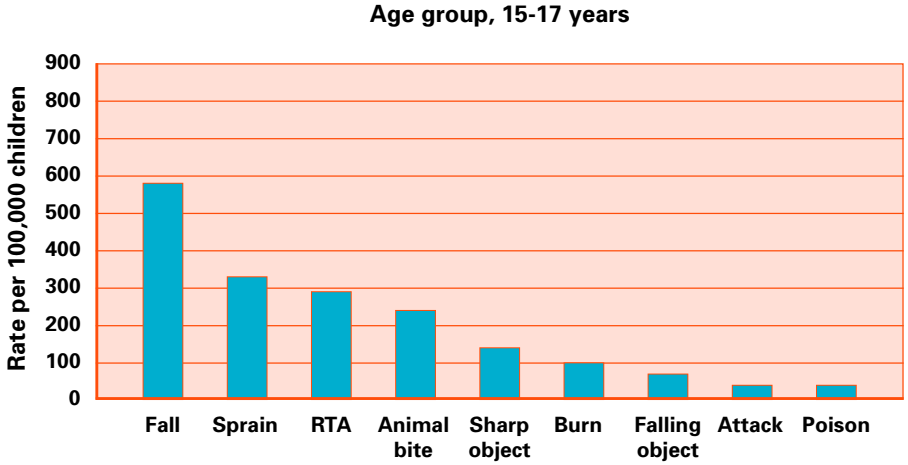
• Falls, animal bites and burns were top three



• Falls, animal bites and RTA were top three



• Animal bites, falls and RTA were top three

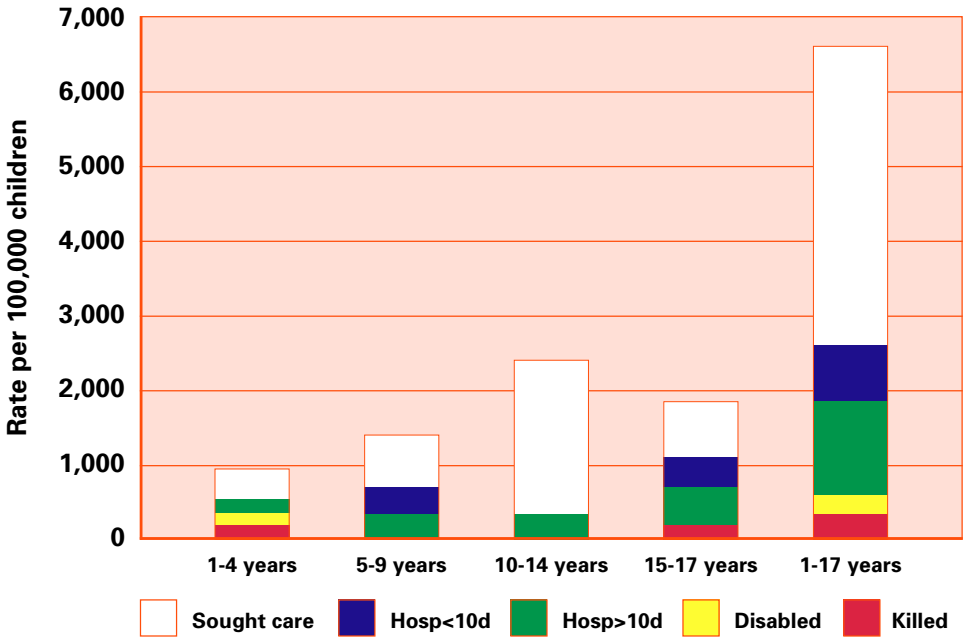


• Falls, sprains and RTA were top three

Road traffic accidents

The number of cars is increasing and thus the dangers of RTA for children are increasing.

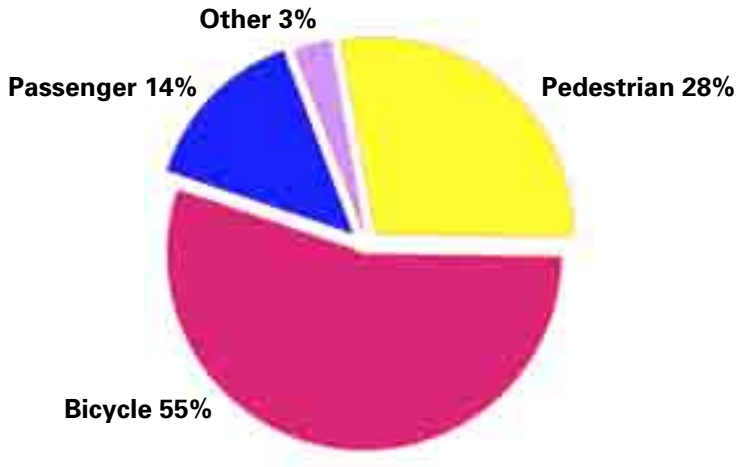
Figure 3.14: RTA injury by age and severity



Because there are no school buses, children are exposed to risk at least twice a day when going to and from school during rush-hour traffic.

- 18 children killed or injured each day;
- 198 child-years spent in hospital (72,600 days);
- 139 child-years temporary disability in recovery (138,600 days);
- 330+ child-years of missing school and productivity of one or more parents;
- The annual cost of these injuries is $28,000,000;
- Children are usually injured on the way to or from school.

Figure 3.15: Role of child injured in RTA



Burns and scalding

The annual cost (direct and indirect) of these injuries is US$18,450,000. Burns are a very significant health issue that the survey highlighted for children. It highlights both the large numbers as well as the very large economic and social costs. The survey was designed to focus on the issues of disability and long-term rehabilitation in burn injury in children. UNICEF will be moving to secondary surveys looking in detail at the cost-benefit issue for prevention of scald and burn injuries in young children in order to capitalize on the opportunity to begin prevention advocacy.

- The majority of burns (90 per cent) were caused by hot liquid, including liquid for cooking, hot drinks or soup
- Most scalding occurs when accidentally spilled by another person (75 per cent)
- 10 children are injured by burns and scalds every day
- One infant every 2 days (172 annually);
- Three children 1-4 years every day (over 1,000 annually);
- Three children 5-9 years every day (over 1,000 annually);
- Two children 10-14 years every day (690 annually); and
- Three children 15-17 every two days (over 500 annually).

Figure 3.16: Burn and scald morbidity by age

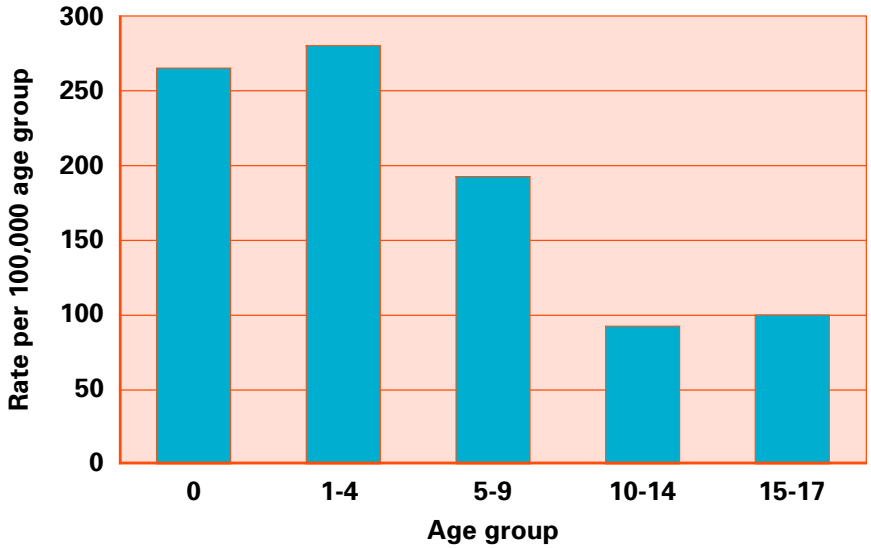
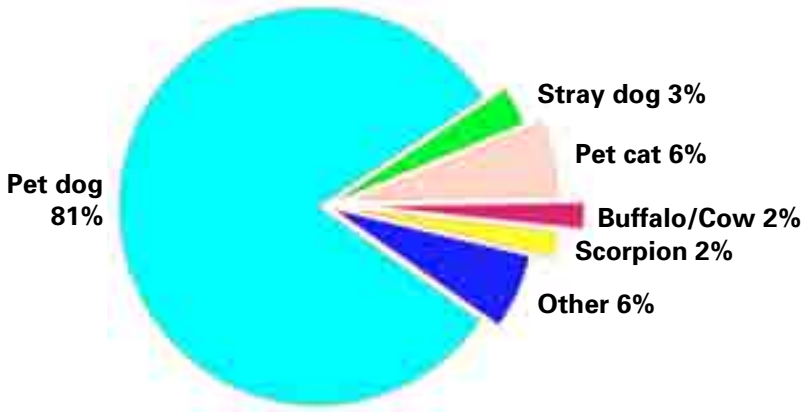


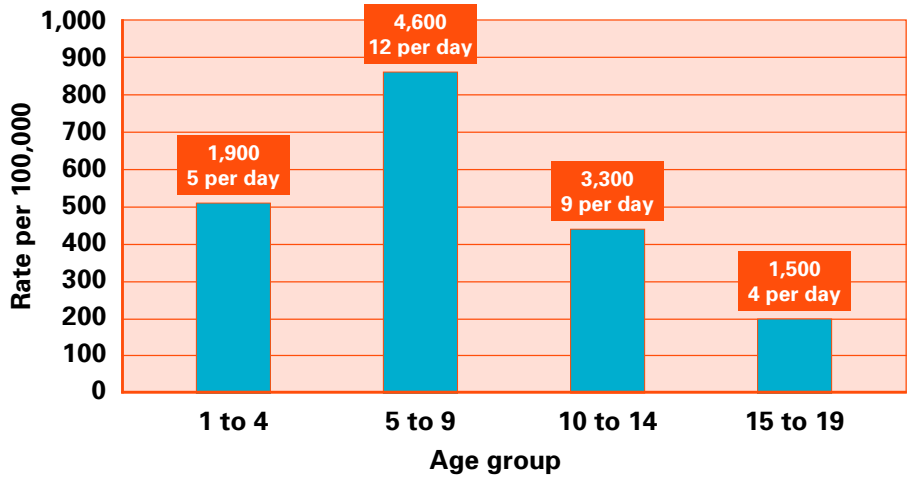
Figure 3.17: Type of animal bite



Animal bites

Two decades ago, pet ownership was not allowed. Beijing has recently regulated and licensed pet ownership. Pets have become the "second child of the family". Clearly, UNICEF and its partners need to deal with the issue of pets as child hazards (see Figure 8). Previously it was thought to be a public health issue, and not an actual child health or injury hazard issue. Most of these injuries are caused by pet dogs and affect young children aged one to nine (annual rates and per day rates are above each age group shown in Figure 9). Almost 30 children are bitten per day, resulting in 1,700 days spent in hospital annually and 32,250 days of help required for performing everyday activities (nearly 88 years). The annual cost of these injuries is US$4,210,000.

Figure 3.18: Animal bites in children by age



Poisoning

- The main cause is poisonous plants and carbon monoxide;
- Seven children killed or injured every two days;
- 0.5 child-years spent in hospital (172 days);
- 4.5 child-years temporary disability in recovery (780 days);
- 12 child-years of missing school and productivity of one or more parents; and
- Total cost annually (direct + indirect) = US$540,000.

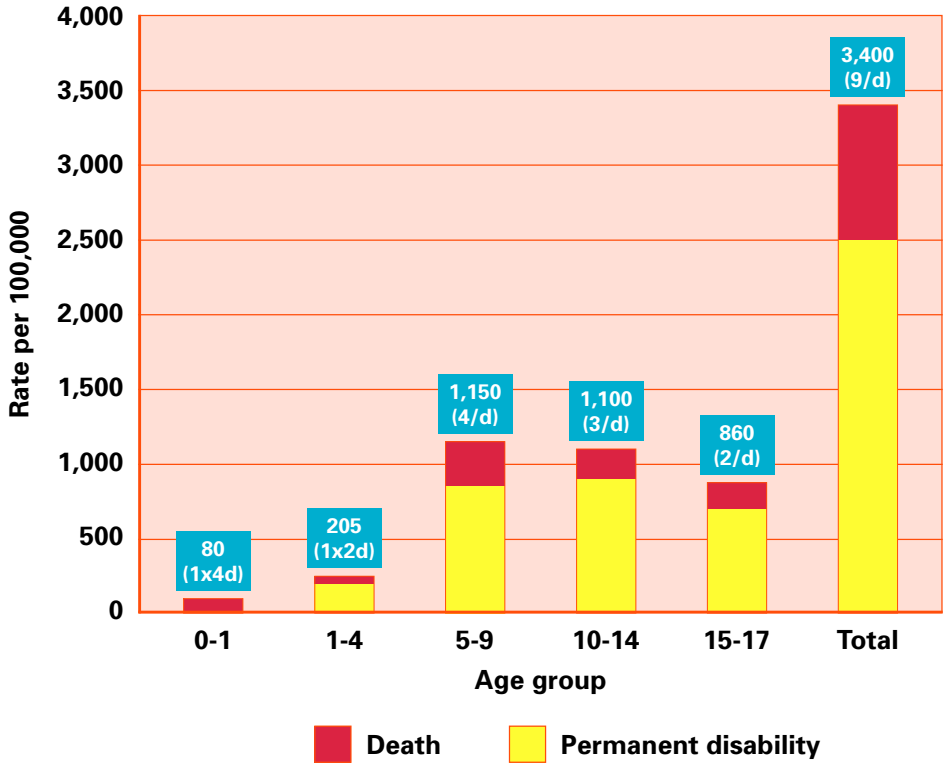
Drowning

- Drowning rates are very low in Beijing. Likely explanations are that there are fewer lakes, rivers and ponds in Beijing and, because most children are from a one-child family, parents supervise them very closely. Near drowning was not included as it was a difficult concept to define. Drowning accounted for 33 per cent of child deaths from injuries.
- Eighty per cent of children 3 - 17 years old cannot swim.
- Only 17 per cent of children 3 - 17 years old can swim 25 metres.

Parent injury

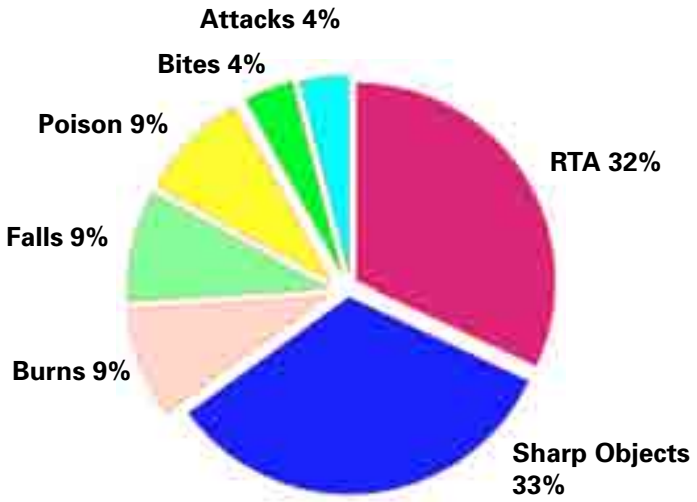
Injury affects children directly, but it also affects them indirectly when a parent is killed or permanently disabled by injury. Injury was the leading cause of loss of parent for children.

Figure 3.19: Loss of father or mother to injury by age of child



The leading causes of loss of a parent to injury were RTA and injury caused by sharp objects. Other major causes were burns, falls and poisons.

Figure 3.20: Injury cause of parent's death or disability



The cost of injury to children is significant. The economic costs are considerable, and the social and familial costs are enormous. Beijing cannot afford this continuing economic and social burden as it continues to develop.

