Children’s Right to Safety: inequity in child injury in Europe
Executive Summary

"Children are our future" and the UN Convention on the Rights of the Child states, "every child has the right to health and safety including a life free from violence." This commitment is further supported by the European Commission in the framework of the Treaty of Lisbon and the Charter of Fundamental Rights of the EU. Therefore, injury is a very real public health issue for children in the EU, and because of our commitment to ensuring their right to safety it is also an important children's rights issue.

How big are the inequalities related to child injury?

- Child injury is a leading cause of death, disability and burden, and the leading cause of inequalities for children in the EU.
- Approximately 9,000 children die as a result of an injury each year and hundreds of thousands more are treated at hospitals, emergency departments and physicians offices across the Member States.
- Children are more likely to die as a result of injury in some countries of the EU compared to others and the differences are notable with at least four times greater risk for injury death in children from East versus West EU Member States.
- Injuries are typically higher in boys than girls and, depending on the type of injury, some age groups are at increased risk for certain types of injuries.
- When injury death rates are examined by specific cause and gender the differences between countries are even greater, ranging from greater than nine times higher risk between the countries with the highest and lowest rate for fall related deaths, to greater than 144 times higher for passenger/driver injuries in girls.

Given the magnitude of the inequalities, the lack of implementation of proven solutions to address these gaps creates inequity and social injustice.

Why are some children at greater risk to injury?

Research continues to identify how certain factors increase the risk of injury, the occurrence of injury and the risk of increasing inequity as a result of injury. Inequity as it relates to child injury is a very complex and multifaceted issue. Essentially the gradient between the ‘haves’ and the ‘have nots’ is the main factor that needs altering to lessen the disparities in injury risk present in European society.

- Children are particularly vulnerable to injury because:
  - They have little say about the environments and circumstances in which they live and thus the hazards they face on a daily basis;
  - Their physical and cognitive abilities are slowly developing and thus they are dependent on their caregivers and society to ensure actions to safeguard them are in place.
- Even in countries with the lowest national rates of child injury, there are groups of children still at increased injury risk as a result of their age, gender, socio-economic group, cultural or ethnic group or where they live.
- Children living in poverty are at greater risk of injury. Nearly 27 million children in Europe – almost one in three – are at risk of poverty and social exclusion and therefore greater injury risk.
- In addition children with specific vulnerabilities, such as having a disability, living in an alternate care setting or having a parent with a substance abuse problem, also create increased injury risk.
What solutions and recommended actions are needed?

The following solutions and recommended actions can assist in reducing the inequities children are suffering as a result of childhood injuries.

1. Monitoring inequalities:
   Monitoring of inequalities is essential to understanding the current state of affairs, determining trends, setting targets and benchmarking improvements. To be effective a number of improvements in data systems and monitoring processes are needed including a standard minimum data set and defined indicators, timely, accurate and robust data.

2. Research:
   Greater knowledge about disparities between groups and factors leading to increased risk is important in designing child injury prevention strategies. Further research is needed to identify effective prevention strategies to address inequities and effective means of transferring them between settings.

3. Multi-sector health in all policies approach:
   The solutions to inequities in child injury lie with many sectors beyond health, including education, transport, justice, social welfare, employment, etc. This requires a broad-based yet coordinated approach to policy formation, funding, implementation, and monitoring of evidence-based solutions.

4. Evidence-based good practice:
   Part of the inequity solution lies in investing in what we know works to reduce injuries – a combined approach of both broad population-based and targeted strategies. This requires action at numerous levels including investment to adopt, implement and monitor good practice with supporting policies at the EU, national and subnational levels.

5. Children’s rights approach:
   Failure to address the inequities in child injury means failure to live up to the commitments made under the United Nations Convention on the Rights of the Child. Policies and actions should first and foremost reflect the needs of children and include their participation in policy decisions that affect them.

In summary, child injuries are both an important public health and social justice issue. Despite reductions over the last 30 years, they remain a leading cause of death, disability and burden and the leading cause of inequities for children in the EU. Although we do not yet have a full understanding of why these differences exist, there is a growing body of knowledge suggesting that with targeted investment to ensure committed leadership, strengthen data systems and build needed capacity, inequities in child injury can be prevented and reversed.
Introduction

“Children are our future” – this catch phrase is often used to acknowledge that the society of tomorrow very much depends on our care of our youngest citizens today. But children are also important in their own right – they are a large part of the population and have unique needs and yet no political influence of their own. Member States have recognised the need to address their uniqueness and the need to protect them through ratification of the UN Convention on the Rights of the Child (UNCRC), which states that “every child has the right to health and safety including a life free from violence.” This commitment is further supported by the European Commission in the framework of the Treaty of Lisbon and the Charter of Fundamental Rights of the EU.

The inclusion of safety is important as children are particularly vulnerable to injury because:

- they have little say about the environments and circumstances in which they live;
- their physical and cognitive abilities are slowly developing and thus they are vulnerable and totally dependent on their caregivers and society to ensure actions to safeguard them are in place.

Despite this each year in the European Union (EU) alone, approximately 9,000 children die as a result of an injury – whether intentional (e.g., the result of violence from another or self-inflicted) or unintentional (e.g., those injuries traditionally labelled as ‘accidents’) and hundreds of thousands more are treated at hospitals, emergency departments and physicians offices across the Member States. Child injuries remain a leading cause of death, disability, burden and inequalities for children in the EU.

So injury is a very real public health issue for children in the EU, and because of our commitment to ensuring their right to safety it is also an important children’s rights issue. The good news is that there are known effective injury prevention strategies that can reduce the burden of child injury, and thus it is a preventable situation. Western Europe has some of the best examples of how child injury prevention can be addressed through investment in effective solutions, with the Netherlands, Sweden and U.K. having some of the lowest injury rates in the world. However not all countries in Europe have invested in the child injury issue at a level commensurate with the burden that it creates for children and their families and society at large. Globally, Europe has examples of countries with very high rates of child injury, as well. Further, even in those countries with the lowest national rates of child injury, there are groups of children still at increased injury risk as a result of their age, gender, socio-economic group, cultural and or ethnic group or where they live. In addition children with specific vulnerabilities, such as having a disability, living in an alternate care setting or having a parent with a substance abuse problem, also create increased risk.

The economic downturn over the past five years has also increased injury risks, as more children are put in jeopardy with rising poverty rates and the gap between rich and poor widens. The financial and economic crisis in Europe, which started in 2008, has increased the number of children at risk of poverty or social exclusion through a combination of increased unemployment and reduction or collapse in welfare systems. A recent report from Save the Children indicates that between 2008 and 2012:

- The number of children at risk of poverty or social exclusion in Europe (28 EU Member Sates plus Iceland, Norway and Switzerland) went up by almost one million, with half of that increase occurring in just one year between 2011 and 2012;
- Children at risk of poverty or social exclusion are living in every European country, including those traditionally viewed as strong welfare states (e.g., Nordic countries);
- Nearly 27 million children in Europe – nearly one in three – are at risk of poverty and social exclusion.

1 For the purposes of this report we use the United Nations definition of a child as being less than 18 years of age. However as data on this age group are not available, the data presented in this report represent children 0-19 years of age.

2 The term ‘inequalities’ is used to refer to differences in child injury risk within and between countries (i.e. injury death rates), whereas ‘inequity’ is used to refer to the unfair and unjust result of these differences.
“Child injuries result in huge inequalities with over four times greater risk for injury death in children from East versus West EU Member States. The lack implementation of proven solutions to address this gap creates inequity and social injustice.”

If children are to be the future of the EU, then investment is needed across the region to reduce the inequalities that exist in injury rates both between Member States and within Member States. Given that, if we have effective preventive measures to address child injury:

• Why should children living in one part of the EU be exposed to greater levels of risk than those in another?

• Why should children from lower socioeconomic groups be at greater risk than their peers in higher socioeconomic groups in the same country?

