EUROPEAN MONITORING OF TRANS-NATIONAL INJURY AND VIOLENCE EPIDEMIOLOGY PROJECT

EXECUTIVE SUMMARY

The EUROMOTIVE project was part funded by the European Commission under the auspices of the European Union Injury Prevention Programme.

Grant Agreement No: SPC.2002395

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June 2004

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Introduction
In children and adults throughout the industrialised world, injury surpasses other causes of mortality and is a major contributor to morbidity and long-term disability. The magnitude of this problem varies according to several factors including age, sex, region and income group. Globally, young people between the ages of 15 and 44 years account for almost 50% of injury-related deaths. Injury is the main cause of death among children and young adults between the age of 1 and 45 in Europe. To provide an update of the injury situation in the EU, EUROMOTIVE (European Monitoring of Trans-National Injury and Violence Epidemiology) was launched in the Summer of 2003.

Aim and Objectives
The aim of EUROMOTIVE was to undertake updated analyses and interpret epidemiological data on injuries in the EU.

Its main objectives were to
• Conduct a literature review of the epidemiology and prevention of injury.
• Identify and collate up-to-date mortality data on injury in the EU.
• Investigate recent epidemiological trends of injury in the EU.
• Seek to explain notable geographical and time trends.
• Suggest improvements to the quality of EU information and promote information exchange.

Materials and Methods
A literature review on the epidemiology and prevention of unintentional and intentional injuries was performed. Electronic databases (including Medline, Embase (BIDS), PSYCINFO and the British Medical Journal online facilities) were interrogated. The search terms used included: injury, unintentional, intentional, traffic accidents, fire, drowning, falls, violence, homicide, epidemiology, suicide, self-harm, and prevention.

Mortality data were collated with the co-operation of the WHO Regional Office for Europe using causes of death codes E800-E999 and V01-Y89 of the Ninth and Tenth Editions of the International Classification of Diseases (ICD9 and ICD10, respectively). Data were collated for the period 1984 to the latest available year (ranging from 1996 to 2000). To allow for comparisons between member states, age-standardised injury mortality rates were calculated for the total population and for males and females separately. Linear regression was employed
to determine whether any trends over the study period were statistically significant, taking 1984 as the baseline year.

Mortality rates from this analysis were used to estimate the number of lives that could potentially be saved if all EU member states were to achieve the lowest rate reported by an EU country. To achieve this, the lowest mortality rate for the ‘best performing country’ (for the latest year) was used as the baseline in the calculation. The calculation was of the form:

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\frac{\text{number of deaths in country X} - S}{\text{population of country X}} = \text{mortality rate of best performing country}
\]

where S is the number of deaths that require to be prevented for the two rates to equalise i.e. S is the potential number of lives that could be saved.

Key deficiencies in injury data were highlighted as were possible topic for future research. Recommendations were made for the development of an EU wide injury prevention policy and the steps required for a strategic approach to injury prevention.

**Results**

The literature review revealed that, worldwide, approximately 5 million people died as a result of an injury in 2000 while an estimated 78 million people are disabled annually as a result of sustaining an injury. Road traffic and self-inflicted injuries are the most common cause of injury death. In most countries, injury is more common in males. Road traffic injuries are the commonest injury-related death among males. Systematic reviews of the evidence have identified a series of specific interventions that have been shown to reduce unintentional injury incidence. However in the case of suicide, while some interventions may indicate benefit, there is little or no evidence for most.

Our analysis indicated that 3,056,668 deaths were attributable to injury in the EU over the study period, around 180,000 deaths per year on average. All EU member countries experienced a decline in age standardised all-cause injury mortality rates although the magnitude of the decline varied from 4% in Ireland to 45% in Portugal. A statistically significant decrease in unintentional injury mortality rates occurred in most countries with Portugal exhibiting the largest decrease (-56%). Males had higher rates than females. Statistically significant downward trends in suicide mortality rates were observed in all EU countries with the exception of Ireland and Spain, where significantly increasing ones were observed (+56% and +12%, respectively).
The analysis also revealed that, if all EU countries experienced the mortality of the country with the lowest (all-cause) injury rate, the EU would achieve one third fewer deaths in one year. This figure was similar for unintentional injuries while in the case of suicide, two-thirds of deaths could be avoided.

