

CHAPTER 1. THE NATIONAL INJURY MORTALITY SURVEILLANCE SYSTEM

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In South Africa injury is one of the major causes of death. Despite the magnitude of the problem and its constant coverage by the media, the situation has not improved. Information about deaths due to external causes is of critical importance for monitoring demographic, seasonal and socio-economically related trends in these major causes of death and disability. Since 1991 and since Act No. 52 of 1992, which precluded entry of the external cause of death in the death register for injury cases, such information has been missing from the national vital statistics on causes of death. Police data systems only record information for homicides, and the national transport information system records information for an uncertain (but incomplete) subgroup of motor vehicle collision deaths. Death due to suicide, other unintentional causes, and where the manner of death is undetermined are not tracked by any agencies.

The National Injury Mortality Surveillance System (NIMSS) was established to fill this gap by providing more comprehensive information about deaths due to external causes. The information is collated from existing investigative procedures at mortuaries, state forensic chemistry laboratories and the courts. All deaths due to external causes are included, allowing an overview of how the different categories of external cause (e.g. gunshots, burns) contribute to the profile of non-natural mortality in men, women, and children.

At the time that this report was compiled, there were no alternative sources for the information about fatal injuries that the NIMSS collects, analyses and disseminates. It is therefore essential that the system establishes links with birth and death registration vital statistics so that the information vacuum around non-natural deaths in the vital statistics is filled. It is also important to link the system with the police database, so that the levels of under-reported deaths due to interpersonal violence and motor vehicle collisions can be established. Similar reasoning underlies the need to link the NIMSS with the national database on road collisions and injuries. The ultimate goal of the NIMSS is to establish a permanent system that will register all such deaths that occur annually in South Africa.

1.1 GOALS OF THE NIMSS

The goals of the NIMSS are:

- To provide ongoing and systematic information about the incidence, causes and consequences of all non-natural deaths at local, regional and national levels.
- To enable the early identification of new injury trends and emerging problem areas so that adequate interventions can be timeously established.
- To determine priorities for injury and violence prevention action, both for high-risk groups and socio-environmental risk factors.
- To help evaluate direct and indirect violence and injury prevention and control measures.
- To monitor seasonal and longitudinal changes in the non-natural death profile.

The utility of the information collected by the NIMSS lies in the pointers it provides for improving the prevention and control of injuries in South Africa, and in evaluating the impact of direct (e.g. gun law enforcement) and indirect (e.g. socio-economic development) interventions that are expected to reduce some of the major causes of fatal injury. Although limited in coverage, these reports provide a baseline profile for future monitoring and an information platform to reinforce the ongoing extension and improvement of the system. In achieving its goals the NIMSS is intended to meet the information requirements of three main stakeholder groups, namely the forensic medicolegal services; the national crime prevention strategy; and violence and injury prevention agencies at local, provincial and national level.

For **FORENSIC MEDICOLEGAL SERVICES** the NIMSS will provide important information for the allocation of resources, auditing of costs and rationalisation of services. The current absence of information prevents proper assessment of costs, inhibits evaluation and impedes proper planning.

For the **NATIONAL CRIME PREVENTION STRATEGY** the NIMSS will provide crucial baseline data for all deaths due to violence and other injuries, including information on the covariance between violence and unintentional injury deaths,

demographic and geographic variations in the magnitude and patterning of violent deaths, and information on particularly sensitive indicators such as the use of firearms, alcohol and other substance involvement.

Injury prevention agencies include national and local government, the South African Police Services, non-governmental organisations, business and parastatals. The NIMSS will provide descriptive information needed for the design and implementation of preventive interventions at municipal, metropolitan, provincial and national levels.

1.2 AIMS OF THE NIMSS

The NIMSS uses existing medico-forensic investigative procedures. It collates onto a single data form and into a single computer database items spread between four points in the investigative procedure, namely postmortem reports, SAP 180 forms, chemical pathology laboratory results, and criminal justice system reports.

For 1999 to 2000 the NIMSS was piloted with funding from the Department of Arts, Culture, Science and Technology's Innovation Fund on Crime Prevention. For 2000, 15 mortuaries in five provinces contributed data to the NIMSS. For 2001, 32 mortuaries in six provinces contributed their data, including more than 75% of cases from Mpumalanga, giving the NIMSS more rural representivity. Extension to other mortuaries will be ongoing for as long as funding is received.

1.3 NIMSS METHODOLOGY

The NIMSS records 21 items of information for every deceased that enters the forensic medico-legal system in the participating facilities. To meet the system's goals and enable international comparisons, the NIMSS classifies the primary medical cause of death using the International Classification of Disease version 9 (ICD 9) and assigns a probable manner of death code to each case. Spatial and temporal data are recorded, as is the presence of alcohol in the deceased through information from forensic laboratory reports. The final manner of death is only available after court findings, which are often only available up to 4 years after the death. Pilot studies will be initiated in 2003 to validate the accuracy of the apparent manner of death as recorded in the NIMSS data set, and to specify the circumstances surrounding violent deaths.

The data are collected by the police and forensic pathologists at each site, and captured into a computerised database by clerks and secretarial staff at the mortuaries. The data are then sent to the Crime, Violence and Injury Lead Programme offices in Cape Town, where they are combined with other mortuaries' data and data from the forensic chemistry laboratories, cleaned, and finally analysed by researchers. Quarterly and yearly reports are pro-

duced for the South African Police and forensic pathologist at each facility.

1.4 NIMSS ANNUAL REPORT

The NIMSS annual report summarises the data from all mortuaries that participated during the reporting year. We assume that the main utility of the report will be in providing information for use in presentations and research projects aimed at violence and injury prevention and control. We also hope that the report will stimulate further research about the underlying causes and risk factors that drive the patterns of fatal violence and injury among the different age, sex and racial groups for which the data have been analysed. If these questions can stimulate research to answer them, then the possibilities for prevention of violence and injury will be greater than ever before.