Yet this is the reality we face and the lack of implementation of proven solutions to address these gaps creates inequity and social injustice within the region, making child injury a growing social justice issue. Addressing this issue will require direct investment in data infrastructure, research and evidence-based strategies. It will require an examination of the direct causes of injury: exposure to hazards; parents, carers and communities’ ability to protect children and children’s capacity to manage hazards. It will also require a mix of population-based approaches to reduce risks and increase protection for all children, as well as targeted approaches to address the higher risks some children face because of socio-demographic factors.

These actions will benefit from a multi-sectorial response across all levels of governance (European, national, regional and local) and a health in all policies approach; many sectors working together. It will also require that injury prevention stakeholders, government and civil society alike, work cooperatively and collaboratively with other areas of child health and wellbeing on broader solutions to poverty. This is because inequality is “not only one of the root causes of poverty, it is also one of the consequences.”

This report, developed as part of the Tools to Address Childhood Trauma, Injury and Children’s Safety (TACTICS) project, a large scale multi-year initiative that is working to provide better information, practical tools and resources to support the adoption and implementation of evidence-based good practices for the prevention of injury to children and youth in Europe, attempts to:

• set out what we know about the inequities that exist with respect to child injury,

• identify some of the important gaps in knowledge and action and

• make recommendations for actions to begin to address the inequities that exist.

Only through a strong commitment to strategic investment and action will we begin to realise the promise we make to our children... that they are the future.
Inequalities in injury rates between countries – what we do and do not know...

Burden of child injury

Children are more likely to die as a result of injury in some countries of the EU compared to others (Figure 1) and the differences are notable. Over four times higher risk for all injuries, over eight times higher risk for intentional injuries and five times higher risk for unintentional (accidental) injuries. It is also important to note that while there are some exceptions, rates are typically higher in males than females for many of these injuries and, depending on the type of injury, some age groups are at increased risk for certain types of injuries (e.g., available data indicate suicide is for the most part an issue for children 15-19 years, whereas unintentional choking/strangulation typically impact children under five years of age.

Figure 1. Child unintentional and intentional injury deaths
(European age standardised rate per 100,000 aged 0-19 years by sex for EU Member States plus Norway)

When age standardised national rates of child injury death are broken down by specific cause and gender the differences become even greater, ranging from greater than nine times higher risk between the countries with the highest and lowest rate for fall related deaths, to greater than 144 times higher for passenger/driver injuries in girls (Table 1). Charts illustrating specific cause of injury by country are available in the Child Safety Report Card 2012, Europe Summary for 31 countries and the report on National Action to Address Child Intentional Injury 2014.

Table 1. Inequalities in child injury mortality by specific cause of injury

<table>
<thead>
<tr>
<th>Specific cause of injury death</th>
<th>Range of death rates (per 100,000) between EU Member States</th>
<th>Difference in death rates between EU Member States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian injuries</td>
<td>0.10 – 1.26 (girls); 0.19 – 3.48 (boys)</td>
<td>&gt; 12 times for girls; &gt; 18 times for boys</td>
</tr>
<tr>
<td>Passenger/driver injuries</td>
<td>0.03 – 4.34 (girls); 0.14 – 8.05 (boys)</td>
<td>&gt; 144 times for girls; &gt; 57 times for boys</td>
</tr>
<tr>
<td>Motorised two-wheeler injuries</td>
<td>0.00 – 0.40 (girls); 0.11 – 2.15 (boys)</td>
<td>40 times for girls; &gt; 19 times for boys</td>
</tr>
<tr>
<td>Cycling</td>
<td>0.00 – 0.67 (girls); 0.06 – 0.88 (boys)</td>
<td>67 times for girls; &gt; 14 times for boys</td>
</tr>
<tr>
<td>Drowning</td>
<td>0.09 – 2.09 (girls); 0.48 – 7.53 (boys)</td>
<td>&gt; 23 times for girls; &gt; 15 times for boys</td>
</tr>
<tr>
<td>Falls</td>
<td>0.00 – 0.50 (girls); 0.00 – 1.18 (boys)</td>
<td>60 times for girls; &gt; 100 times for boys</td>
</tr>
<tr>
<td>Poisoning</td>
<td>0.10 – 1.26 (girls); 0.19 – 3.48 (boys)</td>
<td>&gt; 31 times for girls; &gt; 42 times for boys</td>
</tr>
<tr>
<td>Burns/scald</td>
<td>0.00 – 0.94 (girls); 0.07 – 1.12 (boys)</td>
<td>94 times for girls; &gt; 17 times for boys</td>
</tr>
<tr>
<td>Choking/strangulation</td>
<td>0.07 – 1.86 (girls); 0.14 – 2.93 (boys)</td>
<td>&gt; 26 times for girls; &gt; 21 times for boys</td>
</tr>
<tr>
<td>Suicide</td>
<td>0.11 – 2.09 (girls); 0.40 – 6.58 (boys)</td>
<td>&gt; 19 times for girls; &gt; 16 times for boys</td>
</tr>
<tr>
<td>Homicide (assault)</td>
<td>0.03 – 0.81 (girls); 0.11 – 1.50 (boys)</td>
<td>27 times for girls; 11 times for boys</td>
</tr>
</tbody>
</table>

Source: WHO European Detailed Mortality Database (EDMD) MT1: Three year averages for 2010-2012 or three most recent years of data available for intentional injury which includes child maltreatment/neglect/abuse, peer violence, suicide/self-directed violence, war and other intentional; Cyprus, Iceland, Luxembourg and Malta excluded due to small numbers.
“injury deaths are just the tip of the iceberg for child injury”

Data availability

Unfortunately, injury deaths are just the tip of the iceberg for child injury, with estimates suggesting that for every death, there are 129 hospitalisations, 1635 emergency department visits and an unquantified number of visits to general practitioners or paediatricians (Figure 2). Most countries in the EU currently do not have data that would allow an examination of morbidity related to non-fatal injuries, and certainly not at a population-based or detailed enough level to support effective targeting and prevention of child injury and the related inequalities.

Figure 2. The clinical pyramid for injuries in children

One exception is Wales, where the Welsh Government has invested substantially in health informatics, creating the Secure Anonymised Information Linkage (SAIL) system. SAIL pioneered the development of methodologies to anonymise and link data at both individual and household level and is regarded as a world leading development. This has produced a platform where data can be securely shared between organisations while protecting privacy. It creates the capability to evaluate strategies, ‘natural experiments’, and the impact of multi-sectoral interventions on a broad range of health and social outcomes. However, at this time Wales is amongst the few countries with strong injury data systems. As a result it is not possible to examine the differences in child injury morbidity across the EU. However data from studies examining injury morbidity across countries where data are available suggest that there are notable disparities.

So why do these inequities exist? They arise for different reasons, including differences in exposure to injury hazards, differences in exposure to child safety measures (e.g., availability and accessibility of safety equipment or educational programmes) and in injury outcomes. Illogically, the greatest gap in injury information is a lack of knowledge regarding children’s exposure to injury hazards and safety measures in place. So the data that would help us to begin to understand the differences found between and within countries is for the most part not being collected.
Exposure to hazards

Overall, very little is known about children’s levels of exposure to injury hazards and few attempts have been made to understand differences in exposure to hazards between Member States. The field of road safety has done the most to investigate this question. Yet most of information relates to drivers and data remains limited for pedestrians and cyclists. Where work has been undertaken to try and compare differences in exposures between countries, comparisons have been difficult or impossible because definitions and data collection methods used differ between countries.\(^{15}\) The recently developed School Travel and Child Safety Survey (STCSS), part of the European Project TACTICS (Tools to Address Childhood Trauma, Injury and Children’s Safety, was specifically initiated as a means of beginning to address the lack of standardised, cross national data on children’s safety behaviours and exposures to risk. The survey, designed for use in schools with children 8-13 years of age, collects data on key hazards in areas of child safety where effective prevention strategies already exist.\(^{17}\) Although further testing is needed, the survey provides a future opportunity to collect data and combine at the national level to increase knowledge of exposures, which may in turn assist in our understanding of inequities.

