GUIDELINES FOR THE
PRIMARY PREVENTION OF
MENTAL, NEUROLOGICAL AND
PSYCHOSOCIAL DISORDERS

4. SUICIDE

DIVISION OF MENTAL HEALTH
WORLD HEALTH ORGANIZATION
GENEVA
This document has been endorsed by the

International Association for Suicide Prevention

It contains guidelines for the primary prevention of suicide. Other fascicles in this series address other disorders.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>Foreword</td>
<td>iv</td>
</tr>
<tr>
<td>How to use this document</td>
<td>v</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Definitions</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Conceptual models relevant for prevention</td>
<td>1</td>
</tr>
<tr>
<td>2. Magnitude of the problem</td>
<td>5</td>
</tr>
<tr>
<td>3. Risk factors</td>
<td>7</td>
</tr>
<tr>
<td>4. Preventive measures</td>
<td>9</td>
</tr>
<tr>
<td>4.1 Guns control</td>
<td>10</td>
</tr>
<tr>
<td>4.2 Gas detoxification</td>
<td>11</td>
</tr>
<tr>
<td>4.3 Control of toxic substances</td>
<td>12</td>
</tr>
<tr>
<td>4.4 Press reports</td>
<td>13</td>
</tr>
<tr>
<td>4.5 Psychiatric treatment</td>
<td>14</td>
</tr>
<tr>
<td>4.6 Other measures</td>
<td>14</td>
</tr>
<tr>
<td>MID LEVEL WORKER’S VERSION</td>
<td>17</td>
</tr>
<tr>
<td>GENERAL PUBLIC VERSION</td>
<td>37</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>41</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

We are profoundly indebted to the following experts who graciously dedicated their precious time, as well as their invaluable knowledge and expertise to assist us at different stages of this project:

Dr B. Cooper, Zentralinstitut für Seelische Gesundheit, Germany.

Dr L. Eisenberg, Harvard University, USA.

Prof. D. De Leo, University of Padua, Italy.

Prof. R. Dickstra, University of Leiden, The Netherlands.

Prof. D. Lester, Stockton State College, USA.

Dr H. Sell, WHO/SEARO.

Prof. G. Sonneck, University of Vienna, Austria.

Prof. Zhai Shu Tao, Nanjing Neuropsychiatric Research Institute, China

The collaboration of the International Association for the Prevention of Suicide is also greatly appreciated.

Dr G. De Girolamo’s contribution was fundamental in reviewing the literature and in preparing background documents and earlier drafts of this text.

Dr J. M. Bertolote
Editor
FOREWORD

In 1986 the 39th World Health Assembly adopted a Resolution on the Prevention of Mental, Neurological and Psychosocial Disorders. This Resolution referred to a document in which WHO's Director General listed a number of problem areas which could be significantly reduced with the implementation of well-defined, acceptable and affordable interventions.

After the adoption of that Resolution, WHO Regional Committees considered it and Member States were requested to review the situation in this respect. WHO was asked to produce specific and detailed guidelines for the prevention of mental, neurological and psychosocial disorders.

Those Resolutions and requests resulted in a series of fascicles on this topic. The present fascicle includes practical guidelines for the prevention of suicide. Nevertheless, the production of detailed guidelines for the prevention of all forms of suicide does not seem realistic. Thus we limited ourselves to some forms of suicide and identified - with the help of the literature and of experts' advice - the most efficient interventions for each of these. We tried to identify problems and interventions more specific to either developed or developing countries, or to both. Future issues in this series address other disorders.

We hope that this model here presented will be useful not only for guiding action for the prevention of the problem areas here included, but also - and perhaps more important - for stimulating others to produce similar guidelines on other problem areas. In this way, in a concerted and collaborative fashion, the vast area of primary prevention could be gradually and progressively covered.

All comments and suggestions on this series are welcome and should be addressed to:

Dr. J. M. Bertolote
Senior Medical Officer
Division of Mental Health
World Health Organization
1211 Geneva-27 Switzerland


HOW TO USE THIS DOCUMENT

This document is intended for a wide audience; the main target groups are policy makers, health workers and the general public. Specific needs and both the degree of complexity of the information and the language in the book are different; therefore the same information adapted for these groups has been printed in different colour pages:

- White pages contain extensive, detailed technical information providing the scientific evidence about the facts and the measures proposed; they are intended for health professionals, the technical and scientific communities.