Direct and indirect costs annually for the four main injuries in children 0 - 17

Type of injury	Direct and indirect costs (US$)
Road traffic	28,000,000
Burns	18,450,000
Poisoning	540,000
Animal bites	4,214,000
Total	**51,204,000**

Conclusions

Mortality and morbidity rates are very low in Beijing due to the concentration of health care services, a well-educated population and one-child families. However, injury is a significant child health issue. It was a leading cause of child mortality and a major cause of morbidity in Beijing.

The results of the survey can be extrapolated to Shanghai, Tianjing and Guangzhou. It cannot represent the situation of child injury for the rest of China.

The Beijing survey has served well as a pilot test of the methodology in China, and we have learned a great deal. We will proceed with further surveys in stages, with assistance from TASC and UNICEF.

THAILAND

Childhood morbidity and mortality: Issues and their implications

Dr. Chitr Sitthi-amorn,
Institute of Health Research
Chulalongkorn University

The national survey in Thailand involved 98,000 households in 32 provinces. There were 20,000 households from Bangkok as it was studied separately as an UN mega-city. The overall crude mortality rate of the sample is 5 per 1,000, which is the same as the most recent census. Comparison of other indicators showed that the sample is nationally representative.

Results

There are three basic messages:

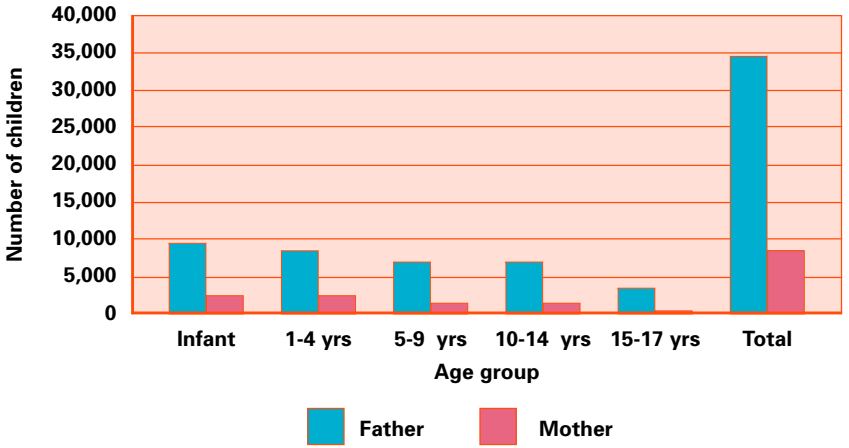
- Injury is the leading cause of parental death and permanent disability.
- Injury is the leading cause of child mortality.
- Injury is the leading cause of serious and severe morbidity (permanent disability).

Injury orphanhood

TASC uses the concept of injury orphanhood as a direct measure of the impact of injury on children, through the loss of one or both parents. A maternal orphan is a child who has lost their primary caregiver (mother) due to injury. A paternal orphan is a child who has lost their primary wage earner (father) because of injury.

- Injury is the leading cause of a child's loss of parent. The younger the child, the more common it is to lose a parent to injury.
- Fathers have higher death rates than mothers. About 34,600 fathers (27-45 years) died from injury annually. This means about 30,000 mothers & children (0 - 17) lost their primary economic earner.
- More than 8,500 mothers (24-42 years) die from injury annually. This means about 22,000 children of 0-17 years and their fathers lost their primary caregivers.

Figure 3.21: Injury orphanhood by age



Thailand has a robust HIV/AIDS epidemic, which is the leading cause of death from infectious diseases in the parental age groups. However, overall, for children 0-17, injury is the leading cause of parental death, in spite of the high rates of HIV/AIDS in Thailand.

The leading causes of loss of parent from injury are RTA, and intentional injury. While RTA is the leading cause of loss of mother (maternal orphanhood) and loss of father (paternal orphanhood), intentional injury is a significant cause. Depending on sex and age group, suicide and homicide are major causes.

Figure 3.22: Cause of death for mothers of children ages 0-17

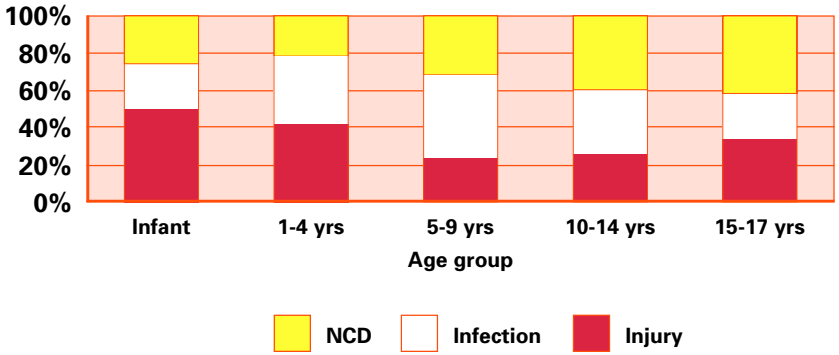


Figure 3.23: Cause of death for fathers of children age 0-17

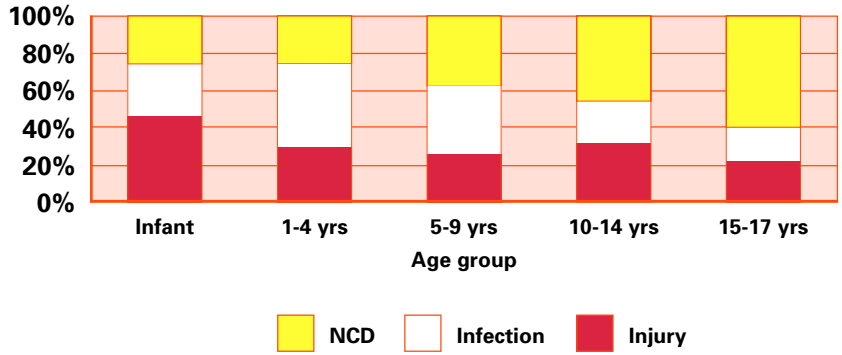


Figure 3.24: Cause of injury for mothers of children ages 0-17

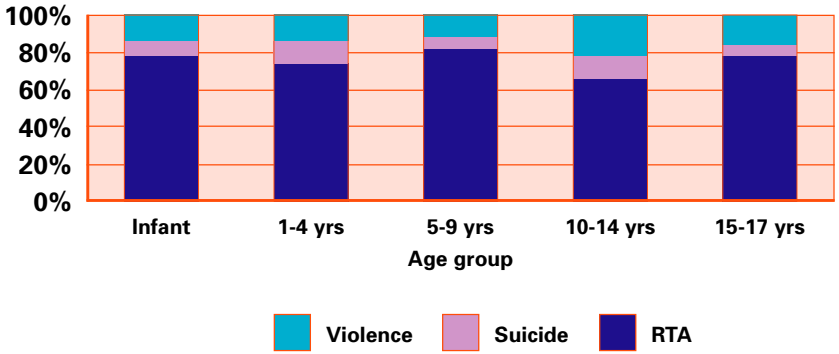


Figure 3.25: Cause of injury for fathers of children ages 0-17

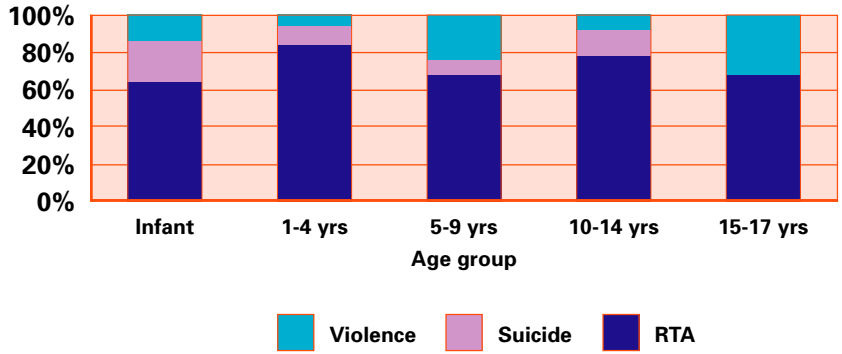
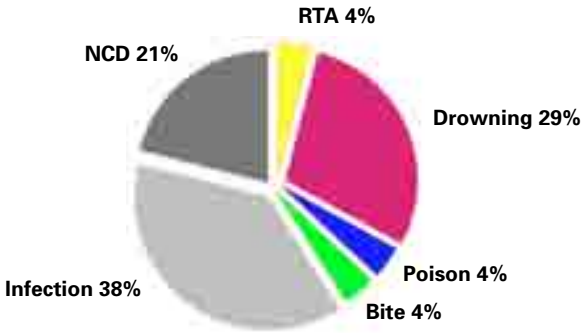


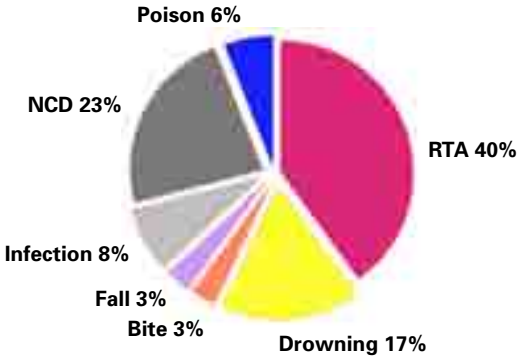
FIGURE 3.26: Leading causes of death by age group

1-4 years



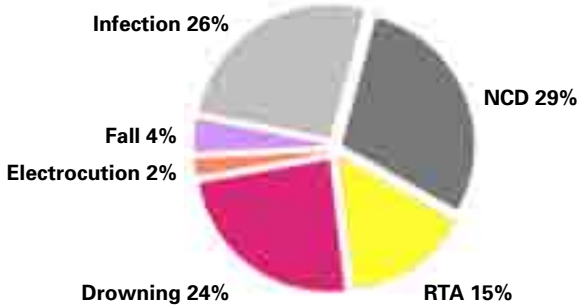
Injury accounted for 41% of all child deaths in the 1-4 age group, making it the leading cause of death. Drowning was the leading single cause of injury death for children in this age group.

10-14 years



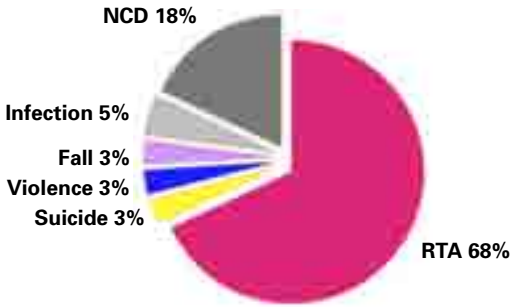
Injury accounted for 69% of all child deaths in the 10-14 age group, making it the leading cause of death. RTA deaths exceeded drowning deaths, with the majority occurring as pedestrians and bicyclists.

5-9 years



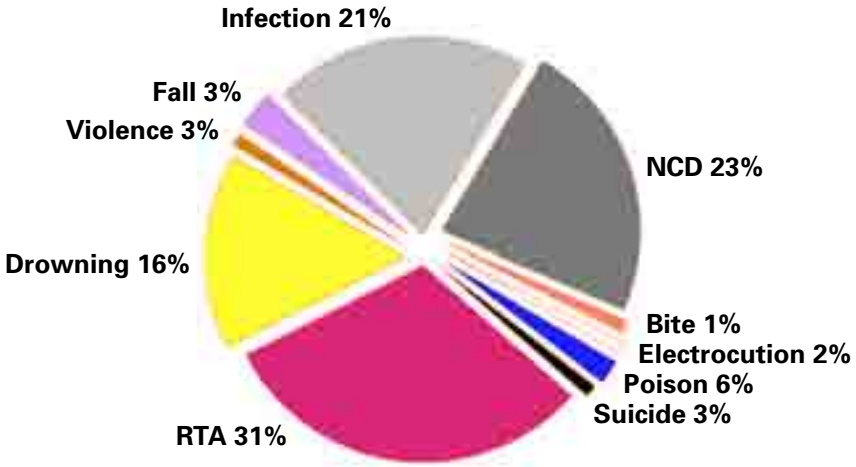
Injury accounted for about 56% of all child deaths in the 5-9 age group, making it the leading cause of death. Drowning remains the single leading cause of injury death, but RTA begins to be a significant cause. Most RTA deaths in this age group are as pedestrians.

15-17 years



Injury accounted for over three quarters (77%) of all child deaths in the 15-17 age group. RTA was by far the leading cause of injury death, and in this age group, most deaths occured to in passengers and drivers. Intentional injury (suicide and violence) were significant causes of mortality in this age group.

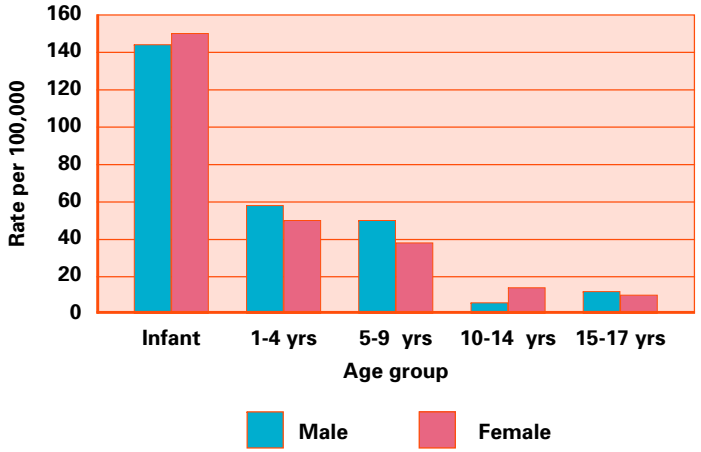
Figure 3.27: Leading cause of death 0-17 years



For all children 1-17 (excluding infants), injury accounted for over half of all child deaths (56%). RTA was the single leading cause, followed by drowning, then falls and poisoning.

While injury was increasing in proportion in each age group, infectious and non-communicable causes of death were rapidly decreasing as the child age group increased, as seen in Figure 3.28.

Figure 3.28: Infectious and non-communicable disease deaths by age group

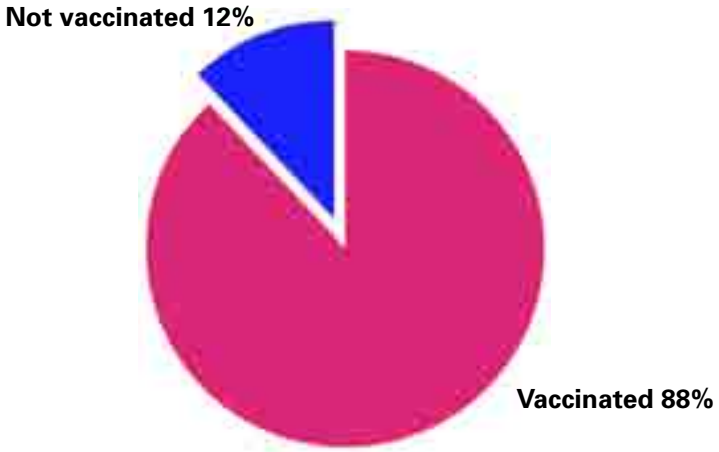


Among the RTA victims. In the younger age groups, the vast majority were pedestrians and bicyclists; in the older age groups, most were riders, passengers and drivers.

Figure 3.29: Deaths from RTA, children under 17 years old

The Thai survey collected economic information regarding both direct and indirect economic costs of child injury and this data is being analyzed at present. However, one indication of the loss of health investment made by the government and UNICEF is that the vast majority of children who died of injury had already received all their EPI immunizations at the time of death. This represents an enormous waste of previous effort on the part of society.