Implementation of child safety policies

While some work has been done to explore child safety policies at the national level through the Child Safety Report Cards and the report on National Action to Address Child Intentional Injury,\(^{15-17}\) this work focuses on national level policy action. They show that not all countries have adopted, implemented and enforced the recommended proven prevention strategies, leaving children in those countries at greater risk of injury and thus increasing inequity. Further, the assessments underlying the reports’ preparation expose a lack of monitoring and oversight undertaken to assess the impact of the national actions put in place. Thus while these reports highlight differences, they do not examine strategies at a level of detail that can help us shed light on injury related inequities. For example, they indicate which countries have building codes in place requiring smoke detectors in all private dwellings but do not provide details about the actual policy, how well it has been implemented or the impact it has had. Further, less is known about the impact of child safety action at the sub-national level where most of the implementation, enforcement and monitoring of child injury prevention strategies takes place, because less investment in policy monitoring and research has been made at this level.\(^{18}\)

Availability of data for cultural, ethnic and vulnerable groups

Finally, while national databases typically contain some information on age, gender and region, they rarely capture information on cultural and or ethnic groups or on vulnerable groups such as, children from single parent homes, homeless families or disabled children. Further, even where examination of exposures across countries is feasible, it is rarely possible to include socio-demographic measures.\(^{5,13,16}\) Even for straightforward issues like age, most current databases cannot make data available for the UN definition of the child. This is particularly problematic for examining injuries for children 15-17 years as most systems, even the WHO Health for All database only provides data for 15-19 years as a combined age group. The issues are further increased at the European level as submission of national data to European databases to allow comparative and trend analyses often lag behind what is reasonable (e.g., it can be 3-5 years behind) or is not available for the same years for all countries.

Thus, there are critical gaps in the available information to help us understand the differences in injury rates between Member States. Further research, strengthening of data systems and some level of standardisation of measurement is required if we want to begin to address the existing inequities. For example, strengthening of data on non-fatal injuries, standardisation of key measures related to inequity (e.g., measures of socio-economic status, children living in poverty, parental education levels, etc.), agreement on definitions and methods for collecting data related to injury hazards and more in-depth case studies to understand the impact and cost-effectiveness of existing policy measures where they do exist.

Inequalities in injury rates within countries – what we do and do not know

In addition to notable differences between countries, there is evidence of large inequities in child injury rates within countries. The number of countries within which specific studies have been undertaken is limited and further studies have most often targeted specific types of child injury (e.g., child pedestrian injuries), thus there are large knowledge gaps impacting on our ability to address inequities.

The results of the studies that have been conducted again suggest that inequities arise as a result of differences in exposure to injury hazards, exposure to child safety measures and in injury outcomes related to access to care and rehabilitative services.\(^{14}\) Differences in exposures relate both directly and indirectly to age, gender, socio-economic status, cultural and or ethnic group, where a child lives (e.g., housing and neighbourhood environments) and specific vulnerabilities, such as having a disability, living in an alternate care setting or having a parent with a substance abuse problem.\(^{6,8,10}\)

The countries in Europe with the most published studies on inequalities related to childhood injury are Sweden and the UK. Although the link between child injury and social, economic and geographic factors has been studied in a number of countries, these studies do not come up in literature reviews and are therefore likely unpublished research studies. As a result they are less available to support scientific inquiry at a European level.

Poverty indicators and child injury - National Institute for Health and Welfare, Finland

An analysis of data from the 1987 Finnish Birth Cohort – a study that is following all children born in 1987 as they get older to explore various health and well-being questions – conducted in 2014 provides a rare look at the impact of poverty indicators on child injury hospitalisations. The results, based on the experience of over 58,000 children, indicate that both lower levels of parental education and parental financial difficulties increased the risk of a child being hospitalised as a result of an injury before the age of 18 years by at least a third. Further, these same factors had an impact into young adulthood, with an even higher risk of being hospitalised as a result of an injury in early adulthood. The study also examined the number of children in the cohort that were placed in an alternate care setting – this is a specific subgroup of children whose parents often have severe financial difficulties amongst other problems. Children placed in an alternate care setting were at increased of being hospitalised: for unintentional injury the risk was over 1.5 times for boys and almost double for girls; for assault the risk was almost 5 times greater for boys and over 22 times greater for girls, and for self-harm the risk was 26 times greater for boys and over 10 times greater for girls. Thus evidence shows that a child’s safety can be greatly impacted by poverty.

Törnäkangas L, Reja Pammer R and Gissler M. 2014 - see Appendix 1 on page 36 for study details.
Factors associated with inequities in child injury

Research continues to identify the specific ways that certain factors increase both the risk of injury (hazards), the occurrence of injury and the risk of increasing inequity as a result of injury. Inequity as it relates to child injury is a very complex and multifaceted issue.\(^{11,19-22}\) Essentially the gradient between the ‘haves’ and the ‘have-nots’ is the main factor that needs altering to lessen the disparities in injury risk present in European society. Although there are strong arguments in favour of targeting the most deprived in our communities, evidence of significant reductions in injury as a result of these safety actions is somewhat limited – although evidence is restricted by a lack of data. As a result, the recommended approach to addressing inequities in child injury is a combination of population based and targeted strategies.

**Age** is a risk factor for child injury because it impacts children’s:
- physical development (e.g., the ratio of the size of their head to the rest of their body);
- their level of motor coordination;
- their level of sensory perception (e.g., ability to assess their distance from an oncoming car and the speed at which it is approaching);
- their cognitive/intellectual development (e.g., awareness and understanding of hazards);
- their attitudes and behaviour (e.g., risk taking in adolescents);
- the changing nature of play as they age and their increasing levels of independence as they mature, which in turn relates to levels of supervision and exposure to different environments inside and outside the home;
- changing exposure to health services from birth to adolescence.\(^{6,8}\)

**Gender** is a risk factor for child injury because between boys and girls there are differences in:
- the rate of physical development, motor coordination, spatial ability, cognition and intellectual development
- behaviour (e.g., risk taking, peer pressure)
- forms of play (e.g., boys are more likely to rough house than girls and may be more adventurous)
- levels of independence, freedom of activities and supervision and thus exposure to hazardous environments.\(^{6,8}\)

**Socio-economic status**, poverty and their markers (e.g., shorter parental education) are risk factors for child injury because they can:
- result in increased exposure to hazardous environments both inside and outside the home (homelessness, unsafe or cramped housing conditions, smoking parents, lack of areas for safe play)
- negatively impact parents and or caregivers’ ability to to supervise children (single-parent families, multi-child families, young parental age and lack of knowledge, increased rates of depression, family illness or substance abuse)
- result in a lack of resources (e.g., money to buy safety equipment, ability to access information and services); and children’s attitudes and behavior with respect to risk-taking.\(^{6,8}\)

In addition, poverty can be both a cause and a consequence of injury.\(^{1}\) This factor is of particular importance given that the “social class gradient in child injury is steeper than for any other cause of childhood death or long-term disability.”\(^{23}\)

**Culture and ethnicity** are risk factors for child injury because they can expose a child to:
- different hazards in the environment inside and outside the home (e.g., food preparation practices)
- language barriers as they relate to access to information and services; parenting attitudes and skills (e.g., attitudes to supervision or childcare)
- parental (in)experience or lack of knowledge related to risks and protective practices in the environment (e.g., immigrant families lack of knowledge regarding traffic conditions, safety devices or legislation).\(^{6,8}\)

**Place and location** are a risk factor for child injury as some locations have higher exposure to hazards in the physical environment (e.g., traffic density, housing density, availability of areas for recreation, water hazards, lighting of public areas) and lower levels of social cohesion (e.g., less sense of neighbourhood, increased gang activity).\(^{6,24-25}\)

Coming from a vulnerable group can also be a risk factor for child injury. For example, children with disabilities may be at increased risk because of their specific disability (e.g., hearing or visually disabled) or their disability can result in fewer resources for their families.\(^{6,8}\) Marginalised children, such as Roma children, are also at increased risk of poverty and social exclusion and as a result of injury.