- Yellow pages contain more detailed information at a technical level; they are intended for primary health care workers or workers in other technical sectors, e.g. education or police.

- Green pages contain brief and to-the-point information; they are intended for those readers with not much time available or interest in scientific literature, e.g. the general public, policy makers, journalists, etc.

This document discusses prevention of suicide. The first document in this series addresses primary prevention issues in general; other documents in this series describe in detail other specific disorders; in each of those prevention is proposed both in terms of specific interventions (e.g. guns control) and of settings where those interventions can be developed (e.g. what can be done by the Ministry of Industry and Commerce).
SUICIDE

1. INTRODUCTION

1.1. Definitions

Suicide can be defined (modified from Diekstra (15)) as:

a) an act with a fatal outcome;

b) that is deliberately initiated and performed by the person himself or herself;

c) in the knowledge, or expectation, of its fatal outcome.

Suicidal acts with a nonfatal outcome are labeled either suicide attempts, attempted suicides, parasuicides, or acts of deliberate self-harm. Currently there is a growing tendency among experts in this field to broaden the concept of suicide and to speak of suicide behaviours instead (47). Nevertheless, until this new paradigm is better developed, it is reasonable to continue to operate with the more traditional and accepted concept of suicide.

SUICIDE
IS AMONG THE
TEN LEADING CAUSES OF DEATH

In this paper primary prevention of suicide is understood as measures to prevent the act which may result in the fatal outcome; it does not necessarily cover parasuicide, suicidal ideation or other suicidal behaviours. Another fascicle in this series on Principles for Primary Prevention (WHO/MNH/MND/93.21) provides further details on this approach.

1.2. Conceptual models relevant for prevention

Several conceptual models have been put forward in the attempt to explain this complex phenomenon; of those relevant for prevention the most important are the medical model, the sociological model and the ecological model.

The medical model in general proposes that a disease - the target event for prevention - is the result of the interaction of an agent (cause), a host (human being) and an environment
(physical, psychological and social conditions). Prevention, following this model, requires the previous identification of a specific etiology or of conditions - in the environment or in the host - under which the disease process is started.

According to the most widespread medical model of suicide, suicide is a sign and/or a consequence of a given mental disorder; in other words, a mental disorder acts as the agent and suicide becomes the undesired outcome, target of preventive actions. In this case, successfully treating a person for the mental disorder would consequently reduce or prevent suicide.

Experience, however, has shown that results using this model approach are less than satisfactory. Results from a literature review (15) indicate the following:

a) A review of 12 studies on psychosocial/psychiatric interventions showed no positive effect when fatal outcome was considered; when non-fatal outcome was considered, 7 studies found positive effects and 2 did not.

b) No controlled studies on pharmacological treatment were identified. Open studies in which tricyclic antidepressants (TCA) were utilized showed no positive effect; in addition, many suicides have been committed by overdosing TCAs. Patients treated at lithium clinics (2 studies) showed mortality rates similar to those of the general population, thus indicating a protective factor from lithium maintenance treatment (14, 35, 20).

c) Meta analysis of 6 controlled studies on ECT showed "undetermined" results.

The sociological model goes back to 1897 when Durkheim, in his classic work Le Suicide, categorized suicides as anomic, altruistic, egoistic and fatalistic (17). He considered anomie suicide as the prototype of suicide and a result from weak or absent social norms and regulations.

An analysis of social categories indicate gender, age, ethnicity, marital status, employment and migrant status as relevant variables relating to suicide (48). Groups at high risk for suicide include men, the elderly (and more recently the youth, in some places), ethnic minorities, people living alone, the unemployed and migrants.

Of all the above only employment is amenable to overall direct intervention, the others being either natural and unavoidable factors (gender, age and ethnicity) or variables difficult to control, such as marital status and migration. Preventive activities, therefore, should first identify specific elements - or the chain of representations - in each of these variables which may lead to suicide.