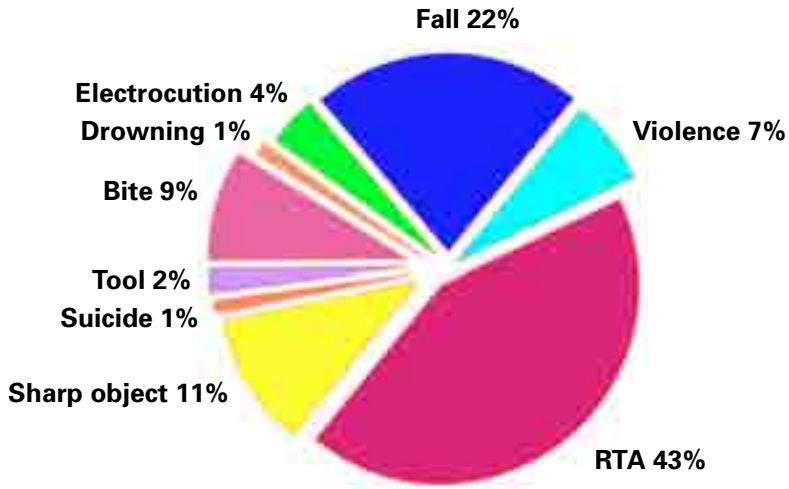
Figure 3.30: Proportion of children who died of injury who are fully immunized



Morbidity

While the mortality data has been fully analyzed, the analysis for morbidity data is still underway.

Figure 3.31: Injury morbidity children 0-17 years



A rough idea of the pattern of injury morbidity can be seen:

- RTA, falls and cuts from sharp objects are the leading causes of morbidity.
- Injury morbidity is 20 times higher than death from injury.
- There is little difference between urban and rural areas in injury morbidity in children under 17 years old.

While fatal injury has significant social costs, the real economic costs and social burden are in nonfatal injury. Injury was the leading cause of permanent disability and lengthy temporary disability.

Figure 3.32: Length of disability from injury

Concluding remarks

- Priority setting for resource allocation is a political process and needs data and commitment of stakeholders. This dataset provides the evidence base for this.
- Drowning, RTA and other causes of injury are predictable and preventable. Investing in injury prevention will be one cost-effective measure for Thailand to achieve its MDG goals and to continue the rapid pace of social and economic development.
- Development agencies and nationals alike must work together to tackle this issue.

VIET NAM

Child injury in Viet Nam

Dr. Pham Viet Cuong,
Hanoi School of Public Health

The Viet Nam Multicenter Injury Survey 2001 (VMIS) was a multi-stage national sample survey that targeted 27,000 households with about 129,000 household members. The survey measured injuries, fatal and nonfatal, as well as diseases, communicable and non-communicable in children and adults of all ages.

FIGURE 3.33: Proportional motality by cause and age

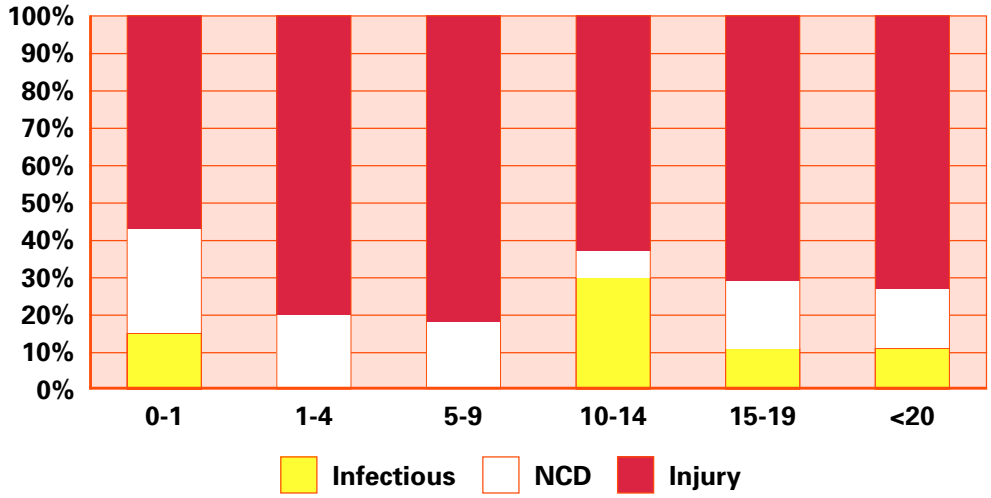
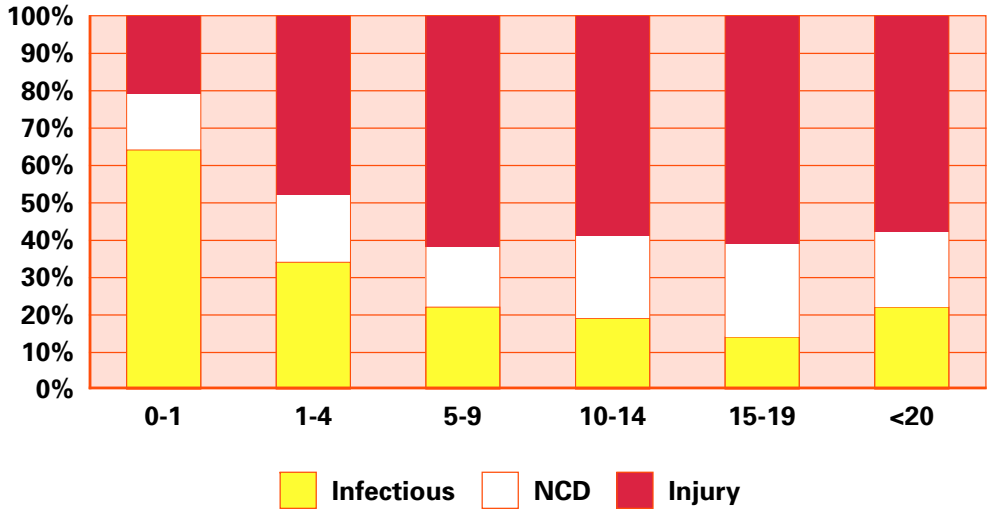


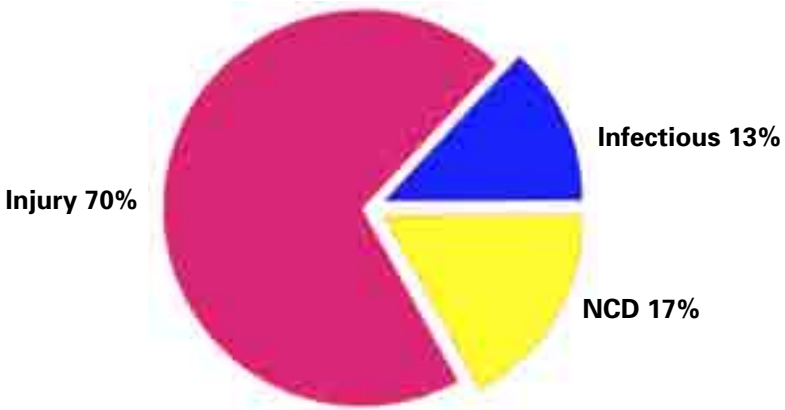
FIGURE 3.34: Proportional morbidity by cause and age



The lack of non-communicable diseases (NCD) in the 1-4 year age group and infections in 5-9 year age group is because of the sample size. NCD and infections occur in these age groups, but due to the comparative rarity of these events and the relatively small sample, they did not appear.

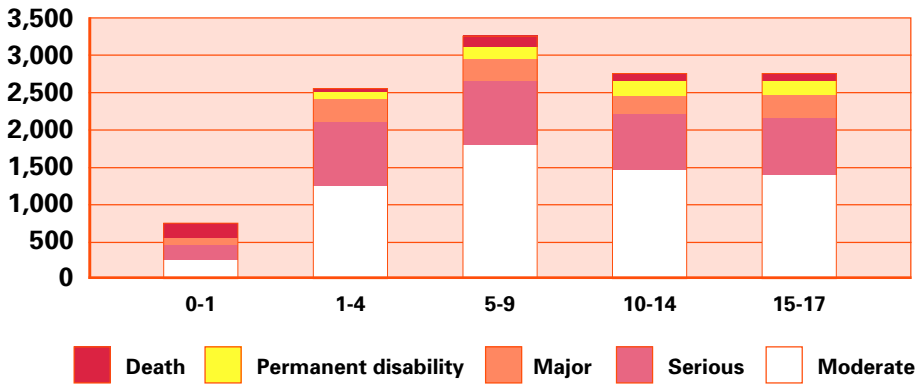
One measure of the burden of preventable death is called the Years of Potential Life Lost (YPLL) which measures the number of years of productive life lost between the age of death and 65 years. This measures the lost potential for productivity and development for the country. **Figure 3.35** on next page shows that by far the largest cause of potential life lost was because of injury.

FIGURE 3.35: Years of potential life lost



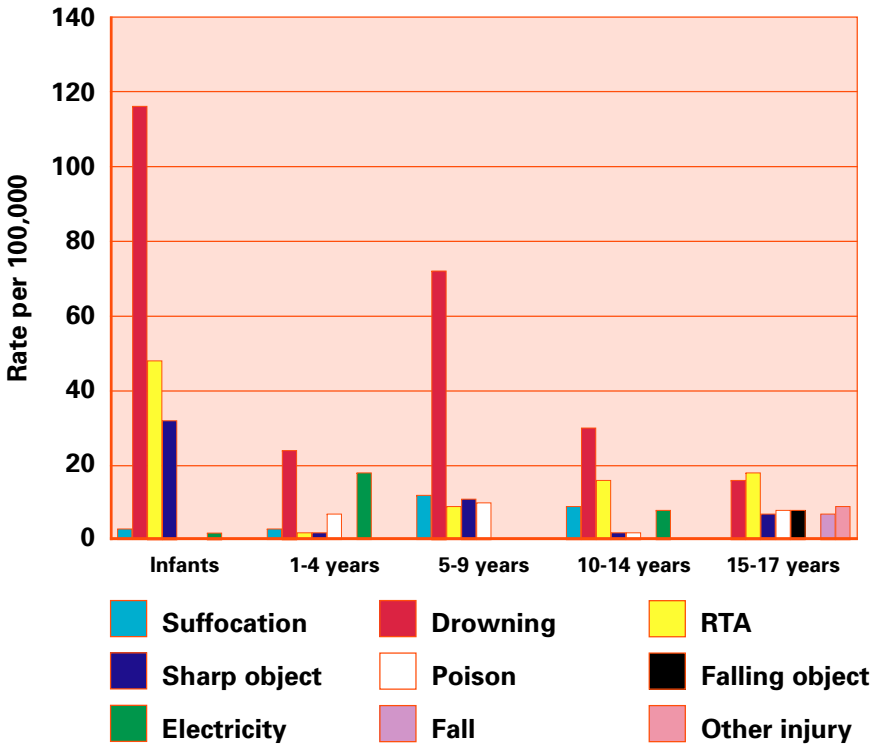
Death is only the tip of the 'injury iceberg'. For each death, there were between 3 and 8 children are permanently disabled, depending on age group. For each death, there were between 8 and 12 children hospitalized for more than 10 days (labelled 'major'). For each death there were between 15 and 30 children hospitalized for less than 10 days (labelled 'serious') and for each death, there were between 20 and 40 children who sought care, or missed one day of school as a result of injury (labelled 'moderate').

FIGURE 3.36: Severity of injury



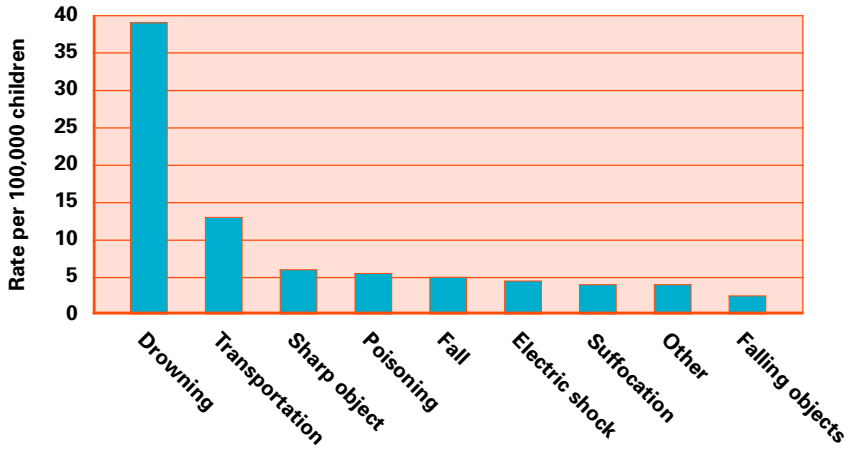
The leading cause of fatal child injury differed according to the different age groups. Drowning was by far the leading cause of death in children, with highest rates in late infancy, falling a bit in young children, aged 1-4 years and rising in middle childhood. It continued as the leading cause of death in each age group until late adolescence (15-17 years) when it was overtaken by RTA. Electrocution, poisoning and injury from sharp objects were also prominent in different age groups.

FIGURE 3.37: Fatal injury by type



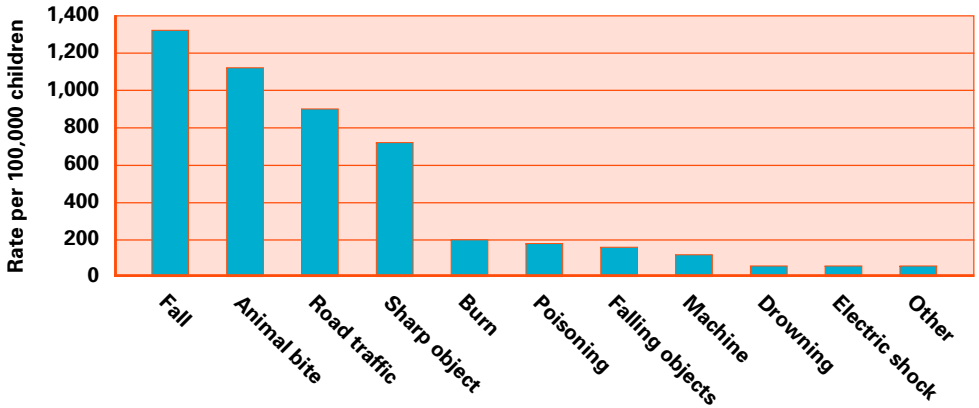
Drowning accounted for over two thirds of all child injury deaths, and RTA accounted for one quarter. This pattern, where drowning accounts for the vast majority of child deaths, and RTA for a smaller proportion and at a later age, appears to be a general pattern. It was first seen in the Viet Nam survey and has been found in the national surveys in other countries that followed Viet Nam.

FIGURE 3.38: Fatal injury by type in children



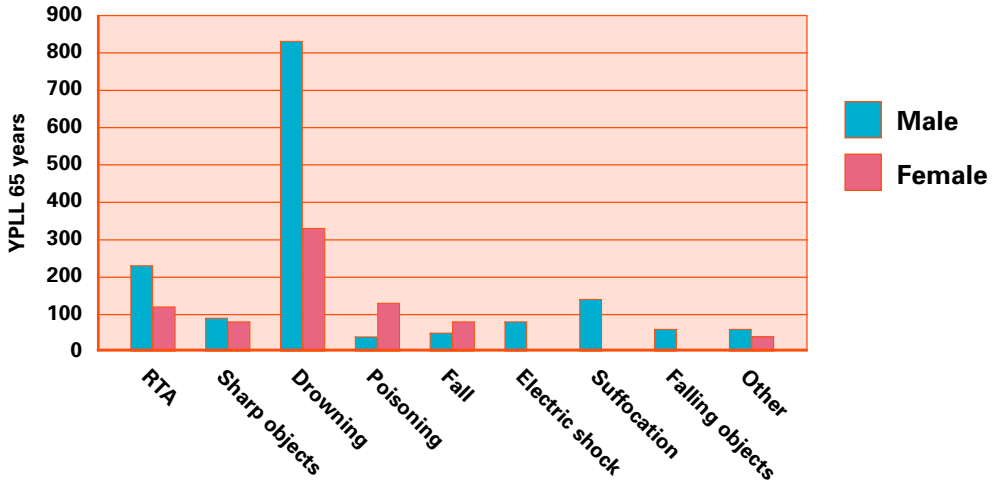
Falls, animal bites, RTA and sharp objects were the leading causes of nonfatal injury in children.

