

GLENN WELANDER  
LEIF SVANSTRÖM  
ROBERT EKMAN

# Safety Promotion – an Introduction

2<sup>ND</sup> REVISED EDITION



Karolinska Institutet  
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Safety Promotion – an Introduction

2<sup>nd</sup> Revised Edition

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*Pictures of the authors:* Ulf Holmstedt

*Figures:* Karl Svanström

*Grafisk form:* Leila Relander

*Order from:*

Karolinska Institutet

Department of Public Health Sciences

Division of Social Medicine

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## FOREWORD

The First Edition of this book was written by the same three authors as the 2<sup>nd</sup> Edition. It was also heavily sponsored by the Swedish Public Health Institute and the Ministry of Health in Hanoi, Vietnam and the Swedish Development Agency – SIDA.

The book was and still is the only textbook of its kind and obviously fulfilled an important need. The first edition was sold out in about two and a half years. It has been widely used in many teaching situations and has been translated into Vietnamese and Chinese languages.

Instead of reprinting it directly we have revised the book – deleted some parts and added some others.

Please let us know proposals on improvements. There might be a third edition.

Stockholm 2004

*Glenn Welander, Leif Svanström & Robert Ekman*

Leif Svanström  
Karolinska Institutet  
Department of Public Health Sciences  
Division of Social Medicine  
Norrbacka 2<sup>nd</sup> Floor  
SE-171 76 Stockholm, Sweden

## THE AUTHORS



GLENN WELANDER, B.J., PH.D. and researcher at Karolinska Institutet, has been active in safety promotion and injury prevention for more than one and a half decade. His research focuses on traffic safety and head injuries, and the promotion of helmet wearing, as well as the Safe Community concepts. In these fields he has also developed intervention models with media aspects. He also works as a journalist.

[glenn.welander@phs.ki.se](mailto:glenn.welander@phs.ki.se)



LEIF SVANSTRÖM B.A., M.D., PH.D. is Professor of Social Medicine and Chairman of the Division of Social Medicine at the Department of Public Health Sciences at Karolinska Institutet, Stockholm. He has been active almost forty years in the fields of social medicine, and health and safety promotion. His main research and teaching areas are injury epidemiology, safety promotion, and development of models for evaluation of outcomes and processes of community interventions. In 1974, he introduced the community approach to safety promotion. The resulting “Falköping Model”, has heavily influenced national and international community-safety work. He chaired the First World Conference of Accident and Injury Prevention held in Stockholm 1989. He is currently involved in WHO’s Violence and Injury Prevention (VIP) Programme and is Head of the WHO Collaborating Centre on Community Safety Promotion. He is the author of more than 800 papers and about fifteen textbooks.

[leif.svanstrom@phs.ki.se](mailto:leif.svanstrom@phs.ki.se)



ROBERT EKMAN B.SC., M.P.H., PH.D, is an Associate Professor at Karolinska Institutet and his daily work is related to the implementation of the Swedish National Safety Promotion Programme, headed by National Rescue Service. He has been active in public health and community safety for more than two decades. He is specialised in injury surveillance, and the analysis and evaluation of community safety-promotion programmes. His research focuses on Safe Community concepts, child safety, traffic safety, prevention of head injuries and promotion of helmet wearing. He is also developing models for intervention and evaluation of safety promotion, including socio-economic aspects and media. He has organised international and national conferences on safety promotion and injury prevention and M.P.H. courses on safety promotion.

[robert.ekman@phs.ki.se](mailto:robert.ekman@phs.ki.se)

# 1. Introduction

The world is complex and under constant change. Many talk about a new economy and knowledge and technical achievements. These are “rushing over the world”, increasingly speeding up changes, influencing societies nationally, regionally, and locally, and ultimately also the individual. This globalisation is not all good or all bad. New technology and processes are added to old ones, some of which disappear or change. The gap between the rich and poor parts of the world are filled in with countries on the intermediate economic levels. Only some few countries, mainly south of Sahara seem to stagnate. In brief, the factors influencing health, safety and welfare are never the same, which imposes demands on “man and society” to exert control. Economic development combined with a fair distribution seem to be the main predisposing factors for health and safety.

In the “low-income” or “developing” countries the introduction of modern hi-tech gives rise to special transitional problems. Co-ordination between already established techniques and circumstances is complicated in “countries in transition”(Pictures 1.1, 1.2).

Picture 1.1  
The gap between rich and poor. A poor shanty-town in South Africa, and ...



Picture 1.2  
... a normal residential street in a small Swedish town.



Picture 1.3  
The new society meets the old; oxen pull a modern heavy cement-mixer amidst the traffic in Nagpur, India.



Picture 1.4  
Lidköping, Sweden. Motor vehicles, bicyclists and traffic lighting in a busy street.



Out of all this a new reality is born, with new complex situations that have to be handled in a manner so as to sustain and improve health, improve safety, and decrease the suffering and cost arising from injuries. The development of production and other societal structures offers many opportunities to improve living conditions, but new collisions arise on the way as changing preconditions demand new approaches and behaviours.

Thus, we all became more interdependent and closer to each other because of globalisation. But threats to health and safety are also globalised. The safeguards in our workplaces and the safety-promotion programme of our communities and nations are influenced, for good or bad, by decisions made outside our nations. Attention has moved to some extent from accidental threats to the threats of violence and other tensions. Products that we get rid of are improved and re-appear on a mass scale. Machines that controlled working life or public transport appear “en masse” in civil life. From the small scale to the large, safety promotion becomes part of a global peace programme.

#### **Results are non-events!**

The results of safety promotion and injury prevention are a series of “non-events” – where nothing concrete is present. The need of resources for treatment – for a broken skull or leg –are always more evident than that for prevention of “non-events”. This gives rise to an educational problem, and imposes huge demands on persons working with safety promotion to describe and make its benefits “visible”. The task is to show how X number of persons and Y amount of resources result in non-existent suffering and lower costs. There must be both economic and human measures of the utility of action.



Pictures 1.5, 1.6 Globalisation is both good or bad. The family in this house in India (left) views the same TV programme as a Swedish family. It is broadcast globally and reaches the TV via parabolic antenna.

### **A clear programme declaration**

Conscious safety-promotion work should be initiated with a clear, transparent programme declaration. This governs the work and decreases the risk of losing the cause we are working for. Being concrete at the beginning promotes a good result. Vaguely formulated targets lead to diffuse and inefficient working.

### **Where we stand**

It is important to establish why we want to promote safety. Benefits in all circumstances must be clarified. Vague description leads to equally vague promotion. Evidence reinforces the benefits. A foundation for the work is to clearly describe the actual situation today – the safety and injury pattern, and known risk areas/problem in the environment and community.

### **Legitimacy**

It is crucial to establish with what political and/or administrative authority or support safety-promotion work can be performed. How much real support is there from important decision-makers? Evidence promotes efficiency and good results. Vagueness creates ambivalence and restraint. Nobody does any more than he or she thinks is possible and acceptable for the time being. Safety promotion officers work more and more to get clearly formulated targets and goals for injury prevention – especially in a time when the struggle for resources is tough.

### **With what resources?**

It is important – as far as possible – to establish what resources are needed and available. This provides a basic frame for the personnel involved.



Picture 1.7 Planning safety promotion in Wang Khoi, Nakhon Sawan Province, Thailand (to the right: Dr Sriwongse Havanonda).

### **Concrete explanation – involving people and making things possible to grasp**

Abstractions have no value in practice. What safety promotion in your community actually is must be described concretely and in a “down-on-earth” manner – with examples to enable everyone to see its meaning. The people involved want to see tangible benefits.

Everyone is concerned about their nearest and dearest. Everyone has a “zero vision” of injuries for their loved ones. If you can convince people of results in terms of fewer accidents and injuries, with decreased risks and improved security and safety, then you have participants. They may even become active enthusiasts. Experiencing personal benefits make me positive. Then I will participate. That is a human and rational way of thinking.

### **Address special problems – create harmony**

At the beginning you have to clarify the problems of exposed population groups, age groups, environments etc. The work must be broad-based and community-oriented. An equity target provides increased stability and harmony in the community. Indeed it is a positive health promotion factor in itself.

Everybody has the right to safety and belief in the future; without that hope you risk disharmony and desperation. You immediately lose solidarity with society if people do not get that solidarity from society in return.

### **Define targets from the outset**

If it is clear from the outset what you want to achieve in safety-promotion work, how it will happen, and who is to be reached, the less is the risk of getting stuck in unproductive arguments about targets and means on your journey. Such disputes can block the real work.

### **Sustainability and flexibility**

The value of sustainable work cannot be exaggerated. But flexibility is needed as well. Society is not static. It changes constantly, and you cannot always rely on old rules and approaches. You have to listen to the what changes in society. It is important to see reality as it is without blinkers, while simultaneously utilising evidence-based research findings and experiences. All this together gives opportunities to create a safer society.

### **Economic... and human!**

Safety-promotion work where economic and human values are adopted provides for a better society. Thus, there are no intrinsic contradictions or conflicts between benefits and costs. A programme based on a strong democratic and participatory approach can pay as much as 100:1 back in monetary terms. This is an investment that no society could reject.

### **Reasonably safe and secure**

Through sustained safety-promotion work it is possible to create a community and society that is reasonably safe and secure. But citizens must be engaged in order for them to commit skills and interests. This increases utility for both safety and the economy. The winners are each and every individual citizen and society itself – in both the public and the private spheres

A harmonious and secure society has a positive influence on production. This ensures work opportunities and creates growth and resources – for individuals to consume and invest in themselves. But, it also provides resources for essential societal investments, such as in medical services.

## 2. Safety Promotion or Injury Prevention – some conceptual remarks

### 2.1 Safety

---

In an effort to achieve international consensus on the concepts of safety and safety promotion, co-operation was embarked upon between the two WHO Collaborating Centres on Safety Promotion and Injury Prevention (based at the Ministry of Health, Quebec, Canada and the WHO Collaborating Centre on Community Safety Promotion at the Karolinska Institutet, Stockholm, Sweden). This resulted in the production of a document – the so-called “Quebec Document” – which provides a number of tentative definitions (WHO 1998).

#### **Control of hazards mean safety**

Safety is a state in which hazards and conditions leading to physical injury, psychological or material harm are controlled in order to preserve the health and well-being of individuals and the community. It is an essential resource for everyday life, needed by individuals and communities to realise their aspirations (WHO 1998).

#### **Safety – a fundamental need and right**

Because health and safety are fundamental rights of human beings, safety is a prerequisite for the maintenance and improvement of the health and welfare of any population. It is a basic need of human beings (Svanström 1998a).

The value of local safety is illustrated in Example 2.1.

### Example 2.1

#### **Home injuries in a Swedish municipality – consequences and costs**

An investigation of home injuries and their economic consequences was made in a Swedish municipality, Motala, in order to provide a basis for a home-injury prevention programme. Using a standardised telephone survey, hospital records and death certification, the pattern of home injuries was mapped out. Fall injuries were found to predominate among the elderly. Injuries to the upper and lower extremities and head injuries formed the most common injury types overall. The cost of medical care predominated among females (64%), whereas company costs predominated among males (77%). Injuries to body extremities accounted for 74% of costs. It was concluded that greater attention should be paid to home injuries and their prevention (Lindqvist et al. 1999).

## 2.2 Safety promotion

Safety cannot be defined in absolute terms. Safety is a dynamic state and is not merely reflected by the absence of injuries and threats. Safety promotion can be defined as a process that aims to ensure the presence, and maintain the conditions, that are necessary to reach and sustain an optimal level of safety. Organised efforts by individuals, organisations, communities and nations are needed to achieve that ultimate goal. Structural and behavioural changes are effected to create sustained safety-supportive environments.

There are various levels and processes involved in safety. As a result, there may be interaction between societal/individual levels and the process (sometimes called safety promotion).

### **Environment**

Environment represents the physical, social, cultural, technological, political, economic and organisational environments where people reside. Jointly, these environments constitute a complex society. Accordingly, in order to achieve safety goals, there is a need to use a combination of safety promotion, injury prevention, treatment, and rehabilitation (Figure 2.1).

<b>Environment</b>	<b>Process</b>
physical	safety promotion
social	
cultural	injury prevention
technological	
political	treatment
economic	
organizational	rehabilitation
etc.	etc.

**Figure 2.1** What is environment and what kind of processes creates safety?

### **Safety promotion or injury prevention?**

Safety promotion is a broad concept, based in society. In general there is the same conflict between the concepts of injury prevention and safety promotion as between disease prevention and health promotion (Svanström 1998a).

Injury prevention is the outcome of a process where a medical view determines prevention activities, in the same way as in disease prevention. However, “safety” and “health” are much broader concepts. Safety promotion is based in society and the community itself, mainly in various aspects of life, work and leisure, and in how populations understand the concept of safety and what measures need to be taken in these arenas.

### **The role of societal structures**

If we want to successfully promote safety we also need to understand societal structures and the influences of the population’s life and health. Safety promotion looks at the human being as the product of environmental and societal factors, and tries to find solutions on the basis of the knowledge that comes out of this.

### **Need for the involvement and co-operation of many**

One of the consequence of the above is that in order to achieve greater safety in the population, there is a great need to involve different sectors in society and to use their special competence and knowledge “inside” safety-promotion work. There is also a great need for as many as possible

of the key players – formal as well as informal – in the societal arena to participate.

## 2.3 Accident and injury

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Numerous definitions of the term “accident” are given in the literature. Some examples: “an accident is an unplanned and uncontrolled event in which the action or reaction of an object, substance, person or radiation results in personal injury or the probability thereof” (Heinrich 1959); “an accident is a process of parallel and consecutive events leading to a harmful consequence” (Saari 1986); “an accident is a special class of processes, by which a perturbation transforms a dynamically stable activity into unintended interacting changes of states with a harmful outcome” (Henrick & Benner 1987).

### **Are accidents unpredictable events?**

An accident is an event that results or could result in an injury (WHO 1989). One unfortunate aspect of usage of the term “accident” is that it has the connotation that an event and its outcomes are unpredictable or random and – because of that – uncontrollable or not preventable (Svanström 1993). In this sense, it supports the idea of determination by destiny. It can act as an excuse for not acting to prevent, as a consequence of our reluctance to be involved. Nevertheless, the concept of accident varies in meaning between different parts of the world, and also between different cultures and traditions.

Our contrasting view is that the determinants of events can be studied and understood, and that the new understanding (knowledge) that is generated can be used to prevent accidents (Example 2.2). For a programme of accident prevention to succeed, everyone must have a sense of the predictability and preventability of accidents, with a specific focus on environmental aspects of prevention (Example 2.3).

### **What is an injury?**

Our usage of the word “injury” implies that we are interested not only in injuries and events like accidents that result in injury. We emphasise that accident and injury prevention also encompasses those events that could – but do not always – lead to injury (WHO 1989).

## Example 2.2

### **Neighbourhood environmental risk factors in paediatric pedestrian injuries**

Neighbourhood environmental risk factors affecting paediatric pedestrians were studied in southern California, USA. The results of the analysis indicate that children living in multi-family residences showed a greater injury incidence than that of children living in single-family residences. It also showed that in residential streets with a high proportion of multi-family residences, over 50% of curb space was occupied with parked vehicle. The large number of pedestrians observed in unclosed areas indicated that they should receive high priority for intervention. The analysis suggested that, on these streets, measures to reduce the amount of street parking (thus increasing visibility) and a reduction in vehicle speeds should be considered in order to decrease pedestrian injuries (Agran et al. 1996).

Injuries can be incurred anywhere – in traffic, at home, in school, during sport, and in the work environment. The rate of injury in each of these settings varies from country to country and from community to community (Svanström 1993). For example, in most “high-income” or developed countries, the leading cause of death and permanent brain or spinal-cord disability occurs among motor-vehicle occupants. But, when “low-income” countries develop and make economic progress – and/or just adopt the life-style of high-income countries – the injury and mortality rates connected with traffic accidents heavily increase. This is an undesired outcome of globalisation and global influences.

The way we look at injury is as the end result of a systematic process that is possible to analyse, rather than as a sudden random event. In order to understand how a system works, as opposed to an individual, you have to understand all parts of the whole, their mechanisms, and the consequences of how they work together or are influenced by each other.

## 2.4 Accident and injury prevention

### **Safety – the energy approach**

One of the best known contributors to the conceptual and theoretical apparatus of safety research is William Haddon Jr. He became convinced that accidents and injuries as health problems do not deviate scientifically

from other types of health disorders. In spite of their perceived “unproductiveness”, they should be addressed, analysed, and understood by adopting approaches similar to those applied to diseases. From this, he showed that phenomena like accidents and injuries are also clearly related to human sociotechnical conditions and ecology, and thus predictable and preventable just like any kind of disease.

### Understanding in terms of energies

In 1970 Haddon presented a theoretical framework (Figure 2.2) for the development of preventive options. It was rooted in the view that the agents of injury must be understood in terms of what he called “energies”. Thus, a key aspect of injury (or damage) prevention was to hinder a harmful energy from coming into contact with an individual (or object). Ten alternative strategies were proposed (Haddon 1980).

- To prevent the creation of the hazard in the first place.
- To reduce the amount of hazardous energy brought into being.
- To prevent the release of the hazardous energy that already exists.
- To modify the rate or spatial distribution of release of the hazardous energy from its source.
- To separate, in time or space, the hazard and that which is to be protected.
- To separate the hazard and that which is to be protected by interposition of a material barrier.
- To modify relevant basic qualities of the hazard.
- To make what is to be protected more resistant to damage from the hazard.
- To begin to counter the damage already done by the environmental hazard.
- To stabilise, repair, and rehabilitate the object of the damage.

**Figure 2.2** Haddons ten alternative strategies to hinder harmful energy from coming into contact with individuals (1980).

Haddon also came up with another model, which he presented in the form of a matrix (Haddon 1980). For preventive purposes, he proposed that the matrix be employed as a check list for the development of preventive measures, each cell representing a separate strategy (Figure 2.3).

<b>Faktors/phases</b>	<b>Human</b>	<b>Vehicle and equipment</b>	<b>Environment</b>
<b>Pre-crash</b>			
<b>Crash</b>			
<b>Post-crash</b>			

**Figure 2.3** The Haddon Matrix

Haddon advocated the use of a “third conceptual tool” (first presented in the early 1960s), which involves the dichotomization of prevention into active and passive prevention (Haddon 1974). This classification of preventive activities is concerned with the extent to which a certain measure requires the active participation of the person in question in order to have an effect, and (the other side of the coin) the extent to which a measure is built into the environment, having an effect regardless of human action.

Active prevention presupposes that a person, on each occasion, makes a decision whether to utilise a proposed procedure or device, such as a car-safety belt. By contrast, an example of a passive preventive device is an airbag, which is built into a situation (in this case, a vehicle). Between these two extremes there is a continuum of strategies which presupposes active involvement to a varying extent.

### **Injury prevention – a part of safety promotion?**

For practical reasons, many attempts have been made to bring safety promotion and injury prevention together. Indeed, injury prevention has sometimes been incorporated into the concept of safety promotion. There are also a number of attempts to work backwards, and classify environments where injury events took place and also the processes involved. This represents a more operational medicine-based model, where the organisation of prevention work itself is left to individuals, organisations,

communities or society. The greater involvement of the community and its networks, the more powerful is the input of individuals and organisations – which immediately leads to work based on a broader safety concept.

### **Better understanding**

To develop effective interventions for the prevention of, for example, injuries to children, we need a better understanding of the social system in which children live. A better and wider understanding of what happens before accidents, facts about the environments where they occur, and the behaviours – of planners, architects, drivers and others, and also (in this example) of children and parents – is required. To reach a better understanding of the injury problem we wish to prevent, we are in need of high-quality qualitative research – where, for example, neighbours are requested to explore why certain kinds of injuries are incurred.

Such information can give insight into what people on the receiving end of accident-prevention initiatives make of them. If we do not well-enough understand (as in this example of injuries among children) the social reality where injuries are incurred, it is hard to achieve substantial success in prevention work. To succeed we need to utilise the great local reservoir of knowledge that ordinary children and adults living in unsafe communities can share with us.

One really interesting question concerning child accidents is that, given all the environmental dangers, how do so many people manage to keep their children safe? The fact that they do confirms that people possess a lot of valuable information, and maybe also some safety-promotion methods, to convey to us.

## 3. Injuries – the Problem

### 3.1 The global burden of injury

Objective, comparable and reliable information on the nature, extent and distribution of diseases and health problems is an essential input into health-policy formation and evaluation, monitoring, and research into the determinants of health (Murray & Lopez 1996). The reality, however, is that despite decades of efforts in many countries, supported by international organisations, particularly the WHO, valid regional and global information on health status is still not widely available.

In order to meet the urgent data needs of global health-policy formulations, the World Bank and the WHO commissioned the Global Burden of Disease Study (GBD) in 1992 to provide an objective comparable assessment of health status, based on what was then known about the occurrence of disease and injury throughout the world. The results of this study were widely used in the World Development Report of 1993 entitled “Investing in Health” (World Bank 1993). In order more clearly to identify the global patterns of disease and injury, the GBD put countries together into eight conglomerates. Table 3.1 offers an example.

**Table 3.1**  
Global incidence of “road traffic accidents” 1990, according to Murray & Lopez (1996), in eight regions.

Region	Number (000s)	Rate (per 100,000)	Deaths (000s)	Rate (per 100,000)
Established Market Economies (EME)	2 272	285	131	16.5
Former Socialist Economies of Europe (FSE)	1 226	354	91	26.3
India (IND)	2 443	288	174	20.5
China (CHN)	1 946	172	135	11.9
Other Asia and Islands (OAI)	1 793	263	133	19.5
Sub-Saharan Africa (SSA)	1 891	371	155	30
Latin America and the Caribbean (LAC)	1 893	414	109	24.6
Middle Eastern Crescent (MEC)	995	198	70	14.0
World	14 405	273	999	19.0

As Table 3.1 shows, there are substantial regional differences. For the world as a whole in 1990, the average rate of injury is 273 per 100,000, and 999,000 persons were killed. The lowest injury incidence is found in China, and the highest in Latin America and the Caribbean.

In the year 1998, 1 171 000 people died because of traffic injuries placing this cause as number 10 of all causes of death, corresponding to 2,2% of the global mortality. Measuring the Global Burden of Disease places road transport injuries on 9<sup>th</sup> rank the year 1999 and is projected to move upwards to 3<sup>rd</sup> rank by the year.

There are regional global differences with highest incidence in Latin-amerikas and Caribbean countries. For men the former Socialist countries in Europe show the highest incidence.

88% of deceased in road traffic accidents occurred in low- and middle income countries, while only 12% in high income countries.

Because about half of all deceased in road traffic accidents were young people, 15-44 years old, the societal costs were enormous because of production loss.

Table 3.2 shows the corresponding estimates for poisonings. FSE and CHN show the highest incidence of injuries and FSE the highest death rate.

**Table 3.2** Global incidence of “poisonings” 1990, according to Murray & Lopez (1996), in eight regions.

Region	Number (000s)	Rate (per 100,000)	Deaths (000s)	Rate (per 100,000)
Established Market Economies (EME)	2 953	370	13	1.6
Former Socialist Economies of Europe (FSE)	16 070	4 641	45	12.9
India (IND)	23 327	2 746	30	3.5
China (CHN)	46 018	4 059	65	5.7
Other Asia and Islands (OAI)	19 606	2 873	36	5.2
Sub-Saharan Africa (SSA)	10 858	2 128	37	7.2
Latin America and the Caribbean (LAC)	7 654	1 723	5	1.1
Middle Eastern Crescent (MEC)	12 622	2 509	12	2.4
World	139 108	2 641	242	4.6

Table 3.3 shows the equivalent estimates for falls.

**Table 3.3** Global incidence of “falls” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	4 739	594	70	8.8
Former Socialist Economies of Europe (FSE)	3 667	1 059	29	8.3
India (IND)	26 689	3 142	46	5.5
China (CHN)	13 453	1 187	65	5.7
Other Asia and Islands (OAI)	15 003	2 198	34	5.0
Sub-Saharan Africa (SSA)	7 219	1 415	18	3.5
Latin America and the Caribbean (LAC)	4 919	1 107	18	4.2
Middle Eastern Crescent (MEC)	6 348	1 262	11	2.3
World	82 036	1 557	292	5.5

As Table 3.3 shows, there are substantial differences between the different regions with regard to falls. The average injury rate for the world in 1990 was 1,557 per 100,000, and the number of persons killed was 292,000. The lowest death rate is found in the Middle Eastern Crescent, and the highest in the Former Socialist Economies of Europe and the Established Market Economies.