In addition to factors addressed above that more directly impact children’s risk of injury and thus create inequalities, some children are also at increased risk because they are dependent on parents and care givers who are at increased risk for an injury themselves. The loss of a parent or a severe injury in a parent can start a family on a swift downward spiral that can result in poverty, homelessness and other risk factors.\(^{7}\)

As noted above the factors associated with child injury and inequities are multi-faceted and in many cases inter-related, however not enough is known about the relationships that link the factors to actual injury events. Therefore, further investment is needed to collect the necessary data to allow us to answer these questions.

The following section summarises evidence related to risks for specific child injury issues related to inequalities.
Unintentional injuries

Unintentional injuries – road traffic injuries, drowning, falls, burns, etc. – are one of the causes of mortality and morbidity with the steepest socioeconomic gradient in that they affect lower-income people and areas to a greater extent than those from higher socioeconomic groups.26

Road traffic injuries

There are multiple reasons why, on the whole, children in deprived areas are at a higher risk of road traffic injuries than children from wealthier families. Children in deprived areas are more likely play on the streets because there are no gardens or safe common spaces, there may be a lack of parental supervision because of a lack of childcare, stress on single parents and a variety of other reasons. In addition, they may have a longer walk to school or other community services such as shops and medical centres and roads may be less well-maintained and busier, the vehicles they ride in may be older and not as road worthy, safety equipment such as booster seats or cycle helmets may not be so commonly used because of issues related to knowledge and affordability. However the situation differs between countries, communities, type of injury and population type, and children from deprived areas are not always at highest risk. For example, moped and motorcycle injuries are more common among adolescents from more affluent areas, as they or their families can afford to buy mopeds or motorcycles.

Examples of inequity and child road traffic injuries include:

• A study in the United Kingdom which found that child pedestrians and cyclists who have unemployed parents have an injury mortality rate 20 times higher than children whose parents are the highest paid.27

• In England, children living in the 10% most deprived areas are four times more likely to be hit by a car than children living in the 10% most affluent areas. 28

• In the Rhône area of France, a study found the greatest disparity in injury rates between rich and poor amongst pedestrians where the incidence of casualties was almost twice as high in poor areas than in wealthy areas.29

• A Greek study that found that less wealthy towns had a two-fold excess of pedestrian injuries compared to wealthier ones.29

Drowning/water safety

Less research has been undertaken in the area of drowning/water safety, although anecdotal data suggest that, in addition to the issue of exposure to water, poorer children (possibly related to issues around supervision) and children from minority ethic groups (may be at increased risk, and swimming skills have been found to be lower in these groups).30 Differences are perceived to at least partly be attributable to lower access to swimming lessons and cultural differences in risk perception and usefulness of swimming.6

Examples of inequity and child road traffic injuries include:

• A study carried out in England in 2001-2003 found that the overall drowning mortality rate for children with parents in ‘routine’ jobs compared to children with parents in higher managerial jobs was 4.5 times higher. These results were not interpreted on a local scale, so many of the specific mechanisms of inequality cannot be identified.31

• Studies from the UK show that the lowest social classes may be at five times the risk of higher social classes and that children of unemployed parents may be at 11 times the risk compared to children whose parents have the highest level jobs.23,32

• Children from minority ethnic groups were found to have almost three times the risk in the Netherlands.33
Falls

The relationship between the incidence of falls and socio-economic status is less clear.

- A study from the UK suggests that children from the most deprived backgrounds are six times more likely to die from a fall than well off children.  

- Poorer children are more likely to be exposed to hazards (e.g., unsafe housing) and their parents are more likely to lack knowledge and access to, or to be able to afford protective equipment such as stair gates.  

- A UK study found that there were higher rates of childhood falls in London than in outlying village, and there were steeper socio-economic gradients for children experiencing fall injuries in rural areas as compared to urban areas.  

Burns

Both fatal and non-fatal burns are strongly associated with poverty. Young children (aged under five years in particular) and those in areas of low socio-economic status or in a minority ethnic group are at increased risk of burns and scalds.

- A study in the UK found that mortality rates from house fires (smoke, fire and flames) was up to 38 times higher for children whose parents are unemployed compared to the highest occupational category.  

- Another study in the UK found that children aged six and over who had suffered burn injuries at a young age were significantly more likely to be admitted to hospital for a further injury of a different type as they got older. The authors concluded that not only are burn injuries apparently related to socio-economic inequalities in health, but they could be a marker for further ill-health and child safety concerns.  

- A study from Sweden found that the risk of being hospitalised for a burn was over two times higher for children in the lowest socioeconomic group compared to those in the highest.  

Poisoning

Low socio-economic status is particularly relevant to environmental poisoning such as levels of lead in children’s blood, traffic pollution and to issues such as alcohol poisoning among adolescents. It affects exposure and is also a factor in injury outcome. Interestingly differences in injury mortality rates within countries appear to be smaller than differences between countries.  

- A study in the Netherlands found that the risk of injury from poisoning can be particularly high in migrant populations, who may be more likely to store medications and cleaning products unsafely or in unmarked or unsafe containers.  

- Unpublished data from Germany indicates that infants from immigrant families have higher injury related mortality rates than infants from (native) German families and that immigrant children up to the age of 5, especially boys with Turkish roots, are more often injured in Germany than children from (native) German families.  

- A study from the UK found that children from the most deprived groups were at three times the risk of dying from poisoning compared to those from more well off areas.  

- Another study from the UK found differences in hospital admission rate by social class for both medicinal and non-medicinal poisonings. Children in the most deprived groups were at 2.5 times the risk of a medicinal poisoning and 2 times the risk of a non-medicinal poisoning when compared to children from the least deprived groups, with even higher differences found for specific poisons.  

- A study from Sweden also found differences by social class, with poisonings in children under age 15 clustering in poorer communities compared to communities of higher socioeconomic status.  

“Injury prevention strategies can be broad population based approaches or can specifically target a vulnerable group – both approaches are needed.”
Intentional injuries

While widespread in all parts of society, child intentional injury has a steep social class gradient.

- Studies on violence against children focus mainly on the home environment and identify that there are correlations between child abuse and parental educational level, low income, family structure (such as a single parent family, or a large family size), deprived areas, high urbanisation, alcohol use and anti-social behaviour.41-42

Studies examining self-directed violence indicate that males and younger age groups tend to be more negatively affected by socioeconomic disadvantage, than older age groups.49

- A study from Denmark found that adolescents who had not graduated from high school or had no vocational training were at 1.8 and 1.5 times the risk of suicide attempts, respectfully, compared to those with such education.43

- A study from Norway found that youth whose parents were in a low social class had 2.4 times the risk of being hospitalised for a suicide attempt compared to those whose parents were in higher social classes.44

- A series of studies from Sweden examining 10-19 year olds found evidence of increased risk for self-inflicted injuries with lower parental socioeconomic status, but this was not consistent across all levels of social class and was more evident among girls than boys.45-46

- A study from Sweden examining trends in the relationship between child injury and socioeconomic factors found that not only were intentional injuries more frequent during the second time period examined, but they were particularly frequent among girls aged 15–19 from more economically deprived areas.47

There are also clear links between peer violence and deprivation, for example in England assault related emergency department visits are 4 times higher for 10-29 year olds that live in the most deprived areas compared to those that live in the least deprived areas.48 Similar trends in England were also found for 0-14 year olds.49

Children injured through maltreatment, peer violence and self-directed violence are not only at increased risk of later violence and self-harm, but the consequences for these children also include lower educational attainment, poverty, mental illness and substance abuse and this in turn can lead to violence and deprivation in future generations.45-50

What we know about reducing inequities in child injury

Injury prevention strategies can be broad population based approaches (e.g., target all new mothers) or can specifically target a vulnerable group (e.g., target new mothers from deprived neighbourhoods). Expert opinion, and research conducted to date suggest that there is a need for both approaches to be used in concert if inequities are to be addressed.51-52

Each cause of child injury can be addressed through proven prevention strategies that include:

- environmental modifications (e.g., safe pedestrian crossings, barriers around water),
- legislation (e.g., speed limits),
- correct use of prevention products (e.g., child restraint systems, window guards, smoke detectors) and
- increasing awareness, knowledge and skills (e.g., home visitation programmes to increase caregiver knowledge, positive parenting programmes to modify family environments that reinforce problem behaviours in children).51-53

Increasing the uptake of such strategies is a critical part of reducing inequities in child injury, as well as reducing the economic burden that injuries and the resulting disabilities can have on families, communities and society as a whole.54-55

Broad population based approaches

There are a number of examples of broad population based approaches reducing the risk of injury for all – including those at increased risk. Typically prevention strategies that are most effective are passive strategies that provide ‘automatic’ protection in that they do not require anything of the child or caregiver – e.g., speed limit legislation, product safety regulations). They help address inequities by applying a legal requirement across the population. For example a review of inequities in the UK found that lowering the speed limit for traffic in London to 20 miles (32km) per hour reduced road casualties for all ages by 40%; cycling casualties by 17% and pedestrian injuries by 33%.56 However in situations where laws and regulations do not apply retroactively, this can lead to a widening of inequities. For example, building standards requiring smoke detectors in new and refurbished buildings may increase inequities in that it does not affect older buildings where the most vulnerable families are most likely to live. Unfortunately few policies are actively monitored to assess their impact on actual injury rates or other measures of inequality, often because the data necessary to allow such monitoring are not collected.57

There are examples where broad population based approaches have proven to be less effective in deprived areas/ populations. For example, a study in New Zealand found that the uptake of a ‘walking school bus’ intervention, designed to improve child pedestrian safety and increase physical activity, was more commonly adopted in affluent areas than in deprived areas.58 In addition, a number of studies have found that general non-targeted home injury prevention interventions that include distribution of equipment aimed at decreasing fall risks are less successful in homes in deprived areas.59 Another interesting example comes from the UK where a study found that while lowering domestic hot water temperatures to less than 50°C was effective in reducing scald risk, the energy costs in those homes also increased. This finding is of direct significance for low-income households and if not addressed, could prevent such a safety action being widely adopted.60
**Targeted strategies**

The fact that broad population based approaches are not always effective in addressing inequities, and can in some cases even increase them, suggests the need for specifically targeted strategies. These are often more active strategies that involve on-going promotion of safe behaviours and the specific targeting of more vulnerable audiences (e.g., low income families). This is sometimes done due to limited resources and a need to prioritise, and sometimes the result of recognition that a ‘one size fits all’ approach to education is likely to be less than one which acknowledges and addresses the specific needs of different sub-groups within the target population. There are a number of examples from the literature that suggest that specific targeting can be effective.

- A UK study found that more mothers and children walked and cycled to school in poorer neighbourhoods where the environment was made safer (or was perceived as safer by the local population) by installing and or maintaining sidewalks, installing bicycle lanes, ensuring good lighting and introducing speed limits for cars. Further there were fewer cycling injuries, likely at least in part, because of a reduction in car use. 23

- When local play equipment in poorer neighbourhoods was upgraded to meet national standards of safety in Toronto, Canada, the influence of socio-economic status of the area was no longer a significant factor in explaining injury rates. 57

- Providing enhanced information about scalds and burns to mothers of low education, living in poor urban areas in Scandinavia had a significant impact in reducing injury in the home and neighbourhood compared to mothers who did not receive the additional information. 58

**Strategies addressing child poverty**

In addition to injury specific strategies to reduce injury related inequity, there are a number of strategies aimed at addressing child poverty, which because of the link between deprivation and child injury should reduce injury risk. These strategies include ensuring access to affordable and inclusive early child development programmes, childcare and free, high quality education enabling parents to participate in the labour market. 59 These good practices can be effective in breaking the continuing cycle of poverty for generations of families being born and raised in unsafe and unhealthy housing conditions, receiving little education, attaining no self-supporting employment for themselves later in life and falling into dependency on alcohol and drugs. Further these broader strategies may be most appropriate for addressing intentional injury prevention, where there are fewer evidence-based specific strategies and policies.
**Investment in reducing child injury inequities pays off early in Wales**

Action to reduce health inequalities has been a hallmark of Welsh Government policy for many years, most recently emphasised in *Fairer Health Outcomes for All*, issued in 2011.

In 2002, Wales adopted a number of targets for the reduction of inequalities in health, including a commitment to substantially reduce absolute and relative inequities in child pedestrian injuries by 2012. The Chief Medical Officer for Wales was able to report the achievement of this target in 2010.

A number of different activities were undertaken to accomplish this. An analysis of the engineering strategies put in place in Wales' two largest cities shows that activities varied based on socioeconomic status, with much greater levels of safety investment made in the most deprived communities with the highest child pedestrian rates. Attempts were also made to engage local politicians in increasing support for pedestrian safety measures in deprived communities. Although the latter activity met with mixed success, some impact was seen and it also demonstrated the widespread enthusiasm of local politicians to be involved in such activities and their desire to be provided with the local data they feel are necessary for them to become effective advocates.

![Figure 1: Rate of child pedestrian injuries per 100,000 by level of deprivation*, Wales 2000-2012](image)

* Level of deprivation measured by dividing deprivation index into fifths.

Wales provides a model of what it is possible to achieve in a small country. Leadership, unwavering commitment, inter-sectorial working that utilises well-established professional networks, and support for data collection are the key components of success to date. Going forward, these characteristics, supported by multi-sectorial data linkage capabilities, provide a powerful platform for the development, testing and implementation of evidence based approaches to tackling residual inequalities in childhood injuries.

Lyons R. 2014 - see Appendix 1 on page 41 for study details.

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**What we learned through the national case study reviews**

As part of the TACTICS project (*Tools to address Childhood Trauma, Injury and Children's Safety*), we intentionally and systematically identified a broad range of case examples of evidence-based child injury prevention strategies underway in European countries. The case examples covered: four domains (road safety, water safety, home safety and intentional injury prevention), three different age groupings (pre-school, primary school and secondary school age children) and three different levels of implementation (national, regional and local). While the main intent of this exercise was to explore facilitators and barriers to successful adoption, implementation and monitoring in each of the case examples, we were also interested in exploring how many of the injury prevention strategies addressed the issue of inequity or vulnerable groups. The resulting 26 case study analysis provides a reasonable and representative sampling of the types of child injury prevention actions underway, although it is by no means exhaustive. For the most part, it appears that most strategies being implemented are still broadly population based, with no specific targeting of vulnerable groups. However, a number of the cases indicated that more effort is being made to make educational materials available in other relevant languages and or through the use of pictographs, in order to address the issue of child injuries in new immigrant and lower literacy populations. 60

Only four of the 26 case studies specifically addressed issues related to inequalities. One was a home safety equipment scheme targeting poor families, two were educational programmes specifically targeting new immigrants (a poisoning prevention campaign in Germany and a targeted swimming lesson programme for migrants in Sweden) and the last, reducing the VAT on child passenger restraints in Portugal, though beneficial for poorer families, resulted in lower cost child passenger restraints for all families. 38, 60

Overall these results suggest that more can be done as programmes are conceived and developed to ensure that the specific needs of vulnerable populations are considered and addressed as part of strategy development and implementation.

“Injuries are a leading cause of death, disability and burden, and the leading cause of inequalities for children in the EU. More can be done to make our children safe.”
What we learned through good practice policy reviews to benchmark country progress

Large differences exist between countries in policy action at the national level for both unintentional and intentional injury.14

Unintentional injury

- The performance scores measuring uptake and implementation of evidence-based national level policies aimed at reducing unintentional child injury in the 2012 Child Safety Report Cards ranged from 23 to 45 out of a possible 60 points across the 31 participating countries.4 In both the unintentional and intentional national policy assessments, results clearly illustrate differences in the uptake, implementation and monitoring of evidence-based strategies between Member States. However, the lack of a clear association between injury rates and the number of policies in place suggests that this is too simple a model. Other issues such as level of exposure to hazards and child safety strategies and socioeconomic measures need to be included.