Perhaps most importantly, it is emphasised that the annual report provides an overview of the data only, and does not fully reflect the rich amount of information in the surveillance database. This additional information includes, in particular, suburb-level indicators of where injuries occurred and, of course, many cross-tabular analyses that could not be accommodated in this summary report. Agencies wishing to access this more detailed level of information are invited to send their requests for customised reports to the CVI Lead Programme.

1.5 A GUIDE TO THE NIMSS ANNUAL REPORT

Chapter One of The National Injury Mortality Surveillance System describes the goals, aims and methodology employed by the NIMSS. This is followed by Chapter Two (Participating Facilities and Data Representivity), which describes the Eastern Cape, Northern Cape, KwaZulu-Natal, Gauteng, Mpumalanga and Western Cape sources from which the mortality data utilised for this report are derived. Chapter Three (Manner of Non-Natural Death) shows the manner of the non-natural deaths recorded for 2001. The manner of death, whether by homicide, unintentional or suicide, is illustrated and specified according to age, population group, sex, and seasonal and provincial variation. Chapter Four (External Causes of Death) reports on the most common instruments involved in non-natural deaths, particularly firearms, sharp and blunt instruments, and motor vehicles. These causes are examined according to the victim's sex and age. The next four chapters, Chapter Five (Homicide), Chapter Six (Transport), Chapter Seven (Burns, Falls, Drowning & Other Unintentional Injury Deaths) and Chapter Eight (Suicide) analyse deaths due to these respective causes. These chapters examine the different categories of death according to seasonal variation, day and time of death, and blood alcohol concentration. The external causes of homicide, transport and other unintentional deaths, and suicide are

analysed according to the victims' sex, population group, and age. Sex is further examined according to the scene where the injuries were sustained. The four latter chapters are concluded with brief outlines of implications for injury prevention interventions. Chapter Nine (Manner of Undetermined Death) reports on the category of deaths which could not be clearly defined as either homicide, suicide, or as unintentional. These deaths are examined according to sex, population group and age.

1.6 TERMINOLOGY

The following terminology is used in this report and is briefly explained and contextualised below:

SURVEILLANCE is a process that involves the ongoing and systematic collection, analysis and interpretation of data relating to the occurrence of a health event and the timely dissemination of this information to those who need to know and those who need to apply it. In the NIMSS the health events that are described are attributable to injuries and are described as non-natural deaths.

An **INJURY** can be defined as damage to a person caused by an acute transfer of energy (mechanical/kinetic, thermal, chemical, electrical, radiation) or by a sudden absence of heat (hypothermia) or oxygen (asphyxiation, drowning).¹

NON-NATURAL deaths include all deaths that were not due to, or may not have been due to, natural causes and that in terms of the Inquests Act are subject to medicolegal investigation. We have grouped these non-natural deaths by external cause of death and apparent manner of death.

The **EXTERNAL CAUSE** of death refers to the mechanism, circumstance or event that preceded the death. Examples of the external cause of death include firearms, stabbing, motor vehicle collisions, drowning, burns and poisonings, all of which may result in injury and eventually death.

APPARENT MANNER of death describes the intention prior to the injury that resulted in the death. The apparent manner of death is divided into five different categories: homicide, suicide, transport death, unintentional injury death and undetermined death. Note that this is the apparent manner of death according to the forensic pathologists who perform the autopsies, and the final manner of death is only determined after court proceedings, which can take between 2 and 5 years to complete.

The NIMSS definition of **HOMICIDE** refers to intentional injuries inflicted by another person (perpetrator). This definition excludes deaths due to culpable homicide since the NIMSS data are geared towards prevention initiatives, and intentional and unintentional injuries require different types of intervention. **SUICIDE** refers to fatal self-inflicted intentional injuries.

UNINTENTIONAL INJURY deaths include all other unintentional non-transport injuries such as those due to burns, falls, poisoning and drowning. **TRANSPORT** are normally also unintentional injury deaths, but may include deaths due to culpable homicide. Again, since the NIMSS data are geared towards prevention initiatives, all transport deaths have been grouped together to facilitate international comparison and the development and evaluation of prevention programmes.

UNDETERMINED deaths are those where the medical examiner is unable to determine whether the manner of death was due to homicide, suicide, transport or unintentional injuries, or due to natural causes.

This report uses **SEX** rather than **GENDER** to distinguish between male and female deaths. In general the term sex is used to describe distinctive physiological features related to being male or female. In contrast, the term gender comprises different occupational, social and psychological attributes that are variously attributed to being male or female. The latter concept depends on societal norms and is not internationally comparative.

This report uses the term '**POPULATION GROUP**' and associated terms such as 'African', 'Coloured', 'Asian' and 'White' are used. We recognise that 'population group' is a social construction that serves particular political purposes. The use of these terms in this report does not imply any acceptance of the racist assumptions on which these labels are based. We do not suggest that genetically distinct 'population groups' exist, with inherent biological differences, or that 'population groups' exist in essential groupings. Instead, the terms are used to reflect the differential manner in which apartheid impacted (and still does) on the lives and health of South Africans. The 'population groups' are gross proxy measure of social groupings in South Africa and give no indication of inter-group diversity. The use of 'African', 'Asian', 'Coloured' and 'White' dissolved the sharp stratification within these groups, but the labels still serve as the primary research and scientific indicators of social grouping.

¹ Berger, L.H. & Mohan, D. 1996. *Injury Control: A global view*. Delhi: Oxford University Press.