Table 3.4 displays the corresponding estimates for fires.

**Table 3.4** Global incidence of “fires” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	158	19.8	11	1.3
Former Socialist Economies of Europe (FSE)	90	25.9	8	2.2
India (IND)	2 018	238	124	14.6
China (CHN)	284	25.1	24	2.1
Other Asia and Islands (OAI)	219	32.1	10	1.5
Sub-Saharan Africa (SSA)	1 252	245	67	13.1
Latin America and the Caribbean (LAC)	146	32.9	7	1.6
Middle Eastern Crescent (MEC)	287	57	15	2.9
World	4 454	85	265	5.0

As Table 3.4 shows, there are substantial differences between regions in fires. The average rate for the world in 1990 was 85 per 100,000 persons, and 265,000 were killed. The lowest incidence rates are in China, the Established Market Economies, Other Asia and Islands and Latin America and the Caribbean; the highest are in Sub-Saharan Africa and India.

Table 3.5 shows estimates for cases of drowning.

**Table 3.5** Global incidence of cases of drowning 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	#32	4.0	13	1.6
Former Socialist Economies of Europe (FSE)	59	17.0	24	6.8
India (IND)	221	26	89	10.4
China (CHN)	366	32.3	147	12.9
Other Asia and Islands (OAI)	209	30.6	85	12.4
Sub-Saharan Africa (SSA)	222	43.6	91	17.9
Latin America and the Caribbean (LAC)	71	16.0	28	6.4
Middle Eastern Crescent (MEC)	69	13.7	28	5.5
World	1 251	23.7	504	9.6

As Table 3.5 shows, there were substantial differences between regions with regard to cases of drowning in 1990. The average rate for the world was 23.7 per 100,000 persons, and 504,000 were killed. The lowest incidence as well as death rate was in the Established Market Economies, the highest in Sub-Saharan Africa.

To complete the picture, Table 3.6 shows the estimates for “other unintentional injuries”.

**Table 3.6** Global incidence of “other unintentional injuries” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	4 685	587	65	8.2
Former Socialist Economies of Europe (FSE)	4 101	1 184	54	15.5
India (IND)	13 672	1 609	187	22
China (CHN)	14 615	1 289	190	16.7
Other Asia and Islands (OAI)	10 033	1 470	128	18.8
Sub-Saharan Africa (SSA)	13 103	2 568	166	33
Latin America and the Caribbean (LAC)	6 183	1 392	80	18.0
Middle Eastern Crescent (MEC)	4 845	963	62	12.4
World	71 236	1 352	932	17.7

Table 3.6 shows that there are substantial differences between regions in “other unintentional injuries”. The average rate for the world in 1990 was 1,352 per 100,000, and 932,000 were killed. Again, the lowest incidence is to be found in the Established Market Economies, and the highest in Sub-Saharan Africa.

The total number of estimated unintentional injuries for 1990 is 312,490,000, with 3,234,000 fatalities. Table 3.7 shows corresponding estimates for “self-inflicted injuries”.

Table 3.7 shows corresponding estimates for “self-inflicted injuries”.

**Table 3.7** Global incidence of “self-inflicted injuries” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100, 000)</b>
Established Market Economies (EME)	474	59.4	112	14.0
Former Socialist Economies of Europe (FSE)	317	91.6	81	23.3
India (IND)	696	81.9	99	11.7
China (CHN)	2 191	193	343	30.3
Other Asia and Islands (OAI)	425	62.2	67	9.8
Sub-Saharan Africa (SSA)	75	14.7	16	3.1
Latin America and the Caribbean (LAC)	122	27.4	22	5.1
Middle Eastern Crescent (MEC)	254	50.4	46	9.2
World	4 522	86.4	786	14.9

As Table 3.7 shows there were substantial differences between regions for “self-inflicted injuries” in 1990. The average rate for the world was 86.4 per 100,000 persons, and 786,000 were killed. The lowest incidence as well as death rate was found in Sub-Saharan Africa, and the highest in China.

The year 2000 the number of suicides were estimated to 815 000 for both genders corresponding to 14,5 per 100 000 population, twice the number of homicides (8,8/100 000) – and thre times deceased due to acts of war (5,2/100 000) Table 3.8 shows estimates for “violence”.

Table 3.8 shows estimates for “violence”.

**Table 3.8** Global incidence of “violence” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	636	80	30	3.0
Former Socialist Economies of Europe (FSE)	474	137	30	8.7
India (IND)	658	77	56	6.6
China (CHN)	806	71	51	4.5
Other Asia and Islands (OAI)	670	98	51	7.5
Sub-Saharan Africa (SSA)	2 093	410	205	40.1
Latin America and the Caribbean (LAC)	1 750	394	102	22.9
Middle Eastern Crescent (MEC)	225	44.8	39	7.7
World	7 313	139	563	10.7

Table 3.8 shows substantial differences between regions with regard to “violence”. The average rate for the world in 1990 was 139 per 100,000 persons, and 563,000 were killed. The lowest incidence rates are found in the Middle Eastern Crescent and China, and the highest in Sub-Saharan Africa.

Finally, Table 3.9 shows the estimates for victims of “war”.

**Table 3.9** Global incidence of victims of “war” 1990, according to Murray & Lopez (1996), in eight regions.

<b>Region</b>	<b>Number (000s)</b>	<b>Rate (per 100,000)</b>	<b>Deaths (000s)</b>	<b>Rate (per 100,000)</b>
Established Market Economies (EME)	1	0.1	0	0.0
Former Socialist Economies of Europe (FSE)	213	61.4	29	8.4
India (IND)	29	3.4	3	0.4
China (CHN)	6	0.5	1	0.1
Other Asia and Islands (OAI)	109	16.0	15	2.2
Sub-Saharan Africa (SSA)	1 955	383	268	52
Latin America and the Caribbean (LAC)	127	28.5	17	3.9
Middle Eastern Crescent (MEC)	1 237	246	169	34
World	3 675	70	502	9.5

As Table 3.9 shows, there are substantial differences between regions in injuries related to “war”. The average rate for the world in 1990 was 70 per 100,000 persons, and 502,000 were killed. The lowest incidence as well as death rates is in the Established Market Economies and China, the highest in Sub-Saharan Africa and the Middle Eastern Crescent.

In sum, the total estimated number of people injured due to all causes in 1990 is 328,000,000 with 5,085,000 fatalities.

### **Conclusion – a mixed picture**

Injury is a phenomenon based on a mix of intentional and unintentional events. Both self-inflicted and mass-inflicted events (wars) are included. The global statistics have their deficiencies, but we have provided the best estimates (calculations made within the confines of the GBD study). Altogether, it is estimated that over five million people die each year due to injury, of whom somewhat more than three million as a result of unintentional events.

There are huge differences between the regions of the world, and the injury pattern also varies considerably. Sub-Saharan Africa has the highest incidence rates for fires, cases of drowning, acts of violence and war-related injuries, but the lowest incidence of self-inflicted injuries. By contrast, China has the highest incidence of self-inflicted injuries, but the lowest for violence, war, and traffic-related injuries. The Latin America and Caribbean region is generally low on injuries, but it has the highest incidence rate for traffic injuries. The region shows the lowest incidence of poisoning. The Former Socialist Economies are high on cases of poisoning and falls. The Established Market Economies are the lowest on fires, drowning, violence and wars, but the highest on falls. Another way of obtaining valid data is illustrated in Example 3.1.

### Example 3.1

#### **Victimisation from physical violence in Pennsylvania – prevalence and health-care use**

The objective of the study was to determine the prevalence of interpersonal physical violence among Pennsylvania adults, identify personal characteristics of the victims, and determine their use of emergency departments or other medical-care facilities for resulting injuries. Data on physical violence were obtained from a state-wide telephone survey in 1994.

Significantly more victimisation was reported among males aged 18-29 years, the employed, and unmarried persons. 12.9% of victims went to an emergency department or other medical-care facility to have their injuries treated. Significantly more persons with an annual household income of less than \$20,000 reported using the emergency department than those with a higher income.

The conclusion drawn was that victims of physical violence are mostly young unmarried men aged 18–29 years. Emergency-department and other medical-care facility use for injuries was greater among persons on lower incomes (Forjuoh et al. 1997).

#### **The importance of considering the differences**

Differences in injury distributions reflect the varied socio-economic, political and environmental conditions that currently prevail world-wide. Prevention cannot be implemented with programmes that do not take such differences into account. This is one very strong reason why safety promotion must be designed for its own exclusive setting, and by the people and organisations located where events preceding injuries occur. But

attention must also be paid to how influences from other cultures and international economic powers might influence local safety situations in a globalised world (for good or for bad).

In this context, there is one more thing to be aware of and take into account. This is the situation where strong commercial powers, aided by scientifically formulated advertising, strengthen individual and societal needs, or possibly create new ones. Such influences can influence societal consumption and living circumstances a lot, and are not always in agreement with the real needs of society and its individuals. They may lead to waste of resources and the creation of problems.

Some of the risk of hazards to people behind recorded injuries are illustrated in pictures 3.1–3.4.



Picture 3.1 Poor tent dwellers near a river in Bangladesh.



Picture 3.2 An uncovered well in Sweden – a safety risk.



Picture 3.3 An injury caused by a sharp object – from an emergency room in Nicaragua.



Picture 3.4 A young woman with a burn injury.

## 3.2 Quality of data

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The general aim of injury epidemiology is to provide information to decision-makers in the fields of injury control and safety promotion. There are a number of major problems – not to be neglected – associated with epidemiological data sources. In particular, there are the expense of operating a register, registry organisation and staffing, and quality of registry data (Goldberg et al. 1980). Quality issues have been scrutinised by several research groups, both internationally and in our own research group at the Karolinska Institute in Sweden (WHO 1978, Weddell 1973, Schelp & Svanström 1987, Jansson & Svanström 1999). Brooke (1974) expresses the problem as follows: “Every year an enormous quantity of medical statistics are compiled and published, and very little is known about the quality of the data on which these statistics are based. But, when keeping this in mind, as well as using common sense and listening to the community and the wide range of knowledge out there, this gives a great opportunity to bring about safety-promotion work useful for society.” Further examples of analysis of data are given below (Examples 3.2–3.6).

### **Hip fractures and socio-economic status – an ecological analysis from the USA**

To determine the incidence of hip fractures among the elderly in the USA as a function of socio-economic status, a national probability sample of 4,999 hip-fracture cases, 50 years and older, was selected using data from the National Hospital Discharge Survey for 1989–91. The conclusion drawn was that the incidence of hip fractures varies as a function of income level. The results have implications for targeting prevention programmes at local level and for studies that use hip fractures as a “marker” for avoidable hospitalisations (Bacon & Hadden 1996).

### Example 3.2

### Example 3.3

#### **Injuries in Egypt**

Injuries are a significant source of morbidity and mortality in Egypt. They are the fifth leading cause of death, and also the leading cause of hospitalisation in the country. Also, they account for at least one quarter of all outpatient visits. Children under fifteen years of age made 28% of such visits.

Falls were the leading cause of injury visits (39%), followed by cuts (16.5%), and motor-vehicle injuries (13.1%). Street fights and violence accounted for 30.7% of all visits to emergency rooms. The motor-vehicle death rate in Egypt is estimated to be between 9 and 27 per 100,000. About 1 in every 900 Egyptians is hospitalised for a burn injury each year. Most incidents occur in homes, and affect young children and their mothers.

It was concluded that a national programme to control injuries and violence is needed. (El-Sayed MS 1997).

### Example 3.4

#### **Underground cistern characteristics act as risk factors for drowning at home in the 1 to 4 year-old group – Mexico**

In order to explore underground cistern characteristic as risk factors in drowning at home in the 1 to 4 year-old group, a case-control study was performed in Guadalajara Metropolitan Area in Mexico. The conclusion drawn was that a cistern without a pump is of high risk for drowning. In poor communities it is frequent not to have one. In such case, an inexpensive pump might be an option. At the cistern-design stage, attention must be paid to the place where the pump inlet will be (Celis A. 1996)



Picture 3.5 An injured child – from an emergency room in Khon Kaen, Thailand.

### Example 3.5

#### **The Case-control study on risk factors of impairment of the bicycle accidents in Wuhan City, People's Republic of China**

A study of the nature of and the risk factors involved in bicycle accidents in Wuhan City, People's Republic of China, found that 53% of accidents were caused by motor vehicles. The conclusion drawn is that bicycle accidents are due to a complex of factors, concerning bicyclists, bicycles and motor vehicles, road conditions, and traffic status. The personal behaviour of bicyclists was found to play an important role. Accidents could be reduced or prevented by means of safety education, enhancing traffic rules, and other intervention measures (Xiaoxian & Siqing 1996).

### Example 3.6

#### **A community study on childhood injuries in Singapore**

The study shows the prevalence of injuries among children, 14 years and below, types and profiles of child injuries, and the utilisation of health services. It was performed in order to assess primary carers' knowledge, attitudes and practices concerning childhood injuries and child safety. It was based on a questionnaire administered to families in 1995/1996.

Of 2,322 children in the study, it was found that 452 incurred at least one injury over the previous year. The most common injury locations were home (45%), outdoors (32%), and school (23%). Falls constitute 80% of the injuries, sharp objects 6.75%, suffocation 4.3%, and burns and scalds 4%. 83% of victims received home treatment, while 5.5% were treated in emergency rooms and 2.5% were hospitalised. 15 persons sought treatment from traditional Chinese healers. Primary carers were found to have limited knowledge of home injuries and first-aid management for shocks and burns. This indicates the need for a health-education programme, but also suggests that doctors and nurses must play a more active role in giving information to parents (Thein et al. 1997)

### **The four most common limitations of registry data**

1. Under-reporting constrains opportunities to take appropriate measures and determine priorities (Barancik et al. 1983).
2. A lack of comprehensive statistics for all types of accidents complicates inter-sectoral analyses.
3. Some national registries cannot – either at all or easily – be broken down by local area (county or municipality in the case of Sweden).
4. Trend or causation analysis, when based on the classification of external causes (according to E-code), has major systematic deficiencies (NOMESCO, 1997).

### **Important questions concerning the focus of injury epidemiology and its relation to safety promotion**

The following questions can be listed immediately:

- To what extent are methodological complications manageable?
- How should significant differences between regions be explained?
- How are risk culture and injury pattern connected?
- How might structural factors be operationalised in safety practice?
- What can be learned from the most successful countries?
- To what extent are safety experiences transferable between countries?

Not every detail is scrutinised in epidemiological analysis. Accordingly, there is room for personal reflection, and also for training in the critical review of injury data. A self-instruction manual on the interpretation of epidemiological data might be useful (Abramsson 1994), and a critical approach to data quality increases opportunities to target measures at major deficiencies in safety.

### **Watch out for inaccuracy!**

It is of a great importance to increase public understanding of safety phenomena as a public-health problem. One way is to describe the current magnitude and scope of injury incidence. But it is also important to be aware of some major data-related problems that arise when statistical comparisons are made over time – globally (between regions of the world), between regions in Europe, and even nationally. Comparison must be made in a rational and sensible manner so that results are not misleading. Inaccuracy is not a good foundation for a safety-promotion programme.

### 3.3 High-income and low-income countries

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In their book, “Injury Control – A Global View”, Berger and Mohan (1996) discuss the vocabulary used to define countries in order to make comparisons possible, e.g. with regard to injuries and their causes. They find the expressions “high-income” and “low-income” countries more useful than the more commonly employed terms “less developed” and “more developed”. They point out that “high” or “low” income better reflects the, often powerful, influence of a country’s economic status on its patterns of injuries.

They find that development has connotations of social hierarchy that we would prefer to avoid. Even a crude indicator such as Gross National Product (GNP) per capita can distinguish between countries with vastly different social and economic circumstances.

The United Nations often bisects the world into “less developed” and “more developed” regions or countries on the basis of demographic and other socio-economic indicators. The less-developed regions include the whole of Africa and Asia (excluding Japan), Latin America and Oceania (excluding Australia and New Zealand). The more-developed regions include all of Europe, Russia and some other parts of the former Soviet Union, north America (USA and Canada), and the regions just cited as not belonging to the less-developed category (Berger & Mohan 1996).

Assigning countries to broad categories obviously ignores vast differences between nations in geography, occupations, cultural characteristics, political structures, and all the other features that make each country unique. There is value to the approach, however, because countries of similar economic status share so many social and demographic characteristics. For example, in comparing Kenya (a low-income country), the Republic of Korea (a newly industrialised country) and Sweden (a high-income country industrialised for nearly 100 years), it is found that levels of income, literacy rates, health indexes and transport-and-communication infrastructures are all inter-related, and have a tremendous influence on the nature and extent of injuries (Berger & Mohan 1996). A similar pattern of injuries tends to be found in countries when the circumstances under which they occur is approximately the same. This is a good reason to share experiences and knowledge between countries about injury-prevention and safety-promotion work.

Adisak et al. (1999) examined the relationship between magnitude/relative importance of child-injury mortality and socio-economic

development to conceptualise dynamic changes in child-injury mortality within the framework of epidemiological transition. They conclude that child-injury mortality rates are negatively correlated with Gross National Product (GNP) per capita (Pictures 3.6 and 3.7).



Picture 3.6 Children in India. Young children at the hamlet water pump.



Picture 3.7 Children in Sweden. Three boys on bicycles.

By categorising the data, the authors found some areas of non-correlation: between children 5–14 years-old in low-income and lower middle-income countries, and between all age-gender groups in both levels of high-income countries. A high percentage of total deaths due to injuries was clearest in the lower middle-income countries in all age-gender groups.

Child-injury mortality in Thailand, a country which has shifted economically from low income to middle income, showed an increasing trend in both rate and percentage of total deaths. The conclusion drawn from this was that dynamic changes in child-injury mortality in relation to socio-economic development could be conceptualised as involving three stages:

1. The high-magnitude stage.
2. The high-priority stage.
3. The improvement stage.

Most middle-income countries are at the stage of high priority. In these countries, both the injury-mortality rate and the percentage of injuries in total deaths are high.

### 3.4 National differences in injury morbidity and mortality – why?

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The probability of death from injury at ages 15–59 varies widely between regions, ranging from a low of 3.4% to a high of 13.3%. Globally, 30% of male injury deaths occur at the ages 15–29 years. The corresponding proportion for females is 25% (Murray & Lopez 1996).

Levels of economic development and injury patterns are associated at an ecological level. In countries with a well-structured road network and a regulated traffic system, the proportions of both injuries and fatalities (in road traffic) are below the average of all countries in regions that are poorly served in this respect, e.g. Sub-Saharan Africa, Latin America, and the Caribbean. However, these figures do not take into account exposure to traffic, i.e. the number of vehicles or miles transported (Jansson & Svanström 1999). The exposure factor is of importance in terms of obtaining the overall picture of the problem in society.

In China, a country with relatively few motor vehicles, there are also few traffic accidents (calculated as accidents per 1,000 inhabitants and year). The risk of rising mortality due to a rapid increase in the number of vehicles is imminent. Such a trend has been observed not only in central and eastern Europe but also in Vietnam (Svanström 1998b).

Established Market Economies have very low rates of poisoning. But there are high rates of poisoning in the Former Socialist Economies. Detailed analysis demonstrates that children (both boys and girls) aged 0 to 4 years account for a high proportion of these poisonings, but that mortality is predominantly a problem among adult males 45 to 59 years-old. Alcohol and drugs appear to be the major risk factor. The same pattern has been observed in China. Poisonings also give rise to a high mortality rate in Sub-Saharan Africa – as elsewhere mainly affecting children aged 0 to 4 years.

Non-fatal falls, by contrast, have a high incidence in India and other parts of Asia (including the islands), especially among children aged 0 to 14 years (both boys and girls). An excess mortality rate related to falls is apparent in countries with a market economy, especially in the age group 60 and older. Burns are of great concern in India and Sub-Saharan Africa. In India, with regard to both injury morbidity and injury mortality, twice as many girls/women are affected. These kinds of statistical facts reflect socio-economic factors and traditions, e.g. the common use of open fires for cooking and heating, and the kinds of work traditionally done by women. Accordingly, exposure to scalding is greater among females.

Drowning accidents are generally associated with degree of urbanisation. Regions with a high rate of drowning are Sub-Saharan Africa, Other Asia and Islands, and China. The largest group affected consists of children in the ages 0 to 14 years. Specific studies from Bangladesh show similar patterns (Rahman et al. 1998) Again, this says something about exposure to risk. In rural areas there is more open water (lakes, rivers, dams, ditches, etc.) and the risk of drowning is higher. In urban areas the situation is the opposite; there is not so much open water, and it is more often guarded by fences. Exposure to risk is higher in rural areas, lower in urban areas.

The highest suicide rates are found in the Former Socialist Economies and in China. Suicide attempts are much more common among women than men in China (314.8 and 79.3 respectively) and in India (111.5 and 73.4 respectively). Injuries due to violence, including acts of war are most frequent in Sub-Saharan Africa, Latin America and the Caribbean. It is primarily men of ages between 15 and 44 years who incur injuries due to violence. There is no doubt that injury rates reflect structural differences between countries (Pictures 3.8–3.13).



Picture 3.8 Winter in Krokom, northern Sweden.



Picture 3.9 Fishing community, Vaery, Norway.



Picture 3.10 Residential area, Corker Hill, Glasgow, Great Britain.



Picture 3.11 City area in Estonia.



Picture 3.12 Mother and child, the rural area of Kanha, India.



Picture 3.13 Cultural ceremony, Navajo Nation, Arizona, USA.

## 4. Safety Promotion

Can safety promotion broadly speaking succeed and be sustained locally in an ever and more globalised world? Is there not a risk that good results become temporary or limited, when preconditions and enterprises are under rapidly changing influences, and systems of free movement of labour are developed around the world.

To sustain safety-promotion work during globalisation demands co-operation between municipalities and regions within countries, between countries, and also supra-national strategies. A simple example is when, in a Western industrialised country like Sweden, an environmentally and health-negative industry is closed down, this can be looked upon as a health and safety gain. But if the industry is established in the same form in another country (with a high unemployment rate and a great need for work, but with low demands on the environment), this only means that the problem has been shifted, and that other people become the victims. From a global perspective, this means no injury reduction, maybe even a net increase.

### **Safety – a question of solidarity and democracy**

Safety offers a motive for solidarity and co-operation between countries, and – at a global level in the long run – to increase the quality of living. From this point of view, safety promotion can be regarded as an important question of democracy and solidarity, and also as a way to promote peace and understanding, both inside countries and between countries and peoples.

But Western industries often shift risk production to low-income countries (with few environmental demands and low wages). The media in Sweden have reported about 12–14 hours of work per day for 100 dollars a month for women in a factory producing shoes (which gives high income to these enterprises). As a result, injuries increase in low-income countries. In high-income countries, injury rates in working life may fall because of the shift of this kind of production to low-income countries. For the world as a whole, this is not a benefit and not something to ignore. What it produces is the exploitation of poor people and shifts in injury risks between countries.

### **Development of a National Injury Prevention/Safe Community Programme in Vietnam**

Since the market economy was introduced in Vietnam in 1986 the injury pattern has changed. An example of this is that traffic-injury deaths increased three times 1980–1996, and persons injured in traffic more than four times. Injuries are the leading cause of mortality among hospitalised persons. But it is difficult to get a broad picture of the injury pattern from official statistics.

In conjunction with the work initiated by Vietnam's Ministry of Health, from the latter half of the 1990s onwards, a number of local reporting systems have been developed, and built up from province to district to commune, and then from commune part to hamlet. Management is based on administrative, producer and legislative documents. Implementing the National Programme on Injury Prevention/Safe Community (IP/SC) is considered the duty of the whole community, including local authorities and people's committees.

The programme is important for creating a safe environment for everybody in private life and at work, so as to create stability for the society to develop. Programme implementation is planned in 800 schools with a great number of pupils (25% of population). To reduce the number of injuries, the idea is that more pilot models of IP/SC should be conducted in some other localities, and the programme then expanded to national scale. Co-operation between sectors and organisations should be prioritised, and the professional skills of key members of SCs at all level should be raised (Chuan et al. 2000).

## **4.1 Theories and models for safety promotion**

Many models and frameworks have been presented for work within the area of safety promotion. In the search for evidence-based safety promotion many of the proposed models can be used as guides for seeking relevant knowledge. Most of these models have their starting point in the work William Haddon Jr. – who developed the “Haddon Matrix” that analyses injuries in relation to three phases and three different factors:

1. Before the event.
2. The actual event.
3. After the event.

#### Example 4.2

##### **Childhood injury-control efforts in the Czech Republic**

In the Czech Republic childhood injury is a serious problem, with increasing hospitalisation and mortality rates every year – a great human as well as a medical and economic problem.

