The South African National Injury Mortality Surveillance System (NIMSS): Data sources and tools for research.

Today I present the latest injury mortality figures we have from South Africa, for the year 2000. I will then provide some discussion about these data as a source and a tool for research.

[Slide 2]: Of all recorded non-natural deaths for 2000, homicides account for 45% of all deaths, suicides for 9%, and accidents (which include motor vehicle accidents) for 34%, while 12% of deaths are undetermined.

[Slide 3]: Examination of the external causes of these deaths show that firearms are the leading cause and that these deaths outnumber all other injuries even when all the road traffic accidents are combined. Etienne Krug showed a graph earlier that showed the same pattern for 1999.

[Slide 4]: This table shows the percentage of injury deaths involving firearms by manner of death and population group (race). For all races combined, 52% of homicides, 34% of suicides, less than 1% of accidents and 7% of undetermined deaths are firearm related. However, this distribution differs across the different race groups. For example, while the black population had the highest proportion of firearm-related deaths overall, Asians and Whites had the highest proportions of firearm-related homicides (68% and 63%, respectively), as well as the highest proportion of firearm-related suicides (41% and 49%, respectively).

[Slides 5 & 6]: The following two graphs show the patterns of firearm deaths across age groups, separately for males and females. The figures above each bar reflect the percentage of firearm-related deaths for each age category. Firstly, for males we see that while 25 to 34 year olds had the highest number of deaths overall, it is the 15-24 year age group that have the highest proportion of firearm deaths. For females, a similar pattern exists, although the overall number of deaths is considerably lower than that for males.

[Slide 7]: This table shows the social distribution of the firearm-related deaths by manner of death. For each manner of death more than 80% of cases are male. Suicide cases tend
to be a bit older, and accidental cases a bit younger. The proportion of Black cases is highest for all manners of death except suicide, where the proportion of White cases is higher. For each manner of death, more than one-third of cases were alcohol-positive, with the highest proportion being recorded for accidental deaths.

[Slide 8]: In terms of other findings for 2000, 41% of firearm deaths occurred over the weekend. There was an increase of firearm-related deaths across the year (this was similar to the pattern found in 1999). The number of deaths increased dramatically from 19h00 and remained at a high level until 3h00. Forty-four percent of the deaths occurred in private homes, while 23% occurred on the road or pavement.

So, what can be made of these figures? The findings show that we have access to a large amount of fairly detailed information related to firearm deaths in South Africa. [Slide 9]: But where are these figures from? Are they accurate and representative? To answer the first question, these figures are from the National Injury Mortality Surveillance System. [Slide 10]: This system was developed in response to a recognition that violence and injury are major public health problems and major causes of death and ill-health in South Africa. It was also developed in a response to a need for accurate and reliable data about the problem. In South Africa, there is an extreme lack of data and those that exist are often incomplete and unreliable. For example, police data systems record information only for homicides, while deaths due to suicide are not tracked by any agencies.

[Slide 11]: The Mortality Surveillance System is part of a broader system, which has two other components. One of these components is a non-fatal injury surveillance system presently being set up in various hospitals in South Africa, while the last component is a sentinel surveillance system recording information on alcohol and drugs in recently injured trauma victims.

[Slide 12]: This slide shows the organisational structure of the surveillance system. The Medical Research Council, the University of South Africa, and the Center for Scientific and Industrial Research formed a consortium, with the Department of Art, Culture, Science, and Technology providing funding for a pilot study of the system for two years. The Department of Health was also involved and provided some money for mortuary staff and computers for the mortuaries. Other government departments and communities also played a role. The secondary research partners were the mortuary staff, both forensic pathologists and police personnel, while the Centers for Disease Control in the US provided technical assistance.

[Slide 13]: In South Africa, all injury deaths have to be autopsied by law. Information relevant for the injury surveillance system is extracted from the documentation produced during these medico-legal examinations and is then collated onto a single data collection form. This form was developed to be compatible with ICD coding. The demographic, temporal and spatial details of the injury event are collected by the police, while the
primary medical cause and apparent manner of death are filled in by the pathologists at the mortuaries. The alcohol levels are obtained directly from the forensic labs by researchers, cases are matched using the post-mortem numbers. Information on the context of violence and the victim/perpetrator relationship is not yet available as it takes approximately two years after the death has occurred for it to go through the court system. At that point in time, researchers from the surveillance system will go to the criminal record centers to obtain that information.

[Slide 14]: The aims of this system and the data collection were to assess the nature and extent of injuries in the population at local, regional, and national levels; to identify high and low risk groups, places, and times; to identify new injury trends and emerging problem areas so that prevention activities are timely; to monitor seasonal and longitudinal change in the injury profile, and to inform resource allocation and medico-legal services.

[Slide 15] But do we achieve these aims? I would say partially at this point in time. Firstly, the findings are not fully representative of the whole of South Africa. It is estimated that there are 80,000 non-natural deaths in South Africa annually. In 1999, the system had 19% coverage, in 2000 this was increased to 24%, and in 2001 the system currently has 31% coverage. Furthermore, the mortuaries included in the system are largely biased to the urban areas. Secondly, an evaluation of the system revealed that some of the items were inaccurate. For example, the time and scene of injury were frequently recorded as the time and scene of death. Not only can these be very different, but also it is the time and scene of injury that is most useful for prevention activities. As a result of this evaluation, further training of mortuary staff was undertaken. Assessment of the impact of this training requires further evaluation. Thirdly, while the system is beginning to fulfil the aim of monitoring trends and changes, longer term data collection is required if the trends across time are to be adequately analysed. Finally, in terms of achieving the aim of informing resource allocation, the system has shown success. The information has been used to help in the restructuring the mortuary system in South Africa. In addition, individual mortuaries have used the information to assist in their staffing requirements. Furthermore, costing research has begun which will help towards arguing for better prevention measures.

[Slide 16] This slide shows how the injury surveillance information has been applied in prevention activities. Firstly, it has been used to inform and to influence policy and legislation. The data were used extensively in the new Firearms Control Bill. Claire Taylor from Gun Free South Africa would be able to tell you in more detail how they used the information. The data have also been used for public awareness and education. Although the data have been used to target prevention measures, evaluate them, and has stimulated further research, this area of application needs to be further developed.

[Slide 17] In conclusion, there are a number of requirements for the future. Firstly, there
needs to be an emphasis on regular evaluation of the system, to ensure valid data. Secondly, the system needs to be expanded to increase its representivity. However, this depends on funding, and at this point, despite the recognition of the importance of this work, the commitment of the government is unclear. Thirdly, actions to encourage the uptake of findings for prevention strategies and future research needs to be undertaken. Fourthly, links with policy makers and other stakeholders need to be strengthened. Work in this area is underway. Finally, further training is necessary, not only for those people who are involved in filling in the forms, but also for government officials at local, regional, and national levels, so they can understand the injury problem and develop methods for prevention. In addition, training for injury prevention professionals is required.

Thank you.