FIGURE 3.39: Nonfatal injury in children



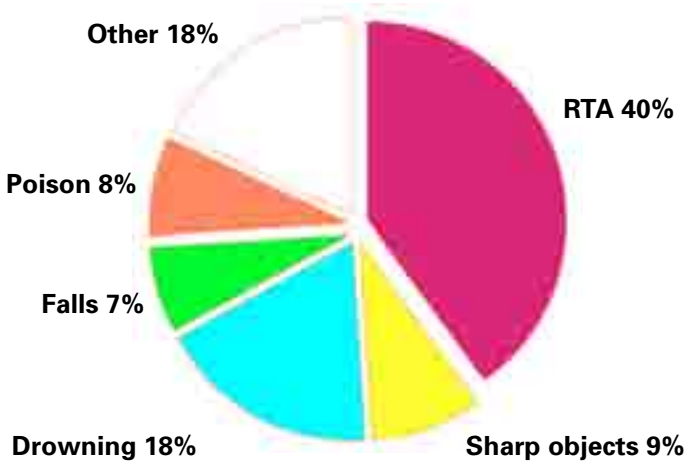
Drowning was clearly the leading cause of years of potential life lost and it happened more than twice as frequently in males as females. As seen in **Figure 3.40**. Gender differences were less prominent in the other causes of injury deaths.

FIGURE 3.40: Years of potenlial life lost by sex and type



Orphanhood or loss or either parent for children was mainly due to injury. The leading cause of parental death was injury, and the types of injury mirrored the pattern in late adolescence, with RTA the leading cause.

FIGURE 3.41: Child loss of parent



Conclusions

- Seventy-five per cent of children dying in Viet Nam under the age of 18 die as a result of injury.
- Injury is the leading cause of years of potential life lost in Viet Nam.
- One in every 1,000 children in Viet Nam dies of injury every year.
- Five per cent of children are injured, which is 4,300 children every day.
- Drowning is the leading cause of death, with 35 children dying every day.
- Other major causes of death in children are road traffic accidents (11 per day) and falls (4 per day).
- Injury orphans are a significant problem. More than 13,000 children lost their father or mother in 2001 because of injury, mainly through road traffic accidents.

Child injury prevention in UNICEF, Viet Nam

Isabelle Bardem, UNICEF Viet Nam

The Viet Nam Multicenter Injury Survey 2001 (VMIS) revealed that almost 75 per cent of children in Viet Nam die from injuries, making injury the leading cause of child death in the country. Most of these deaths are a result of drowning, traffic accidents, injury by sharp objects and poisoning. Viet Nam will be unable to meet the Millennium Development Goal of reducing child mortality by two thirds by 2015 unless it can drastically reduce these injury-related deaths.

Work on injury prevention in Viet Nam began in 1999 with the Safe Viet Nam Initiative. Now, Childhood Injury Prevention (CIP) is a project in the UNICEF Viet Nam Country Programme.

Integrated activities of the Viet Nam-UNICEF Country Programme of Cooperation 2001-2005

Injury prevention activities have been integrated in five UNICEF programmes: Communication, Water, Environment & Sanitation (WES), Education, Child Protection, and Health & Nutrition.

Results

1. Successful policy advocacy

- The first national policy on accidents and injury prevention was promulgated by the Prime Minister;
- Structure for national policy implementation at central and local levels was established;
- Sectoral/local Plans of Action on Accident and Injury Prevention 2002-2005 were developed;
- Recommendations were provided for the national surveillance system; and
- First National Conference on Injury Prevention held with high-level commitment nation-wide.

2. Improved knowledge and behaviours on injury prevention

- Public education through national TV and radio, discussions, games, educational programmes etc.;
- Public events, e.g. issuance of 3 million stamps on child safety;
- Public education through print media;
- Public communication through mobile communication teams;
- Assessment of public perception on injury prevention;
- Communication campaign to support Injury Prevention Conference;
- Mass media activities to raise awareness on landmines/UXO; and
- Mine risk education activities

3. Implemented innovative community-based activities

- Child Safe Homes (Health& Nutrition Section), Child Safe Kindergartens and Child Safe Schools (Education Section), Child Safe WES facilities in Communities (WES Section) and Safety for Children in need of Special Protection (CNSP) (Child Protection section).

Childhood Injury Prevention Project (CIP) (2003-2005)

This Project was set up to provide a co-ordinating body between the various UNICEF sections working on the issue of child injury. It was necessary to increase visibility of the issue for better advocacy of Injury Prevention related issues. The Project is headed by the Ministry of Health, working with other local agencies concerned with the issue of child safety and injury prevention (e.g. Committee for Population, Family and Children and the Viet Nam Red Cross Association). It targets children aged 0 to 18 nationwide (for IEC activities) and in six provinces for community-based interventions.

The project aims to contribute to the National Policy on Injury Prevention 2002-2010 and the National Program of Action for Children 2000-2010 by creating public awareness of the issue, reducing incidence of major injuries in homes, communities and schools, and by reducing the number of injury related deaths in project areas by 25 per cent. It will achieve this by promoting behaviour change in community leaders, children and caregivers and by establishing model demonstrations on child injury prevention and developing safety devices for children in selected provinces.

This will be done using a mix of strategies including education, environment modification and law enforcement (in model demonstration areas).

Key Results

1. Audience research conducted in eight provinces on public perception on child injury revealed that knowledge is low, prevention practices rare but attitudes towards injury prevention are positive. Television would be the preferred mass media channel for communication.
2. IEC activities under different formats were carried out including nationwide television programmes, articles in leading newspapers, and activities built on important events (e.g. SEA Games and World Health Day).
3. Development of safety criteria review and revision of Child Safe Homes, Child Safe Kindergartens, Child Safe Schools and CSC.
4. Development of indicator systems.
5. Support to the national injury surveillance system.
6. Capacity building for project staff at national, provincial and district level has been undertaken.
7. Baseline survey in 24 initial communes for monitoring and evaluation purposes has been completed.

Risk factors and causality analysis study

The underlying causes of injury are lack of adult supervision and parents' lack of awareness and knowledge of injury prevention. Lack of swimming skills, children having to work and a lack of infrastructure also contribute to the incidence of injury. There appears to be a strong link between poverty and injury. Risk factors include deteriorating school infrastructure, unsafe living and playing conditions in schools, unsafe living conditions and environment in rural areas, and the presence of water.

Safety devices development

A study to identify the availability of safety devices has led to recommendations for appropriate ones to be developed.

Interventions in six provinces

These interventions include rapid assessment of risk factors, training of village collaborators and support for Child Safe Homes implementation.

2004 activities

IEC activities include continuing to cover CIP in different format such as films, television and competitions and carrying out IEC activities on CIP in more project locations;

Capacity building by training project staff, school teachers and swimming instructors;

Summer activities for children for alternate supervision;

Promotion of safety devices such as baby pan, kitchen barrier, well cover and floating devices; and

Environment modification such as bridge railings, child safe playgrounds, green fence ponds and warning signs at railroad crossings and water sources.

Constraints

- Delay in getting approval for project documents;
- Uncertainties in fund raising;
- Cross-sectoral planning for new programmatic area is a challenge;
- Law development and enforcement at national level not addressed in the project document;
- No government staff to work full time on injury prevention;
- Lack of technical expertise;
- CIP is a stand-alone project, not a programme; and
- New public health issue, donor community need to be sensitised.

A way forward

- Make childhood Injury become a programme;
- Emphasis on law and policy development;
- Pay more attention to the youth; and
- Make childhood injury prevention to Medium Term Strategic Plan (MTSP).

PHILIPPINES

Philippine National Injury Survey – preliminary results

Dr. Juan M. Lopez, Field Epidemiology Training Program, DOH

The results presented here are preliminary results of the survey conducted in the Philippines between September and December 2003. We are still doing the final cleaning of the dataset and preparing for the complete analysis. As a result, the final rates will undoubtedly change. We anticipate having the final results within the next two months.

The geography of the Philippines makes conducting surveys something of a challenge. There are 7,100 islands, 16 regions, 78 provinces, 82 cities and over 40,000 villages.

Demography

- Estimated Population (2004) - 82,663,561
- Density (2000) - 225 persons/sq km
- Growth Rate (200) - 2.36%
- Average household size (2000) - 5.0

Health and Vital Statistics (2002)

- Crude Birth Rate - 25.7/1000
- Crude Death Rate - 5.77
- Life Expectancy at birth
- Male - 66.93
- Female - 72.18

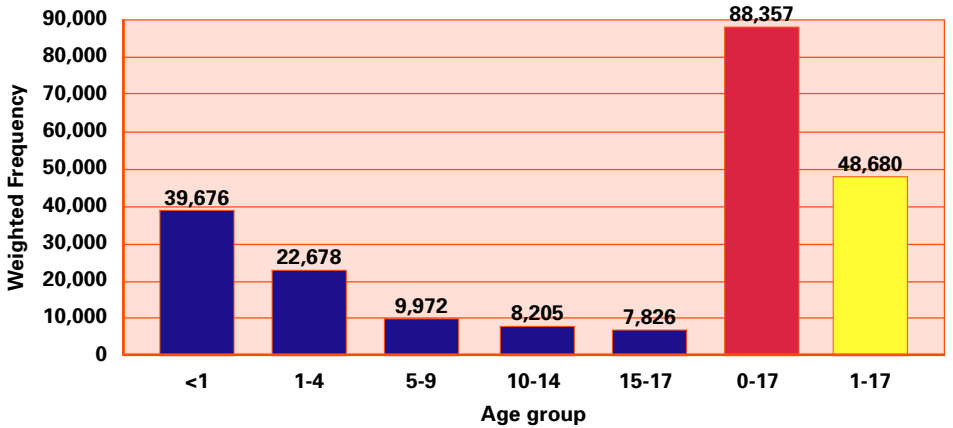
Infant Mortality Rate - 29/1000 live births

Under-Five Mortality Rate - 40/1000 live births

The Government of the Philippines has recognized that injury poses a threat to the health situation in the country and the Department of Health has decided that action must be taken. The Philippine National Injury Survey was carried out to generate baseline information on injuries and deaths in the country using a representative household survey. A total of 90,446 households were targeted with 418,552 household members.

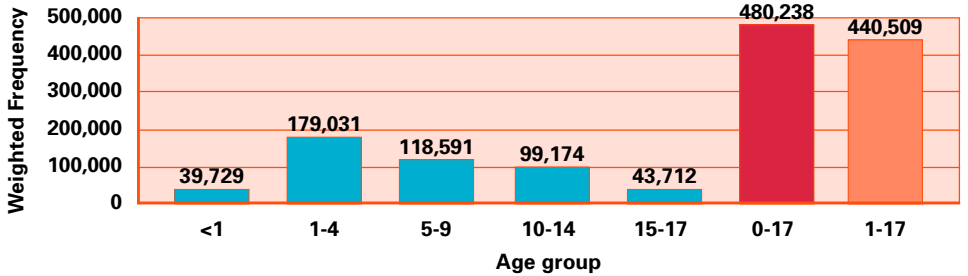
Results

FIGURE 3.42: Mortality by age group



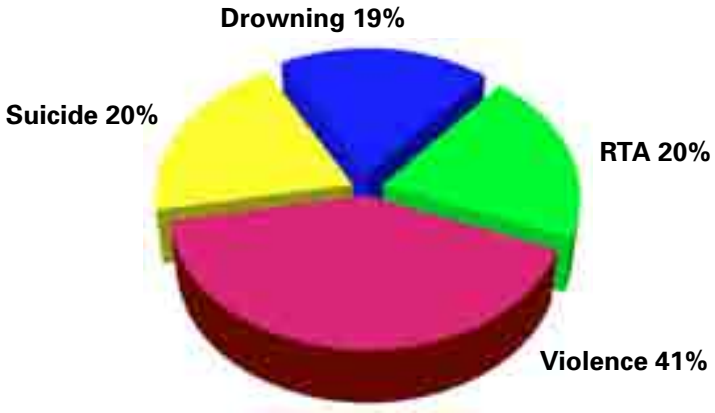
This is the pattern of overall mortality from the national survey. The preliminary analysis thus far shows that injury is a leading cause of death in all the child age groups. Drowning appears to be the leading cause of injury death for children, and RTA appears to be the second leading cause of injury deaths.

FIGURE 3.43: Morbidity by age group



This is the pattern of overall morbidity from the national survey. The preliminary analysis thus far shows that infections are the leading cause of morbidity that does not require hospitalization, and injury is the leading cause of morbidity that requires hospitalization.

FIGURE 3.44: Orphanhood due to injury (causes of death for parents of children age 0-17)



In the Philippines, we are using the TASC orphanhood methodology to look at the impact of injury on children through loss of one or more of their parents due to injury. Injury appears to be the leading cause of parental deaths for children in infancy and early childhood, and the proportion of the various kinds of injury is shown here. Intentional injury (suicide and homicide) appear to be the leading causes, with RTA and drowning being significant causes of unintentional injury deaths to parents.

Conclusions

Although these findings are only preliminary, it is clear that injuries are a significant health problem in the Philippines. We hope to finalize our analysis shortly, and use the data to advocate for the Government, partners and other stakeholders to take action.

INDONESIA

Drowning and other child injuries

Dr. Soewarta Kosen,
Center for Health Services
and Techological Research
& Development

Background

- The epidemiologic transition and rapid socio-economic development experienced by Indonesia has led to injuries being a leading cause of death and disability in all age groups.
- There have been several national health surveys, but the main focus has been on clinically important infectious and chronic diseases. Injury, especially in children, is under-reported in the surveys.
- Comparison of national censuses over the last three decades shows a rapid decrease in child health mortality measures (infant, 1-4 and under-five mortality rates) and the compression of the remaining infant mortality into the neonatal period.
- This pattern is most consistent with injury becoming a significant cause of early child mortality, and one that increases with increasing child age.

The **National Health Survey 2001** was a nationwide survey using a multi-stage sampling design. A total of 220,896 households were targeted for the mortality study and 6,272 households (28,224 respondents) for the morbidity and disability study. The injury mortality rates in the study have been felt to be underreported.

Injury death rates by age

- < 1year: 3.2 per 100,000 population
- 1-4 years: 5 per 100,000 population
- 5-14 years: 18 per 100,000 population
- 15-24 years 7 per 100,000 population

Injury morbidity rates by age

- <1 year of age 4 per 1,000 population
- 1-4 years: 3 per 1,000 population
- 5-14 years: 2 per 1,000 population
- 15-24 years: 5 per 1,000 population

The morbidity portion of the study revealed that the risk of injury to males was more than twice that of females (all ages, 9 per 1,000 as opposed to 4 per 1,000). The mortality portion revealed that males were also at greater risk of death from injuries than females (all ages, males 71/100,000 vs. females 18/100,000).

Indonesia Drowning Survey 2003

The survey was done to determine if drowning could be used as a "sentinel event" for child injury. That is, if a standard cluster sample child health survey conducted for regular program monitoring purposes could be used to define whether injury was a significant cause of child deaths. The method was investigated due to the perceived need for a simple, cost-effective screening tool that would fit into current cluster surveys and provide a means of detecting whether injury was a significant cause of child death. The survey was "piggy-backed" onto a Helen Keller International survey for Vitamin A coverage. The survey covered eight provinces in Indonesia targeting 6,120 households in urban slum areas and 26,400 households in rural areas.

Over 80 per cent of cases involved males and risk was greatest between the ages of 1 and 24. (The age group in the slide only extends to 14 years; the next age group 15-24 years extended beyond the child age group and is not shown). There was very low incidence of drowning among infants.

Almost 80 per cent of cases involved males and children aged between 1 and 4 were at the greatest risk.