In 1994 mortality from injuries and poisonings among children up to 14 years of age amounted to 23.7% of all mortality, which represents a 9% increase compared with 1990. Major financial sources are needed for rehabilitation and disability payments.

There is no childhood-injury monitoring system in the country, and medical reports – until recently – have only reported data on mortality and hospitalisation, and have not given an objective picture of injury incidence and mechanisms.

Preventive efforts are described as dispersed, uncoordinated and lagging behind objective needs. To solve all this, the Czech Paediatric Society set up a Childhood Injury Prevention Board, with the aim of starting inter-sectoral co-operation, and introduced prevention programmes on the basis of epidemiological studies. For this purpose a “Safe Home” project, with the financial support of private companies, focused on decreasing childhood injuries at home (Grivna et al. 1997).

The three factors are linked to the traditional epidemiological “host-agent-environment” model.

1. Host is the human being, e.g. the driver of a car, a pedestrian, or a child playing in a dangerous environment.
2. Agent is, for example, an energy-transmitting vehicle – a motorbike or a bowl of boiling water.
3. The environment includes both physical environment (roads, enterprises, housing areas) and social environment (Bergen & Mohan 1996).

All types of injuries can be analysed by this model, and it also can be used to examine risk factors and possible interventions. In Figure 4.1 “Haddon’s Matrix” as applied to collision with a car is presented, as too are the possibilities for preventive measures designed to separate physical and social environments.

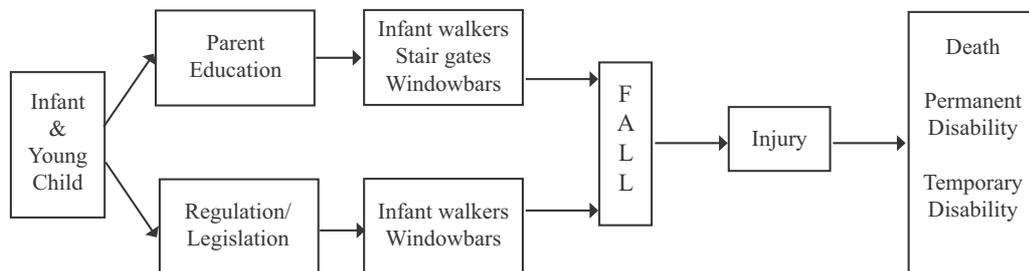
In international work to develop evidence-based prevention the Cochrane Group at the Harborview Injury Prevention and Research Center (HIPRC) has developed models for systematic reviews of literature

based on Haddon's principles. These can be viewed on the web at <http://depts.washington.edu/hiprc/childinjury/> You can find the most comprehensive safety promotion presented so far on the Internet. One example from the research centre is presented in Figure 4.2, which shows an analysis of injury-prevention and safety-promotion work with fall injuries among children (Haglund & Svanström 1999).

Factors Phases	Human	Vehicle and equipment	Physical Environment	Socio-economic Environment
Pre-crash	Alcohol Impairment	Deficient Brakes	Road Light	DWI Laws
Crash	Seat Belt Use	Size of Car	Break-away Sign Post	Seat Belt Laws
Post-crash	Severity of Bleeding	Post-crash Fires	Access to Crash Sites	Emergency Medical Response
Losses	Damage To People	Damage To Vehicles And Equipment	Damage To Physical Environment	Damage To Society

**Figure 4.1** Examples of the Haddon Matrix. A model for guiding the analysis of motor-vehicle crashes and potential preventive measures. Adapted from Bergen & Mohan, 1996.

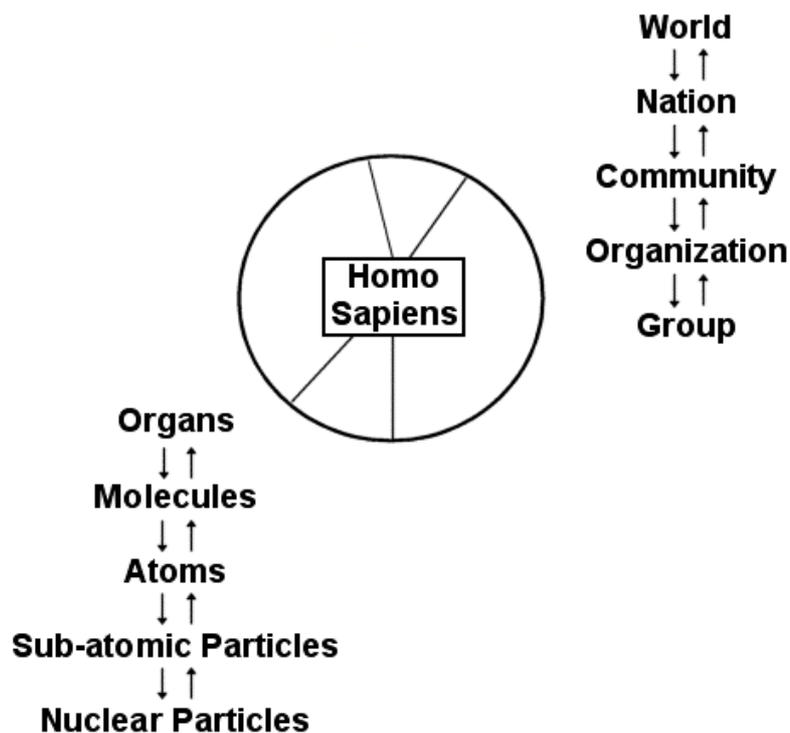
## Prevention of Falls



**Figure 4.2** Evidence-based model for prevention of fall injuries among children. (Harborview Injury Prevention and Research Center 2001).

## 4.2 Levels of safety promotion

All public-health work has the ultimate aim of preventing disease and injury in “Homo Sapiens” (Figure 4.3). Human beings are not only to be divided into organs and molecules (inner world) but also to be related to acting on different levels like group and communities. In other words human behaviour can be described in relation to friends and work environment, leisure time, and relations to societal structures at large (how society works) with its political and ideological and cultural/socio-economic conditions (Svanström & Haglund 1987).



*Adapted from Ekman et al. 1999.*

**Figure 4.3** Levels of order in the “outer world” (environment and social structure) and in the “inner world” in relation to the human being.

### **Keep positive results permanent**

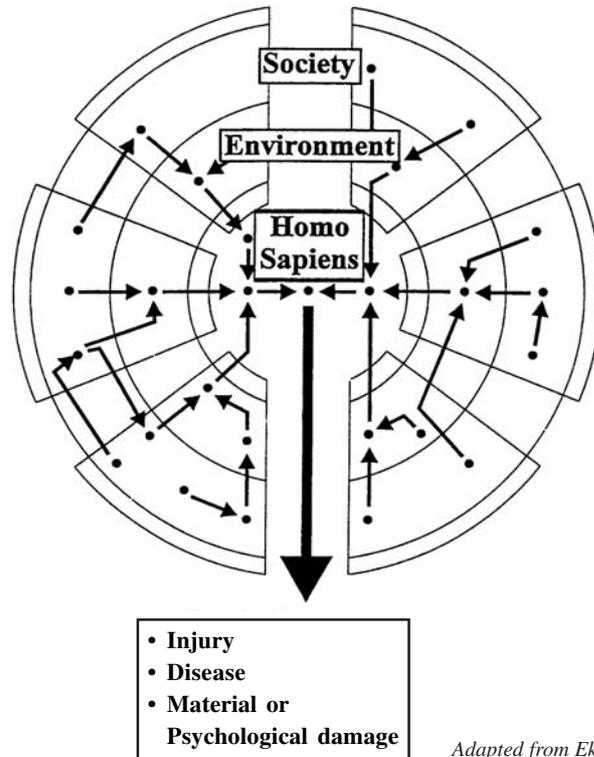
A highly important goal for all safety-promotion work is to keep positive results sustained (as measured by a continuing high level of safety and low injury rates). Short-term success is not enough; the goal must be to reach a permanent good result. This creates a strong need for maintaining prevention work. Society is constantly changing, and new individuals/age groups, and cultural and economical circumstances influence the living situation. Accordingly, there is always a need for preparedness to change prevention methods and measures to maintain good results. A changing society has no use for antiquated methods that were useful in the past.

### **Generalisation as an aid to understanding complexity**

To simply understand a complex reality – society – we need to generalise, both conceptually and in figures. Human beings can only be understood in relation to each other – in groups, organisations, communities and societies. We often refer to such understanding in terms of different levels of the “outer world”. In the same way, it is possible to split up the “inner world” into levels, such as the neurological system, blood system, and so on. All these levels must be clarified, analysed and understood in order to be able to initiate the right measures to decrease the amount of injuries and to achieve safety (Ekman et al. 1999).

### **Organised action for safety**

Human beings are constantly striving for safety and health. But there are always conflicting actions and interventions in the surroundings that more or less intentionally obstruct such strivings. Out of all these strivings come results that can be measured in terms of more or less diseases or injuries, material loss and psychological damage (Figure 4.4) The term “intervention” refers to organised action in the societal system – designed to reduce damage or injury (Ekman et al. 1999).



**Figure 4.4** Disease, injury and material/physiological damage in relation to man-machine-environment/social-structural systems.

### Individual information

Action is taken at individual level:

1. Where the border is constituted by the limitation of human beings.
2. Related to the physical environment, i.e. work, housing, public environment (day-care, kindergarten, transport, nature, leisure time, health services, etc.).
3. Man can also be related to societal structure as a whole, i.e. structural change with economic and geographical concentration, urbanisation (with rootlessness, alienation, powerlessness and pacification), social exclusion, unemployment, bureaucratisation of public services, commercialisation, technocratisation and professionalisation. All this together can make it hard for large groups of people to find a place in society and to solve their problems. The same structures can however fulfil a safety function.

Work at this level includes individual advice and support. This can be given generally, or to some high-risk individuals – through personal contacts by community nurses, physicians, social workers, and personnel at maternity clinics or in dental care.

#### **Group information – group level – organisational level**

This is given through different societal or voluntary organisations to different groups (risk groups/age groups). Examples include study organisations/evening classes, health centres or various self-help groups.

#### **Population level**

At this level, work is performed in a defined geographical area, e.g. the community.

#### **Societal level**

Here, work is undertaken through health services (e.g. Sweden's National Board of Health and Welfare) or together with private enterprises or voluntary organisations (such as the Red Cross).

Certainly, it is possible for work at different levels to be performed at the same time; for example, work in the community can be accompanied by working with employees in a dominant industry (organisational level). Within that industry, some groups of individuals can be selected for targeted health measures. Thus, five levels for prevention work can be identified (Svanström 1987):

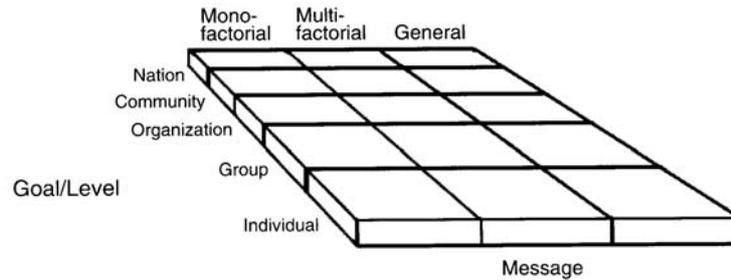
1. Individual-oriented
2. Group-oriented
3. Organisation-oriented
4. Community-oriented
5. National-oriented

Within each of these levels, it is possible to differentiate between the following factors:

1. Mono-factorial (one factor like safety-belt or smoke alarm)
2. Multi-factorial (many safety products at the same time)
3. General (improvement of safety level)

In the first case, one cause is distinguished and focused upon. In the second case, you see the disease or injury as the product of many factors, and then

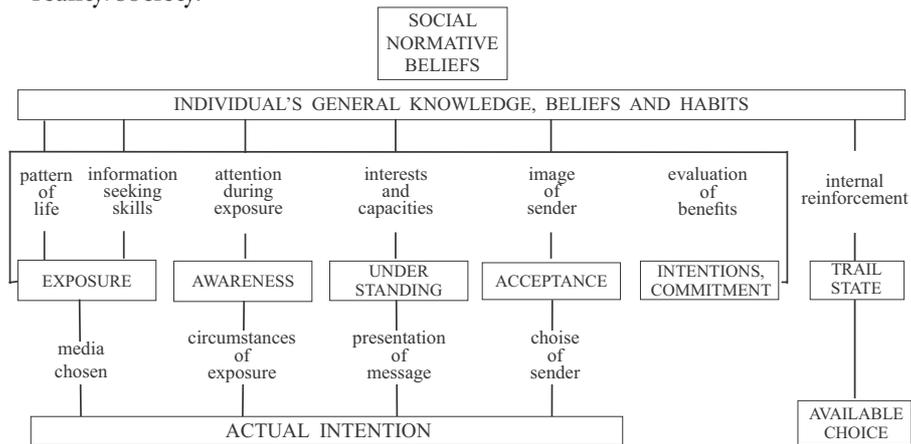
try to prevent these in an assembled programme. In the third case, it is not sufficient to address evident, specific causes of disease or injury, but general societal measures are needed. All this can be summarised in the so-called “plate of prevention” (Figure 4.5).



**Figure 4.5** The plate of prevention (Svanström 1987).

**What is the individual a product of?**

The most common model for work is “KAP” (Knowledge, Attitudes, and Practice). In simple terms, this means that robust knowledge and the “right” attitudes generate desired and sustainable behavioural changes (Figure 4.6). Experience shows that one thing leads to another. Knowledge leads to changed attitudes, which in its turn lead to changed behaviour (practice) – but there are a lot of contradictory results. From a public-health perspective, it is evident that a model that does not include KAP in a broader sense has limited value. In other words, you have to see the individual not only as a product of him/herself and his/her attitudes and behaviours, but also as a result of many influences (good or bad) from the surrounding reality/society.



*Adapted from Sandersson et al. 1988.*

**Figure 4.6** The KAP model – Knowledge, Attitudes and Practice.

### 4.3 International level

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The World Health Organisation (WHO) has been working increasingly with injury prevention and safety promotion over the last decades. When WHO established its 8<sup>th</sup> General Programme – for the period 1990–1995 – the number of established countries with adequate policies and programmes were still too few and they still are. With the programme WHO wanted to move from the gathering of facts to the taking of action. Stress was placed on the necessity to integrate safety promotion and injury prevention into general health-promotion programmes. The focus of any programme should be on activities in the local community.

#### Safe Communities

On a Swedish initiative the concept of “Safe Community” was formally introduced internationally in 1989. It is now a part of the WHO’s global injury-prevention programme. By a Safe Community is meant a local community – often a municipality – where there is an active injury-prevention programme covering all ages, environments and situations, and also where networks of public authorities, health services, voluntary organisations, enterprises and interested individuals work together. Safe Community programmes have been started all over the world, and are parts of a growing network for the exchange of knowledge, experiences and research findings.

#### History of Safe Communities

The “Safe Community” concept came into formal existence at the First World Conference on Accident and Injury Prevention in Stockholm, Sweden, 1989. The “Manifesto for Safe Communities”, adopted by resolution of the conference, was the fundamental document. It states that “all human beings have



Picture 4.1 Safe communities are designated. The appointment of Noarlunga Safe Community 1996. In picture: Richard Hicks, project manager, Safe Com, Noarlunga, Leif Svanström, WHO Collaborating Centre for Community Safety Promotion, Karolinska Institutet, Stockholm, Sweden, and municipality leaders from Noarlunga, New South Wales, Australia.

an equal right to health and safety”, which is a fundamental aspect of the World Health Organisation’s “Health for All” strategy and for the WHO Global Programme on Accident Prevention and Injury Control. This premise has led to community action around the world, i.e. actions leading to safe communities.

More information can be found at <http://www.phs.ki.se/csp>. There are also several international networks in the Safe Community Movement.

### Example 4.3

#### **The WHO Collaborating Helmet Initiative Programme at international level**

The WHO Helmet Initiative reviews the status and strategies of helmet promotion in the world, helmet activities and discussions of progress in programme objectives, epidemiology and surveillance, legislation and standards, education, and communications. Exceptional helmet-promotion programmes are a valuable resource. They increase helmet use (when bicycling, etc.) and reduce brain injury, and also serve as valuable examples.

A Collaborating Helmet Initiative Programme may be located in a local community, a hospital, research university, or a regional or national health department. The ideal programme should be well established and have research, education and policy elements. These programme elements should be replicable in other helmet programmes. Ideally, the activities of a collaborating helmet-initiative programme should focus on all members of a community – children and adults, rich and poor – so that all can benefit from the protection offered by a helmet. The programme should be willing to provide help to other groups and individuals. This may include sharing of promotional and policy materials – providing training, mentoring and collaborating research. A collaborating helmet-initiative programme is a global resource (Graitcer 1999).

Figure 4.7 and Picture 4.2 give examples of other international organisations for safety promotion.

- EU Assembly of the European Regions 4th Committee. As one of four prioritised areas the Committee chose to work with policies for accident prevention.
- EAPCCT. The European Association of Poison Centres and Clinical Toxicology – a co-operative organisation for centres of poison information in Europe.
- IPS. The International Programme on Chemical Safety – co-operates within WHO, ILO, and UNEP.
- ISCAIP. The International Society for Child and Adolescent Injury Prevention.
- IUTOX. International Union of Toxicology.
- World Federation of Associations of Poison Centres and Clinical Toxicology Centres.
- NOMESCO. Nordic Medico-Statistical Committee.
- European Consumer Safety Association (ECOSA).
- European Safe Community Network (ESCON).
- Mégapoles – a public-health network for capital cities/regions in the European Union.
- European Network for Workplace Health Promotion.
- Prévention Routière Internationale.
- Healthy Cities.
- Etc.

**Figure 4.7** Examples of other international organisations for safety promotion.



Picture 4.2 International WHO-organised travel seminars to teach country representatives the techniques of community safety promotion.



Picture 4.3 Tractor without rollover protection (TROP) in India.

## 4.4 National level

There are many theories addressing the obstacles and opportunities that influence change in society (Rosén et al. 2000). These theories have emerged from a wide range of disciplines, such as political science, sociology, anthropology, education, geography, psychology and mass-communication. Several of these theories are presently being applied in preventive medicine, particularly in population-based and community-oriented prevention programmes (Bunton & Macdonald 1992).

Work at this level can be influenced by legislation or performed through agreement between federations of companies or organisations. The work is done at national level but often has local roots. Health-oriented programmes and public-health units can take part in national reviews or information campaigns. Co-operation within the food industry or restaurants to change dietary habits can be one strategic method (Haglund & Svanström 1995). Examples of national intervention are presented below (Examples 4.4 and 4.5).

### Example 4.4

#### **Rollover of tractors – international experiences**

“Tractor rollover protective measures” (ROPS) were first developed in the 1950s. Mandatory regulations for new tractors were introduced in Sweden 1959, Denmark 1967, Finland 1969, West Germany, Great Britain and New Zealand 1970, the United States 1972, Spain 1975, Norway 1977, and Switzerland 1978. But, in Canada and Australia federal authorities have no regulations at all concerning ROPS and tractors.

In Sweden the annual frequency of fatal rollovers per 100,000 tractors has been reduced from 17 to 0.3 since introduction of mandatory regulations. In Norway the frequency decreased from 24 to 4 between the periods 1961–1969 and 1979–1986, and in Finland from 16 to 9 from 1980 to 1987. From 1961 to 1986 the West German rate fell from 6.7 to 1.3. In New Zealand the risk decreased from 37 to 30 from the period 1949–1958 to the period 1969–1974. In countries that introduced mandatory regulations long ago an evident decrease in the number of rollover injuries is reported, especially when retrofitting of ROPS on old tractors is required (Springfeldt 1996).

### Long-term effects of legislation and local promotion of child-restraint use in motor vehicles in Sweden

A Swedish study (2001) shows a great possibility to reach low injury rates for children in cars, involved in accidents, as a result of long-term effects of legislation on and local promotion of child-restraint use. It shows that the municipalities and six counties that early started regional programmes for safety promotion and injury prevention, based on the “Safe Community” concept, were the most successful in this. They show the greatest decrease in injuries for children 0–6 and 7–14 years of age 1970–1996, and a decrease is also evident in mortality statistics for about the same years. The injury decrease was found to be statistically significant. The study stresses that local authorities which started early with programmes, as well as those having an organised safety-promotion programme, showed a much better improvement than other parts of Sweden. But there is also a need for continuity in information and local action on childhood-injury prevention, to accompany national legislation, in order to maintain low injury rates (Ekman et al. 2001).

### A twin role – prevent disease and promote health

In Sweden, the National Institute of Public Health has the roles of preventing disease and ill-health and of promoting good “Health for All” (including the creation of equal preconditions for good health in the population). Its work is based on scientific facts, which are gathered to support public-health oriented research and development. The focus is on conditions that promote health in groups of the population exposed to the biggest health risks.

Since a couple of years this work is now co-ordinated by the National Rescue Service. The specific goals of the Safety Promotion Programme are to develop local safety-promotion programmes in the country and to promote trans-sectoral work, especially at regional and local level. Its tasks



Picture 4.4 Child restraints in cars increase safety..

are also to increase the awareness within the population about injury risks and unsafe environments and to reduce the number of injuries, with a focus on specific risk groups and environments. Important further tasks are to increase knowledge about violence-related injuries and to create preventive strategies for the future (Svanström et al. 1989, Schelp & Svanström 1996, National Institute of Public Health 1996).

### Vietnam

A National Injury Prevention/Safe Community Programme in Vietnam was initiated in 1995/96. The model (IP/SC) is based on pilot experiences in 1996 in two communes in Hanoi. Integrated Family Health Care is included, in collaboration with the Centre of Social Sciences in Health and three provincial health Bureaus. Gender issues are taken into consideration. Regular meetings of the National Committee on Injury Prevention are to be continued, and the pilot project will be assessed before expanding to other areas (Svanström 1998b).

Policy development for health services and national health policy and programmes are the key components of future development. The four target areas are IP/SC, tobacco control, adolescent health, and prenatal mortality. The purpose is that all members, both male and female, of the community live and work more safely. Eleven activities are suggested in order to strengthen inter-sectoral IP at national level and to implement the community-oriented SP/IP programme at all other levels. Factors to ensure sustainability of the programme are suggested. These are policy support, appropriate technology, environment protection, economic analysis, and financial sustainability (Ekman & Svanström 1999).

In order to strengthen and improve the organisational structure of Safe Communities (SC) there is a need for a support organisation (Picture 4.5) that acts inter-sectorially at central level, but also has the task of giving support at local level. The Central SC has been strengthened, and its operations been widened in co-operation with a number of central sectors (Chuan 2000). Figure 4.8 shows a number of such central sectors.



Picture 4.5 Support organisation for the Vietnam National Safety Promotion Programme under the leadership of Lau Hoai Chuan, Hanoi.

- National Committee on Traffic Safety, Traffic Warden Department
- Security Ministry; Flood Prevention and Diving Management Department
- Ministry of Agriculture and Rural Development; Social Evil Control Department
- Ministry of Social, War Invalid and Labour Affairs; Universal Education Department
- Ministry of Education and Training; Labour Protection Institute
- Vietnam General Labour Confederation and Vietnam Women's Union

*(Ekman & Svanström 2000)*

**Figure 4.8** Central sectors for co-operation on “Safe Community” work in Vietnam.

#### Example 4.6

##### **The Swedish Bicycle Helmet Initiative**

To co-ordinate activities among national as well as regional authorities and voluntary organisations, the Swedish Bicycle Helmet Initiative was started in 1991. Group members inspire each other in “putting helmets on” among Swedish cycling society (6 million bicyclists in all age groups out of a population of about 9 million), and thereby head injuries.

The decision to use helmets in the prevention of head injuries caused by bicycle accidents was taken by the Global Injury Prevention Programme of the World Health Organisation (based on an idea from its Group of Heads of Collaborating Centres). The centre at the Karolinska Institute in Stockholm takes responsibility for Sweden, and started the national inter-sectoral initiative group. Activities are basically financed by Sweden's National Institute of Public Health and its National Injury Control Programme and by the National Road Administration. Costs of most of the actual activities are paid by each participating organisation. A secretariat co-ordinates Initiative activities, such as creating information materials about helmets and bicycle injuries, pamphlets and handouts, and also newspaper articles on the subject. (Ekman et al. 1997, Ekman, Welander 1998).