- A number of specific child safety policies designed to help address inequalities were included in the 2012 Child Safety Report Cards, and again a number of differences were found across the 31 countries that participated:
  - 19 countries (61%) reported that studies have been conducted to explore links between the risk of child injury and the social and economic circumstances of the family, rural/urban residence or any other factors (e.g., teenage parenthood or drug and alcohol use)
  - 12 countries (39%) indicated that there is a national policy that would increase access to child passenger restraint systems (CPRS) by disadvantaged families (e.g., CPRS included as essential childcare articles and taxed at lower rate, subsidies offered through programmes targeting disadvantaged families). However several noted that the policy was a more general measure that would apply across the population rather than specific targeting.
  - Six countries (19%) indicated there was a national policy aimed at increasing access to childcare equipment (e.g., stair gates) for disadvantaged families such as a national equipment give-away programme or loaner schemes or a policy change to make childcare equipment such as stair gates essential childcare articles so they are taxed at a lower rate. However several indicated that the application process for the former is often so complex that it discourages applications and again the latter is a more general than targeted measure.
  - 18 countries (58%) reported they had a nationally coordinated early childhood development programme. Given the strong link between level of physical and mental development and injury, interventions that facilitate achievement of young children’s developmental skills and milestones may reduce the risk of injury. As these programmes are often targeted at lower socioeconomic groups or vulnerable populations they may also address inequalities.
  - 25 countries (81%) reported a network/structure or healthcare system that is being used to facilitate unintentional injury prevention education for expectant parents and or parents of children 0-4 years old. Several also indicated the programme is more intensive for vulnerable populations.

- 20 countries (65%) have a national policy that makes water safety education, including swimming lessons, a compulsory part of the school curriculum, thereby theoretically increasing the likelihood of equal access to swimming lessons. However, only 13 (42%) reported it is well implemented and few programmes have been evaluated as to their coverage. Further 10 countries (32%) also reported either a national or regional investment programme to renew infrastructure to increase the number of pools thereby providing more equitable access to public swimming pools for swimming lessons amongst school age children.

- 19 countries (61%) report a national policy making injury prevention education, a mandatory part of elementary or school education curricula with a standardised injury prevention education curriculum. This is a means of ensuring that all children have equal access to knowledge that will either help them avoid or prevent an injury or know what to do in the event an injury incident occurs, yet there is often little or no monitoring of these policies and curricula are often limited to road traffic safety. 11 countries (35%) reported that first aid education using standardised curricula is a mandatory part of elementary or secondary school education.

- 15 countries (48%) reported they have a national policy making life skills education using standardised curricula that is a mandatory part of elementary or secondary school education curricula. Life skills education is one tool that can help young people begin to understand risk and to make informed decisions.

- 18 countries (58%) reported a national alcohol policy that specifically addresses injury to children as a specific issue related to alcohol, although a number of those only refer to drinking and driving amongst young drivers.

- The assessments for the 2012 Child Safety Report Cards also demonstrated large differences in the availability and affordability of recommended child safety devices between participating countries.61 While these are not individual level exposure measures, they suggest differences that could help explain inequalities.

- For example, when the availability of child passenger restraints (CPRs) was estimated by examining proportion of stores with various models, availability across the 31 participating countries ranged from 21-100% for rear facing CPRs, 42-100% for forward facing CPRs and 21-100% for booster seats. Availability for other safety devices also showed large ranges: bicycle helmets ranged from 0-100%, child sized personal floatation devices from 0-100% and stair gates from 20-100%.

- Similarly, affordability as measured by hours of work at minimum wage needed to pay for a safety device at average cost also ranged widely. For child passenger restraints the range was 12-214 hours for rear facing CPRs, 13-130 hours for forward facing CPRs and 4-96 hours for booster seats. Bicycle helmets ranged from 2-50 hours, personal floatation devices from 2-49 hours and stair gates from 4-99 hours.
Intentional injury

- A number of specific child intentional injury preventing policies addressing issues related to inequalities were included in the 2014 report on National Actions to Address Child Intentional Injury Prevention\(^5\), and again a number of differences were found across the 30 countries that participated:
  - 28 countries (93%) indicated that specific action has been taken to ensure the national child protection system includes policies to address high-risk populations (e.g., children with disabilities, Roma, immigrant children, etc.), although four of those indicate the policy is only partially implemented.
  - 25 countries (84%) of participating countries have a national policy to inform and educate children of their specific rights, however about a third of those indicated that the policy was only partially implemented.
  - 29 countries (97%) have a national law regulating protection of children living in care, although five indicated the law was only partially implemented and/or enforced.
  - 21 countries (70%) have a home visitation programme focussing on families identified as at risk of violent behaviour in the home, with about two-thirds indicating the programme was fully implemented.
  - 24 countries (80%) have a national standardised curriculum for reproductive and sexual health that includes prevention of sexual abuse and intimate partner abuse, although again this was not fully implemented in all countries.

Evidence based good practices exist, and while most are still broad population based approaches, there is an opportunity to increase their effectiveness by considering scale and intensity of implementation proportionate to level of disadvantage – what Sir Michael Marmot calls “proportionate universalism” and as appropriate, targeting specific groups at increased risk.\(^23\)

While it is not possible to quantify what the effect would be if all countries appropriately adopted, implemented and enforced what is known to work to reduce childhood injury, evidence from better performing countries suggests that reductions would be significant and would go quite a ways to reducing at least the inequity between countries.\(^4\)
“...targeted investment is needed to ensure committed leadership, strengthen data systems and build needed capacity.”

Recommendations moving forward

In summary, child injuries are both an important public health and social justice issue. Despite reductions over the last 30 years, they remain a leading cause of death, disability, and burden, and the leading cause of inequalities for children in the EU. Large inequalities exist between and within EU Member States with respect to child injury deaths and the data to make similar comparisons for non-fatal child injuries and to fully understand why these differences exist are lacking. Despite this, there is a growing body of knowledge suggesting that the resulting inequities can be prevented and reversed. However, there needs to be a thoughtful balance between population-based and targeted prevention approaches that specifically address inequities or the needs of vulnerable populations, and there is certainly the need for careful monitoring and evaluation of strategies to ensure that the impact of the various approaches is studied, including the unintended negative outcomes that may result if inequities and the needs of vulnerable populations are not considered. In addition, as child injury prevention should benefit from reductions in child poverty, the injury prevention field should also support efforts to ensure broader strategies aimed at reducing poverty and social exclusion are implemented.

Further, to support efforts to prevent inequities or at least narrow the existing gaps, targeted investment is needed to ensure committed leadership, strengthen data systems and build needed capacity. Some of the investment will need to be broader than child injury, addressing child poverty and social exclusion, but this will only be a win-win for a number of child well-being issues related to poverty.

1. Monitoring inequalities

Monitoring of inequalities is essential to have an understanding of the current state of affairs, determining trends, setting targets and benchmarking improvements. To conduct effective monitoring a number of improvements in data systems and monitoring processes are needed including:

- An agreed upon minimum set of broad-based indicators with standard definitions to enable comprehensive measurement of the multi-dimensions of child poverty and inequality, including for vulnerable and marginalised children, with commitment that they be used consistently by Member States throughout Europe (e.g., measures of socio economic status, children living in poverty, parental education levels, etc.)

- Increased availability of data for children in age categories reflecting the UN definition of children 0 to 17 years of age (including age groups for <1, 1 – 4, 5 – 9, 10 – 14, 15 – 17).

- Timely and accurate submission of national country data to European databases so comparative and trend analyses can be undertaken at a European level.

- Strengthening of national data on non-fatal child injuries by improving coding of hospitalisation data and investing in emergency department surveillance systems that allow population-based estimates of child injuries treated in urgent care settings.

- An agreed upon minimum set of indicators for measuring exposures to common child injury risk and protective factors with commitment that they be used consistently by Member States throughout Europe to allow more accurate assessments of risk and effective targeting of high risk groups.