Figure 3.45: Urban slum drowning rate by age, 2002-2003 (four-city sample)

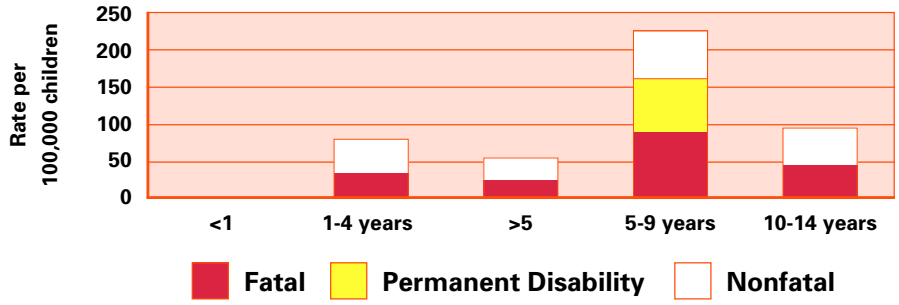


Figure 3.46: Urban slum areas: Location of drowning

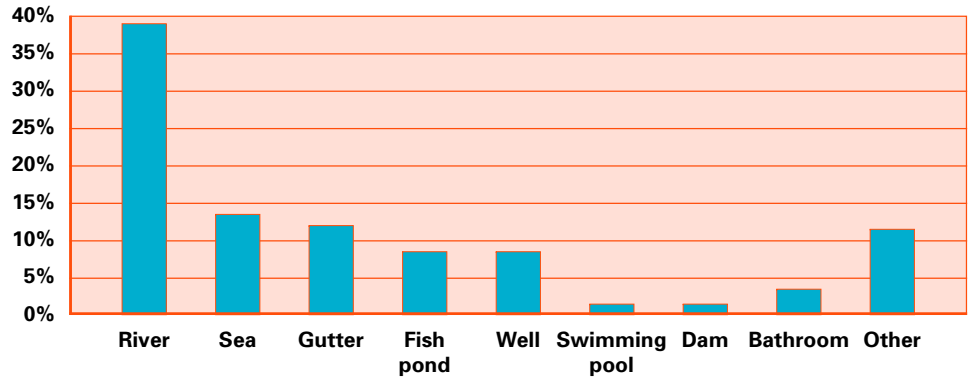


Figure 3.47: Rural drowning rates by age, 2002-2003

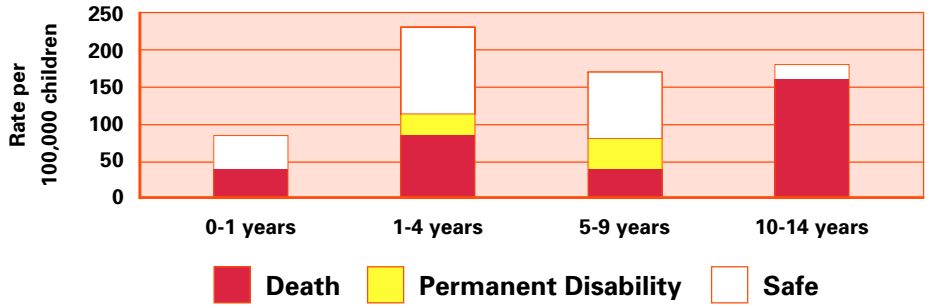
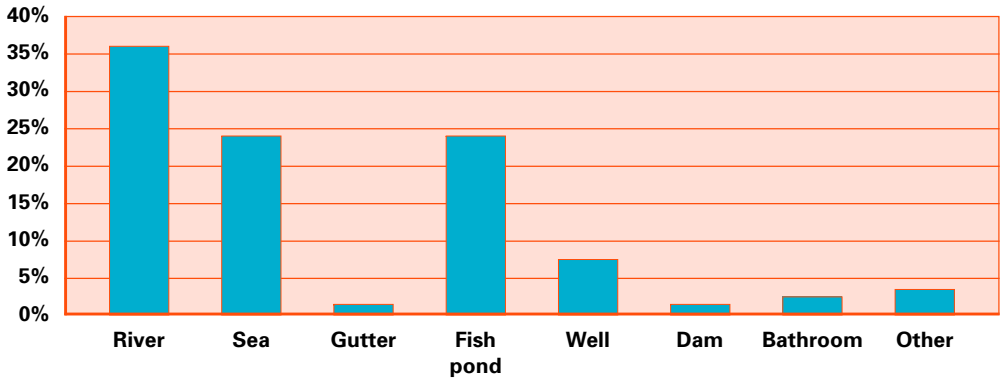


Figure 3.48: Rural areas: Location of drowning



Conclusions

The current national surveys under-estimate the rates of child injury. Drowning, usually the leading cause of injury death was found to be almost five times higher in this pilot sentinel event survey than all injury deaths in comparable child age groups in the national health survey. The rates were higher in urban slum areas than in rural areas.

More research needs to be done to explore the technique of using drowning as a sentinel event suitable for including in cluster surveys conducted for other programmatic reasons. However, based on this pilot research, it seems to be a promising technique. When fully developed, it can serve as a screening tool for child injury that uses already planned surveys and can be incorporated in them with little additional cost and effort.

MALAYSIA

Childhood injuries in Malaysia

Prof. Dr. Krishnan Rajam,
WHO Cooperative Helmet Initiative Programme, University of Malaya

UNICEF initiated a desk review of available information on childhood injuries in collaboration with the Ministry of Health. The study targeted children and youth under the age of 20 in the areas of unintentional injuries and primary prevention. The objectives were to review sources of data and undertake an inventory of interventions in order to strengthen measures for prevention.

The major sources of data were various government agencies (the Department of Statistics, the Ministry of Health, and the Police Traffic Unit), special surveys (National Morbidity Survey, National Home Injury Survey etc.) and publications and reports from universities, fire departments and NGOs.

Results

- There is no single source of reliable, representative data on child (or adult) injury.
- Most of the available data are based on facility reporting, or contingent upon having certification of deaths, which is not universal in all areas of Malaysia.
- Of deaths that are certified, only 45 per cent are medically certified; the remaining are certified by police.
- Injuries are the leading cause of medically certified deaths after the age of five.
- The proportion of deaths from RTA increases with age.
- Burns, poisoning and injury from foreign bodies are common in children under the age of 10.
- More males than females are admitted to hospitals for injuries, except in poisoning cases.
- There is a lack of drowning data.
- Preliminary estimates indicate 300 to 400 deaths a year throughout the country, although this is likely to be a significant underestimate if the epidemiology of child death in Malaysia is similar to its neighbours in the region.
- The adult incidence of road traffic deaths is 34.2 deaths per 100,000 population - this is one of the highest rates in the world. In children, the greatest risk is in the 15 to 19 age group (34.5 deaths per 100,000) and occurs mainly among motorcyclists in rural areas.
- In younger children (under 10), the highest proportion of road traffic deaths occur among pedestrians.

Interventions

The Ministry of Health (MOH) has set up an Injury Prevention and Control Unit. The MOH carries out national surveys, is expanding the trauma response system, and is implementing an injury surveillance system. It aims to educate the public through the media (Healthy Lifestyle Campaign, 1999), brochures, age-specific injury prevention guidelines, bicycle helmet programmes and a home and recreational safety checklist. Injury prevention is part of the Telehealth programme.

The Road Safety Council, based in the Ministry of Transport, includes members from government agencies and NGOs. It receives central and private funding. It develops educational programmes for the public and target groups and has branches throughout the country. The MOH is a member of the Executive Committee. Research is carried out by universities.

Other agencies involved in interventions are the Ministries of Housing, Home, Education, Fire & Rescue, Science, Consumer, etc. (responsible for law and enforcement such as helmet laws, ban on firecrackers, enforced standards of cooking stoves).The Red Crescent, St John's Ambulance, the Automobile Association of Malaysia (child restraints), the Malaysian Medical Association, and the Malaysian Volunteer Fire and Rescue Association have also been involved in injury prevention activities.

Malaysian helmet initiatives

Studies showed that head injuries are very common among motorcyclists due to lack of use or incorrect use of motorcycle helmets. The Road Safety Council implemented a multimedia campaign to educate the public on the importance of proper wearing of helmets.

Children in rural areas often cycle to school. The first concerted school-based bicycle helmet programme was implemented in Ipoh in 1995 and subsequently in other areas.

Lessons learned:

- Do not give away helmets; free helmets are not valued and thus are not retained and used.
- Choose trendy colours/ design or they will not be worn.
- Obtain ongoing, long-term commitment from schools.
- Do not expect significant prevention numbers from helmet programmes in children. Of a total of 3,044 students, and 180 teachers involved in 50 schools in 11 states, to date, only one child has been involved in a significant crash.
- Child helmets, especially for bicyclists, must be worn by all child bicyclists at all times to be effective, and this means very large numbers of helmets at a high cost before there is any chance of real prevention effectiveness.

Seatbelt study

A study of seat belt use was carried out with 1,082 occupants of 536 cars. The study showed that compliance with seatbelt use was 85 per cent and 67 per cent in urban and rural areas respectively. Use of seatbelt depended on the driver and type of seat available. About one fifth of occupants did not wear the seatbelt correctly. Less than 1 per cent of children were restrained in appropriate child seats.

Conclusions

- A national survey with the current TASC standard definitions and methodologies, and behavioural as well as quantitative information is needed for Malaysia.
- The standard survey would provide representative data for Malaysia, as well as allow comparison of child (and adult) injury with other countries in the region.
- Risk factor data from the survey would provide useful information for prevention programme development.

4 CROSS CUTTING ISSUES AND SPECIAL ASPECTS OF INJURY

Panel Discussion 1: Experiences from industrialized countries and how they can be adapted

Moderator: **Dr. Charles Mock**

Panel members: **Dr. Shumona Shafinaz, UNICEF Bangladesh**
Dr. Ngyuen Trong An, Committee for Population, Family & Children, Viet Nam
Dr. Christian Voumard, UNICEF China

A. Drowning prevention

Professor Joan Ozanne-Smith
Monash University
Accident Research Centre

WHO estimates that drowning constitutes at least 8 per cent of world injury deaths. These estimates do not include deaths from drowning in floods and transport accidents. Ninety-seven per cent occur in low- and middle-income countries, and the Western Pacific and South East Asia regions account for 55 per cent of such deaths.

The Australian experience is that various interventions dramatically reduced the drowning rate to 1 to 2 deaths per 100,000. This reduction was strongly associated with the 'Learn to Swim' programmes introduced across the country in the mid-1950s, which was influenced by the 1956 Olympic Games in Melbourne.

Effective interventions for children below the age of four are:

1) Draining unnecessary accumulations of water;
2) Erecting barriers (such as covers on wells, fencing around water and safe bridges); and
3) Supervision of children (for example with cooperatives).

Effective interventions for children over the age of five are:

1) Setting up flood embankments;
2) Promoting swimming and water safety instruction;
3) Advocating for a public education policy on boating (including overloading, floatation devices and maintenance);
4) Training lifeguards; and
5) Teaching resuscitation skills.

Future directions for drowning prevention:

1) Consolidate drowning data and identify gaps in knowledge;
2) Raise awareness of drowning and highlight potential solutions;
3) Undertake research and intervention trials;
4) Provide advocacy and inform policy; and
5) Monitor drowning rates.

Comments from the Panel

- Child-drowning deaths are under-reported and data are inadequate.
- Advocacy with governments is needed to raise awareness of the magnitude of the problem.
- More research is needed on risk factors for drowning.
- Flood preparedness efforts must be stepped up for areas that are prone to flooding. Teaching children to swim and distributing life vests are effective interventions.
- Child supervision is crucial and is the responsibility of the entire family. Community crèches are another useful intervention to safeguard children from drowning.
- UNICEF has focused on households where there are children under the age of four and advised parents to fence these houses.
- Must promote best practices and discourage risky behaviours even if a high percentage of the population is able to swim (73 per cent in Bangladesh)
- The Olympics would be an excellent opportunity for China to promote swimming skills.

B. Strategies for control of road traffic injuries

Dr. Charles Mock

Harbor View Injury Research Centre, University of Washington, USA. Technical Adviser, TASC

The number of motor vehicle deaths in the USA reached a peak in the 1930s and has since slowly come down. It is on the way up in most low- and middle-income countries. The rates in industrialized countries have fallen due to injury control interventions such as surveillance, prevention, pre-hospital care and hospital care.

Roads should be made safer not only for motorists but also for pedestrians. There should be analysis of data on accidents on particular roads so there can be remedial action. Signage should be made clear and pedestrian footpaths safe. Traffic calming devices such as speed bumps should be used.

Vehicles should be designed to enhance crashworthiness to lower the probability of injury or death in a crash. In low- and middle-income countries, vehicle safety standards are low and many vehicles (e.g. motorized rickshaws) have no safety features at all. Maintenance, too, is important, particularly for commercial vehicles such as trucks and buses.

Human Factors must be considered. Speeding is a major factor in traffic accidents as is alcohol abuse. Law enforcement is key to regulating these problems. In high-income countries, laws and social marketing are also used to encourage the use of seatbelts and helmets.

Broader issues: Urban sprawl increases car dependency. Safer alternatives (rail and bus) should be promoted in lieu of private automobiles.

Prevention strategies:

1) Examine the extent of the problem and identify the risk factors with research;
2) Use the "3Es" approach (enforcement, education and engineering) to design interventions with close monitoring;
3) Build capacity of partners such as Ministries of Health, Ministries of Transport, Road Safety Committees, Universities and legal authorities; and
4) Collaborate with epidemiologists, police, lawyers, engineers, behavioural scientists, media experts, public health officials, clinicians in trauma care and economists (for cost analysis).

Comments from the Panel

- Road traffic injuries are the main cause of accidental death in children and young people between the ages of 15 and 24. Most road traffic victims of accidents are cyclists and pedestrians.
- The increase in the number of vehicles has created many problems. There are 100 million cars now in China and this is bound to increase in the next few years. However, many new vehicles are equipped with safety features such as seat belts and governments in China and Bangladesh have also banned old and unfit vehicles.
- Traffic laws are not always enforced. In Viet Nam, local laws rule if accidents occur - the bigger vehicle must pay for the smaller one, no matter who was responsible for the accident. In Bangladesh, rickshaw pullers do not require licences and there are no laws governing them.
- Roads are in bad condition despite economic growth. There is a need to identify risk spots, build lanes for non-motorized vehicles, and install rails on bridges, signs for railway crossings and speed bumps.
- Driver training is also a challenge, given thousands of new drivers start to drive everyday. There has been an increase in motorbike racing and consequently, an increase in accidents.
- Different types of vehicles with different speeds sharing the same road bring great risk. There is a need to focus on education and motivation of drivers, pedestrians and rickshaw pullers on how to use roads.
- Urban areas such as Beijing could learn from Malaysia's experience to establish a multi-sector Road Safety Council, and introduce helmets to highlight the importance of road safety.
- The Vietnamese government intends to increase the number of traffic police and train taxi drivers in first aid. The 3E approach would be a useful guide.
- With the mushrooming of private hospitals, the quality of care in public hospitals may have been compromised, and thus emergency trauma care in such hospitals has to be monitored.

C. Burns, poisoning and other injuries: Child injury prevention in high-income countries

Professor Mark Stevenson
The George Institute, Australia.
Technical Adviser, TASC

Unintentional injury is the leading cause of death in the United States from the age of one to 34 and rates are similar in Australia. Child injury death has been declining in the US mainly because of reductions in road injuries and drowning. Death rates are higher for children under the age of five.

Common causes of fatal childhood injuries are motor vehicle and road injuries, burns (fire-burns/scalds/contact burns), drowning, falls and poisoning.

There are many potential **burn/scalding** hazards from food preparation areas, unattended untested hot water, use of flammable items and heat conducting surfaces.