## 4.5 Population level

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Work at population level is directed at activating local groups/organisations on the basis of knowledge about the health of a population and local preconditions. The work can be performed regionally as well as locally (in a country, municipality, neighbourhood, etc.) – what we usually call the community. For example, health planners/educators or health centres/school health services can build networks by gathering data and organising courses/conferences. Voluntary organisations co-operating with a municipality and/or county council may be mobilised in an injury-prevention programme (at what we usually call organisational level).

## 4.6 Community level

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Community interventions are distinguished by a shift in focus away from individual responsibility towards multifaceted community-wide interventions designed to ensure that everyone in the community is involved (Ekman et al. 1999). It is not in reality possible to get everyone involved, but still enough to create a strong force in making an intervention successful.

### Community development

From a theoretical viewpoint, safety interventions are founded in the community-development tradition. In the 1950s community development was described as a process, a method, a programme, and a social movement (Sanders 1952). Community development is also described as “a social process by which human beings can become more competent to live with and gain some control over local aspects of a frustrating and changing World” (Bracht & Kingsbury 1990). The concept of community is defined as including “groups of people who share some common interest or function, such as welfare, agriculture, education and religion. These interests do not include everyone in the local community but those individuals and groups who in this case have a particular interest or function in common”.

The difference between the terms is that community development is more individual, involving face-to-face action, whereas community organisation is city-wide and agency-based. Community-organisation practice divides into three possible areas: locality-based intervention, social planning and social action.

Community development is the educational and training process through which people change themselves and their behaviours, and thereby acquire new skills and confidence through working in co-operation.

Five components or stages have been focused on by Bracht and Kingsbury (1990) in the community-development process (Figure 4.9).

1. Community analysis
  2. Design and initiation
  3. Implementation
  4. Maintenance
  5. Reassessment
- Bracht & Kingsbury (1990)

**Figure 4.9** Five components or stages in the community-development process.

In the Falköping Safe-Community trial, Schelp (1987) developed a model based on eight steps (Figure 4.10).

1. Epidemiological mapping
  2. Selection of risk groups and environments
  3. Creation of working and reference groups
  4. Joint planning of intervention programmes
  5. Management of intervention programmes
  6. Evaluation of intervention programmes
  7. Modification of intervention programmes
  8. Submission of experiences to others
- Schelp (1987)

**Figure 4.10** The eight-step model employed for the Falköping trial.

The intervention programme of Falköping was practically implemented in four stages (Figure 4.11).

1. Information and advice
2. Education
3. Supervision
4. Changes in the physical environment

**Figure 4.11** Practical implementation of the Falköping programme.

### Information and advice

Information is an important means of accident (injury) prevention and can be directed at the population, or at occupational groups which are in contact with the elderly, with children, with the housing environment, with farmers etc. Via them, relevant information can be distributed to the target group.

### Example 4.7

#### **Uganda. An integrated injury information system in Uganda**

From Uganda it is described how trauma registries form the critical link between the need to know the causes/severity of injuries and the design/implementation of interventions to improve acute care and decrease the incidence of injuries. To meet these objectives an injury-surveillance system has been established in Uganda. How the injury-information system integrates trauma registries at two hospitals, one rural and one urban, with surveys in adjoining communities, are described. The registries use a one-page, 20-point format for the gathering of data on demography, ethnology, anatomy, physiology, intent and outcome (Kobusingye 1997).

There is still (always) a need to convince the public that most accidents (injuries) can be avoided through preventive programmes. Co-operation of the local press has been found to be important because of its capacity as an opinion and information distributor. At child-health centres, permanent exhibitions on accident risks among children have been staged in connection with the demonstration of protective equipment and useful

safety products. These include special check lists for the first weeks and years of life, and reminder lists for children of 18 months and 3 years of age. Safety folders for personnel, and also for parental information – containing information on child accidents and preventive measures – are available. Oral information to parents on accidental risks (of injury) is one important task for child-health centres (Schelp 1988).

Due to the high frequency of occupational accidents, Schelp finds it important that information is provided to the industrial-environment sector as well as to the agricultural sector. Information material was distributed, and the campaign was followed up in the local press.

### **Education**

It was found, as with any health hazard, that awareness is the first step in reducing risk, and that this requires several kinds and levels of education – for the public, for health workers (especially doctors and nurses), for administrators and policy-makers, and continuing education for all. It was found that health education about the wider environment is relatively neglected when health choices are made.

Information and instructions on accident and safety measures were relayed to members of the reference (expert) group, and to four groups of employees who – in their daily work – were in contact with children, the elderly, and homes in general. The occupational groups for which there was a high injury incidence was noted (Schelp 1987).

### **Supervision (check lists)**

Supervision was found important where small children and the elderly were concerned, and also for occupational groups living in an environment characterised by rapid assimilation of technical novelties.

By means of check lists it is possible to detect if and where there are accident and injury risks. For this purpose, check lists were prepared for children, the elderly and farmers. Where children and elderly are concerned, the lists are primary intended for personnel categories engaged in visiting activities. For example, at each home visit to an elderly person, a specific item on the check list is brought up. Families with small children are reached partly by district and child nurses (during home visits) and partly when parents visit their child-health centre. All farms received the check list on accident risks for the elderly as well as the list for taking an inventory of hazards at work (Schelp 1987).

### **Environmental change**

The most efficient approach to reducing accident incidence is to change the physical environment. Certain components of the information and supervision activities of the programme were devised to influence local environments (especially home and work).

As far as the traffic environment was concerned, the reference group's work resulted in decisions on new construction and light controls at accident-prone crossings in the municipality. On the initiative of the reference group an inventory and traffic-safety measurements of places where traffic accidents occur were taken (Schelp 1987).

### **Result: Continuing decrease in injuries**

Three years after the start of the intervention programme in Falköping it was found that knowledge and awareness of accident and injury risks had improved in the study area. Also, the population's interest in participating in prevention work had increased. The total number of registered injuries in the study area decreased.

### **Israel. Sports injuries in school athletes: risk, exposure and safety practices**

Athletic activity in school has gained considerable popularity, and the number of youngsters participating in competitive sports is rising. This increased activity also exposes more students to the risk of injury. The study analyses sport injuries during competitive and training activities among school athletes, and the use of protective equipment during these activities. The study includes 464 boys and 413 girls aged 12–15 years in the school state system in a region of Israel. Subjects completed a questionnaire in class, covering socio-demographic characteristics, types of sport involved, injuries incurred over the last three months, and safety practices during sport activities.

The overall injury rate was 38.4%; 6.3% were injured two or more times. The injury rate of boys was 1.5 times higher than that of girls. About a quarter of the injuries were severe. The rate of injury among boys ranged from 17.6% for track and field to 34.3% during soccer. Among girls, injuries during dance presented the lowest rate (9.0%), and volleyball the highest (18.3%). A third of the injuries were caused by overexertion, a quarter by collisions with an object, and nearly a third by falls.

The conclusions drawn were that there is a very high incidence of injuries among young athletes, and that incidence increases with degree of exposure. The availability of protective equipment was minimal, and nearly all athletes reported that their coaches did not relate to safety during sport activities (Gofin & Sadres 2000).

### **Consensus model – concept of harmony**

Schelp (1987) introduced two development trends or perspectives, one community-controlled (top-down), the other grassroots-controlled (bottom-up). For his study of the role of organisations in community participation he chose a consensus model; i.e. community work in the arena of injuries is undertaken through joint understanding between all participating parties. The model is based on the concept of harmony, where this is achieved by distributing influence between separate groups, with support being offered to those groups least able to assert themselves. This organisation-oriented approach has been used as a starting point for initiating work guided more specifically by a community-oriented approach. The SafeCom programme in Corker Hill, Glasgow, Scotland, is based more on a conflict model.



Picture 4.6 The safety flag will remain at half mast until safety and zero-pollution are achieved – from Corker Hill, Glasgow, Scotland.

Both models (Schelp 1987, Bracht & Kingsbury 1990) aim to bridge the gaps between scientific theory, social needs and social reality. It is highly important to reach the best possible result in safety-promotion work. The two models have provided a foundation for the “Integrated and Developed Model with a Media Dimension” (IDM model) of Ekman and Welander (1998), who especially elaborated media aspects of the community models (Figure 4.12). The media were quite deliberately targeted and utilised during the Swedish Bicycle Helmet Programme. The IDM model highlights the importance of political awareness, insight and participation in the process of creating a safer community. In the intervention itself, the media were quite deliberately targeted.

	<b>Integrated, developed model for community intervention</b>	<b>The media dimension</b>
I	Political insight with a starting-point in community analysis.	Building up interest via media exposure.
II	Building up structure for work, including political participation.	Spreading the prevention message so as to build up understanding and support in a population.
III	Programme implementation. Input of experiences. Politicians' and practitioners' feedback.	Continuing to spread the message and highlight its effects so as to maintain interest in the population.

*Ekman & Welander 1998.*

**Figure 4.12** Integrated and developed model with a media dimension – the IDM model.

The IDM model describes how you can stepwise build up a programme (ideologically and opinion-wise) by thoroughly getting it anchored in important societal processes – among politicians, in community administration, with decision-makers, and among ordinary citizens. Efforts to inform about and discuss the work, and then feed-back results to those who run the programme, are demonstrated in Figure 4.12. It reinforces interests, skills and participation through ongoing information, discussion and feed-back of achieved results and experiences. These measures are important in maintaining interest and ensuring continuous good results (Ekman & Welander 1998).

#### **Mass media publicity as support for policy enforcement in Victoria, Australia**

A study was performed with the goal of evaluating the effectiveness of the Transport Accident Commission's (TAC) Publicity Campaign supporting police enforcement in Victoria, Australia, in the areas of increased random breath-testing, using highly visible "booze buses", and the Victorian speed programme. A significant inverse relationship was found between level of TAC publicity and number of casualty crashes on both the speeding and drink-driving themes. The conclusion drawn was that the publicity campaign supporting police enforcement has been successful in reducing the number of casualty crashes on the roads (Newstead & Cameron 1996).

#### **Example 4.9**

### **Twin advantage of given and chosen messages**

It is important to know that media exposure on a certain matter (here safety promotion) is better respected by many people in a community than information from authorities. Citizens are often more positive to a message they themselves find and choose (e.g. in the media) than one they have been told or ordered to read, watch or listen to. However, twinning the two methods (given and chosen messaging) more than doubled the benefit. Both messages tell the same story, but in different ways.

### **Lack of relative advantage**

The theory of diffusion of innovations proposed by Rogers (1983) provides some clues as to why preventive measures usually have low adoption rates. He states that “preventive innovations” have a low rate of adoption due to the lack of their relative advantage and high visibility. A “preventive innovation” consists in an idea that an individual adopts in order to avoid the possibility of some unwanted future event as concerns injuries and diseases.

The relative advantage (we can also say the benefit) of any such measure is often difficult to demonstrate to clients, often because its outcome may occur at some future, unknown time. Observability, i.e. the extent to which the results of an innovation are visible to others, is difficult to show. Under such circumstances, the individual’s motivation to adopt the innovation is rather weak. Prevailing theories (among people and in society) also appear to have a strong influence on the acceptance of new ideas. Which gives demand for transparent power and utility if they are to be adopted.

It is a normal human behaviour to “lie back”, trust and feel secure with ongoing living conditions, even if they not are without problems. It is in fact a fairly big step to change and adopt ideas and/or behaviours you not are familiar with. To make people motivated for change requires good understandable argument on the part of trustworthy people.

Innovations not in line with prevailing theory may not be readily accepted (Fineberg 1985). It is a very good idea for people who are going to spread a preventive message to find out if there is some visible and understandable benefit to show the target group. If there is, don’t forget to show it!

### Community participation

There is, on the one hand, a great need for legislation to influence health risks, on the other a need to develop local safety work – but the two go together.

The key to successful local safety work is that local organisation in co-operation with, say, primary health care start processes within the local population (information and awareness-making engagement) that embed a will to do prevention work. This is the basis for democratic work – with a high level of consensus and harmony.

However, in practice there is seldom such a complete stage. It is difficult to relate the goal of safety to the importance of the contribution of each and everyone – both in private and public life.

The concept of community-safety promotion is still regarded as something to do with authorities and public administration. But substantial positive results are achieved in terms of reduced number of injuries and better health in the population. This indicates the power of the method, but also the important work that needs to be done by the conscious health worker.

#### **Preventing scalds in Australian children from non-English speaking backgrounds: evaluation of a campaign**

The study evaluates the effectiveness of providing linguistically appropriate information on the prevention of scalds in children to Vietnamese, Chinese and Arab families living in Sydney's inner west, Australia. 47% of mothers in the families were interviewed about the prevention information they got by post, and 47% remembered the information. But 70% could not correctly recall the message, and only 16 reported changing habits to prevent scalds. The conclusion drawn was that it is difficult to access newly arrived non-English speaking mothers by mail. They move often, and do not regularly open envelopes and read letters (Thomas M et al. 1996)

#### Example 4.10

### Get attention and explain what it's all about!

To get a population to accept and understand the aims – and observe possible benefits of a programme for each and everyone and for the community as a whole – there is a need, in all situations, to implement and explain what it is all about (Example 4.7). You must explain that safety

promotion is something natural and evident where we all (can) contribute our skills. Also, it must be stressed that accidents are not decided by destiny or things that cannot be prevented. We all have a “Zero Vision” – we not want not to be struck by accidents. That goal has to be implemented in practice by improving situations where accidents occur.

The role of local media in communicating knowledge to citizens and how to act preventively against injuries must be pointed out. This contributes to a durable interest in safety promotion. The “free” role of the media and their direct ways of expression offer the opportunity to reach large parts of the population. They have themselves chosen the information – no authority has told them to what to report. A self-selected message (what you choose to read, listen to or look at) is always easier to accept than an imposed one, however well intended it may be (Ekman & Welander 1998).

## 4.7 Organisation level

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As biological and social human beings we are dependent on membership of groups in order to satisfy our most basic needs – for protection, production, defence, education, protest, emotional warmth, and not least self-consciousness. Important group-affiliations include the family where we were born or the ones we create as grown-ups, the groups we played in as children, groups at schools, and the teenage “gang” during adolescence. We participate in many groups where we work, train, or study, and in voluntary associations (political, cultural or spiritual/religious). As an individual you contribute to the group and its development. Without groups many human needs will remain unmet.

A social group always consist of a number of individuals in co-operation. That consists of behaviours or actions in a chain of events where each event is influenced by earlier parts of the chain and guides the latter. This view on the function of the group determines the possibility of affecting health in a positive way. The groups above are called primary groups, and are constituted by recurrent, immediate and engaged contacts between group members.

An industrial plant, a trade union and a religious community are examples of what makes up the framework for co-operation in a secondary group. Here, we define the secondary group – organisation – at its own level. The work method concerning health is often different compared with the primary group. In other circumstances the boundary between

the primary and secondary group can be unclear. However, work within the group need not to be the result of influence from outside or organised programming but can be the product of a voluntary undertaking. The workplace as a forum for safety work is completely dependent on environmental and organisational pre-conditions (Pictures 4.8–4.15).



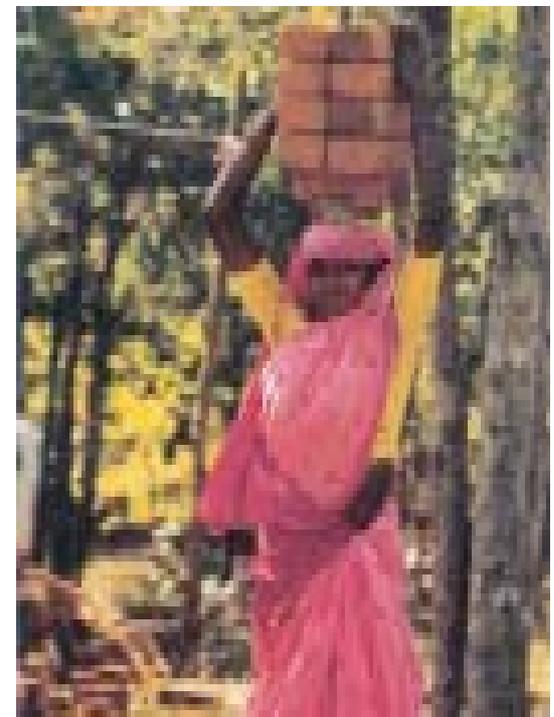
Picture 4.8 Child working in India.



Picture 4.9 Fishing industry in Norway..



Picture 4.11 Pesticide control in Thailand.



Picture 4.10 Female labour in India.



Picture 4.12 Excavator contract work in Gateshead, England.



Picture 4.13 Wood cutting in Voralberg, Austria.



Picture 4.14 Two-wheeler tractor in Thailand.



Picture 4.15 Oil-sand quarry in Forth McMurray, Canada.

Group information or support can be given via different communities or voluntary organisations or in different risk groups/age groups. Study circles/evening classes, health centres, and nutritionists can organise cooking classes, stop-smoking groups and different self-help groups, and can get support from medical or other centres. Parental groups offer another example.

#### **Consider standards in the population**

All prevention work must be organised in the light of standards prevailing in the population and the claims made by its organisations (to get them interested in participation). They must feel/understand that it is of great importance (valuable) for their part of society to have safety measures added. It is also necessary that their special knowledge is valuable and useful in the safety-building process. Involving a certain organisation and letting it be a co-operative partner gives an opportunity to build up and enlarge interest in the issue. Participation nearly always creates

responsibility, and also ambassadorship and PR for the particular cause.

Individuals' own measures for prevention are called self-care. When speaking of corresponding preventive measures in groups, we refer to self-help groups. Trojan (1983) summarised this in a diagram (Figure 4.13).

<b>Closeness to the public/ Professional system</b>	
Self-control groups Single-purpose groups Multi-purpose (health-education groups)	Self-help organisations
<b>Main goal:</b>	<b>Main goal:</b>
<b>Self change</b>	<b>Social change</b>
Self-help discussion groups For disease problems For life problems	Self-help action groups For improvements: - in the health care system - within a disease-causing - to the environment
<b>Remote from the public/ Professional system</b>	

**Figure 4.13** Self-help groups in relation to a group's main goal and proximity to the professional health-care system. Following Trojan (1983).

Trojan separated out “self-control groups”, which have changes for themselves as their goal and are close to public caregivers. These groups work either mono-factorially or multi-factorially. The goal is decided by professionals. It might be to reduce risk factors among people who are smoking, are overweight, have high blood pressure, etc. (Picture 4.7). Another type of group is the “self-help discussion group” where work can be directed at disease as a problem or more general prevention work. Then, the distance to the professional system is large.



Picture 4.7 Nurses in Bangladesh responsible for health and safety promotion incl. violence prevention.

Mutual support, understanding and information are what groups predominantly provide to each other with. This encompasses, for example, the safety information of pensioners' associations, information to parental groups about child safety, to sports clubs about prevention of sport injuries, to maternal groups about breast-feeding, and childhood-injury prevention.

Further, there is a group far from the professional system, which Trojan calls the "self-help action group". Such a group has change of health and medical systems or other social changes on its agenda. Examples include different consumer organisations, handicap organisations, environmental movements, etc.

The fourth type of self-help organisation is close to health services, with the goal of promoting change in a co-operative manner. One Swedish example is "Dentists Against Smoking", which co-operates with health services to change clinical routines (Svanström & Haglund 1987).

#### **The main resource – the group process**

Primary groups and created groups are the target of prevention work, and internal processes are means of goal realisation. Both methodology to create such groups and knowledge about group processes and functions are important for success. An example of a created group is one for a vaccination programme.

At group level not only logic but the group process in itself is an important resource. Results will be of limited value if we do not recognise and stimulate resources and potentials in the group situation.

#### **Use already existing network – lead the group!**

The primary group is of the utmost importance in that it already has a developed network of contacts. It takes time to build up a network – so use already existing ones. On the other hand, such a group may have goals contradictory to what you hope in terms of behaviour changes towards health promotion.

It would be naive to believe that any group can create distinct situational content. A created group can formally have health-promoting behaviour change as a common denominator. According to Heap (1985) it is unrealistic to count on the group's resources to flourish and consciously move in a positive direction without any form of leadership. A leader must find a way to promote the group process, but without taking over (Bjärås

et al. 1989). The goal is to develop meaningful sharing of responsibility between the group and its leader.

The personal relationships that will develop between individuals in a group can be positive for its goals, but there is also some risk that relations can be of a negative nature, and hinder the realisation of goals. The group leader must pay attention to this, and try to prevent it at the very beginning.

A common development is that the group tends to be passive, instead of there being a lively exchange of ideas supported by the group leader (an active leader stand up grasping and keeping a central role). Group members can become inactive, and speak more with the leader than with each other.

Resources (knowledge, interest, experiences, ability) and potential for development are important components, but not all groups can be expected to achieve a high degree of independence. However, they can all improve their level of functionality.

### **Run at different levels**

Prevention work is run at different levels of society, where different actors have their primary roles. A simplified account of levels for prevention work is illustrated in the “preventive plate” (Haglund & Svanström 1995) (Figure 4.6). However, prevention in itself can be split up. Primary prevention consists in measures taken before the detection of disease, secondary prevention in measures taking the form of early detection or early treatment to prevent further progress of disease, tertiary prevention in the treatment of handicap or rehabilitation.

Primary prevention or health promotion can be general or specific. Disease prevention often deals with specific primary prevention or secondary prevention. Simplified models are necessary to clarify parts and correlation in a complex societal whole (Figure 4.5). The relations between man, environment and society are described by Haglund and Svanström (1995).

In Figure 4.6 the individual level is described. The border for this level is constituted by human limitations. Man (I) is related to the physical environment (II), such as work and housing, public-environment (e.g. school), traffic, nature and leisure-time environment, health-services, etc. (Haglund & Svanström 1995).

Human beings in their closest environments (I and II) can also be related to societal structure as a whole (III). Some phenomena in society, influencing the closest environment as well as the human being, give rise to structural changes leading to economic and geographical concentration,

urbanisation followed by rootlessness, alienation, powerlessness and pacification, social exclusion, increasing bureaucratisation of the public environment, commercialisation of society in a leisure-time environment, technocratisation, and professionalisation.

## 4.8 Individual level

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### Individual and population – health and public health

The contradiction between individual and collective – or citizen and state – is not only a big problem; it is also one of the main issues raised by societal development. The individual-oriented view on democracy and the society-oriented collective view on democracy are often seen as opposites. The former highlights the sovereign individual, who takes sole responsibility, and sees the right to property as an important prerequisite. The latter highlights the individual primarily as a member of the collective and demands the same prerequisites for all (Figure 4.6).

#### Example 4.11

##### **Hip protectors – compliance fall-load case-cohort study in Denmark**

A randomised study in Denmark of hip protectors in a nursing home showed a 56% reduction in the number of fractures (corresponding to 9 hip fractures avoided) in an intervention group comprising 247 residents and 418 controls. Compliance in wearing external hip protectors was found to be low, with a 24% regular-user rate. The results show improved compliance of 70% among patients in orthopaedic departments. Simple handling seems important; dementia reduces compliance (Lauritzen et al. 1996).

#### Example 4.12

##### **Farm injury prevention – Who's responsibility in New Zealand?**

In a study from New Zealand it was demonstrated that farm injury has not been seen as a priority within an overall injury-prevention strategy, despite the fact that farm workers comprise over 7% of the full-time work force. The current focus on farm safety is consistent with the general economic and labour-market restrictions of the last decade. The Occupational Health and Safety Service (OSH) of the Department of Labour has regulatory responsibility for work health and safety (Burnett 1996).

#### Example 4.13

##### **Increasing bicycle-helmet effectiveness: What changes are needed?**

An evaluation of the effectiveness of helmet-wearing, among 4 age groups of bicyclists, and a judgement on the effectiveness of different helmet types based on engineering features was conducted at Seattle, Washington Area Hospital, USA, including the Regional Trauma Center. This was a three-year case-control study (presented in 1996).

The results show helmet ownership lies at 70%, but that use at time of crash varies by age – 62% adults, 45% children, and 30% for teenagers. The conclusion drawn was that helmets provide a substantial and similar level of protection against head and brain injury for bicyclists in all age groups. No significant difference in protectiveness was found by helmet type (hard shell, tin shell, and no shell). It was also found that helmets provide this protection for all types of bicycle crashes, including those involving motor vehicles (Thompson et al. 1996).