- On-going benchmarking of Member States’ progress in adopting, implementing and monitoring evidence based child safety policies at the national level.
2. Research

Greater knowledge about disparities between groups and factors leading to increased risk is important in designing child injury prevention strategies. Further research is required including:

- Studies investigating the impact of culture, ethnicity, locality (place, location) and specific vulnerabilities as risk factors for inequities in child injury, factors which to date have received less study.

- Studies on social and environmental influences on inequities in child injury to supplement what we already know about the individual characteristics of children and their parents.

- A review of evidence-based good practice strategies, including policy, education, engineering and economic approaches, that have been shown to have a positive impact on reducing inequities between and within Member States. This should include both injury specific approaches, but also successful strategies from other areas.

- Evaluation studies building on our knowledge of inequities and identifying cost-effective ways to reduce them.

- Instigation, documentation and dissemination of case examples of effective means of transferring and implementing evidence-based good practices to address inequalities in various settings.

3. Multi-sectoral health in all policies approach

The solutions to inequities in child injury lie with many sectors beyond health including education, transport, justice, social welfare, employment, etc. This requires a broad-based yet coordinated approach including:

- Undertaking policy action in a coordinated way with the firm involvement of relevant multi-sectoral partners and clear and agreed upon roles for each sector to ensure all actions contribute positively to the desired outcome.

- Investigating models to ensure multi-sectoral coordination at the EU and national levels to gain the fullest understanding and implications of how policy actions can be the most effective.

- Investing in structural funds to improve environmental factors related to inequities and ensure healthy community design. Making children's environments inherently safer by using passive safety countermeasures can reverse injury inequity (e.g., providing safe housing, modifying community design in deprived neighbourhoods to reduce traffic volume and speeds and ensure safe sidewalks, bike paths and recreational areas).

4. Evidence-based good practice

Part of the inequity solution lies in investing in what we know works to reduce injuries. This will require action at numerous levels including:

- Investing in the necessary capacity and resources at the national and sub-national levels to ensure adoption, implementation and monitoring of proven good practices for the prevention of both intentional and unintentional injury (engineering, enforcement, educational and economic solutions).

- Developing EU level policy where European level action will reduce the risk of injury and provide equitable protection to children across the EU.

- Using EU policy to encourage adoption, implementation and monitoring of proven good practices at the national and sub-national level. This approach can be particularly effective when policy set at the EU level must be transposed to national law.

5. Children's rights approach

Failure to address the inequities in child injury means failure to live up to the commitment made to children under the United Nations Convention on the Rights of the Child.

- All action to address inequities should take a children’s rights approach, putting in place evidence-based interventions to protect their safety and ensuring children are safe regardless of where they are living.

- Actions should also actively engage children and involve them in policy decisions that affect them.

- Broader social investments should also not be forgotten. The European Commission's 2013 Recommendation on child poverty and wellbeing, Investing in Children: breaking the cycle of disadvantage is an important tool against which progress in all Member States should be benchmarked.59

In closing, health inequalities are currently being recognised and taken into account in the decision making process particularly with respect to Health 2020 commitments in the EU. The injury prevention community and decision makers in government need to work together to take action. Tackling inequalities is a stated priority in the EU Health Programme, so now is the time to seize this opportunity to show the impact that child injury prevention can have on reducing health inequalities as part of the policy decision-making processes in Member States. Joint action to tackle inequalities through child injury prevention will create a win not only for child safety, but also reduce inequity for children, families, communities and Europe as a whole.


Appendix 1 - Case Studies

Risk factors for child injuries and poverty


This paper focuses on children’s and adolescent’s injuries and the inequities induced by economic and socio-demographic factors. The results are based on the 1987 Finnish Birth Cohort study consisting of all children born in Finland in the year 1987. Those children surviving the perinatal period were included in the follow-up (n = 59,476) and by the end of year 2008, 58,320 cohort members (98.1%) were alive and living in Finland. The 1987 cohort data have been complemented with several official registers collected by Finnish Authorities (1). The present study, conducted in 2014, includes data from Finnish Hospital Discharge Register from 1987 to 1994 and patients discharged from inpatient care according to the Care Register for Health Care from 1995 to the end of 2008. Information on the applications for general upper secondary schools or for vocational education after compulsory basic education was obtained from the Finnish National Board of Education. Social assistance data for cohort members (2002-2008) and their parents (1987-2008) is taken from the Register on Social Assistance and information on children placed in out-of-home care (1987-2008) from the Register on Child Welfare. All of these registers are collected by the National Institute for Health and Welfare (THL). Education levels of the cohort members at the end of year 2012 and of their parents at June 2009 are from the Register of Educational Achievements collected by Statistics Finland.

Before the age of 18, altogether 5875 cohort members (9.9% of all cohort members) had inpatient hospital visits for other than medical reasons, that is, due to external causes. When divided in subgroups within external causes, 5,397 (9.1%) persons were hospitalized because of accidents, 138 (0.2%) due to intentional self-harming, 118 (0.2%) were assaults and 209 cases (0.4%) were registered as events of undetermined intent. Sex differences are clear: boys had more hospitalizations in every group except in the intentional self-harming (Table). Sex differences at the age groups of 5-19 years of age were also evident among the deaths of external causes of Finnish boys and girls as reported earlier (2).

Parental short education, which means nine years of basic education (comprehensive school) increased the percentages. If both of the parents had just basic education, the hospitalizations due to external causes were registered in 13.4% of the boys and in 9.0% of the girls. Previously, Remes et al. reported that low parental education is associated with higher risk for mortality, and especially this was seen in the accidents and violent causes of death (3). Likewise, Gissler and co-workers have shown that the 1-19-year-old children’s risk for death from external causes in Finland decreased by the length of parental education (4). These results are in accordance with the present findings of low parental education level increasing children’s inpatient hospital visits due to external reasons.

As with the education, the parents’ economic hardships affected their children’s hospitalizations. If either parent had received social assistance at least once at some point during 1987-2008, the percentage of these cohort members hospitalized for external reasons was equal to parents having no secondary education (Table 1). However, these percentages clearly increased if a parent had received social assistance for more than 96 months: 15.6% of the boys and 11.5% of the girls were hospitalized due to external causes. If a parent had received social assistance and parents had no secondary level education, the corresponding percentages for external causes were 19.9% (RR 1.30, 95% CI 1.13-1.50) for the boys and 15.3% (RR 1.30, 95% CI 1.09-1.55) for the girls.

The influence of parental education and received social assistance for the cohort members’ injuries were also analysed in early adulthood, from the age of 18 to 21. It appears that the risk ratios are higher at these age groups. If parents had short education, risk ratios for hospitalizations due to external causes for these adolescents boys and girls were 1.35 (95% CI 1.14-1.60) and 1.58 (1.27-1.97), respectively. If either parent had received social assistance for more than 96 months, the corresponding risk ratios were 1.8 (95% CI 1.53-2.11) for the boys and 2.23 (95% CI 1.82-2.74) for the girls.

Between 1987 and 2008 the number of cohort members placed outside the home was 1900 (3.2%) of which 937 were boys and 963 were girls. These children are a specific group with parents often having severe financial difficulties, among other problems. 20.9% of the boys and 16.6% of the girls being placed had been hospitalized due to external causes before the age of 18. Accidents were registered in 17.4% (RR 1.63, 95% CI 1.38-1.92) of these boys and in 12.5% (1.92, 95% CI 1.59-2.31) of the girls, intentional self-harming in 2.0% (RR 26.08, 95% CI 18.45-36.87) of the boys and in 2.4% (RR 10.23, 95% CI 7.12-14.68) of the girls and assaults in 1.3% (RR 4.68, 95% CI 2.74-8.00) of the boys and in 0.7% (RR 22.48, 95% CI 12.68-39.84) of the girls.