Falls happen from elevated positions (playgrounds, furniture etc), baby walkers and multi-level falls (from apartment windows and high-rise residences).

Poisoning is often caused by consumption of toxic substances including herbicides and pesticides, unadvised use of medication and food contamination. In high-income countries, overdosing of medications for children is a major problem.

There are many other causes of injury. The extent of specific injury problems will vary between specific regions within countries and between different countries.

Key approaches to child injury prevention

Research is important to identify the magnitude of the problem and understand trends, causes and measures to prevent injuries, for example using swimming pool fencing to prevent child drowning and using child car seats and bicycle helmets.

Education promotes change in individual and group behaviour. For example, paediatricians promoted specific safety practices and community-based programmes in school such as bicycle helmet programmes. Poison Information Centres have also proven effective in reducing deaths from poisoning.

Environment and product changes: The risk of injury can be minimiced by modifying the physical environment and/or potential hazards such as toys or clothing (e.g. childproof medicine containers and the use of "bittering" agents in poisonous substances to reduce the risk of poisoning); and traffic calming measures to reduce the risk of pedestrian injury.

Legislation and Regulations: Laws can discourage unsafe practices, such as car seat legislation to reduce the risk of child fatalities in motor vehicle crashes, regulations regarding flame retardant children's sleepwear to reduce the risk of burns and product packaging legislation to prevent poisoning.

Comments from the Panel

- There are different causes of fatal and non-fatal injury in different geographic regions. In China/Beijing, falls and animal bites are the main concerns but burns and poisoning are also significant problems. In Viet Nam falls predominate in the mountainous north; in urban areas it is road traffic accidents. In the central area, landmines and unexploded ordnance cause many deaths and in the south, drowning and poisoning are major problems. Burns, falls, poisoning and animal bites are very common in Bangladesh.
- China needs to learn from the experiences of industrialized countries in the prevention and control of animal bites. In Bangladesh, there is a need for advocating with the government to establish regulations for the removal of stray dogs and to make anti-rabies vaccines available.
- Surveys in Bangladesh showed that most poisonings are intentional. However, the risk assessment survey showed insecticides and pesticides are kept within reach of children. In China, food poisoning is common but there are few data on accidental poisoning. Product packaging legislation and establishing Poison Information Centres would be of huge benefit in preventing poisoning fatalities.
- Burns and scalds are problems in northern China where many people use open fires for heating and cooking. Burns are the leading cause of injury morbidity in children one to four years old in Bangladesh.
- More research is needed as existing routine data collecting mechanisms are not accurate or complete. It is also important to train people for recording risk factors, risk behaviours and other data that are relevant to injury.
- Many interventions from industrialized countries can be transferred to low-income countries. As 90 per cent of children are in schools, it would be easy to educate them on safety.
- Environmental modification and education are necessary avoid such problems as stoves in open areas. IEC is crucial for reducing injuries from falls and poisoning by raising awareness of parents and children. UNICEF also emphasizes supervision and education of older children on home safety. SIDA has been supporting community-based programmes in 10 pilot communes in Viet Nam for home safety over the last seven years. However, IEC activities at grassroots level still need to be strengthened.

Plenary discussion

- There was some concern that increased exposure to water by training children to swim would encourage children to indulge in risky behaviour. Professor Ozanne-Smith explained that her data showed that although exposure increased, the number of drownings still decreased. There is of course a difference between supervised and unsupervised swimming. Monitoring is therefore of importance.
- Road traffic accidents are a major public health issue that receives a lot of funding. However, most of the funding goes into building roads. World Bank loans for roads have a condition that a certain percentage (1-2 per cent) of the loan be used for road safety activities. UNICEF should work in partnership with the World Bank and the ADB to promote road safety. However, the World Bank cannot initiate action that has not been specifically requested by the host country.
- The international development community has a crucial role to play. It must advocate with government decision makers, agencies with jurisdiction and donors in individual countries to discuss the issue, inform them of statistics and argue the case for action.
- Enforcement of road traffic laws is a challenge for many countries in the region. There are overburdened vehicles on the roads, lawless speeding and rickshaws with no lights. Enforcement of laws is essential if road traffic accidents are to be reduced. Legislation to promote capacity building of the police force may be of help.
- It is important to learn from the successful interventions in other countries and adapt them. It is also important to find low-cost localized interventions. For example, with regard to play areas in Viet Nam, school grounds are open to children after school hours so that they do not have to play on roads.
- There are many safety products made in China, Korea and Thailand and exported to the US and Europe that are not available in the countries in which they are produced. There is a need for strong advocacy to ensure such products are available in the country of origin.

Panel discussion 2: Special aspects of injury

Moderator: Mr. Ian Scott

Cost analysis in injury control

Rebecca Spicer PhD, MPH
Pacific Institute for Research and Evaluation

"Every bicycle helmet for kids five-14 years old saves insurers US$41."

Cost categories

1. Direct medical costs: emergency medical care, acute medical costs, rehabilitation, follow-up care, long-term medical and institutional care, prescriptions, coroner services and administrative costs (claims processing).
2. Direct non-medical costs: emergency services, property damage/loss, travel delay.
3. Indirect medical costs: wage and household work losses; victims' lost future earnings and parents' work loss to care for injured children.
4. Non-monetary costs: pain, suffering and lost quality of life for victims and their families. Cost analysis places monetary value on life and uses a monetary value instead of other burden measures (lost time, lost productivity, etc.).

Objectives of cost analysis

1. **Priority settings:** Cost analysis is a good way for decision makers to decide how to allocate funds. It allows them to compare different problems using one common unit and places a greater weight on severe non-fatal injuries.
2. **Advocacy:** Cost analysis conveys risk reductions in a way that captures the attention of politicians, the media and the public. If insurers knew how they could benefit in monetary terms, it would encourage them to get involved in injury research and injury prevention programmes.
3. Use **benefit cost ratio** (BCR) to select interventions. For example:

   Replace swings and prevent seven broken arms or replace slide and prevent one head injury.

   Replace swings (US$100) = save US$700 (7xUS$1,000) in medical costs;
   BCR = US$7,000/US$100=US$70

   Replace slide (US$200) = save 20,000 in medical costs;
   BCR = US$20,000/US$200 = US$100

Conclusion

Cost analysis reduces different outcomes to a common metric. It is useful for:

- Comparing the size of various problems;
- Assessing risks;
- Setting priorities;
- Selecting efficient interventions;
- Informing resource allocation; and
- Advocacy.

Disability

Mr. Ian Scott
Technical Officer,
Injuries and Violence Prevention Department, WHO.
Technical Adviser, TASC

"Disability is very likely a precipitating factor for poverty."

Overview: Non-fatal injuries have wide-ranging effects. Disabilities can range from mild to crippling and can last for hours or persist for a lifetime. Children can be affected by injuries to themselves, to their parents or to their families.

Definitions: What constitutes "disability" will be different in each country. Culture and environment affect definitions and measures of "disability". Practical matters influence the time and degree of "incapacity".

Number/ratios: Detailed data on disability are not available, particularly from the developing world. Data from Australia suggests that for every child who drowns, there is one who will suffer a neurological disability. In Indonesia, this rate is one to five. This is partly because of the different approaches to defining disability. Incapacity varies by the cause or type of injury – it is low for drowning and high for injuries caused by landmines; for spinal, head, and burn injuries and for amputation.

Nature of incapacity/disability: There are various kinds of incapacity or disability. These include amputation; head/neurological injuries; spinal injuries, burns/scalds; injuries that affect ambulation, joints, reach and grasp; scars; and psychological injuries.

Burden of incapacity/disability: The immediate costs of disability include sudden healthcare costs, and loss of wages. Longer-term costs include healthcare, rehabilitation and inability to work.

Disability impinges greatly on family circumstances: There is often a loss of income, debt, forced sale of assets, a need for care; need for children to leave school, loss of "investment" in the injured person and a great risk of poverty. There is also the psychosocial effect of disability, which is associated with a higher risk of depression, alcohol abuse, suicide and violence.

Conclusion: Data on disability is poor and more research is therefore required. What is clear is that the poor are at the greatest risk, disability places a huge burden on individuals and families and children are particularly vulnerable.

Injury and equity: Continuing disparity

Chitr Sitthi-amorn, MD PhD

Institute of Health Research, Chulalongkorn University, Bangkok Thailand.
Technical Advisor, TASC

"Injuries bring dire consequences for those who are already poor and disadvantaged."

The burden of injury is not equally distributed among high- and, low-and-middle-income countries. In 2000, the Global Forum for Health Research estimated the ratio at 1:3, with the low-and-middle-income countries having three times the burden of the high-income countries. A range of social, economic and structural factors that contribute to inequity in injuries. These include age, gender, socio-economic status and location (urban/rural).

Socio-economic status: Middle- and low-income families are pushed towards poverty and family break up in coping with serious injury due to medical and rehabilitation costs. Financial disaster follows if the bread winner of the family is permanently disabled.

Gender: Injuries often have a greater impact on women and girls than men and boys. Mothers and female siblings of an injured child provide more care and pay a higher social cost, (e.g. lost days of schooling, lost days of paid work, etc), than husbands and male siblings. Injured male children receive more care and supplemental support, such as rehabilitation and continued education.

Place of residence: Injured urban children receive more medical care and social services than rural residents. Average injury severity levels are higher in rural settings, in part related to the frequent amputations and severe scalds associated with child injury from agricultural machinery.

"Injury orphans": These are children who lose a parent due to injury. The younger the child when a parent is lost to injury, the more severe the effect on the child's future growth and development. Infant children who lose mothers to injury are at greatly increased risk of other adverse health outcomes within the first five years of life.

Conclusion

There is an inequitable impact of injury for families within society depending upon their social and economic status and place of residence. There is also evidence of an inequitable impact on different members within the family, depending upon gender and roles in the family.

Impact of intentional injury: Suicide and attempted suicide for children

Dr. Michael Phillips

Beijing Suicide Research and Prevention Center, Beijing Hui Long Guan Hospital

"Save the parent and you can save the child."

Suicide is a salient issue for child injury and child health

- Suicide in China is common between the ages of 15 and 19. It is the leading preventable cause of death in young adults of childbearing age (15-34).
- Loss of a parent is the most important risk factor for childhood injury. Reducing deaths due to suicide in persons of childbearing age should therefore be a major part of the strategy to prevent childhood injury.
- The long-term psychological effects on children in developing countries of losing a parent to suicide, injury or other causes need to be assessed and culturally specific mechanisms for decreasing the negative impact of suicide needs to be developed and tested. Improving psychological resiliency in children is an important component of comprehensive suicide prevention strategies.
- Suicide is a major public health problem for China that is only gradually being recognized. Agencies interested in children's health need to become active partners in the effort to develop, test and promulgate national suicide prevention plans in developing countries.

National suicide prevention plan for China

A preparatory committee has been set up to develop a suicide prevention plan. The overall goals include:

- Promoting psychological well-being, resilience and community 'connectedness', which includes training children in stress-management techniques at schools;
- Promoting community-based screening programs to identify high-risk individuals;
- Developing specific services for high-risk individuals and others affected by suicide; and
- Expanding the scientific evidence base for the prevention and management of suicide.

Interventions to be tested in the proposed national suicide prevention research project

As a first step towards establishing a national suicide prevention plan, the preparatory committee recommends establishing a suicide prevention research project to develop and test the cost-effectiveness of a variety of suicide prevention strategies as follows:

- Restricting the use of lethal pesticides in the countryside;
- Improving rural social support networks;
- Developing a rural health promotion campaign about suicide;
- Improving rural health providers' ability to manage the medical and psychiatric problems associated with suicides; and
- Developing an urban programme that includes public education and the provision of better crisis support services.

Intentional injury: Suicide

Dr. G. Gururaj Professor and Head, Department of Epidemiology, WHO Collaborating Center for Injury Prevention and Safety Promotion National Institute of Mental Health and Neuro Science, India

"Many people die of suicide because of lack of care, but the situation is not hopeless."

In India, one child in 40,000 loses a parent to suicide. In Bangalore, India, 2,000 people commit suicide every year and 20,000 more are registered in hospitals for attempted suicide. Children who lose a parent are thrown into psychological and social crisis. If the breadwinner dies, the family is thrown into financial crisis. There are also large numbers of suicides in Bangladesh, China, the Philippines and Thailand.

Research on attempted and completed suicides has found that 6 to 10 per cent of the population from all levels of society have suicidal thoughts and behaviour. However, suicide is under reported due to (1) the notion of suicide as an offence; (2) stigma attached to suicide and (3) a lack of attention because suicide is considered as a problem of the poor.

Interventions: Psychological evaluations are needed to understand the causation and design appropriate interventions. Proven cost-effective solutions used in the developed world can be adapted and modified for developing countries. Examples include limiting access to poisons and training health practitioners to recognize signs of depression.

Policies and programme development: Suicide prevention must get onto the agenda of governments. There is a need to lobby policy makers, the public, the press and healthcare practitioners. Child health programmes should be expanded to include suicide prevention.

Strengthening care of the injured globally

Dr. Charles Mock

Harbor View Injury Research Centre, University of Washington, USA. Technical Adviser, TASC

"Improved trauma care can result in medically preventable deaths and preventable disabilities."

Adequate trauma care facilities require

(1) Economic resources

(2) Human resources

(3) Physical resources

There are three stages of trauma care:

(1) Pre-hospital care

(2) Hospital-based care

(3) Rehabilitation

Pre-hospital care [emergency medical services, (EMS)] includes rapid response by trained personnel, life-saving techniques and rapid transport. Alternative strategies for developing EMS include strengthening the existing ambulance system or setting up new services. For example, in Monterrey, Mexico, more ambulance stations and improved training resulted in decreased mortality among trauma patients from 8.2 per cent to 4.7 per cent. In Brazil, a new ambulance system along a major highway decreased mortality rates among crash victim from 7 per cent to 5 per cent. Mortality decreased from 40 per cent to 9 per cent in Iraq and Cambodia as a result of upgrading the existing, informal EMS system.

Hospital-based care includes auditing trauma care to identify treatment gaps, improving communication and capacity in emergency departments, training junior doctors in trauma service and improving reporting on trauma cases.

The **Essential Trauma Care Project** is an initiative being undertaken by an informal partnership between the World Health Organization and the International Society of Surgery. It attempts to integrate public health programmes and trauma system development to improve the quality of essential trauma care globally. It is an international effort to ensure optimal chances for injured patients worldwide.

Guidelines for Essential Trauma Care is a publication to be released shortly that aims to improve trauma care throughout the world. It covers the rights of trauma patients and essential resources.

Conclusion: Improving trauma care at low cost requires surveillance, pre-hospital care and hospital-based care with strengthened organization and planning.


TASC/Viet Nam

5 PARTNERS' PERSPECTIVES

WHO's role in injury prevention

Dr. Madan P. Upadhyay, FRCS,
Regional Adviser, WHO/SEARO

WHO has worked in the area of injury prevention for some years but until recently did not give it priority. However, WHO now has 15 Headquarters staff and one person at each of the six regional offices working on injury prevention.

The World Health Assembly has adopted several resolutions that address the issue of injury (including a resolution on the issue of Violence), also deal with injuries to children. One regional office has initiated discussions on the issue of violence and injury prevention.

WHO has also prepared two important publications in connection with injury prevention. The *World Report on Violence and Health* was launched in 40 countries and has received serious attention from governments. The *World Report on Road Traffic Injury Prevention* was launched in April 2004 to create awareness of the magnitude of the problem.

World Health Day this year focused on road safety with the slogan "Road Safety is no Accident". It is the first time road safety has been chosen as a theme for World Health Day and shows WHO's awareness of the enormity of the problem.

It is very important to establish injury surveillance systems in countries, and we must work with countries to formulate specific programmes. We must develop advocacy tools based on evidence. We also have to develop best practice guidelines that look at what other countries have done and adapt their experience to different countries.

