



## **Data Needs for Injury Prevention and Control Programmes**

by Wim Rogmans, Ph.D.

### **Introduction**

In most Industrialized economies, the fundamental rights of citizens with respect to safety are well recognized. These include:

1. The rights of workers to being protected from injury and health risks at the workplace and to continuous improvement of working conditions;
2. The constant improvement of road and traffic infrastructure, of the basic safety features of vehicles and of road users' behavior;
3. Consumers' rights to expect that consumer goods and home environment are safe under conditions of normal use and of foreseeable misuse.

In particular the latter aspect of consumers' rights has gained substantial interest in past decade and has led to new initiatives in accident prevention policy and related research efforts, which will be briefly described in this paper.

### **Consumer Safety Policy**

Consumer safety policy covers the entire body of statutory and voluntary measures aimed at protecting the consumers' health and safety in physical contact with consumer products or built environment. These measures include:

- preparatory actions by surveying consumer products on the market, monitoring incidents that lead to injuries and/or damages;
- regulatory actions such as the development of safety regulations and safety standards;
- corrective actions by intervening in case of detection of significant hazard;
- education and information strengthening consumer awareness of risks at home and in leisure-time and encouraging adaptive behavior.

Consumer safety is not absolute but relative: the degree of safety that can be reached in a given society depends on a number of varying social, economic and cultural factors. This leads to the conclusion that with ever changing life-patterns and socio-economic development, the levels to be set for consumer safety will never be fixed and set forever. Reliable data on the risks involved will certainly facilitate the process of decision making regarding which hazards to address and the priorities to be allocated for further enhancement of current standards.

However safety policies and priorities are only to a limited extent influenced by statistical data. In most countries the influence of mass media, interest groups and incidental events frequently take precedence over rational statistics. Nevertheless, on the long run these statistics prove to be indispensable for adequately defining key areas of interest and strategies to be followed. These statistics can be obtained from specialized data collection systems or from broader surveillance programmes.

### **Current Information Needs**

It is evident that information management should be geared by the basic information needs expressed by those in charge of prevention policy. In practice this has been addressed from two different angles of perspective:

- One inspired by a systematic approach towards accident research and in particular the Haddon– approach in accident analysis;
- another inspired by day to day practice, taking into account the availability of data and data utilization.

In the first approach it is found useful to think of a 'causal chain of events' leading to injuries. Each link in the chain is a potential starting point for injury prevention and control. By studying the circumstances in which injuries occur, the dynamics and causes of accidents can be understood. The well-known model developed by Haddon analyses injuries according to three factors (host/agent/environment) and three phases (pre-event/ event/ post-event). From this perspective one can conclude that information systems for injury control should cover all these relevant factors and phases of the process. The WHO 'basic data set' (WHO.1988) is based on such an approach. A brief look at the available sources and systems, taking into consideration the Haddon–framework, reveals that they all lack details on the early phases of the process, which limits severely prevention potentially (Lund, 1990) [Figure 1]. Fortunately, new initiatives have been guided by this approach, as for instance in the development of the nordic classification (NOMESCO, 1990).

The second approach is followed by a number of operation researchers while in process of developing practical systems for consumer policy implementation. Most of their designs are based on an inventory of existing information needs among those in charge of consumer safety policy and its implementation and on their data utilization (Bourgolgnie e.a., 1992; Irving, 1994). It is evident that judgments on the availability and informative value of existing data are implicitly in these evaluations. In general one can conclude from these studies that most policy makers have limited demands as regards the availability of continuous data and are satisfied with basic information. However the utilization of information increases significantly as the availability improves and the facilities for in–depth studies grows. This has been for instance the case in the European countries that participated in the European Home and Leisure Accident Surveillance System (Rogmans & Mulder, 1990): a majority of Member States reported an increased and more efficient policy programming and implementation owing to their participation in the system.

### **Sources of Information**

Information on injuries and injury–related events can be obtained from various sources, for example [Figure 2]:

- mortality statistics which are readily available in most countries;
- hospital discharge statistics, which are in only a few countries nationwide available;
- statistics collected in the course of medical examinations among a great part of the population (for instance in entering the military service);
- national and regional epidemiological research programmes (for instance cohort studies);
- sentinel systems in primary health care;
- records of absenteeism and sick leave, usually collected by insurance bodies;
- general surveys and inquiries based on retrospective questionnaires.

There is a strong interdependence between the sources where the information is tapped from and the nature of injury (in particular with respect to its severity) reported [Figure 3]. The method of ascertainment of cases is intimately associated with the severity of the injury and to a certain extent to the nature of the injury. The minor ones being

reported in the office of general practitioners and the most severe injuries being reported in trauma centers for instance.

### **Assessment of Available Information**

In a number of countries mortality statistics have proved to be an invaluable source of information, in spite of its shortcomings in depth of information collected and timeliness of reporting. It should also be noticed that countries differ in their methods of recording which complicates comparative studies. In only a few countries data on hospital admittance, including a consistent coding of diagnosis) are being aggregated at national level. In many countries, however, the technology of patient administration is advancing and as information technology is rapidly expanding its impact also in hospital administration, one may expect improved availability of injury data, provided by the health care sector, in the near future. However, for the time being, one has to rely on information provided by specially designed surveillance systems, among which those collecting injury data in accident and emergency units at hospitals. So far, data collecting in these emergency rooms have proved to be the most cost-effective means of fulfilling the information needs of policy makers. The very high number cases that can be recorded at hospitals provide the volume of data needed for accurate assessment of specific areas of interest and of trends. Part of the data is already being collected through the regular administrative procedures within hospitals, without placing an extra burden upon hospital staff. The information can be provided timely and with reasonably precision. Such systems also provide for follow-up studies at a later stage, targeting at selected populations of cases.

## References

1. Bourgolgnie PT, e.a. Utilization of accident data, as summary report on the application of information collected on accidents in view of product safety policy, Consumer Safety Institute, Amsterdam, 1992.
2. Irving LM. Injury Surveillance in public hospital emergency departments, Injury Prevention Research Centre, Auckland, 1993.
3. Lund J. Integrated data collection systems at hospitals, In: W. Rogmans & M. Schuurman, Proceedings International Seminar on Accident Data, Universitätsverlag, Wien, 1990.
4. Rogmans W and Mulder S. Evaluation of activities undertaken in the framework of the EC-demonstrations project EHLASS, Consumer Safety Institute, Amsterdam, 1990.
5. World Health Organization, Prevention of accidents – a basic data set and guidelines for its use, Geneva, 1988.

**Figure 1. Data sources and the amount of information provided  
with respect to the accident scenario  
Accident/injury Process**

	Pre-Injury Phase	Injury Phase	Outcome Phase
Health surveys	-	+	+
Medical exam	-	+	+
G.P.	-	+	-
Absenteeism Rec.	+	-	+
Hospital Rec.	-	+	+
Death certificate	+	+	+
Surveillance systems	+	+	-

+ RATHER RICH INFORMATION  
 +,- THIN  
 - POOR INFORMATION

**Figure 2. Sources of Information**

- \* Mortality Statistics
- \* Hospital discharge Statistics
- \* General medical examinations
- \* Screening programmes
- \* Sentinel systems (G.P.)
- \* Absenteeism/sickleave records
- \* General health surveys

**Figure 3. Data sources and their interdependence with severity of injury and representativeness of information provided**