Many measures to promote public health influence freedom of choice, self-determination and integrity (examples 4.8–4.10). There are two opposite ways to look at this. The first places stress on individuals, where the individual and civil society itself has responsibility for health-promoting measures. On this view, the state and public responsibilities must be reduced. The second focuses on society – the state, societal authorities and civil society (all of which – in collaboration – are regarded as having responsibility for public health). On this latter view, the state is needed to counteract and compensate for problems that otherwise would arise.

#### Example 4.14

##### **A profit/non-profit partnership for drowning prevention in the USA**

To increase the use of personal flotation devices (PFDs) among children and teenagers, a collaborating partnership with a life-vest manufacturer's sponsorship was created. It resulted in the Children's Hospital being enabled to develop PFD loan programme at public beaches (the first discount-loan programme in the USA), and so on. The conclusion drawn was that a profit/non-profit partnership is a mutually beneficial way of developing targeted injury-prevention efforts. This programme was modelled according to similar bike-helmet campaigns, and helped increase the availability, awareness and use of PFDs in Washington State (Bennet et al. 1996)

#### Example 4.15

##### **The Australian experience with swimming-pool fencing legislation**

Toddler pool drowning is the most common cause of injury death under five years of age in Australia. There is accumulated evidence that pool fencing can prevent many of these deaths. The Queensland experience of a pool-fencing campaign – using basic educational tactics, such as regular quality media coverage with surveillance data – is positive, and resulted in a large initial reduction in cases of drowning (Pitt 1996).

#### Example 4.16

##### **Safety fairs: evaluation of a school-based injury prevention programme**

Injury remains the leading cause of death among children. The purpose of the “Safety Fair” programme (with five safety targets – bicycle, poison, motor vehicle, home and fire) was to decrease injury among elementary school children by teaching safety behaviour. The conclusion drawn was that this is an effective programme for educating parents in basic injury-prevention behaviours. The programme effectively increased student knowledge for selected mechanics and at various stations identified as ineffective (Garcia et al. 1996).

#### Individual advice and support

Individual advice and support can be given generally to some “specific risk individuals” during personal contacts (Example 4.13). Examples of such advisors are the community nurse, the general practitioner, the social worker, personnel at maternity clinics, in child health and in dental care, the midwife, and personnel at a teenage clinic.

### 4.9 Mono-factorial, multi-factorial, or general

Depending on the level we decide upon, we can choose to work (figure 4.5):

- Mono-factorial – e.g. distributing reflectors to children (examples 4.14 and 4.15),
- Multi-factorial – e.g. broad and systematic work among seniors to prevent fall injuries), or

- Generally – e.g. general improvements to promote safety consciousness.

After choosing level (mono, multi, or general) we distinguish between two separate ways of working. One is “top-down”, where experts make clear to citizens which measures are necessary. The other is “bottom-up”, where measures more or less spontaneously arise out of engagement and activities among citizens.

**Speed management campaign – A community dialogue.  
A new type in road-safety campaign in New South Wales,  
Australia. A deliberately tries to stimulate public debate  
on road safety countermeasures**

A media-based campaign with the aim of gaining acceptance in the New South Wales population that speeding is the biggest road-trauma factor was initiated. It started in 1992 and is described as trying to activate community interest and debate. Advertising played a role in seeking community views on the topic of speeding.

The goals of the campaign are to shift community attitudes and create a demand for speed management. From the campaign, it is said that there are signs that community attitudes are shifting, but there is also a stated need to look at the importance of pre-campaign research and strategic planning for success (Mooren 1996).

**Example 4.17**

**Risk of misunderstanding real needs**

There is always a certain risk that a “top-down” perspective creates misunderstanding over the real needs in a population. Then, the result is not always as expected – especially if people in need do not care, or do not participate and engage themselves. But, with a “bottom-up” perspective the risk for this is less, because those who are in need have an opportunity to raise ideas and influence the process. This creates and strengthens commitment to the cause, and also promotes responsibility – which, in turn, supports democracy in the community. In order to achieve this, both consciousness and openness on the professional side is demanded for other types of knowledge, insight and opinions to be obtained.

#### Example 4.18

##### **Poison-prevention practises and the use of child-resistant packaging by grandparents**

The purpose of a study from New Zealand was to assess how easily grandparents with and without arthritis could access child-resistant packaging (CRP). It also aimed to determine the poison prevention awareness and practices of these grandparents with respect to storage and disposal practices, and action taken in the event of accidental poisoning. The conclusion drawn was that the belief that grandparents with and without arthritis cannot access CRP was not upheld by this study. However, there is no easy way of predicting who cannot open CRP, and a means of identifying these people should be employed. Continuing education of grandparents is still needed to heighten their awareness of childhood poison prevention strategies (McKay et al. 1996).

##### **Key expertise**

Using a multifactorial approach you can attack many kinds of accidents at the same time, e.g. through successful safety work in workplaces – where injury rates have decreased substantially. But this applies only when the work has meant activity and engagement from the people concerned. Those directly concerned possess important expertise just by virtue of their voluntary or forced-upon role to live in or with injury risks. Their knowledge is based on experiences and their own observations on processes and events leading to injuries. Such knowledge can seldom be achieved in a theoretical manner.

## 5. Safety Promotion Policy

Safety promotion may be distinguished by the shift away from focus on individual responsibility and towards multifaceted society or community-wide interventions, which ensure that everyone is aware or involved. Popay and Young (1993) reviewed community-wide injury interventions. They identified two dominant approaches:

1. The Health Planning Approach, which emphasises behaviour change and safety education, and,
2. The community participation approach, which emphasises changing the physical environment within which local people shape an intervention.

There are good reasons for all nations in the world to prioritise injury-prevention and safety-promotion programmes. Increased research investment – fact as a foundation for realising the goals, and increased support for control programmes – are needed in every country. In many countries, significant progress has been made in occupational and traffic safety. But hardly any country has made enough significant progress in preventing other kinds of injuries. This can be achieved only by focusing on community programmes and by genuine public participation in such programmes. It is a fairly well-known fact that injuries result in large individual suffering (and that we cannot cure all injuries), and also large costs for both individuals and society.

Still only a few countries have established adequate policies and programmes, and few of these have allocated sufficient resources – money and staff – to prevent accidents and injuries.

### **The educational problem**

We have a tradition concerning injuries of acting only when they have first occurred. This is a problem worth considering seriously – that it is difficult to describe and demonstrate the necessity of safety promotion, i.e. preventing accidents from occurring. To show the importance of safety promotion it is important to evaluate and describe the benefits. That is best done not only by demonstrating how many fewer individuals have

been injured, but also by showing the benefits – often in monetary terms – for individuals, organisations, the community, and society as a whole.

### **Working with non-events**

To prevent injuries can be described as working with “non-events”. That is, it is doing something about things that have not yet happened. After an injury event actually takes place you can only treat or give comfort – often at a greater cost. Prevention is in fact a means for total success. It means “No Injury”. But after an injury event, there is no certainty of reaching success.

Let us take an example. To run a bicycle-helmet project, in order to prevent head injuries among bicyclists, costs some money and work. But, unfortunately, you cannot immediately see the benefit, and this can give rise to questions about how to use resources. If a bicyclist sustains a head injury, it is by tradition natural to take him/her to a hospital for medical care. It is a visible event and involves visible treatment, and nearly no question about its cost is raised. That is why it is so important to involve both politicians and decision-makers, especially those in the health services and other relevant sectors of society. That is how they will become aware of the utility of health and safety promotion.

## **5.1 The Stockholm Manifesto for Safe Communities**

In Stockholm, Sweden, at the First World Conference on Accident and Injury Prevention, 500 delegates from 50 countries met in 1989 to discuss the immense world-wide injury and accident problem and the need for action. The conference resulted in the so-called “Manifesto for Safe Communities”.

### **Equity**

All human beings have an equal right to health and safety. This principle of social policy is the fundamental premise of the World Health Organisation’s (WHO’s) Health for All Strategy and for the WHO Global Programme on Accident Prevention and Injury Control. Safety for all can be achieved by reducing injury hazards and by reducing the differences in accidents and injury rates among socio-economic groups. Politicians and decision-makers at all government levels are challenged to ensure

that all people have an equal opportunity to live and work in safe communities.

Inequality in the safety status of an individual in developing and developed countries is of concern to all countries. National leaders must foster international collaboration to find solutions to this global problem. We believe that each country has a responsibility to ensure that exported products and technologies conform to international safety standards.

### **Community participation**

Some local-government units in developed and developing countries have begun community actions which have led to safe communities. We believe, therefore, that research and demonstration projects for injury prevention and control must include community-level programmes. These demonstration projects will reveal how best to achieve safe communities.

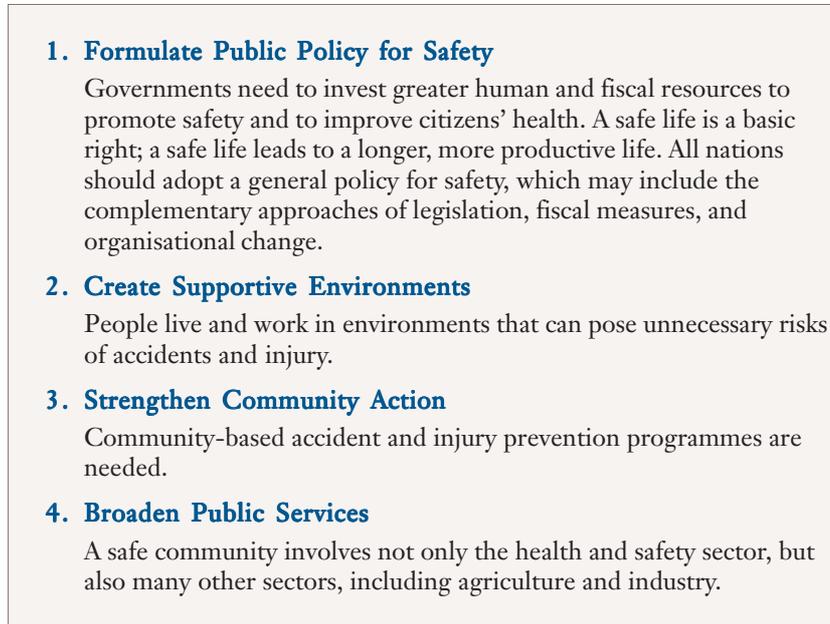
### **National and international participation**

As part of its national health plan, each government should formulate a national policy and plan of action to create and sustain safe communities. National health authorities urgently need to develop national safety goals, and plan to achieve these goals. We believe that good plans depend on the co-operation and participation of many sectors.

Countries should co-operate with each other to ensure the development of safe communities. Information about the experiences of safe communities in one country benefits other countries.

### **Recommendations for action**

The Stockholm Conference identified four safe-community action areas (Figure 5.1).



**Figure 5.1** Four Safe Community action areas.

Injuries are one of major public-health problems in the world, and each year – in every country – injury is the “Number One” cause of death among children and young adults. Injuries disproportionately affect socially and economically disadvantaged groups.

Despite the size of the injury problem, most nations do not yet recognise injury prevention as a priority goal. Almost every country needs to increase investment in research and increase support for control programmes. Politicians and decision-makers must be made aware of the catastrophic consequences of injuries, and also of methods to prevent them.

Individual, group and governmental violence are also parts of the injury problem. Assault, abuse, rape and suicide are important causes of injuries, permanent disabilities and death.

Equal right to health and safety – a fundamental premise of The World Health Organisation’s (WHO’s) Health for All strategy and also the WHO Global Programme on Accident Prevention and Injury Control – can be achieved only by reducing injury hazards and by reducing the differences in accident and injury rates between groups at different social levels. Accident and injury prevention should be part of every child-survival and primary health-care programme. Community-level programmes for

accident and injury prevention – “Safe Community” programmes – are a key to reducing and preventing injuries. In both developing and developed countries – nowadays also called “low-income” and “high-income” countries – wherever the community has participated, prevention programmes have led to Safe Communities (WHO 1989).

### **Adopt a general policy for safety**

A safe life is a basic right and leads to a longer and more productive life. All nations should adopt a general policy for safety, which may include the complementary approaches of legislation, fiscal measures and organisational change. A national programme for accident and injury prevention should provide guidelines to achieve safe communities and should foster inter-sectoral collaboration at national and community level (WHO 1989).

High injury and disability rates are to be found in many underprivileged and disadvantaged groups, and also in groups of children, the elderly, the disabled and women. To close the gaps between injury rates these groups and the rest of society require that government formulates policies that give high priority to accident and injury prevention among vulnerable groups. Other factors, such as alcohol and drug use, which contribute to high accidents and injury rates, must also be addressed in public policies (WHO 1989).

Corporate and business interests, non-governmental organisations and community groups all influence safety. These groups, organisations and corporations, should be encouraged to adopt policies that will preserve and promote safety for all, and they should help form and co-operate with governmental policies. Labour unions, industry management, academic institutions and religious leaders all have the opportunity to act in the interest of improved health and safety for everybody. New alliances to promote safety must be encouraged (WHO 1989).

### **Create supportive environments**

People live and work in environments that can pose unnecessary risks of accident and injury. People use products that can be unnecessarily and often unexpectedly hazardous. Given that environmental and product hazards are often similar across different countries, an international system for sharing information is urgently needed. People who develop efforts to safeguard humans from the injurious effects of mechanical, chemical

and electrical energy must recognise that people are favourably inclined to diverse environments because such diversity enriches their lives.

### **Strengthen community action**

Some community-based accident and injury prevention programmes, in both developing and developed countries (now more often called “low-income” and “high-income” countries) have successfully reduced injuries. Such programmes succeed when citizens, local organisations and government agencies all become co-operatively involved in community-safety programmes. And integrated local programmes can reduce injuries without receiving substantial new financial resources.

Experience has shown that in successful community programmes there is only a short lapse between the start of prevention and control measures and a decrease in the injury rate. Such rapid reward encourages community participants to continue their efforts. When this is demonstrated, safety measures can generally gain broad public support and may then effectively be promoted by media.

### **Broaden public services**

A safe community involves not only the health and safety sector, but also many other sectors – including agriculture, industry, education, housing, sports and leisure, public works, and communications. Sectors involved must co-ordinate their efforts to achieve optimum results.

Programmes to prevent and control injuries and accidents must include elements that identify and characterise the injury problem and evaluate the effectiveness of injury-control interventions. Effective prevention of injuries depends on accurate knowledge of the problems, the groups at highest risk, and changes in injury rates over time.

## **5.2 Supportive environments for health and safety – The Sundsvall Statement**

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The concept of supportive environments for health is defined in “The Sundsvall Statement on Supportive Environments for Health 1991” (Haglund et al. 1993). See Figure 5.2. It states: “In a health context the term supportive environment refers to both the physical and the social aspects of our surroundings. It encompasses where people live, their local community, their home, where they work and play.”

The statement also embraces the framework which determines access to resources for living, and opportunities for empowerment: “Action to create supportive environments has many dimensions: physical, social, spiritual, economic and political. Each of these dimensions is inextricably linked to the others in dynamic interaction. Action must be co-ordinated at local, regional, national and global levels to achieve solutions that are truly sustainable.”

- The SOCIAL dimension – which norms, customs and social processes affect health.
- The POLITICAL dimension – which requires governments to guarantee democratic participation in decision-making and the decentralisation of responsibilities and resources.
- The ECONOMIC dimension – which requires a re-channelling of resources for the achievement of “Health for All” and sustainable development, including the transfer of safe and reliable technology.
- The need to RECOGNISE and USE WOMEN’S SKILLS AND KNOWLEDGE in all sectors, including policy-making, and the economy, in order to develop a more positive infrastructure for supportive environments.

**Figure 5.2** Four important aspects of supportive environments.

Community development and empowerment are concepts that are gaining wide-spread appeal in the “new” public health (Peterson 1994). The Ottawa Charter for Health Promotion equates community empowerment with a community’s “ownership and control of its own endeavours and destinies” (WHO 1986).

### **Empowerment and limitation**

In the present political climate community empowerment has a strong political connotation. The concept justifies, in the name of health, curtailing state responsibilities in order to increase community control. A study referred to by Roberts (1995) claims that it “might be reasonable to infer that parents who supported the study recommendations, by signing the study petition, felt that doing so would have some effect. These parents felt empowered to effect the change.” ... “The message behind these results

is that while decentralisation of decision-making will undoubtedly benefit some communities, the benefits are unlikely to be distributed equally throughout society. There are steep socio-economic gradients in child pedestrian injury mortality.”

In Britain, children in Social Class V are over four times more likely to die in a pedestrian motor-vehicle collision than are children in Social Class I (Woodroffe et al. 1993). If the responsibility for implementing strategies for child-pedestrian safety rests solely with parents these gradients are likely to persist, at least in part, because the ability to advocate for child safety varies inversely with the need for it.

### 5.3 The Melbourne Declaration on Injury Prevention and Control

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In 1989, the First International Conference on Accident and Injury Prevention produced a Manifesto for Safe Communities – a statement on “action to achieve safe communities all around the world”. The manifesto was widely distributed and utilised in many countries. Seven years later, in 1996, at the Third International Conference on Injury Prevention and Control, in Melbourne, what is called “The Melbourne Declaration” was formulated (WHO 1996).

The conference gathered together 975 injury-prevention specialists from 48 countries.

#### **The Melbourne Declaration on Injury Prevention and Control**

Injury is a threat to health in every country in the world and is currently responsible for 7% of world mortality. This proportion is predicted to rise. In high-income countries, such as the USA, injury is the leading cause of premature death. In many low-income countries, such as India, injury is the leading cause of death and morbidity in the mid-age spectrum (from age 4 or 5 years to 35 and older).

Injury death and trauma can be significantly reduced through a strategic mix of preventive measures (Figure 5.3).

- Education
- Environment and design changes
- Community-based action
- Organisation-based action
- Regulation
- Enforcement
- Improved treatment and rehabilitation to reduce the long-term individual, social and economic burden of injury

**Figure 5.3** Strategic mix of preventive measures to reduce injury death and trauma.

The organisational injury-prevention and control community calls on global organisations, and governments, together with industrial, commercial, labour, non-governmental organisations and the public that share responsibility for the safety of citizens of the world, to work in partnership to promote the co-operational measures between societal, private and organisational levels needed to achieve injury prevention and control (Figure 5.4).

- Allocate sufficient monetary and human resources to conduct research and implement strategies to reduce injury rates from all causes in all settings.
- Establish in all countries a section within the most appropriate government ministry to provide the leadership, co-ordination and resources that are necessary to develop policies and programmes which promote a culture of safety.
- Establish national and regional networks for injury-prevention policy and implementation.
- Provide resources to indigenous peoples to determine and implement programmes to reduce the high incidence of injury among groups in their communities.
- Involve government, trade, industry and labour in global action to reduce injuries that result from the manufacture and dumping of unsafe products and technologies, the manufacture of products in unsafe conditions, and the exploitation of cheap and child labour.
- Implement programmes to reduce intentional injuries, suicides and attempted suicides, interpersonal violence and assault with weapons, particularly guns and landmines.

**Figure 5.4** Co-operational measures between levels.

The international injury prevention and control community agrees to a world-wide partnership to act immediately on current knowledge to reduce injuries and attendant social and economic costs.

The contents of a world-wide partnership to reduce injuries are demonstrated in Figure 5.5.

- Placing injury prevention and control higher on the agenda of the World Health Assembly, the United Nations, the World Bank, and global trade, labour, consumer-safety and transport forums.
- Creating world networks and coalitions which bring together professions, sectors and disciplines for co-operative research and action to reduce injury at community, national, regional and international levels, and the supporting technologies which facilitate the rapid transfer of data information.
- Securing a budget allocation for injury prevention and control from all governments.
- Securing from trade, industry and labour the commitment and resources to create safer products and environments by technical solutions and organisational measures.
- Establishing regional, national and international lead agencies and task forces with appropriate financial resources to co-ordinate and drive inter-sectoral injury prevention and control efforts.
- Including the safety of the population in all strategic plans and operational activities at all levels in all organisations.
- Improving the availability of accessible and linked data (which includes the cause of injury) and information on effective interventions, and also increasing research and development to assist the design of new interventions.

**Figure 5.5** Contents of a world-wide partnership to reduce injuries.

## 5.4 The Quebec Document – conceptual and operational aspects of safety and safety promotion

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The Quebec Document presents conceptual and operational aspects of safety and safety promotion. It proposes a framework to favour the planning and implementation of safety-enhancement interventions in a community. The framework applies to unintentional injury prevention, suicide, violence and crime, and tackles these problems in a prevention and health promotion perspective. It also favours better integration of the most frequently used intervention models designed to improve the safety of the population (WHO 1998). More specifically, it proposes:

A definition of safety and safety promotion.

A comprehensive approach to the assessment and promotion of safety.

The main factors behind successful mobilisation of communities to enhance safety.

### **Main reasons to develop a safety-promotion framework**

Safety is a basic human need, and safety is an ever-present concern within the population. Most individuals seek safety by all means. Therefore safety improvement, as an explicit goal, can be a powerful mobilising force. It is important to develop an enabling approach to facilitate the achievement of this goal.

### **Safety rather than the absence of violence and injuries**

Safety is based on more conditions than only the absence of violent events or injuries. It also includes an important subjective dimension. It is influenced by individual and collective experiences, which will act upon the feeling of safety of the community.

This explains why, in some communities, the perception of safety lowers while the magnitude of safety problems as injury, violence or crime remains the same. A reduction in violent incidents does not necessarily lead to a proportional increase in perceived safety.

### **Importance of a framework for safety promotion**

A safety-promotion framework can be a good junction point between concerned actors from a variety of sectors of society. Many approaches are used in the field of safety promotion and injury prevention. They attract different followers, often based on their occupation, sector and country of origin. Each group uses a specific vocabulary and may have very different ways of understanding reality, as well as of designing interventions and putting them into place. For example, in order to prevent violence in a neighbourhood, the police apartment might use:

1. Repressive measures.
2. Environmental measures to avoid opportunities for assaults.
3. A programme to foster activities for youths put forward by a recreational department.
4. Social workers, who look behind the violence itself – to discover the social situation of youth, their background, family situation etc. in order to find measures to find a starting point to change the situation.

### **Objective and subjective views on the problem**

To improve the safety of a population, it is essential not to forget that much of what the population sees as a problem is well-founded even though it may not be demonstrable through objective parameters (Hayes et al. 1996). Safety-promotion programmes need to be adapted to each community, and its real-life as well as subjective judgements about situations affecting it (Forde 1993, Svanström 1993). The dynamic between objective and subjective dimensions can best be taken into account when assessing problems and planning interventions.

Objective and subjective dimensions of safety can differ dramatically because of the numerous stereotypes in our society. Since people have a tendency to behave according to a certain number of stereotypes, it is important to take them into account. For example, any type of marginal behaviour can represent a risk for some, because of the stereotype generated by the difference. In this case, it is important to distinguish the reality from the sentiment of a population in order to protect the rights of certain marginal individuals (Augoyard 1990).

Four basic conditions for safety are presented in Figure 5.6 Attaining an optimum level of safety requires individuals, communities, governments and others to create and maintain the following conditions, whichever setting is considered.

- A climate of social cohesion and peace as well as of equity, protecting human rights and freedoms – at a family, local, national or international level.
- The prevention and control of injuries and other consequences or harms caused by accidents.
- Respect of the values and the physical, material and psychological integrity of individuals.
- The provision of effective preventive, control and rehabilitation measures to ensure the fulfilment of the three previous conditions.

**Figure 5.6** Four basic conditions for safety.

### **Safety concern everybody – mobilise them all**

Safety concerns everybody. The whole community, including its individuals, various stakeholders, agencies and community groups must be mobilised to enhance the safety of the population. These basic conditions for safety must be present in all settings. A setting is considered as a system having one or more finalities. Each is made up of many components (individuals, and social, cultural, material, economic and technical elements, etc.), each of which fulfils a specific function.

These components influence each other according to rules that are not always well known. A family, workplace, school, neighbourhood, town or a country can be regarded as a setting.

### **Social cohesion important for societal harmony**

The climate of social cohesion and peace as well as of equity protecting human rights and freedoms, at a family, local, national or international level, refers to a fair society safeguarding the harmony between groups or communities of different races, sexes, ages, religions, countries, etc., without impeding the rights and freedoms of individuals.

This condition must lead to non-violent co-existence of different groups or communities. It must also shelter the population from war or any other form of organised violence. Finally, it must lead to lowering poverty and inequities, both of which generate considerable safety benefits.

### **Interaction between groups and individuals**

Respect of the values and physical, material and psychological integrity of individuals refers to the harmonious and non-violent co-existence of

individuals within a life setting. This allows each individual to live without fear of being attacked, either psychologically (harassment, hateful remarks, etc.) or physically (assault, rape, etc.), and to be able to enjoy his or her belongings without fear of having them stolen or vandalised.