We must also help countries develop the capacity to respond to injuries. There is clearly an acute shortage of people with the training and expertise to take this issue forward. More has to be done to ensure there are adequate trauma care centres with trained personnel to cope with injuries.

In the past, WHO worked mainly with Ministries of Health but it is now developing partnerships with NGOs, civil society and other UN agencies. The private sector has shown interest in and contributed significantly to health issues. Public-private partnerships will be a driving force behind WHO's work in the future.

WHO is now working more with CDC, TASC and other organizations on these issues. The decline in available resources makes joint endeavours essential to achieving effective responses to injuries. The problem is enormous and no single organization can do it alone. We must work smarter, not just harder, and we can do that through greater cooperation. One way WHO does this is through WHO collaborating centres. There are several in this region.

CDC's interests in global injury prevention

Mr. Ross Cox, Deputy Director
Office of Global Health Centers
for Disease Control & Prevention

In the United States, injury is recognized as a serious problem. According to the World Health Report 1999, drowning and road traffic accidents were leading causes of death in 1998. Falls, drowning and traffic accidents were also the leading causes of the burden of disease in 1998.

Road traffic injuries

Road traffic injuries are a major burden in all countries. Each year, about 1.17 million persons are killed, which represents about 3,000 fatalities a day. This includes 250,000 children. A further 20 million people are injured and crippled. The cost is about US$500 billion a year. Road traffic injury is in ninth place overall for disease burden in the world but at the present rate of growth, by 2020, it will rise to number three, unless something is done.

One reason for Asia's rise in fatalities is the increase in traffic volume. India, for example, experienced a 23 per cent increase in the number of vehicles in just three years. In 1990, there were 3.7 million cars; by 1993, 4.5 million cars, with little change in the infrastructure to accommodate them.

Drowning

Drowning rates are higher in low-income countries and in indigenous communities. They occur in and around the home, and are an important cause of non-occupational injury-related deaths. Drowning can occur when bathing, washing, swimming and wading, fording rivers, engaging in recreational boating, travelling by boat or ferry and falling. Risk factors for drowning include age, gender, alcohol use, socio-economic status (income, education), race and/or ethnicity, and lack of supervision.

Focus for the future

Although CDC focuses much of its resources on communicable diseases, it is looking to be more involved in global health and injury prevention issues. For that, it will require collaboration and cooperation with partners in the region.

Funded by CDC, The Fogarty International Center has announced a new Collaborative Research Training Program for Trauma and Injury in the Developing World with awards of up to US$150,000 a year for support up to five years. This would be of immense benefit to countries in this region.

6 CONCLUSIONS AND RECOMMENDATIONS

The UNICEF/TASC Conference on Child Injury brought together professionals from partner organizations in the region to share their research and their experience and to discuss what course of action their countries individually, and the region as a whole, could embark on to tackle the issue of child injury. Participants recognized that this was an important opportunity to address child survival and to work toward fulfilling the Millennium Development Goals. A consensus has been taken that the issue is a regional concern.

The pattern of child deaths in the East Asia and Pacific Region has changed. The leading causes of child death were traditionally measles, dehydration from diarrhoeal disease and respiratory disease. However, as the result of the success of the child survival interventions over the last two decades, the leading cause is now injury. The picture of child mortality now closely approximates that of industrialized countries, and prevention programmes need to address the newly recognized causes of death and disability.

The causes of fatal and non-fatal injuries vary according to age groups. Overall, drowning is the leading cause of death among most children in the region. The incidence of drowning is highest in early childhood (ages 1 to 4) and decreases as children get older. Traffic-related injuries become a leading cause of death in late childhood and early adolescence. Intentional injury, resulting from violence and suicide, is a significant and in many countries, probably a leading cause of death in late adolescence.

Non-fatal injury had the highest economic costs and the more severe the injury, the higher the economic costs and the social burden. A child seriously injured usually required both parents to provide care, resulting in lost schooling for the child, and lost wages for the parents.

Injury was also the leading cause of parental death and disability in all the adult age groups that had children less than 17 years of age. These orphaned children risk adverse health outcomes when they suffered the loss of a father (primary economic earner) and/or the loss of a mother (primary caregiver).

Experience from the industrialized world has shown that injuries are largely preventable with effective and simple interventions. The UNICEF Innocenti Report *A League Table of Child Deaths by Injury in Rich Nations* showed how child injury death rates fell by half in developed countries over a period of two decades. At the Conference, it emerged that many countries know enough to start interventions targeting child injury. However, to ensure the cost-effectiveness of interventions, participants emphasized the importance of identifying feasible and affordable interventions that reduce child injury.

The Conference participants identified a number of core issues that must be addressed in order to prevent child injury:

Education and behaviour change

An effective communication programme can raise people's awareness of risk, make them personally responsible for their own safety, and persuade them to take action to reduce the risk of injury to themselves and others. Education has two key elements: education of parents and caregivers to provide a safe home environment for their children, and education of children to practise safe behaviour. These interventions will not only reduce the incidence of injury but will also bring about cognitive changes on injury prevention for the next generation.

Mass media plays an essential role in increasing public awareness of certain issues because it has a wide reach in society. "Edutainment", using entertainment as a vehicle to deliver educational messages, has proven effective in reaching large-scale audiences. Interpersonal communication is another method designed to link knowledge to behavioural change. In many Asian countries, there is a tradition of using community volunteers to conduct home visits and counselling on maternal and child health, nutrition and other health issues. Safety education can be easily integrated into existing interpersonal communication vehicles.

Environment modification and engineering solutions

Experience in the industrialized countries has shown that changes in the environment (e.g. fencing pools) and the modification of consumer products (e.g. child-resistant bottle caps) have also dramatically reduced the incidence of child injuries. Technology and engineering contribute to injury reduction by removing hazards from products or removing injury risk from the environment.

These environmental modifications can be adapted to developing countries to reduce children's risk of injury (e.g. putting covers over wells and raising cooking fires to a cement counter from floors). These "passive" measures do not require repeated behaviour change from the individual or family. They are therefore particularly effective for children for whom active behaviour change may be unrealistic.

National policy, legislation and law enforcement

National policy, legislation and law enforcement are among the most powerful tools to protect children from being injured. Collectively, they mandate changes in individual behaviour, product design and hazardous environments, and establish national priorities for addressing injury prevention. Most environmental modification and product change require legislation or regulation. Such legal actions substantially reduce the risk of injury to children.

Reductions in child injury can be realized in developing countries, provided the statistical realities discovered during the UNICEF/TASC national surveys are promptly converted into national policy. Government decision makers in the region need to be encouraged to use legal action, regulatory frameworks and enforcement to improve safety for children.

Research

The Conference drew attention to the need for solid research that would provide a basis for effective future interventions and to support advocacy. National surveys provide a wealth of previously unavailable information regarding all causes of death, and are major inputs to inform and reform policy and prevention programming. However, population-based surveys need to be conducted with discipline, subjected to peer review, and designed to deliver clear, indisputable data. The surveys should use common sampling schemes, common questionnaires and common definitions and have a common analytic framework. This permits comparability of data across countries and allows comparison of programme successes between countries. Some countries already have good mortality and morbidity data but more emphasis is needed on the analysis and interpretation.

Sociological research on people's attitudes, superstitions about fate and other beliefs would be of enormous benefit in developing appropriate interventions. More operational research is also needed to demonstrate how injury can be prevented with effective interventions. Before undertaking an injury survey, a desk review of the available information will provide qualitative information and help to structure efforts to conduct a national injury survey.

The cost of injury research using the TASC model, which utilizes and builds national institutional capacity, is relatively small compared to the value of the information gained. National surveys also serve as an advocacy tool and generate a great deal of interest among government agencies, NGOs, injury researchers and other international organizations.

Child injury as a programme priority

Preventing child injury should become one of the core components for UNICEF's child health and child protection programmes, which includes the issue of suicide and violence against women. Traditional child survival programmes do not address injury. However, the infrastructure created by these programmes is well suited for the same preventive approach to injury. After decades of applying the child survival intervention package (growth monitoring, breastfeeding, ORS, immunization, nutrition, and maternal and child health care), these interventions are so well established that they have become the fundamental components of child health programmes in most developing countries.

Addressing child injury provides an opportunity to integrate resources and activities into these programmes as well as HIV/AIDS prevention and other adolescent programmes. Using models that coordinate inter-sectoral interventions targeting children across all age groups, these interventions will not compete for resources, but extend and increase efficiencies of existing programmes. By increasing the use of the current child health infrastructure and preventing additional deaths from injury, the cost of the infrastructure investment will be fully amortized.

Advocacy

UNICEF and TASC recognize that child injury is an urgent and seriously neglected problem in this region. Advocacy is a crucial first step that must be taken to increase the visibility of child injury regionally and internationally with policy-makers, donors, healthcare professionals, partners and the public at large.

Advocacy is essential to bring about policy change among governments and the development community and to generate the funding needed to support effective interventions. Without a serious international effort to prevent injury orchestrated by the development community, the unacceptably high rates of child death and disability due to preventable injury will continue indefinitely. There is a great opportunity to involve private sector in child injury prevention. Fund-raising activities should be part of the child injury prevention programme strategy.

It is important that injury research be published in prominent journals such as Lancet to inform professionals and academics, and in the United Nation's larger flagship publications, such as the WHO's *World Health Report, UNDP's World Human Development Report* and UNICEF's *The State of the World's Children*, so this issue can receive broader international attention.

Partnerships

Partnerships with donors and concerned agencies are essential for providing access to technical expertise and resources that will help to better address child injury issues, strengthen programmes and provide the broadest possible funding base.

UNICEF and TASC call for donors and the international development community to forge partnerships with governments, research institutions and NGOs, and to begin to tackle child death and disability caused by injury. UNICEF and TASC will continue to collaborate with centres of excellence such as CDC, WHO, Karolinska Institute and research agencies from Australia to advance child injury research and fundraising. However, it is essential to develop in-country capacities in research as well as in implementing programmes. Child injury occurs as a result of hazards to children where they live and play. The only people who can do the research necessary at the local level, using the local language, and having the permission of the local governments are researchers from that country. TASC and UNICEF will focus on developing this local capacity as a priority.

Moving Forward

The Conference was a landmark in highlighting the significance of child injury in the East Asia and Pacific region and establishing the issue as a priority for the child survival movement. The Conference identified that no single intervention offers a solution and that national responses must be multi-sectoral.

What also became clear at the Conference is that child injury prevention is more than just a regional issue; it is a world-wide one. The problem, too long neglected, demands that child injury takes its place as a priority on the global agenda. Awareness is growing that accidents don't just happen.

It is time for change. It's time for action.

Annex I: Agenda

UNICEF/TASC Conference on Child Injury: Towards a World Safe for Children

Objectives:

1. Present the country-specific child injury research in the region
2. Promote injury prevention as one of the major interventions in this region to meet the Millennium Development Goals (MDGs) for reducing child mortality
3. Build partnerships to address country-specific issues for child injury prevention

21 April, 2004 **Wednesday**

Time	Programme	Speaker/Moderator
07:30	Registration at the entrance of the Ballroom (7th floor)	
	Morning Session	
08:30 - 09:15	Master of Ceremony introduces the participants Welcome Address Opening Address	Mrs. Vi Peterson, Executive Director, TASC Mrs. Mehr Khan Williams, Regional Director, UNICEF EAPRO H.E. Mr. Sora-At Klinpratoom, Minister of Social Development and Human Security Thailand
09:15 - 09:35	Keynote Speech	Mr. Kul Gautam, Deputy Executive Director, UNICEF
10:00 - 11:00	Overview of injury and the issues confronting us from the new data	Dr. Mike Linnan, TASC
11:00 - 12:00	Bangladesh epidemiology and behavioral research results Programme interventions for the prevention of child injuries	Dr. Fazlur Rahman, Institute of Child & Mother Health Dr. Kayode S. Oyegbite, Chief Health & Nutrition, UNICEF Bangladesh

Time	Programme	Speaker/Moderator
	Afternoon Session	
13:30 - 14:30	Beijing, China injury survey results	Prof. Zeng Guang, Field Epidemiology Training Program China CDC
14:30 - 15:30	Thailand injury survey results	Dr. Chitr Sitti-amorn, Chulalongkorn Institute for Health Research
16:00 - 17:15	Viet Nam injury survey results Child injury prevention programme	Dr. Pham Viet Cuong, Hanoi School of Public Health Ms. Isabelle Bardem, UNICEF Vietnam
18:30 - 20:30	**Reception and dinner jointly hosted** by Ambassador Pete Peterson and Mrs. Mehr Khan Williams	

22 April, 2004 **Thursday**

Time	Programme	Speaker/Panelists
	Morning Session	
08:30 - 09:15	Philippines injury survey results	Dr. Juan Lopez, Field Epidemiology Training Program, DOH, Philippines
09:15 - 09:30	Indonesia drowning research results	Dr. Soewarta Kosen, National Institute of Health Research and Development, Indonesia
09:30 - 10:00	Malaysia injury desk review result	Dr. R. Krishnan, University of Malaya, Malaysia
10:30 - 12:15	Panel discussion on injury prevention experiences from industrialized countries and how it can be adapted: Drowning RTA Burns, poisoning and other injures	Moderator: Dr. Charles Mock Dr. Joan Ozanne-Smith Dr. Charles Mock Dr. Mark Stevenson Respondants: Dr. Shumona Shafinaz Dr. Nguyen Trong An Dr. Christian Voumard

Time	Programme	Speaker/Panelists
	Afternoon Session	
13:45 - 15:30	Panel discussion on special aspects of injury: • The economic burden of injury • Disability as a special burden • The equity issue • Intentional injury • Emergency medical care	Moderator: Mr. Ian Scott Ms. Rebecca Spicer Mr. Ian Scott Prof. Chitr Sitti-amorn Dr. Michael Phillips Dr. G. Gururaj Dr. Charles Mock
16:00 - 16:30	Partners' perspectives Followed by discussion from the audience	Dr. Madan P. Upadhyay, FRCS, Regional Adviser, WHO/SEARO Mr. Ross Cox, Deputy Director, Centers for Disease Control and Prevention, USA
16:30 - 17:15	Wrap-up and guided discussion	Mr. Morten Giersing, Representative, UNICEF Bangladesh
17:15 - 17:30	Closing remarks	Ambassador Peterson, President of TASC

Annex II

List of Participants

No.	Participant	Country/Institution	Email address
	Bangladesh		
1.	Dr. AKM Fazlur Rahman, Associate Professor	Dept. of Epidemiology and Biostatistics, Institute of Child and Mother Health	fazlur@citechco.net
2.	Dr. Aminur Rahman, Assistant Professor	Dept. of Epidemiology & Biostatistics, Institute of Child and Mother Health	aminur@bdonline.com aminur61@hotmail.com
3.	Mr. Morten Giersing, Representative	UNICEF	mgiersing@unicef.org
4.	Dr. Kayode S. Oyegbite, Chief	Health & Nutrition Section, UNICEF	koyegbite@unicef.org
5.	Dr. Shumona Shafinaz, Assistant Project Officer	Health & Nutrition, UNICEF	sshafinaz@unicef.org
	Cambodia		
6.	Dr. Sann Chan Soeung, Deputy Director	National MCH and Secretary, Child Health Working Group	sanns@nip everyday cam.kh
7.	Mr. Rodney Hatfield, Representative	UNICEF	rhatfield@unicef.org
	China		
8.	Ms. Zhang Liming, Deputy Director	National Working Committee for Children and Women (NWCCW)	zlm@nwccw.gov.cn
9.	Ms. Song Wenzhen, Division Chief	Child Division, National Working Committee for Children and Women (NWCCW)	swz@nwccw.gov.cn
10.	Dr. Zhang Li, Division Chief	Div. of Chronic Disease Control, Dept. of Disease Control, Ministry of Health	zhangli1410@sina.com
11.	Dr. Zeng Guang, Director	Field Epidemiology Training Programme, China Center for Disease Control (CCDC)	zeng4605@vip.sina.com
12.	Mr. Jing Ruiwei, Staff	China Center for Disease Control (CCDC)	jingruiwei@163.com
13.	Ms. Chen Yanping, Staff	Beijing Working Committee for Children and Women (BWCCW)	Tel: 651 92625