The main deficiency in injury data is the lack of causal information on events leading up to the incident. There is still much scope for generating plausible hypotheses as to why injury is more frequent among males. With regards injury prevention, a strategic approach is required using the three basic steps of development, implementation and evaluation. Audit and evaluation are essential if injury prevention is to be continually improved.

Discussion
Although injury rates overall have declined over time, injury still remains one of the leading causes of death worldwide and it has been estimated that deaths due to injury will rise from 5 million (in 2000) to 8.4 million by the year 2020. The magnitude of the problem varies according to age, sex, region and socio-economic status. In order to understand the aetiology of injuries, more informative data are required as well as increased availability of exposure data.

Most EU countries have reported an overall decline in unintentional and intentional injury mortality rates over the past 17 years. While it is well known that motor vehicle traffic accidents (MVTAs) are the largest single contributor of deaths due to an unintentional injury globally, suicide is fast becoming the leading cause of death in the EU. Road traffic accidents do however remain the leading cause of injury death among the young and much can be learnt from countries such as Sweden and Denmark who have both introduced traffic calming measures onto their roads, thus reflected in their low rates of MVTA mortality. While most countries have reported significant declines in suicide rates, Ireland and Spain still show concerning increases.

Conclusions and Recommendations
Although rates of injury have decreased over time, they vary markedly for reasons that are unclear. A standardised approach across the EU to the definition, recording, coding, classification and reporting of injury data is key. If an EU-wide injury prevention strategy were to be employed successfully (bearing in mind that each country would require in addition, a national strategy tailored to its needs) thousand of needless deaths could (potentially) be prevented annually.
2. INTRODUCTION

Injury is a global health problem and is the main cause of death among children and young adults between the age of 1 and 45 in Europe (Ellsäßer, Berfenstam 2000). Worldwide, approximately 5 million persons died as a result of an injury in 2000, accounting for nearly 1 of every 10 deaths (Peden, McGee, Sharma 2002; Murray, Lopez 1996). It has been estimated that these deaths will rise to 8.4 million by the year 2020 (Murray, Lopez 1997a). Globally, young people, between the ages of 15 and 44 years, account for almost 50% of the world’s injury-related deaths (Peden, McGee, Sharma 2002). In the European Union approximately 190 000 deaths are caused each year by injury (Morrison, Stone et al 2000a) with an average of 6000 deaths occurring among children between the ages of 0-14 years (Petridou 2000). Injury rates vary according to factors such as age, gender and socio-economic status, however, the explanation for the differences observed between countries such as those within the EU remains unknown.

The EUROMOTIVE – European Monitoring of Trans-national Injury and Violence Epidemiology – project was a follow-up to two previous European Commission (EC) funded projects. In 1997 the EC funded a three year study (EURORISC – European Review of Injury Surveillance and Control) with the aim of describing the contemporary epidemiology of injury and identifying current injury surveillance and control activity in the European Union (EU). That study was completed in 1999. The following year, due to increasing concern over intentional injuries (suicide and self-inflicted injury) throughout Europe, an 18-month investigation entitled EUROSAVE (European Review of Suicide and Violence Epidemiology) was funded as part of the EU injury Prevention Programme. The overall aim of EUROSAVE was to pool expertise in epidemiology and injury research from across the EU in order to strengthen and support the community epidemiological network for monitoring suicide. EUROSAVE was completed in 2001.

The administrative base of the EUROMOTIVE project was the Paediatric Epidemiology and Community Health (PEACH) Unit, Department of Child Health, University of Glasgow, UK. The project was a collaborative effort between the