The cohort members applying for secondary level education after comprehensive school at the age of 16 was used to evaluate their own educational goals. We therefore analyzed their applying for general or vocational upper secondary education. Among the boys applying for upper secondary schools, a prerequisite for higher education, 10.5% were hospitalized for external causes, whereas the corresponding percentage for the boys seeking for vocational education was 13.3% (RR 1.27, 95% CI 1.23-1.38, when compared to those applied for upper secondary school). The percentages for the girls were 6.9% and 9% (RR 1.30, 95% CI 1.23-1.38, respectively. Similar trend can be seen when they are followed up in the adulthood. The highest education level of a cohort member in 2012 clearly predicted the hospitalization numbers: 21.4% of the boys with no secondary level education were hospitalized due to external causes, when the percentage of the boys with secondary education was 16.5% (RR 0.77, 95% CI 0.75-0.79), compared to those with no secondary education and similarly only 8.7% (RR 0.41, 95% CI 0.31-0.54) for those with master’s degree or higher. The corresponding numbers for the girls were 15.1%, 9.9% (RR 0.65, 95% CI 0.63-0.68) and 7% (RR 0.47, 95% CI 0.39-0.55). Longer education thus appeared to be a protective factor.

The 1987 Finnish Birth Cohort study shows that both short education of the parents and their financial difficulties increased injuries of the children and adolescents before the age of 18. Further, childhood conditions also induced higher risks for injuries in the early adulthood. Our previous studies from the 1987 Birth Cohort have shown that parent’s low education and financial problems tend to transfer through generations and are risk factors for several of their children’s well-being problems (5) and apparently this holds good for injuries as well. The cohort members’ own education level thus induced similar and even higher risks as was seen in the case of the parents’ education.
Table 1. Percentages of hospitalizations due to external causes before the age of 18 in the 1987 Finnish Birth Cohort

<table>
<thead>
<tr>
<th>Boys Risk ratio (95% CI)</th>
<th>Girls Risk ratio (95% CI)</th>
<th>Total Risk ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>All hospitalizations due to external causes</td>
<td>12.0</td>
<td>7.7</td>
</tr>
<tr>
<td>neither parent having secondary education</td>
<td>13.4</td>
<td>1.13 (1.00-1.28)</td>
</tr>
<tr>
<td>parent receiving social assistance</td>
<td>13.5</td>
<td>1.22 (1.17-1.27)</td>
</tr>
<tr>
<td>parent receiving social assistance for more than 96 months</td>
<td>15.6</td>
<td>1.41 (1.26-1.59)</td>
</tr>
<tr>
<td>cohort member applying for vocational education vs. upper secondary education</td>
<td>13.3</td>
<td>1.27 (1.23-1.31)</td>
</tr>
<tr>
<td>cohort member placed outside the home</td>
<td>20.9</td>
<td>1.79 (1.54-2.09)</td>
</tr>
<tr>
<td>Accidents; all cohort members</td>
<td>11.1</td>
<td>6.9</td>
</tr>
<tr>
<td>Intentional self-harm; all cohort members</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Assault; all cohort members</td>
<td>0.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Prevention case study

Reducing inequalities in childhood injury in Wales

Lyons R. Collaboration for Accident Prevention and Injury Control (CAPIC), Swansea 2014

Action to reduce health inequalities has been a hallmark of Welsh Government policy for many years, most recently emphasised in Fairer Health Outcomes for All, issued in 2011.1

Support from Welsh Government and Public Health Wales NHS Trust for the Collaboration for Accident Prevention and Injury Control (CAPIC), the All Wales Injury Surveillance System (AWISS), and the Child Accident Prevention Practice and Information Exchange (CHAPPIE) network led by Children in Wales provides an infrastructure that effectively brings together the child injury prevention policy, practitioner and academic communities in a small country.2

In 2002, Wales adopted a number of targets for the reduction of inequalities in health, including a commitment to substantially reduce absolute and relative inequities in child pedestrian injuries by 2012. The Chief Medical Officer for Wales reported the achievement of this target in 2010.3

Figure 1 shows the trends in childhood pedestrian injury rates in Wales derived from the STATS19 database collected by the police for all road transport collisions in which at least one person is injured.

Figure 1. Rate of child pedestrian injuries per 100,000, by deprivation fifth, Wales 2000-2012*

References


* During the period the age categories used in official statistics changed somewhat so the analyses are based on 5-14 year olds from 2000-2005 and from 6-15 since 2006.
Attributing cause and success to policy-led interventions is challenging. Some of the reduction in pedestrian injuries could be due to changes in walking exposure. However, analysis of sequential ‘travel to school’ surveys for all primary schools in one south Wales municipality (Neath Port Talbot County Borough Council, population 140,000) reveals only a modest reduction in walking from 46% in 2003 to 41% in 2012, suggesting that changing exposure was not the principal reason for the 40% reduction in injuries observed. Analysis of the pattern of engineering interventions (e.g., traffic calming measures) in Wales’ two largest cities shows substantial social patterning of interventions, with much greater levels of safety investment in the most deprived communities with the highest child pedestrian rates.4,5

Further, attempts to engage local politicians in increasing support for pedestrian safety measures in deprived communities have met with mixed success, as illustrated by the iconic Advocacy for Pedestrian Safety (APS) Study.6 The APS Study was the first study in the world to include politicians as participants in a randomised control trial to test the efficacy of politically-driven advocacy in reducing inequalities in health. It also demonstrated the widespread enthusiasm of local politicians to be involved in such activities and their desire to be provided with the local data they feel are necessary for them to become effective advocates.

As a comparison, progress in reducing inequalities has not been as good in the case of child burn injuries. Table 1 shows trends in the number of children treated for burns and the rate ratio comparing the most deprived with the least deprived fifths of the population.

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
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<td>Number</td>
<td>250</td>
<td>261</td>
<td>285</td>
<td>288</td>
<td>342</td>
<td>333</td>
<td>298</td>
<td>272</td>
<td>331</td>
<td>325</td>
</tr>
<tr>
<td>Rate Ratio*</td>
<td>2.6</td>
<td>2.7</td>
<td>1.9</td>
<td>2.6</td>
<td>3.2</td>
<td>1.4</td>
<td>2.1</td>
<td>2.0</td>
<td>1.6</td>
<td>2.0</td>
</tr>
</tbody>
</table>

There is considerable year-to-year variability with a general narrowing of the inequalities gap. However, the rate in the most deprived fifth of the population in 2012 is still double that in the least deprived. In contrast to pedestrian injuries there is an increasing trend in the numbers being treated.

The Welsh Government has invested substantially in health informatics, creating the Secure Anonymised Information Linkage (SAIL) system. SAIL pioneered the development of methodologies to anonymise and link data at both individual and household level and is regarded as a world leading development. This has produced a platform where data can be securely shared between organisations while protecting privacy, creating the capability to evaluate strategies, natural experiments, and the impact of multi-sectoral interventions on a broad range of health and social outcomes.7

Data are essential in measuring the burden of injury at national, regional and local levels in order to convey the magnitude of this issue to policy makers operating at different levels and garnering support for prevention. The production of the first Wales Burden of Injury report in October 2012 has been a catalyst for action by national and local government, health boards and by voluntary sector organisations.8

Wales provides an exemplar of what it is possible to achieve in a small country. Leadership, unwavering commitment, inter-sectoral working that utilises well-established profession networks, and support for data collection are the key components of success to date. Going forward, these characteristics, supported by multi-sectoral data linkage capabilities, provide a powerful platform for the development, testing and implementation of evidence based approaches to tackling residual inequalities in childhood injuries.

References
“Working together to build a better future for our children.”
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Children’s Right to Safety: inequity in child injury in Europe

This resource was developed as part of the Tools to Address Childhood Trauma, Injury and Children’s Safety (TACTICS) project, a large scale multi-year initiative that is working to provide better information, practical tools and resources to support the adoption and implementation of evidence-based good practices for the prevention of injury to children and youth in Europe. The initiative is led by the European Child Safety Alliance, with co-funding and partnership from the European Commission, RoSPA, Swansea University, Maastricht University, the Nordic School of Public Health, Dublin City University, the European Public Health Alliance, and partners in more than 30 countries.

One of the objectives of the project was to explore the issue of child injury and inequities and produce a report summarising the findings including strategies to address the issue; this report is the result of that activity.

For more information on the TACTICS project or the companion documents go to the European Child Safety Alliance website at: www.childsafetyeurope.org