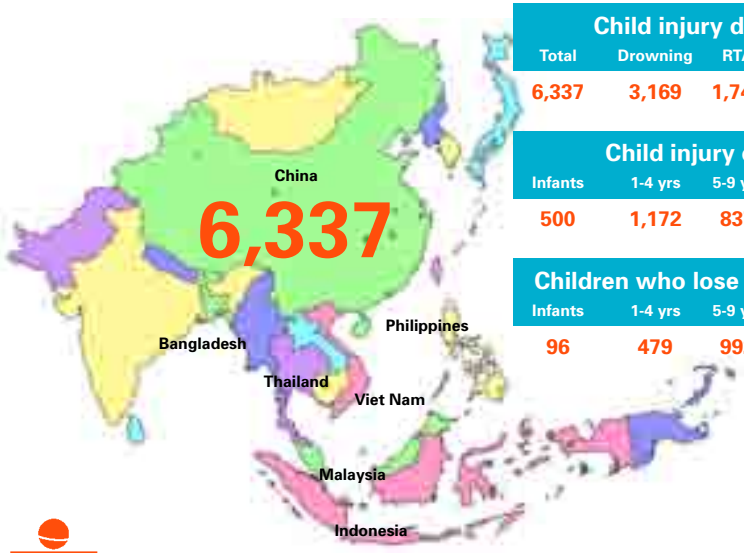
No.	Participant	Country/Institution	Email address
	China *(continued)*		
14.	Dr. Christian Voumard, Representative	UNICEF	cvoumard@unicef.org
15.	Mr. Andrew Claypole, Planning Officer	UNICEF	aclaypole@unicef.org
16.	Ms. Yuan Min, Programme Officer	UNICEF	myuan@unicef.org
	Indonesia		
17.	Dr. Soewarta Kosen, Chief	Health Economics & Policy Analysis Unit	kosen@centrin.net.id
18.	Ms. Rajeshwari Chandrasekar Project Officer	Planning, Monitoring & Evaluation, UNICEF	rchandrasekar@unicef.org
	Malaysia		
19.	Datuk Dr. Narimah Binti Awin, Director	Family Health Development Division, Ministry of Health	narimah@moh.gov.my
20.	Prof. Dr. Krishnan Rajam, Professor and Director	WHO Cooperative Helmet Initiative Programme, Dept. of Primary Care Medication, Faculty of Medicine, University of Malaya	krishna@um.edu.my sowmyak@yahoo.com
21.	Ms. Gaye Phillips, Representative	UNICEF	gphillips@unicef.org
	Mongolia		
22.	Dr. Udval Natsag, Vice Minister	Ministry of Health	udval@moh.mng.net
23.	Dr. Tuya Mungun, National Project Officer	Health & Nutrition, UNICEF	tmungun@unicef.org
	Philippines		
24.	Dr. Juanita A. Basilio, Medical Officer IV	DOH-NCDPC	nitzbasilio@hotmail.com
25.	Dr. Noel Orosco, FETPAFI Researcher/Chief	SRNE - DOH	knowel@asia.com
26.	Dr. Juan M. Lopez, FETPAFI Researcher/Chief	SRED - DOH	jlonec@yahoo.com
27.	Dr. Romanus Mkerenga, Project Officer	Health & Nutrition, UNICEF	rmkerenga@unicef.org

No.	Participant	Country/Institution	Email address
	Thailand		
28.	H.E. Mr. Sora-At Klinpratoom, Minister	Ministry of Social Development and Human Security	Tel: 662 617 8344
29.	Prof. Chitr Sitthi-amorn, Director and TASC Technical Advisory Group Member	Institute of Health Research Chulalongkorn University	Chitr.S@Chula.ac.th
30.	Asst.Prof. Adisak Plitponkarnpim, Director	Child Safety Promotion & Injury Prevention Research Centre, Dept. of Pediatrics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University	raapp@mahidol.ac.th
31.	Dr. Chamaiparn Santikarn, Director	Institute of Thai Traditional Medicine, Dept. for the Development of Thai Traditional & Alternative Medicine, Ministry of Public Health	chamaipa@health.moph.go.th
32.	Dr. Witaya Chadbunchachai, Deputy Director	Trauma Centre, Khon Kaen Hospital	buncha@health2.moph. go.th
33.	Ms. Siriwan Santijiarakul	Epidemiology Bureau, Disease Control Department, Ministry of Public Health	Tel: 01 251 7681
34.	Ms. Inese Zalitis, Representative	UNICEF	izalitis@unicef.org
35.	Mr. Andrew Morris, Programme Officer	UNICEF	amorris@unicef.og
36.	Mr. Bastiaan van't Hoff, Project Officer	Planning, Monitoring & Evaluation, UNICEF	bvanthoff@unicef.org
	Viet Nam		
37.	Dr. Nguyen Trong An, Vice Director	Children Department, National Committee for Population, Family & Children	antrongCPCC@yahoo.com
38.	Mr. Hoang Manh Tien, Vice Director	Haiduong Health Service	
39.	Mr. Tran Kim Phung, Vice Director	Quang Tri Health Service	sytqt@dng.vnn.vn
40.	Dr. Pham Viet Cuong, Deputy Director	Bio-Statistic Department, Hanoi School of Public Health	pvc@hsph.edu.vn
41.	Mr. Ho Van Sanh, Expert	Can Tho Health Service	drsanh@hotmail.com
42.	Ms. Isabelle Bardem, Chief	Childhood Injury Prevention Sect. UNICEF	ibardem@unicef.org
43.	Ms. Nguyen Thi Y Duyen, Project Officer	Childhood Injury Prevention Sect. UNICEF	ntyduyen@unicef.org
44.	Ms. Hoang Tuyet Mai, Assistant Project Officer	Childhood Injury Prevention Sect. UNICEF	htmai@unicef.org

No.	Participant	Country/Institution	Email address
	Partner Organizations		
45.	Mr. Ross Cox, Deputy Director	Office of Global Health, Dept. of Health and Human Services, Centers for Disease Control and Prevention, USA	rcc3@cdc.gov rcox@cdc.gov
46.	Mr. Ian Scott, Technical Officer	Injury & Violence Prevention (VIP) World Health Organization (WHO) Switzerland	scotti@who.int
47.	Dr. Madan P. Upadhyay, FRCS, Regional Adviser	Disability, Injury Prevention & Rehabilitation, World Health Organization, Office for South East Asia Region, India	upadhyam@whosea.org
48.	Dr. Le Nhan Phuong, Country Representative	Atlantic Philanthropies (Viet Nam) Limited, Viet Nam	p.le@atlanticphilanthropies.org
49.	Ms. Tran Bich Phuong, Health Programme Officer	Atlantic Philanthropies (Viet Nam) Limited, Viet Nam	p.tran@atlanticphilanthropies.org
	The Alliance for Safe Children (TASC)		
50.	Mr. Pete Peterson, President	USA/TASC	dpeterson@tasc-gcipf.org
51.	Ms. Vi Peterson, Executive Directors	USA/TASC	vpeterson@tasc-gcipf.org
52.	Mr. Robert L. Schiffer, Board of Directors	USA/TASC	schifferrl@hotmail.com
53.	Mr. Bill Magennis, Board of Directors	Viet Nam/TASC	bill.magennis@phillipsfox.com
54.	Mr. Boosin Jatoorapreuk, Board of Directors	Thailand/TASC	
55.	Dr. Michael Linnan, Technical Director	USA/TASC	mlinnan@tasc-gcipf.org
56.	Mr. Curtiss Swezy, Technical Advisory Group Member	USA/TASC-TAG	cswezy@tasc-gcipf.org
57.	Dr. Charles Mock, MD, PhD, FACS Technical Advisory Group Member	USA/TASC-TAG, Harbor View Injury Research Centre, University of Washington	cmock@u.washington.edu
58.	Prof. Mark Stevenson, Director and TASC Technical Advisory Group Member	Injury Prevention & Trauma Care Div., The George Institute, Australia/TASC-TAG	mstevenson@thegeorgeinstitute.org
59.	Dr. Le Vu Anh, Dean and TASC Technical Advisory Group Member	Hanoi School of Public Health, Viet Nam/TASC-TAG	hsph@fpt.vn lva@hsph.edu.vn
60.	Dr. Joan Ozanne-Smith, Professor & Chair	Injury Prevention, Accident Research Centre and Dept. of Epidemiology & Preventive Medicine, Monash University, Australia	Joan.ozanne-smith@ general.monash.edu.au

No.	Participant	Country/Institution	Email address
	The Alliance for Safe Children (TASC) *(continued)*		
61.	Ms. Rebecca Spicer, Research Scientist	Pacific Institute for Research & Evaluation, Epidemiology Bureau, Disease Control Dept., Ministry of Public Health, Thailand	spicer@pire.org
62.	Dr. G. Gururaj, Professor and Head	Dept. of Epidemiology, WHO Collaborating Center for Injury Prevention & Safety Promotion, National Institute of Mental Health & Neuro Sciences, India	guru@nimhans.kar.nic.in
63.	Dr. Michael Phillips, Executive Director	Beijing Suicide Research & Prevention Center, China	Phillips@bsrpc.org phillips@public3.bta.net.cn
	UNICEF		
64.	Mr. Kul Gautam, Deputy Executive Director	Headquarters	kgautam@unicef.org
65.	Ms. Mehr Khan Williams, Regional Director	East Asia and Pacific Region Office (EAPRO)	mkhan@unicef.org
66.	Mr. Richard Bridle, Deputy Regional Director	EAPRO	rbridle@unicef.org
67.	Mr. Patrick McCormick, Officer-in-Charge	Communication Section, EAPRO	pmccormick@unicef.org
68.	Mr. Charles Schlegel, Consultant	EAPRO	cschlegel@unicef.org
69.	Ms. Huan Linnan, Consultant	EAPRO	hlinnan@unicef.org
70.	Mr. Robert Few, Consultant	EAPRO	rfew@unicef.org
71.	Ms. Indra Kukathas, Consultant/Rapporteur	EAPRO	

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
6,337	3,169	1,743	443	982

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
500	1,172	837	1,048	2,780

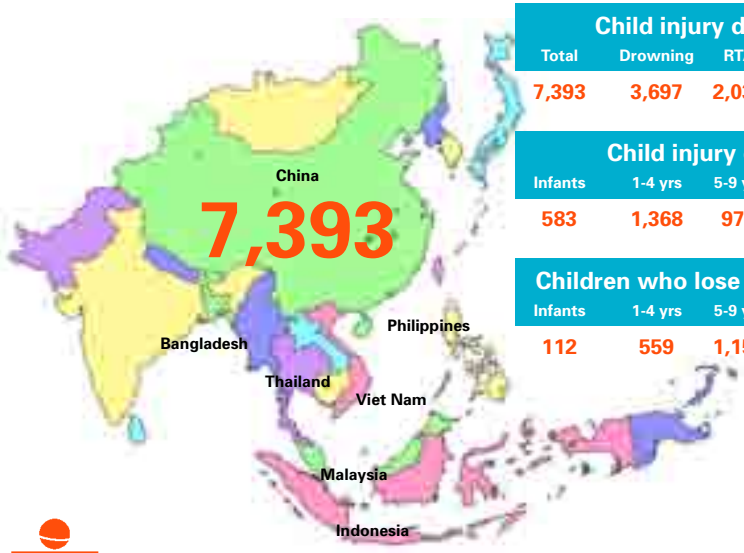
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
96	479	992	887	494

TASC
The Alliance for Safe Children

DAY 2: Beginning of day 2, 24 hours later

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
7,393	3,697	2,033	517	1,146

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
583	1,368	976	1,223	3,243

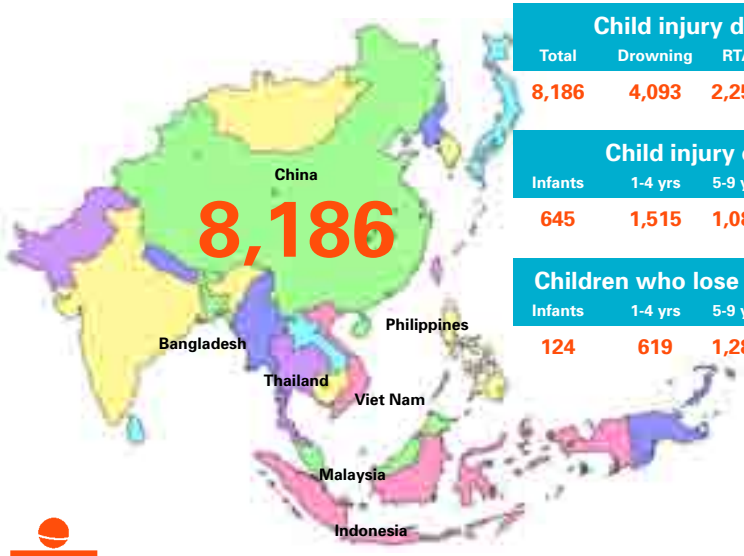
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
112	559	1,158	1,035	576

TASC
The Alliance for Safe Children

DAY 2: Break for lunch, 28 hours later

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
8,186	4,093	2,251	573	1,269

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
645	1,515	1,081	1,354	3,590

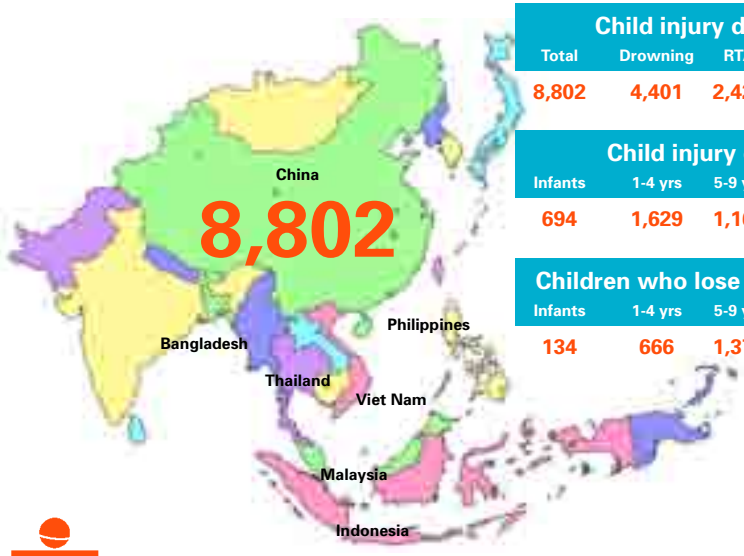
Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
124	619	1,282	1,146	638

TASC
The Alliance for Safe Children

DAY 2: Tea break in the afternoon, 30 hours later

Child deaths (0-17) from injury in the East and South Asia regions – *IN REAL TIME*



Child injury deaths by cause

Total	Drowning	RTA	Poison	Other injury
8,802	4,401	2,421	616	1,364

Child injury deaths by age

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
694	1,629	1,162	1,456	3,861

Children who lose a parent from injury

Infants	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs
134	666	1,379	1,232	686

TASC
The Alliance for Safe Children

DAY 2: Close of the Conference, 33 hours later

The Alliance for Safe Children (TASC)
4/1 Sukhumvit Soi 1 Klongtoey Nua,
Vadhana District Bangkok 10110, Thailand
Tel: (66 2) 655-4811
Fax: (66 2) 655-4814
www.tasc-gcipf.org

UNICEF East Asia and Pacific Regional Office
19 Phra Atit Road
Bangkok 10200, Thailand
Tel: (66 2) 356-9499
Fax: (66 2) 280-3563
www.unicef.org