Unlike the first condition (a climate of social cohesion and equity...), which refers to interactions between groups, this condition refers to interactions between individuals. Suicide is considered a self-inflicted aggression resulting in part from a dysfunctional co-existence between individual and setting.

The provision of effective prevention, control and rehabilitation measures to ensure the fulfilment of the three previous conditions concerns human, material and financial resources, and the programmes and services provided by a community. These means are aimed at ensuring the meeting of the three first conditions, minimising the harms caused by any unfortunate event, and facilitating the rehabilitation of individuals or communities affected. Indeed, other conditions could/can have been added depending on the scope of the field to be included, e.g. provision of healthy food, work, income, etc.

Safety promotion is defined in Figure 5.7.



**Figure 5.7** Definition of safety promotion.

### **Safety a responsibility for whom?**

Safety promotion is a responsibility shared by governments (at different societal levels), organisations and the population.

Safety promotion must be based on all organisations concerned with the safety of the population and must link closely to all relevant sectors of activity.

The structure used to promote safety may vary according to the community in question and national realities.

The safety-promotion process requires a multi-sectoral approach and includes all community-enabling activities. It is based on the active involvement of the population in defining its objectives as well as in choosing solutions.

Actions on the environment can favour safe behaviours while respecting rights and freedoms. On the other hand, actions on behaviours can promote a safe environment, especially through a social norm that allows sustainable structural changes.

Even if behavioural changes improve safety, the expected impact on safety improvement comes mainly from environmental changes. Both types of intervention are however necessary.

To improve the safety of a community, at least two types of processes can be used – problem-oriented and setting-oriented. These two processes, though quite distinct, are both complementary and essential. Both presuppose the active participation of citizens and decision-makers.

### **Problem-oriented process**

A problem-oriented process is the most frequent. It consists of specific solutions to a certain number of problems, taken one at a time. The mobilising goal is the prevention of one specific type of problem, such as suicide, transportation-related injuries, falls or urban violence.

These problems can be selected after establishing an order of priority – usually based on their importance in terms of A. frequency and B. severity. On this approach, the population of interest is composed of individuals who are exposed to risk factors associated with the problems judged as high priority. The process followed is to identify the environmental or behavioural causes of a given problem, and then to develop a specific prevention programme.

The problem-oriented process is essential to safety promotion. It helps to define clear health and well-being objectives. And it also helps to identify risk factors. It allows us: A. to focus the work on concrete issues (e.g. suicides, violence), and B. to act as a mobilising force. Depending on the mandate and field of activities of the actors involved, it may be useful to integrate the problem-oriented process into the setting-oriented process described below.

### Setting-oriented process

The mobilising goal in a setting-oriented process is not a specific problem, but rather global safety in a community. The objective is to act on a set of environmental and behavioural determinants, in order to improve safety. In this process interest is on individuals gathered in a given setting (street, park, school, factory, neighbourhood, town, etc.), each of which is considered as a system having one or more finalities. Each setting has a number of components, such as population, economic and technical infrastructures, or physical environment. These components influence each other according to rules not always well known and understood

Figure 5.8 show the setting-oriented process, including three stages.

- A safety diagnosis is performed to identify the strengths and weaknesses of a given setting related to the conditions necessary to achieve an optimal level of safety.
- The aim is to identify specific causes and solutions.
- Counter-measures are put forward for each of the main weaknesses identified.

**Figure 5.8** The setting-oriented process in stages.

It is on the basis of as accurate a diagnosis as possible, which assesses all aspects of safety, that actions to enhance safety will be facilitated (Sehier 1990). Such a diagnosis must be based on sufficient quantitative and qualitative scientific data from epidemiology, human sciences, evaluation, clinical sciences, and engineering.

Figure 5.9 shows a two-by-three matrix showing the elements to consider when making such a diagnosis. The horizontal axis contains the elements necessary to reach an optimum level of safety (WHO 1998):

1. A local, national and international climate of social cohesion and equity protecting human rights and freedoms.
2. Prevention and control of injuries and other consequences or harms related to accidents.
3. Respect of the values and the physical, material and psychological integrity of individuals.

Indicators	Conditions		
	Climate of social cohesion and peace	Prevention and control of injuries and other consequences	Respect of the physical material or moral integrity of individuals
Means deployed	1	4	7
Exposure to risks	2	5	8
Number of events	3	6	9

**Figure 5.9** Safety diagnosis of a particular setting – dimensions to consider.

### Equally important

It must be remembered that subjective and objective dimensions of safety are equally important. The diagnostic process must consider not only the weaknesses of a community but also its safety assets.

There must also be an analysis of interactions between the different strengths and weaknesses identified, which will give a dynamic and complete understanding of the safety situation in the population. An evaluation that systematically takes all safety aspects into account will result in a comprehensive picture which highlights the strengths to be reinforced as well as the weaknesses to be corrected (in priority order).

### A broad range of expertise required

The problems in a population are often so complex that they require a broad range of expertise in order to be solved. The setting-oriented process favours the integration of this diverse expertise, thus breaking isolation between actors involved in safety issues. This should in turn enhance efficiency when implementing preventive actions.

### Only what they understand as useful for the community

The type of process chosen will vary according to the context. For example, in a city, because of its very specific mandate to have a service for fighting fires, the fire department could adopt a process that is “problem-oriented”. On the other hand, for a city council, mandated to ensure all the safety conditions for the population, a “setting-oriented” approach would be more useful. The safety-promotion approach ends up in the implementation of intervention programmes based on a variety of techniques and methods (Figure 5.10).

- Mass media intervention
- Presentation of local data
- Publication of opinions and advice
- Training sessions for the actors involved
- Enabling activities for some target groups
- Safety rounds, as well as
- Surveillance
- Development of certain products, and
- Environmental change

**Figure 5.10** Implementation techniques for intervention programmes.

Finally, it is important to underscore that in general the community will only implement interventions that it finds (transparently) in its own interest. Solutions should be made in the community, and suggestions from outside should only be adopted if they are seen as appropriate by the community (Svanström 1993).

There are some difficulties to overcome in order to improve safety in a community. The actors usually have to face some potential barriers. Firstly, two types of attitudes prevail in communities concerning some problems – “fatalism” and “blaming the victim”. Both are barriers to the implementation of effective programmes for injury prevention and safety promotion.

#### **Fight fatalism because it counteracts prevention work**

Fatalism is the common attitude that makes people believe that some events are decided by destiny. This attitude often leads to the resigned acceptance of events. It also leads to the belief that they are simply due to bad luck or to the unchangeable will of a supreme being. Fatalism often results in social acceptance of problems, which hinders many preventive efforts. Social acceptance is sometimes even more important when a danger is related to an activity that an individual controls or is free to accomplish (e.g. risk of getting hurt while driving a car).

## 5.5 The Dhaka Communiqué 2000

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The 9<sup>th</sup> International Safe Community Conference, whose main theme was to “Set Child Safety Priority Within a Safe Community Framework”, was held at the Institute of Child and Mother Health, Dhaka, Bangladesh, 26-28 February 2000, with about 300 delegates, scientists, practitioners and politicians from 19 countries. As a conclusion of the conference a communiqué was prepared as a message to the communities of the world, including policy-makers, politicians, professionals and local community leaders in support of the further advancement and promotion of the Safe Community Movement. In brief, it states:

- The Safe Community approach has much to offer in the prevention and control of injury in all nations of the world.
- Protection of the most vulnerable sections of society is essential. Particularly vulnerable are economically and educationally disadvantaged families, including children, women, the disabled racial, religious and ethnic minorities and child workers. Because these groups may be unable to organise or speak on their own behalf there must be special efforts made to ensure participation and representation of their interests.
- Preventive actions need to be based on local as well as national conditions and include all dimensions of prevention – primary, secondary and tertiary – and actions involving environmental change, safety education and enforcement.
- The next decade should focus on safety promotion as a human right to fulfil the security needs of marginalised groups.
- Violence, whether inter-personal, domestic, institutional or political, affects the un-empowered section of society disproportionately. This need to be tackled.
- Laws, rules and regulations which already exist to promote safety should be enforced.
- More effort is needed through greater leadership, direction and initiative to stimulate professional involvement for an effective plan.
- An inter-sectoral approach has been found essential for the success of any Safe Community effort.

- It is crucial to identify major/leading injury problems through development of injury-surveillance systems in each nation, not least at local level.
- Injury-prevention programmes based on local action groups should be designed and applied.
- Under the umbrella of global initiatives, there is urgent need for the establishment and encouragement of national and regional initiatives for sustained implementation of Safe Community programmes.
- It is important to strengthen collaborative efforts with specialised institutions and agencies to develop a co-ordinated injury-reduction and safety-promotion strategy.
- There is a need for global support and participation in development of injury research programmes.
- There is an urgent need for greater promotion of international/ regional networking of injury-prevention experts through a network of affiliated Safe Community support centres.
- Country-specific and appropriate education programmes need to be incorporated into the existing curriculum.
- Urgent action needs to be taken to reduce the enormous mortality from drowning.
- The safety of vulnerable road users, pedestrians and bicyclists in particular is an urgent need and requires a political commitment and recognition by the community.
- Global funding agencies such as the IMF/World Bank need to recognise how their policies may constrain/enable safety promotion in low-to-middle income countries.

## 6. Community Safety Promotion – Safe Communities

Community interventions are distinguished by a shift in focus away from individual responsibility towards multi-faced community-wide interventions designed to ensure that everyone in a community is involved (Ekman et al. 1999). It is not in reality possible to get everyone involved, but enough to create a strong force to make intervention successful.

### 6.1 General Strategy

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Commercial and social-welfare organisations must be made aware of the catastrophic consequences of injuries – not only counted as suffering for human beings but also as the great cost they cause to injured human beings and society in general. People working and living in their communities must learn that many injuries in fact are preventable, and that prevention is highly valuable for them and their society (Svanström 1993).

Individual, group and governmental violence make up a major health problem that must be addressed by accident and injury prevention programmes. Assault, abuse, rape and suicide attempts cause injuries and often result in permanent disabilities or death. A Safe Community must protect citizens from violence (Svanström 1993).

### 6.2 Safe Communities

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It has often been stated that the Safe Community Movement has its roots in the Swedish local injury-prevention programmes, such as in Falköping, Lidköping and Motala, developed during the 1970s and 1980s. This is only partly true. Policy-wise the Safe Community Movement goes back to the development of health-policy movements like “New Public Health”, the World Health Organisation’s “Health for All” strategy, and the Ottawa Charter. One of the earliest expressions of the WHO’s Strategy for Primary Health Care was primary health-care development in Thailand. Communities were stimulated by the Ministry of Public Health to identify their main health problems, set priorities and develop local programs. That is when Wang Khoi, a village in Nakhon Sawan Province, started to work

on local injury prevention. Out of this experience, and based on other ideas, the Safe Community Movement was created and developed as a pattern to be used in all kinds of societies. One leading idea to make this possible was to place stress on local adaptation of ideas.

The Swedish programmes were no doubt strongly influenced by experiences of community work – a population-oriented social-policy movement within social work. This was developed as a reaction to the more individual and therapeutic approach to social work, mostly in urban areas in the USA and countries like Sweden. The first programme oriented towards health matters was directed at preventing psychiatric ill-health through community development in Skövde, Sweden. The North Karelia Project in Finland provided inspiration for the Falköping Project started in 1975.

#### **Local injury prevention and/or community safety promotion?**

The first programmes were all initially designed to identify areas of non-intentional injuries through hospital and primary-care based injury surveillance. The programmes, even if they were specifically oriented towards injury causation became more general by nature over time. Surveillance results were crucial in the Falköping trial but less important in other programmes. The inter-sectoral groups subsequently developed their own grounds for setting priorities. They still focused on non-intentional injuries, but towards the end of the 1980s greater emphasis was placed on intentional injuries, in particular violence and crime prevention. In the 1980s this became even clearer through, for example, the “Safer Community” movement in New Zealand. Self-inflicted injuries and the prevention of suicides/suicide attempts have been included in some later programmes. It is obvious looking at community priorities that fear-of-violence is also of policy concern.

Professionals – especially medical professionals – still prefer to see injury as the door that opens the way for defining and understanding the Safe Community Movement. It is, however, evident that the more involved community sectors and voluntary organisations become, the broader will be the concepts and realities embraced. Then, the safety-promotion concept is more valid than injury prevention. Safety is something much wider than lack of injuries, in the same way that health is much wider than lack of disease. It seems, however, that some of the communities have concentrated mainly on being able to show a decrease in registered injuries treated in health care. Few, if any, studies have focused on evaluating the

safety part. Interpretation of injury studies and their results and the debate in scientific journals has rather neglected the core of the Safe Community Movement – namely as a “Safety Policy Movement”.

The Safe Community Movement is being further developed by the WHO Collaborating Centre on Community Safety Promotion at the Karolinska Institute in Sweden under the auspices of WHO. It aims at supporting communities in their safety-enhancement activities. It was firstly involved in safety promotion through unintentional injury-prevention activities and is now developing many projects with a special focus on violence or suicide.

Currently, more than fifty local-government units have obtained the official “Safe Community” designation. To be part of the movement a community must put forward a programme fulfilling various explicit principles and criteria. These are based on theoretical and practical knowledge concerning safety promotion and community mobilisation.

The effectiveness of such programmes has been demonstrated on several occasions (Schelp 1987, Svanström & Andersson 1998, Bjerre & Sandberg 1998, Bjerre & Jonell 1998, Bjerre & Schelp 2000, Ytterstad, Söögard AJ 1995; Day et al. 1997). The basic principles of the programmes are as follows: Safe Community programmes must be based on all relevant organisations in the community and closely associated with all related sectors of activity – community organisation. The structure used to promote safety will vary from community to community and country to country.

Safe Community programmes must be based on sufficient epidemiological and other data (surveillance) to document the size and nature of safety problems – including accidents, injuries, violence and suicide, and in all environments including the home, transport, workplace and leisure (Pictures 6.1–6.3).



Picture 6.1 Registration for the Sherpur project, Bangladesh.



Picture 6.2 Survey of injuries in Khon Kaen, Thailand.



Picture 6.3 Unsafe electricity supply – India.

### **Prioritise – use many techniques and methods**

Priorities for action and decision-making must be based on what the community feels is most important. Solutions should be reached by the community, and suggestions from outside should only be adopted if they are seen as appropriate by the community. A prerequisite for achieving this is involvement of individuals as well as communities in the process of promoting safety.

Many techniques and methods must be used, including media interventions, presentation of local data, the publication of other types of information and advice, education of professional groups (as well as members of community organisations), supervision through safety rounds and check lists, environmental control, and product development. These principles (derived from the experiences of a number of Safe Community programmes and from 12 travelling seminars) have led to the establishment of a number of criteria to fulfil for appointment as a Safe Community (Figure 6.1).

### **Indicators for International Safe Communities**

#### **Safe Communities have:**

1. An infrastructure based on partnership and collaborations, governed by a cross-sectional group that is responsible for safety promotion in their community;
2. Long-term, sustainable programs covering both genders and all ages, environments, and situations;
3. Programs that target high-risk groups and environments, and programs that promote safety for vulnerable groups;
4. Programs that document the frequency and causes of injuries;
5. Evaluation measures to assess their programs, processes and the effects of change;
6. Ongoing participation in national and international Safe Communities networks.

**Figure 6.1** Criteria for a Safe Community.

### **Safe Community Model based on findings from Falköping and others**

Based on findings from Falköping, Lidköping, Motala in Sweden and other programmes at the end of the 1980s a “Safe Community Model” for injury prevention at local level for all age groups, environments and situations was initiated and developed in collaboration between Sweden’s Karolinska Institute and WHO (Svanström 1992).

### **Undertaking a Safe Community programme**

A community undertakes the implementation of a Safe Community programme over a period of time. The programme is carried out in collaboration between various public and individual citizens at local level. The local network takes part actively in the programme and in principle comprises all ages, environments and situations.

For the process of development, the WHO Safe Community Model (Svanström, 1992) is now recognised as an effective and long-term beneficial approach to the prevention of injuries at local level, but it needs to be adapted and modified to the cultural and socio-economic conditions and existing health set-ups of individual countries. There should be a

greater emphasis on local and national injury surveillance, and community participation that would promote community “ownership”.

### **Developing strategies for starting a Safe Community programme**

The structure and organisation of society need to be taken into account when choosing and assessing possibilities and strategies for introducing the Safe Community Model and Safe Community projects. Some societies are organised around a local model of decision-making, and it is relatively easy to develop small local programmes without reference to other levels of society, at least in the early stages. Inevitably, however, problems are uncovered which cannot be dealt with at local level, and there is a need to build links to regional, national or even international levels (Havanonda S. 1991).

In other societies the formal organisation of the society limits what can be done at local level without official approval. It may be necessary in these cases to obtain a commitment to injury control at a national level, or at least at regional level, before it is possible to develop a recognised local programme.

### **Assess what is possible**

It is important thoroughly to assess what is possible in each society. There can be no general blueprint for action in all countries. The path for developing local action will vary considerably. It is important to consider how local programmes are legitimised and to set about following the natural processes of that society. Legitimation may come from central government policy, or from regional priority set by an interest and need expressed in a small village. It may come from joining an already legitimised programme (e.g. in primary-health care) or working through an already trusted or established network, or it may require avoidance of certain links because of fear or distrust of what already exists.

It is important to recognise what influences the acceptance of a programme within society. One major factor is the credibility of the persons working to develop the programme. There is a need to establish legitimacy, both in the local community and at the levels of decision-making involved in supporting and resourcing the programme.

- Understanding how local projects can be developed and legitimised in a particular society.
- Developing links with legitimising influences, such as credible persons, organisations or programmes.
- Assessment of what information is available on the nature of the injury problem and how that information is used in that society.

**Figure 6.2** Shows requirements for a Safe Community project to operate.

**Strategies for using information to establish initial interest**

Formulation of the problem must be kept simple and clear. The safety problem is far-reaching and involves many sectors. It is easy to present a picture of injury which is confusing and so complicated that both the community and decision-makers will shy away from involvement in prevention programmes. Such a presentation may look impressive and scientific, but what is its benefit if it does not clarify the subject and help people get ready for action?

Information about the injury problem need not consist of wide-ranging epidemiological data at this stage. However, if the data are available, the focus should not be on mortality alone. Indicators of morbidity, years of potential life lost and measures which reflect effects on the life of the injured person and their relatives can provide a broad picture of the problem.

Figure 6.4 shows what information is useful in a Safe Community project.

- Simple counts of injuries in a particular population and comparison of rates of injury between areas.
- Basic information about cost of injuries and the cost-saving possibilities of injury control, press cuttings about accidents and injuries.
- Clear text descriptions or narratives about events in the community.
- Information designed to raise awareness and interest, and to establish a basis for competing with other priority areas in the minds of local, regional and national decision-makers. (Caution should be exercised to ensure information is reliable and not presented in a sensational manner).
- Strategies for dealing with change in leadership and interest at all levels.

**Figure 6.3** Information found to be useful in Safe Community projects.

Most communities expect rapid change. A great deal of effort can be spent on identifying and informing key people – only to discover that they are, for various reasons, no longer in a key position. Strategies for developing Safe Communities must include ways of influencing a wide range of persons to be able to maintain continuity of development.

Sometimes, there will be a programme or an organisation which has already established a stable network of influence, and which is able to support the injury-prevention cause within its structure (e.g. a primary health-care programme, private company, or non-governmental organisation). This can provide stability and strength to the developing project but may carry the risk of not allowing full freedom to act independently when necessary.

A major factor in influencing support can be competition between sectors. The Safe Community approach relies on developing good support across sectors that by tradition compete for resources and prestige. The choice of level at which inter-sectoral co-operation is sought is critical. From experience, co-operation has been found easiest to obtain at local level, and harder to obtain at higher levels. There is an important need to feed all relevant sectors with information before they are asked to commit resources to a project. Information can be given at many levels. Often, it is necessary to provide it separately at local, regional and national levels in order to overcome difficulties in communications between sectors.

### **Negotiation for approval and commitment**

A Safe Community project will require approval and commitment at all involved levels. The levels to be involved must be carefully identified as early as possible. They will vary according to the society concerned. The negotiation process requires awareness of the problem, potential for solutions to provide benefits at each level, and what in detail is required to start a project. Powerful professional groups, national and international key figures, and examples of working programmes in other areas can all be used to feed this process.

Care must be taken not to allow the principles of the Safe Community Model to be sacrificed in the process of winning favour.

The aim of the negotiation process is to obtain ownership of the new project for those who will participate and provide the resources. Obtaining resources from outside may often result in the negotiations not being fully developed, with the consequent danger that the project will fail at a later

stage because appropriate long-term commitment has not been obtained during the development stage.

Negotiation will require lobbying and appropriate pressure, depending on the way the particular society makes its decisions. Figure 6.4 shows what possible strategies for negotiations may include.

- **Cultivate existing credibility**  
Cultivating the support of a group of local leaders who already have credibility with the local people and negotiating through them.
- **Attach the professionals**  
Obtaining commitment from small but powerful professional groups.
- **Using the media**  
Creating public awareness and pressure through the media.
- **Obtaining approval**  
Obtaining the stamp of approval from international agencies for the persons and processes involved in the project.
- **Pushing for change**  
Taking the opportunity to push hard for change when there is a critical event (e.g. a public event related to injury).

**Figure 6.4** Possible strategies for negotiations.

The process of negotiation will differ even between different areas and levels within a society. Negotiation at local level will require a personal approach and the long-term building of trust. This may (first) involve working on issues other than injury where these are the most important primary problem. At higher levels there will be a need to present precise and brief information backed by professional and scientific information. The time taken for such tasks should not be underestimated. Long-term negotiation is often required.

### Example 6.1

#### **Australia's first community safety campaign – 1957-58**

A description from Australia's first community-safety campaign in the Latrobe Valley, a community with 35,000 inhabitants in rural parts of Victoria, has been prepared. The campaign was run at its Morwell Branch with a population of 12,500 and two neighbouring towns.

There was a reduction in injuries within twelve months of 20% in road accidents, and annual deaths fell from an average of five to two. The conclusion drawn was that community-safety campaigns could be successful in controlling road accidents, and that traffic engineering is more effective than education. Also, it is required that those convinced of the need of safety have some safety training and the ability to form an effective organisation (Bouvier R 1996).

#### **Ability – difficulties**

The real power of the Safe Community Model lies in its ability to develop simple and small demonstration projects at local level – easy to follow and understand. But one of the difficulties in gaining co-operation with injury-control programmes is the need to negotiate at so many levels and in so many sectors. This is why negotiation should be kept simple and at a level where success can be achieved before exhaustion.

#### **Developing operational strategies**

When the foundation for commitment to a project has been developed through negotiation, there must be a move from theory to practice. Then, it is important to recognise that a Safe Community approach cannot, and should not, achieve everything. It is tempting to see the approach as the one and only solution to injury problems. Practical goals and objectives for the project must be set at this stage. Networks to ensure that blockages do not occur at other levels must also be put in place.

It must be recognised from the outset that knowledge of appropriate methods and technologies for injury control will not be readily available. Even in advanced countries, the number of people with skills and experience in injury-control methods is limited. Persons who have expertise tend to have knowledge in a relatively narrow area, and communication between disciplines is not always easy. Operational strategies to deal with this are essential.

This is why there must be a strategy for education and skills development in the project (Figure 6.5).

### **Establish basic education locally**

- Local people must be educated in the basic principles of injury prevention and be given the opportunity to learn from other communities.
- Strategy training.
- Health workers require training in injury-prevention strategies.

### **Make links to appropriate networks**

- Those who seek solutions must be linked to networks who are seeking to develop safe technology appropriate for their community.

### **Be aware of demands**

- Epidemiologists need to be aware of the special demands of community-based injury-prevention projects.

**Figure 6.5** Strategy for project-related education and skills development.

Methods of education must be in line with the principles of the Safe Community Movement. Community participation is a key feature of the Safe Community Model. Learning by doing and through problem-solving are appropriate methods. There is a need to bridge the gap between science and practice.

### **Possible education initiatives**

These include experience in doing safety rounds, applying the principles of injury control to suggest solutions to local problems, and working with the community on the interpretation of local injury data. Examples of this are shown in pictures 6.4–6.6.



Picture 6.4 Staircase in bad order – Sweden.



Picture 6.5 Risk of drowning – Thailand.



Picture 6.6 Major city area  
– Melbourne, Australia.

Management strategies will vary from project to project. It is impossible to generalise a specific set of strategies from existing projects. Experience of community-based projects indicates that management needs to provide a solid conceptual base without choking the individuality, ingenuity and commitment of persons involved. Management theory from formal organisations is unlikely to be applicable to these projects.

#### **Experiences and findings as a foundation for a safety programme**

Based on findings and experiences from Falköping, as well as from Lidköping, Motala and other Swedish programmes at the end of the 1980s, a Safe Community Model for injury prevention at local level for all age groups, environments and situations was initiated and developed in collaboration between the Karolinska Institute, the Safety Programme at Sweden's National Board for Health and Welfare and the World Health Organisation (Svanström et al. 1989, Svanström 1992).

#### **Adapt and modify the programme to local circumstances**

It is very important to stress that reach-effectiveness in prevention work demands adaptation and modification of a programme to local cultural and socio-economic conditions and existing health set-ups in an individual country.

There also should be a greater emphasis on local and national injury surveillance and the participation that promotes what is called “community ownership”.

### **Strength of the Safe Community model**

The strength of the Safe Community model lies in its simple and easily understandable construction. It represents a “common-sense-programme” based on and using existing networks in society for safety promotion. Co-operation between different sectors – official and voluntary organisations using their different skills and knowledge – gives consensus about what to do.

### **Important spin-off effects**

An important spin-off effect of a Safe Community programme is that participation creates ambassadors for safety and co-operation. This is also a force to develop and maintain democracy. Besides its direct influence on the safety situation, the programme contributes to stabilising society – a side-effect that is good for safety. A stable and secure society, with few injuries and accidents, may arguably not need to invest greatly in injury prevention. The outcome of this is that some resources can be diverted to meet other urgent goals. A society with a minimal injury problem is a better place to live in, and also is very positive for societal production of all kinds. Safety creates positive production and resources.

### **Institutionalise**

To obtain lasting value out of safety-promotion work it is necessary for it to be institutionalised. Safety thinking and methods must become a natural part of all involved societal sectors, not only a concept among health workers. Just as important is to use knowledge about society/community that can be gained from the various parties involved in cross-sectoral work. All these aspects must be natural elements in all the work to be done. It is especially important to reach local-government sectors.

## **6.3 The idea behind Safe Community programmes**

The fundamental idea behind Safe Community is to address all kinds of safety and prevent injuries in all areas, encompassing all ages, environments and situations, and involving both non-governmental and governmental community sectors (Svanström 1999).

The theoretical framework for the programmes is based on general health-promotion concepts and a participatory strategy for community

involvement. Data from local hospital emergency departments provide a good basis for intervention and outcome evaluation.

### **Improve co-operation first**

Based on a seminar held in Linköping, Sweden, the following conclusions about Safe Communities in industrialised countries can be drawn (Klang et al. 1992). Providing safety for citizens is, in many industrialised countries, a public undertaking – one that is expressed in national legislation and the distribution of roles. This is something to which careful attention should be paid when designing forms of inter-sectoral co-operation. If responsibility is clear and divided between actors, the first task is to improve co-operation on the basis of roles that have already been allocated. Otherwise, there is a great risk that those expected to carry out a task will feel that responsibility has been taken away from them, making them passive rather than active. They may also become negative to the whole project.

One hesitation about likelihood of success in inter-sectoral work is that responsibilities for different involved sectors are not clearly expressed. Unexpected results may give space for ideas that may never otherwise have had a chance in a stricter organisation. Because there often is no fixed priority for safety-promotion and injury-prevention measures in many organisations, there is opportunity for a stream of new ideas to be created. And this may pave the way for new participation, and more and hopefully better activities.

### **Try to use existing structures as a basis**

The idea behind the Safe Community Model is that of proceeding from the organisations and structures which exist in a community. But there are no general solutions that can be copied directly. If, however, there are good examples these can be used as prototypes. For this reason, evaluation of actions that have been taken is important, so as to provide general knowledge about which measures are effective. Evaluation can also have other aims, e.g. to justify a programme or improve its design.

Within any programme, it is important to highlight different types of accidents and situations where injuries are incurred. Injury registration plays an important role in this, as do other statistics and information that are available to the community. Injury-prevention activities can be

embarked upon using data from other districts, but when work has been in progress for a time, local injury data will be demanded.

The ideas underlying existing Safe Community programmes are to address all kinds of safety, and prevent injuries in all areas, all ages, environments and situations – involving non-governmental as well as governmental community sectors. The theoretical framework for the programmes is based on general health-promotion concepts and a participatory strategy for community involvement. Data from local hospital emergency departments have been used as a basis for intervention, and sometimes for outcome evaluation.

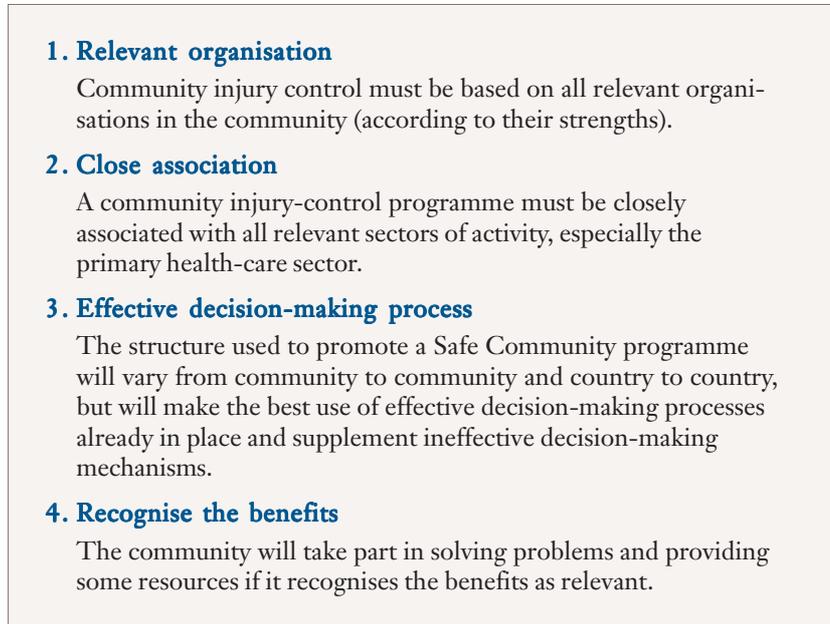
From their start in Falköping, western Sweden in 1974, safety-promotion programmes were followed in Lidköping and Motala, and then in Norway in Vaeroy and in Harstad. In Australia there are a number of programmes, such as in the Illawarra area of New South Wales and La Trobe in Victoria.

## 6.4 A guideline for Safe Communities

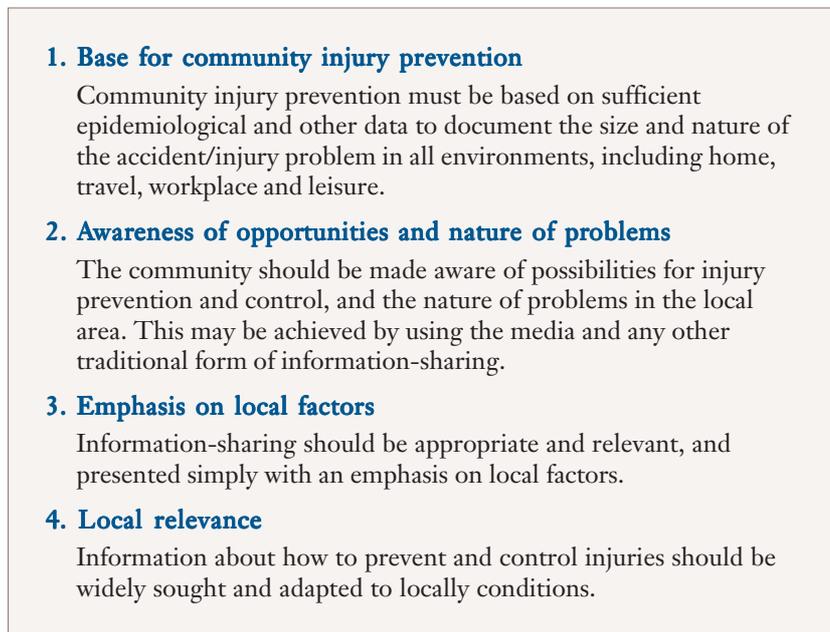
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A Guideline for Safe Communities was formulated out of experiences from WHO travelling seminars in Sweden and Thailand. It reads as follows: “Community interventions to reduce accidents and injuries occur alongside a number of other initiatives with the same goal. They are important because they add a new dimension to the fight against a growing toll of injury in both developed and developing nations. They will not replace other initiatives but will complement them, creating a new way of tackling the ever-changing pattern of accidents and injuries and dealing with problems which have proved insoluble using traditional top-down approaches by utilising the strengths of the people to bring about necessary changes in awareness, behaviour and environment” (Moller et al 1989).

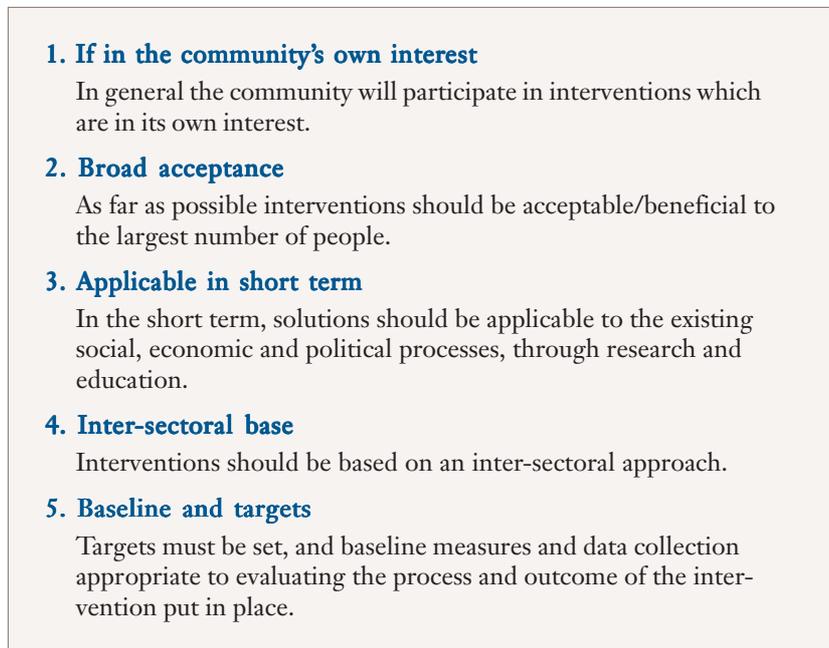
Based on the experiences of Lidköping in Sweden and Wang Khoi in Thailand, five basic principles have been developed to provide a basis for developing a Safe Community project (Figures 6.6–6.10).



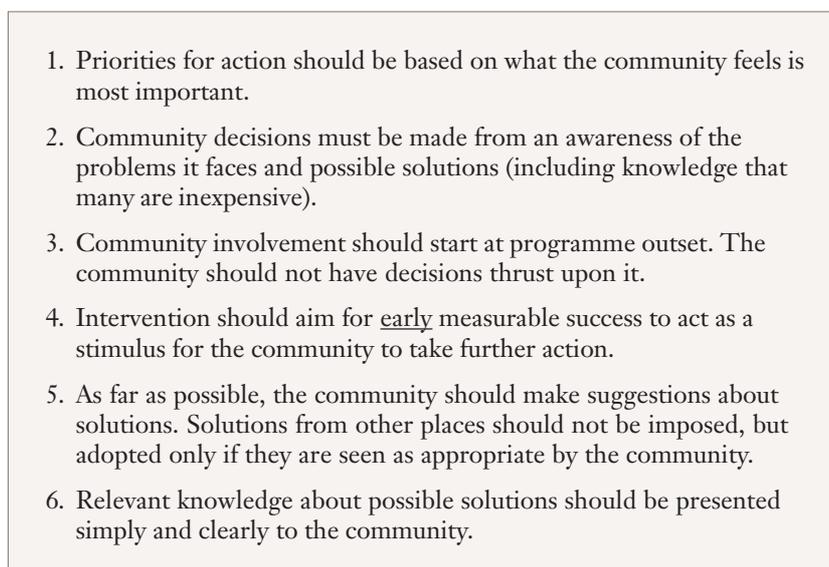
**Figure 6.6** Organisation needs for Safe Community work.



**Figure 6.7** Epidemiology and information to reach target groups and areas.



**Figure 6.8** Intervention – participation, targets and foundations.



**Figure 6.9** Priority list for decision-making.

**Figure 6.10**  
Technologies  
and methods.

### **1. Awareness and wide range of techniques**

Awareness raising is necessary at both government and community level. A wide range of techniques, including the media, presentation of local data, programmes in schools and personal visits to key decision-makers, are necessary.

### **2. Simple data collection for identification**

Data collection about accidents and injuries should be simple, just sufficient to show the pattern of events leading to injury, and to identify hazardous places, risk groups and dangerous products. The size of data collection must be kept within the resources and technology immediately available.

### **3. Use community support to identify hazards**

The community must be supported by a community-development process, so as to operate freely in identifying hazards and finding locally acceptable solutions. Advice should be available to act as a catalyst and provide technical information.

### **4. Wide range of methods for hazard identification**

A wide range of methods for identifying hazards must be used – including safety rounds, check lists, research findings from other places, and by encouraging people to report dangerous situations. Recipients of this information will vary from project to project.

### **5. Use different resources, money as well as participants**

Resources should be obtained by using community participation and labour, not just monetary contribution. In some countries it may be possible to obtain funding from public sources and the sponsorship of private companies. The use of matched funding from government to supplement local funds will act as an incentive. Wherever possible the community will decide on means of income generation for sustaining injury-prevention programmes.

### **6. Responsibility to influence government as well as companies**

Communities have a responsibility to influence government policies and the practices of private companies in matters influencing the safety of people. And the people have an important role in persuading policy-makers and managers to become more committed to injury prevention. Governments have a responsibility to make legislation and develop decision-making processes that complement people's efforts to achieve a safe community.

### **7. Achieve methods and techniques to aid removal of hazards**

Methods that change the environment to ensure the removal of hazards or the automatic protection of individuals are vital if the greatest reduction in injury is to be achieved. They are often simple and inexpensive. Projects should aim at inventing new technologies that offer cheap automatic protection, e.g. ways of separating vehicle and pedestrian traffic, protection of electrical circuits by instantaneous breakers, and addition of guards to cover moving parts of machines.

### **8. Promote safety equipment**

Safety equipment, such as protective clothing, helmets, eye protection and spray masks, should be promoted by the community. It must be ensured, however, that equipment of sufficient quality to be capable of providing adequate protection is chosen.

## 6.5 Listen to the community

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The major theme of the First International Conference on Safe Communities in Falköping, Sweden in June 1991 (Tucker 1992) was the importance of community involvement in safety measures and injury control, using a number of projects (particularly the Falköping Initiative) as illustrative models. A combined top-down and bottom-up approach was regarded as the most effective form of intervention. This is because it takes the best parts of both methods – using the well-established system and organisation (top-down), as well as ideas and needs from other sectors, and also knowledge of needs and personal experiences of injury situations (bottom-up). See Figure 6.11.

### **Six factors important in the implementation of an injury-prevention campaign**

1. Listen to the community – let its members define what they believe are the most important problems.
2. Co-ordinate efforts at regional level.
3. Raise public awareness of the importance of injury prevention.
4. Include injury prevention in national programmes.
5. Ensure that powerful interest groups support community efforts.
6. Mobilise all members of a community creatively.

**Figure 6.11** Six key factors in the implementation of injury-prevention campaigns.

There is a value in including community members in future conferences as an extension to the gathering of injury-control professionals. They can bring a practical perspective to preventive efforts. Medical and other experts should be regarded as an acknowledged part of the community, not separate from it. Conferences with a community based focus can be one way of enhancing communication and building bridges, ultimately leading to improved prevention.

## 6.6 Community ownership

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Community ownership and the importance of cultural aspects of Safe Community programmes represented lessons learned from the 3rd WHO Travelling Seminar in the Navajo Nation, USA, 1993.

### **Organisational aspects**

The Navajo Injury Prevention Programme benefits from support and formal mandates from the Navajo Nation Government and Indian Health Services, which strengthen the organisational and practical foundations for the programme. Another advantage is the simplicity of the internal organisation of the programme. This is illustrated by the fact that sanitarians and other environment-related health professionals work within the same organisations, and hygiene and engineering go hand-in-hand in the spirit of public health and safety promotion.

Having local health centres and chapter administrations distributed over the reservation was also regarded as an advantage.

### **The need for local injury data**

The Navajo Programme clearly demonstrates the importance of access to detailed local information on injury occurrence, describing “When”, “Where” and “How” injuries are incurred, and “Which” groups are mainly affected. Available data from health records, police reports, etc. are compiled and utilised to support preventive actions.

Further development of an overall injury-surveillance system is important in order to achieve more detailed information on injury causation and for the identification of target groups. This calls for the active and ongoing involvement of emergency rooms and health personnel, and also the integration of registration activities into ordinary daily routines.

### **The community as owner of its problem**

The community is the owner of its problems. This is why the community should also be the owner of its community-development activities, such as injury-control programmes. The community consists of its members, which is why a community-oriented programme must seek their active involvement. Experts can co-ordinate and support programmes, but the work and initiatives should come from local community members. Their motivation and interest is necessary for success.

In the Navajo Injury Prevention Programme, initiatives were taken by local actors. This is an important feature of and reason for success. Programme leaders actively state that people should not wait for solutions provided by experts. They must engage themselves and participate in the development of their own living conditions. Good examples of involvement and participation of community members include a playground project and a project on falls among the elderly.

### Cultural competence and respect

What does lack of cultural respect and understanding mean to people, and what happens to people when they become refugees in their own country? What happens to parents when their children grow up and the parents find themselves unable to give their children good advice for the future? What happens to children when they realise that what they learn from their parents is of no help to them in school or daily life? In the Navajo Nation, USA, it has been made clear that success in injury control must take specific cultural features into account.

### Example 6.2

#### **An Indian tribe's experiences of changes in living conditions and the background to their present societal problems**

Indian tribes were driven away from their country during the 19th century, losing not only their land but also their cultural structure, their language and their philosophy of life. Losing cultural identity is the same as opening the gate to destructive behaviour. Accordingly, there are huge problems of alcoholism, criminality, domestic violence and alcohol-related traffic injuries. Disillusionment and the feeling of being a loser may dominate and start destructive behaviour – in the forms of criminality, violence and abuse. “If we do not understand and tackle this today, tomorrow will create even more problems” (Bill 2000).

## 6.7 Safe Community – grassroots idea or a top-down initiative?

### **Grass roots**

- “1: soil at or near the surface.
- 2: society at the local level esp. in rural areas as distinguished from the centers of political leadership.
- 3: the very foundation or source.”

Webster's seventh new collegiate dictionary, 1967

**Figure 6.12** Grassroots by Webster's dictionary.

### Grasses

“of all the groups of flowering plants none is of greater importance to man, or more widespread, than the grasses.

Grasses were recognized as a natural group long before there was a science of botany or a system of classification.

the gramineae are the world’s most universally distributed flowering plants.”

**Figure 6.13** Grasses according to Encyclopaedia Britannica, 1969.

### What are Grassroots movements?

A concept familiarly employed over the last decades is that of “grassroots movement”. Although there is no accepted general definition, it seems to be implicitly understood that there is something moving at earth level, possibly even hidden from our sight. Indeed, the Roots may often indicate something subversive, actions that should not be illuminated. If there is movement, it is a horizontal movement – under the surface or at least at a very low level. If there is vertical movement it is bottom-up. Such movement may be anything from powerlessness – the grassroots have no official power – to a potent phenomenon. In health promotion, grassroots are important, positive and often more attractive than top-down. It involve groups who is highly valuable for a wide success of the health promotion.

The simplest way to regard grassroots is at the level where individuals live, and where local groups operate.

Movements are built from below, taking – metaphorically – their nutrients from the soil. They consist in networks of people operating at grassroots level. Indeed, all the people *are* the grassroots. They must feed the networks first, create spontaneously or otherwise there mutual interest. When these are strong enough it is time for the grass to grow! For the movement to influence the society.

The “top” did not plan it to happen. But, if the grass-root power is strong enough they must tke it under consideration. Then it is time to co-operate for the good of the people. A phase of conflict is replaced by one of consensus.

### Roots of the safe communities movement

Maybe the Safe Community movement has its roots in *Western Sweden*, and the local safety-promotion/injury-prevention programmes in Falköping, Lidköping and Motala (developed during the 1970s and 1980s). But this it is only partly true. Growing interest in health and safety matters during the 1960s attracted support from local non-governmental organisations (NGOs) and local administrations. Out of this the State was challenged in its "inherited" role of providing welfare, health and safety to its citizens.

Local movements for social development were first developed by social workers who refused to see social events as individual – or family – problems to be treated. By contrast, these workers directed their attention at communities, regarding both community and society as their work arenas. They were more loyal to NGOs than to their State employer.

The Swedish programmes were strongly influenced by experiences of the population-oriented social-policy movement. Community work as a subject was developed as a reaction to more individual and therapeutic approaches to social work. It appeared mostly in urban areas in the USA and countries like Sweden. The first programme oriented at health matters was directed at preventing psychiatric ill-health through community development in the municipality of Skövde in *Sweden*. The North Karelia Project in *Finland* provided it's inspiration from the Falköping Project started in 1975.

In the local safety-promotion/injury-prevention programmes in Falköping, Lidköping and Motala (in the 1970s and 1980s) local authorities played an important, even crucial role. Programmes were initiated by health planners at county-council administrations in order to prevent injuries. Important was that health planners had similar views as social workers with regard to community work. Some also were trained social workers or sociologists. The methods to be applied were of a *community organisation* or *development* type.

The health side was influenced by a similar approach. Policy-wise the roots of the Safe Community movement can be traced back to fairly similar health-policy movements such as "New Public Health", the World Health Organisation's "Primary Health Care" and "Health for All" strategies, and later the Ottawa Charter. This is good examples of international contacts and exchange of important knowledge.

In the early Swedish local programmes, county councils (which are responsible for health and medical care in Sweden) were responsible for

the injury surveillance components; local injury statistics as well as narratives from community events reported by health planners. A kind of inter-sectoral steering board was set up, consisting of local-administration and NGO representatives. Task-force groups on traffic, home and work injury prevention were also set up. Their focus was both elderly and children. These groups reported back to their respective steering board, and outcome was measured through the surveillance system in question.

This Swedish experiences was spread to Norway (Vaeroy and Harstad) and Denmark (Esbjerg) at an early stage. In 1986, Swedish experiences of preventing injuries among the elderly were reported at a seminar in Leuven, Belgium, organised by the WHO.

### **Grassroots or not?**

Some of the health planners involved like to describe themselves as working on grassroots programmes. But, in fact not one of these programmes was initiated at grassroots level. Some were runned locally and some, particularly in Sweden, were conceived and run in opposition to national level. Some were even described as “private initiatives” of little or limited value for future injury prevention. But they were still organised by professionals, and involved local authorities to a large extent.

**Nevertheless, they were grassroots movements in the sense of actively involving local people or their organisations. This give us some interesting questions:**

- What implications does this grassroot movement have in terms of value?
- And are grassroots programmes ”better” than top-down ones?
- Are they more efficient?
- Is there an intrinsic value in local people solving their own health problems without involvement of central or local authorities?

**The experiences so far is that the answers will vary according to circumstances.**

If authorities (at the top) do not recognise the health and safety problems spoken of at the grassroots, but set their budgets and priorities independent of these needs, then grassroots and “bottom-up” initiatives are “better” than “top-down”.

In political economical systems of any kind “the top” must always take time to argue for its standpoint in order to reach some sort of consensus. It must ” listen to it’s community – even to the grassroots” if their movement seems to be strong and plain enough. Out of this they re-organise resources accordingly. If the community believes that violence and injuries caused by violence are *the* problem, and not accidents, then violence prevention is where to start. “The top” might then be able to argue for accident prevention later on.

Safety problems are however not measured by percentage-distributions of injuries at emergency clinics, but by community involvement and priorities.

Top-down planning was stronger in the early Swedish programmes than in Wang Khoi, Thailand. This was because of the relative strength of local-government organisation in Sweden. In Thailand the Ministry of Public Health -initiate the projects – but the communities set their own priorities. Of all the communities involved in there, only Wang Khoi chose accidents – probably because of the absence of any formal authority structure. Some community organisation was also developed on the basis of the Safe Community programme.

### **Rainy River, Ontario, Canada – a true grassroots movement municipality?**

The Rainy River Safe Community Coalition in Ontario, Canada is built upon the success of many free standing programmes that were existing in the district. The coalition has become a safety sharing network and has developed over the years into a coalition of community partners.

One among other purpose is to retain its identity to provide the best safety programmes for the Rainy River District.

Now local agencies and individual groups start new coalitions, who continue to work within the framework of the Mother Coalition (RRVSC).



Picture 6.7 Rainy River Safe Community Coalition in Ontario,Canada, from left to right:  
Josie Miller – Customer Service at Northern Lights Credit Union, Greg Allan – Fort Frances Firefighter. Crystal Godbout – Rainy River Future Development Corp., Al McDonald – Ontario Provincial Police Community Service Officer.

Every month since early 1992 the coalition has a "renewing" meeting (Picture 6.7). There is no competition, but participants can create and share opportunities that eventually evolve into viable long-lasting safety initiatives.

All the safety programmes are intertwined within the district and with co-operative partners. The future of safety in the Rainy River District is said to be endless and boundless. As always in this field: Much work has been done and much further work is needed.

### **So what is best – bottom-up or top-down?**

There is no free choice, at least in the sense that a specific community makes a particular choice. Historic conditions decide, and the most efficient programme is the one that enables the mobilisation of the most resources – in human and/or in monetary terms. The grassroots also must be open to local or central authorities that are willing to listen, learn and provide their expertise openly. That is a good bottom-up alternative.

Authorities taking initiatives must leave space for grassroots to participate. That is a fair top-down alternative. The two designated Safe Communities in Glasgow, Scotland provide examples of both this approaches.

*Castlemilk* (16,000 inhabitants) Safe Community Programme covers all age groups and all environments. It works with accident as well as violence prevention, but has no injury surveillance. The programme receive support from Glasgow City. It has a part-time Community Projects Officer who co-ordinates a Community Safety Forum consisting of representatives of community agencies within Castlemilk.

*Corkerhill* (1,400 inhabitants) Safe Community Programme works with all age groups, but mainly with children. It promotes Safe Play, Helmet Wearing, Traffic Calming, Safe Routes to School, Rail Security, Safe Rivers and Safe Roofs. All staff are voluntary, and there is no funding from Glasgow City. The leaders of the programme comes from Corkerhill Community Council.

### **Which is the best programme?**

Which of these programmes is the best? It is hard to say – because the prerequisites are so different.

Castlemilk has support from the top, but has problems of sustainability due to short-term financing. Corkerhill has no financing, but a devoted

leadership with long-term commitment. The Corkerhill population never had a chance of project support; it was neglected and left with its environmental and social problems. By contrast, Castlemilk was the focus of a major restoration programme.

Among other things the influence of personal competence as well as great interest and capacity to find the local way to solve problems make a progress in both Corkerhill and Castlemilk.

#### **Can local and grassroots activities be initiated and supported at national level?**

The Nordic countries provide the best examples of national support but also Canada and Australia. There are central units supporting Safe Community development in different ways.

#### **Are the grassroots gaining in strength?**

Yes, in a way! Most of the first Safe Community programmes were initially designed to identify areas of non-intentional injuries through hospital and primary-care based injury surveillance. The programmes were specifically oriented towards injury causation, but became more general by nature over time. Surveillance results were crucial in the Falköping trial, but less so in other programmes. Inter-sectoral groups subsequently developed their own grounds for setting priorities. They still focused on non-intentional injuries, but – towards the end of the 1980s – greater emphasis was placed on intentional injuries, in particular with regard to violence and crime prevention. Not only violence itself but also fear-of-violence is a central priority. These priorities were very much grassroots initiated. Self-inflicted injuries and the prevention of suicides/suicide attempts have been included in some later programmes.

Professionals – especially medical professionals – still prefer to see injury as the door that opens the way for defining and understanding the Safe Community movement. It is, however, evident that the more involved community sectors and voluntary organisations become, the broader will be the concepts and realities embraced. Then, the “safety promotion” concept is more valid than “injury prevention”. Safety is something much wider than absence of injury, in the same way that health is much wider than absence of disease. It seems, however, that some Safe Communities have concentrated mainly on being able to show a decrease in registered injuries treated in health care. Few, if any, studies have focused on evaluating the safety part.

### Some lessons learned from developing Safe Communities

There are some lessons to be learned from developing Safe Communities. Such as that priorities for action and decision-making must be based on what a community feels is most important. Solutions should be reached by the community, and suggestions from outside will only be adopted if they are seen as appropriate by that community. A prerequisite for achieving this is involvement of individuals as well as communities in the safety promotion process.

The fundamental idea underlying Safe Community is to address all kinds of safety, and prevent injuries in all areas, for all ages, in all environments and situations, and involving both non-governmental and governmental community sectors. The theories behind these programmes is based on both general health-promotion concepts as well as participatory strategies for grassroots involvement.

“of all the groups of flowering plants none is of greater importance to man, or more widespread, than the grasses.”

“grasses were recognised as a natural group long before there was a science ...”

... these extensive root systems enable grasses to hold the soil in position against the forces of water and wind, thus rendering them of great value in the prevention of erosion and floods and in the reclamation of devastated areas.”

**Figure 6.14** Grasses according to Encyclopedia Britannica, 1969.

## 7. Evaluation

Evaluation research is described in a number of chapters in a book entitled “Safety Promotion Research” (Laflamme et al. 1999). However, community studies on safety promotion and injury prevention have been developed since 1974 – sometimes in contact with researchers active in traffic and occupational-accident prevention, sometimes with health-promotion researchers. All these years of experience and knowledge have built up an understanding of the problems. Through peer reviews and other scientific exchanges an evidence-based standard has been developed.

### **A golden standard for evaluation?**

In the development of an evidence base for health services to choose treatment models, the randomised control trial has been presented as a “golden standard” for evaluation. However, applying methods for interventions at organisational, community or societal level creates its own evidence base. It is difficult and sometimes impossible to randomise communities using clinical-trial models. Indeed, it is even the wrong choice because so much information will be lost on the way to the creation of an evidence base. Each level of intervention – individual, group, organisation, community, society – thus creates its own preconditions for success and also for evaluation design.

Community studies of safety promotion and injury prevention have been developed since about 1974. By understanding the problems and through peer reviews and other scientific exchanges a standard for the evidence base has been developed.

Most of the evaluations of community-based programmes use a simple before-after design with no control group. The remainder use non-randomised controlled trials, comparing an area that received an intervention with one that did not. However, in several cases the control area was insufficiently comparable with the study area, thereby introducing the possibility of bias. Only one evaluation used several intervention and control communities (Guyer et al. 1989).

### **Evaluation – the educational problem**

It is important to evaluate safety-promotion programmes, both because of accessing personal and economic resources and in order to learn what worked out well and what did not in the programmes. Also, people need to be made aware of the power of prevention in building a society that is harmonious, humanistic and economically strong.

### **Describe utility – obviously and clearly**

You have to describe the result – i.e. in the form of health/ill-health before and after different interventions. It is of course best if it is possible to do this in monetary terms, e.g. taking account of medical-care and other actions that were not needed because of the safety-promotion programme. If you do not manage to describe the gain, in terms of non-incurred or decreased costs for individuals and society, there is a risk that safety promotion and injury prevention will not be understood as being beneficial for health.

### **Diverging interests in evaluation**

There are divergent interests involved in process and effect evaluations. Health-promotion people often hesitate to propose effect evaluations, because the ultimate outcomes are hard to capture due to time lag, operational problems, ambivalence about desired health results (positive or negative), and so on. Instead, process evaluations are often preferred. But injury programmes deviate from this experience. The absence of lag time and operational problems, and also clarity as regards desired effects, make injury programmes suitable for effect evaluations. Several such evaluation studies have been produced.

There is good evidence-based knowledge about injury prevention and safety-promotion work in different environments, but we still know too little about the influences of social factors on the occurrence of injuries and their social consequences.

### **Research findings as an aid to wiser choices**

In theory, intervention programmes should be based on systematically researched models, and also careful monitoring and evaluation (Kahn & Mann 1969). Evaluation is intended to be an objective, rational process in which the effects of policies or programmes on their targets (individuals, groups, institutions, or communities) are revealed, undistorted by prejudice

or preconception. Findings of such evaluations will help decision-makers to make wiser choices about future than they would otherwise.

In practice, prior beliefs and the paradigms of those involved often colour how an intervention is conceived, the language and scope of the evaluation, and the interpretation of its findings.

As a consequence of this, the designs available for evaluating community-intervention programmes are, in general, rather weak. One such design involves before-and-after test comparisons in one area. This can sometimes be strengthened up by using a series of observations – before, during, and after the intervention. Another approach is quasi-experimental. Geographical areas are compared on the bases of pre-existing, unplanned and known contrasts in exposure to an intervention.

### **The risk of bias**

Evaluations based on processes alone also present challenges. Above all, there is the risk of bias, e.g. the recording of what is hoped for or what seems socially desirable. One way to limit this is to set up a team of evaluators independent of the organisations involved in the intervention. The burden of ensuring validity then falls not only on the interviewer and the respondent, but also on the researcher. The latter must devise measures, provide protocols, analyse the data, and submit reports for external criticism.

## **7.1 Programme evaluation in different communities and countries**

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### **Falköping, Sweden**

The Falköping Accident Prevention Programme (FAPP) was the first evaluated comprehensive programme aiming at promoting safety and preventing injuries at community level. The idea of the programme is to address all kinds of safety and prevent injuries in all areas, addressing all ages, environments and situations, and involving non-governmental as well as governmental community sectors.

Falköping is situated in Skaraborg County, western Sweden. An injury register was started in 1978 and intervention began in 1979. Three years later the total rate of injury had fallen by 23%. In Falköping home injuries decreased by 26.7%, occupational injuries by 27.6%, traffic injuries by

27.7%, and other injuries by 0.8% (Schelp 1987). A corresponding decrease in the number of other emergency visits, i.e. non-accident-related, has not been detectable during the same period of time. The incidence of home injuries in the study area decreased from 26 per 1,000 per year in 1978 to 17 per 1,000 per year in 1981/82 (Schelp 1987). In 1978 there were 49 occupational injuries per 1,000 gainfully employed persons per year whereas the corresponding figure for 1981/82 was 34 occupational accidents per 1,000 gainfully employed persons per year (Schelp 1987).

FAPP was followed over the period 1978-1991 (Svanström et al. 1996), using indicators of process as well as outcome. Since 1983 the outpatient injury rate has levelled off, and the inpatient rate shows an average annual increase of 8.7% for females and 4.9% for males. This is significantly higher than the increase for Sweden, which is 2.3% for females and 0.5% for males. For injuries in either ambulatory or hospital settings, it seems that the effect of the early phase of the programme was the lasting one, but for injuries involving hospital admissions the effect was temporary. The onset of the increase by the end of 1982 coincides with the break-up of the trans-sectoral organisation originally set up to run the FAPP.

### **Other Safe Community programmes**

At the beginning of the 1980s FAPP was followed by others – in Norway by Vaeroy and Harstad, and in Sweden by Lidköping, Motala and Falun.

The theoretical framework for the programmes was based on general health-promotion concepts and a participatory strategy for community involvement. Programme goals, which are synonymous with the Safe Community criteria, include organisation of a local cross-sectoral reference group, reliance on existing local community networks, coverage of all ages, environments and situations, empowerment of the socially weak, and continuous tracking of high-risk environments and groups.

#### **Lidköping, Sweden**

The Lidköping Accident Prevention Programme in Sweden (Svanström et al. 1995). was compared with four bordering municipalities and the whole of Skaraborg County (within the West Sweden Region). It had five elements:

1. Surveillance
2. Provision of information

3. Training
4. Supervision
5. Environmental improvement

Process evaluation was based mainly on notes and reports made by health planners, combined with newspaper clippings and interviews with key people. Outcome evaluation was based on information from the hospital-discharge register.

In Lidköping there was on average an annual decrease in injuries leading to hospital admissions from 1983 to 1991 of 2.4% for boys and 2.1% for girls, compared with a smaller increase in one comparison area and a decline in the other (four border municipalities – girls +2.2%, boys +0.6%; Skaraborg County girls -0.3% , boys -1.0 respectively).

Another type of evaluation discussion on community programmes was pursued in the *Journal of Injury Prevention* (1996). The discussion was prompted by the study of Svanström et al. (1995) describing the evaluation of the Lidköping programme. They chose to compare injury rates using a regression procedure that assumes events to be evenly dispersed across the areas being compared, and thus have a roughly normal distribution. By contrast, Langley and Alsop (1996) hold the view that relatively rare events are more likely to be unevenly distributed and that a Poisson approach is more appropriate. A third viewpoint was requested (Hanley & Choi 1996). Their conclusion is that both statistical approaches are acceptable. But they also point out that, in view of their proximity, the “control” communities received many of the messages and other components of the intervention in Lidköping. This has later been shown to be a plausible explanation for the decrease of injuries found in a long-term evaluation of the Lidköping programme (Ekman et al. 1999).

It is important to acknowledge the special problems community interventions present for evaluators. For example, evaluators and those responsible for these programmes are frequently expected to demonstrate effects in unrealistically short time. Sample-size considerations are especially challenging. It can be argued that each community is a unit, equivalent to a single case, so that no matter how large its population the effective N is equal to one (Pless 1996).

This represents an extreme mathematical-statistical approach to the evaluation of Safe Community programmes. Communities are not the targets of randomised control trials, but offer a challenge for future multi-disciplinary evaluations. Safe Communities have been established as a

safety-promotion strategy and policy for the last twenty-five years. Safe Community evaluations have been established in the scientific world for fifteen years. We are now entering a second phase of evolution.

#### **Motala, Sweden**

The incidence of health-care treated injuries in Motala has decreased by 13% – from 119 (per 1,000 population years) to 104. In a control area, corresponding injury incidences were 104 and 106. Hospital-treated injuries in the intervention area decreased by 15% (from 19 per 1,000 population years to 16), whereas in the control area incidence remained at 13 per 1 000 population years (Lindqvist et al. 1998). A larger decrease in non-trivial injuries was observed at all ages and in all injury-event environments. The total number of bed days at emergency hospitals due to injuries decreased by 39% from 1983-84 to 1989, while hospital-bed utilisation for other reasons decreased by 9%.

#### **Falun, Sweden**

In order to reduce the number of non-intentional injuries in Falun (55,000 inhabitants), the Safe Community concept was put into practice.

The programme was organised in five different committees and was based on information, supervision, education and training. Environmental changes were minimal (Bjerre & Jonell 1998). The injury reduction was most pronounced in the categories of work and school accidents, and applied significantly more to males than females.

After five years, a decrease of 23.8% in out-patient injuries was found in 1989, while the decrease was significantly less (8.6%) in bordering municipalities (Bjerre & Sandberg 1998). For in-patient hospital admissions there was an average annual decrease of 7.2% 1989-94, corresponding to 1.5 percent in the control area.

Femoral fractures decreased annually by 7.2% in Falun (Sweden) and were unchanged in the control area. Bjerre & Sandberg (1998) conclude that the decrease was related to the programme. The general effect of the programme appeared to be neutralisation of an otherwise upward trend in the injury rate (Bjerre & Schelp 2000). There was still a reduction in injuries after seven years. However, it was possible to detect a waning effect during the final two years of the programme.

### **Harstad, Norway**

In a quasi-experimental study (Ytterstad & Wasmuth 1995), hospital-treated traffic injuries were recorded prospectively for seven and a half years in two Norwegian cities, Harstad and Trondheim (control). A 27% overall reduction in traffic injury rates was found in Harstad between Period 1 and Period 3 (each period of 30 months duration), whereas a corresponding significant increase was found in the comparison city. Significant rate reductions were observed below the age of 16 for both bicyclists (37%) and pedestrians (54%). See Ytterstad (1995).

Accident analyses based on the local database revealed coffee to be the most frequent liquid causing scalds, which mostly occurred in the kitchen. 66% of the injured were boys and two-thirds were below two years of age. From the first to the second of the three periods the mean burn-injury rate decreased by 53% – from 53 to 25 per 10,000 person years. In the control city located 1,000 km away, rates increased from 62% to 68 per 10,000 person years (Ytterstad & Sögaard 1995).

Fall-fracture rates did not decline in nursing homes but decreased 26% in private homes. For 65–79 year-olds a 49% reduction was observed for males in traffic areas in winter. Data from the control city suggested a significant rise in fall fractures. In private homes a 17% reduction in hospital-admission rates was observed.

### **Illawarra, Australia**

Outside the Nordic countries the Safe Community Model has been especially popular in Australia. Jeffs et al. (1993) report on the Illawarra area of New South Wales. Data from local hospital-emergency departments have been used as the basis for a “community information” strategy, in “an attempt to replicate this overseas experience in an Australian setting”. Reductions of 17% in attendance by children for injuries and a 14% fall in accident-related hospital admissions of children were observed over the four-year period 1987–1991 before and after the intervention.

### **Latrobe Valley, Australia**

For a study designed to evaluate the Latrobe Valley Better Health Injury Prevention Programme, a community-based intervention in south-east Victoria, Australia (Day et al. 1997), the evaluation design was quasi-experimental including pre- and post-intervention observations in a population of approximately 75,000. There was no single comparison

community; rather, comparative data were used wherever possible. Process measures included interviews with local organisation representatives. Impact evaluation relied mainly on self-reported changes in injury risk and protective factors, gathered by a random telephone survey.

Outcome evaluation was based on five years of emergency-department injury-surveillance data for Latrobe Valley. Promotional and educational activities were implemented in the targeted areas of home, sport, and playground injuries, and alcohol misuse among youth. Some 51,000 educational contacts were made with the community, and 7,470 resource items distributed. There was a 7.3% increase in the proportion of households purchasing home-safety items. Unsafe equipment was replaced and under-surfacing upgraded in municipal playgrounds. The demand for and availability of protective equipment for sport increased.

The age-standardised rate per 100,000 persons for emergency-department presentations for all targeted injuries fell from 6,594 in the first programme year to 4,821 in 1995/96. There were significant decreases in presentation rates for home injuries among all age groups except 65 years and over, playground injuries among 5–14, 15–24 and 25–64 year-olds, and sports injuries among 15–24 year-olds only. The direct programme cost per injury prevented was 272 in Australian dollars. Significant reductions were observed for assaults among 10–24 year-olds compared with those over 25 years. The conclusions drawn were that the reductions were associated to some extent with changes in injury risk and protective factors, and were greatest for the injury issues subjected to the most intense activity.

## 7.2 Evidence-Based Safety Promotion and Injury Prevention

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*This is an extract and a adaption from a special textbook made by Svanström & Haglund (2000). It should be read as an introduction of this special concept.*

Is health or and safety promotion a good investment? Is it possible to measure and find a reasonable value of such a short or long-term investment? To what degree can social and economic benefits from health and safety promotion initiatives be measured alongside health ones? This is not simple to answer.-

Health and Safety promotion policies and programmes, if properly planned and implemented, often involve complex and sophisticated activities. On the other side health and safety promotion action, very often, requires multiple approaches. It also relies on interdisciplinary inputs and operates at several levels over a long period of time.

Despite this complexity, health and safety promotion programmes are often forced to be evaluated with methods and approaches from medical care and prevention, who is nearly totally unsuitable for it.

Fortunately, over the last two decades there has been a significant increase in knowledge about how to evaluate complex programmes and policies. Out of this the scientific approach to evaluate effectiveness of prevention strategies include:

- Identification of effective strategies to reduce morbidity and mortality as well as improvement of life quality.
- Determination of the potential and practical consequences of those strategies, including social, legal, ethical and economic factors.
- Determination of the economic impact of a prevention strategy.
- Determination of optional methods for implementing strategies.
- Evaluation of the impact of prevention programmes.

The first and the most important question about any prevention technique is: Does it work? Then: What is the scientific base for using the technique? But also: How good is that information? Vague answers on this is not a useful map for further actions - the risk is not to reach the goals. And not know why!

“*Efficacy*” is defined as the effect obtained with a specific technique in expert hands under ideal circumstances.

Determination of the efficacy of a prevention strategy often require a critical review of studies that have been done. This give us an understanding of the magnitude of the problem.

When a technique - such as a seat-belt programme - is known to be efficacious, it is necessary to get a specific answer of: How well does it work in the real world? This because *effectiveness* is the impact of the prevention activity in practical application.

Although efficacy is usually determined under carefully controlled conditions effectiveness studies must be done in the context in which the intervention is made. Which means out in the communities. There we search for the most correct answer possible to get. We do not want randomised answers. They are not good to build further actions on.

In clinical medical interventions a ranking procedure on investigation techniques has been developed and used for the Cochrane procedures. It can be useful to use:

1. Large randomised controlled trials
2. Small randomised controlled trials
3. Non randomised trial with contemporaneous controls
4. Non randomised trial with historical controls
5. Cohort study
6. Case-control study
7. Cross-sectional study
8. Surveillance (for example databases)
9. Series of consecutive cases
10. Single case report (anecdote)

One important question is if the described way of finding best evidence is good enough for evaluation of prevention and health and safety promotion interventions. *Obviously* it is not often that preventive actions can be described in terms of efficacy. The results are seldom produced under ideal conditions. The reality are unpredictable. This is especially true when discussing community action for health and safety promotion (Figure 7.1).

The International Working Group (IWG) on Evaluating Health Promotion Approaches say: The use of randomised control trials to evaluate health promotion initiatives is mostly, inappropriate, misleading and unnecessarily expensive. Instead they support the use of multiple methods.

**Figure 7.1** Randomised Control trials or multiple methods according to IWG.

### Safety promotion in the traffic environment

Traffic is one of the best researched and investigated area when it comes to interventions.

Injury control can be effected on all levels. The community-based model is adapted for intervention in the local cultural, social and organisational environment. It emphasise broad community participation and it is one of the most promising models for injury prevention. Community interventions

may be distinguished by their shift away from the focus on individual responsibility and towards multi-faceted community wide interventions that guarantee that everyone in a community is aware or involved. Popay & Young (1993) have identified two dominant approaches:

- The health planning approach that emphasises behaviour change and safety education, and:
- The community participation approach that emphasises changing the physical environment where local people shape the intervention.

Community programs with local participation, with a broad range of interventions have been effective reducing a wide range of childhood injuries. The experience tells us that usage of good data from the surveillance systems in the programme gives the best results.

Road safety measures for redistribution of traffic improve road safety and the safety of individuals. It also reduces the rate and severity of childhood accidents. Educational programs by themselves do not have enough effect.

In a study made about programme work in five English towns, compared to match control areas, Lynam D et al. (1988) find an overall accident reduction of 13%. Slight injuries reduced proportionately more than serious ones. Particularly successful were the protection measures for two-wheeled vehicles, such as right turn prohibition and central road dividers. There also was a general reduction in child cyclist injuries. The sum-up of the first programme year indicates considerable accident and injury cost savings.

Many surveys and epidemiological studies report that cyclists who wear helmets have a reduced risk of severe head injuries (Graitcer et al. 1995). But only helmet promotion programs with a variety of educational and publicity strategies, and organised by community-wide coalitions, have been effective enough. The most successful of these is the Seattle Children's Bicycle Helmet Campaign, organised by Harborview Injury Prevention and Research Center (Bergman A B et al. 1990). The result was an increase of helmet wearing rates among children of more than 40% (Rivara F P et al. 1994).

A large evaluation of the effect of community wide programs to promote the wearing of cycle helmets showed a significant reduction in the rate and severity of casualties. In 1990, after ten years of cycle helmet promotion campaigns, the state of Victoria in Australia introduced the first law in the world forcing cyclists to wear helmets.

Before the law the helmet wearing rate was about 31%. The years after the wearing rates increased to 75%. Because of the helmet protection effectiveness this also resulted in a 48% reduction of head injury or death between 1989/90 and 1990/91. The reduction over the two year period 1989/90-1991/92 was 70%. This Victoria experience show that education campaigns, followed by legislation, can increase helmet use. The same experiences are showed about introduction of seat belt laws.

Munro J et al. (1995) shows that the most effective measures for adolescents appear to be legislative and regulatory controls. Coleman P et al. (1985) find encouraging evidence, mainly from Sweden, saying that community-based approaches for promoting safety measures simultaneously may be effective in all age groups. They find little evidence that only educational and skill training, targeted education and media exposure in the short term reduce the numbers of accidental injuries.

For Community program evaluation see chapter 7.1.

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