At this point the sociological model clearly becomes a psychosocial model because we must use psychological variables to conceptualize, understand and act upon the chain of representations.

From a public health perspective, the main difficulty with activities for the prevention of suicide within the psychosocial approach is the lack of evidence of impact. We do have
several proposals and descriptions of promising programmes for the prevention of suicide behaviours; however, none of them have yet been in operation for a long enough time as to make evaluation possible - their evaluation is either missing or indicates no positive results. One of the most widespread activities for the prevention of suicide in the health sector has perhaps been represented by suicide prevention centres. Unfortunately, however, evaluation of this type of activity has not been able to show its effectiveness (18, 5, 15).

From a pragmatic point of view, it seems useful to conceive suicide ecologically as the final step in a series of independent - yet inter-related - factors and pathways, each of them drawing from different domains, summarized in Figure 1.

From the model depicted in Figure 1 it is possible to conceive the primary prevention of suicidal acts as any action that contributes to decreasing the frequency of those acts, irrespective of their conditioning or triggering factors. This approach is known as reduction of or restricting access to means of suicide and will be further discussed later on. It departs from other approaches tried previously, e.g. those concentrating primarily on reducing or controlling suicidal ideation. The focus in this approach is on the possibly lethal act and its immediate personal and environmental circumstances.
Figure 1. Suicide: an ecological model.
2. MAGNITUDE OF THE PROBLEM

Suicide is among the 10 leading causes of death for all ages in most of the countries for which information is available throughout the world; in some countries it is indeed among the top three causes of death for people aged 15-34 years. Rates as high as 1 suicide per 1,500 population have been reported (e.g. for Hungary) or even 1 suicide per 1,000 population in some isolated regions (e.g. Falkland Islands). On average it can be reasonably estimated that during one year approximately some 400,000 people commit suicide around the world. Nevertheless, there are many reasons to believe that suicide is under-reported by 20% to 100% according to prevailing beliefs and negative sanctions attached to it, in some places.

Table 1 presents some data concerning suicide rates in some selected countries (16). As one can see, it affects equally both developed and developing countries, and similarly countries with quite distinct cultural traditions, e.g. Surinam, Sri Lanka, Switzerland and Japan, an exception being perhaps constituted by Islamic countries.

In addition, in Europe ten times as many people made a nonfatal attempt or deliberately harmed themselves seriously enough to require some sort of medical assistance. The actual number of people engaging in some form of deliberate self-harm is unknown, but is probably much greater because, in many cases, there is no contact with medical services. In North America and Europe, 4% to 5% of persons aged 15 years or over have at some time attempted to commit suicide or to harm themselves intentionally.

The research evidence available suggests characteristic differences between suicide and attempted suicide in relation to the methods of self-harm that are chosen, the clinical aspects (such as psychiatric diagnosis and treatment), the psychological features, and the personality patterns. Also, there are differences in the age and sex of the people involved and in the emotional precipitants of the behaviour. In terms of social antecedents, such as unemployment or loss of work, suicide and attempted suicide, these populations seem to overlap considerably.

These data clearly demonstrate the magnitude of the problem and its relevance in terms of public health, and the need for developing effective preventive strategies able to prevent people from committing a dramatic, lethal act.
Table 1. Suicide rates in selected countries (per 100,000 population, all age groups; latest available year)

<table>
<thead>
<tr>
<th>Suicide rate by sex</th>
<th>Male</th>
<th>Female</th>
<th>Both sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>58.0</td>
<td>20.7</td>
<td>38.6</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>48.8</td>
<td>22.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Finland</td>
<td>48.9</td>
<td>11.7</td>
<td>29.8</td>
</tr>
<tr>
<td>Switzerland</td>
<td>34.3</td>
<td>11.6</td>
<td>22.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>32.0</td>
<td>13.8</td>
<td>22.7</td>
</tr>
<tr>
<td>Austria</td>
<td>34.6</td>
<td>11.6</td>
<td>22.6</td>
</tr>
<tr>
<td>Denmark</td>
<td>30.0</td>
<td>15.1</td>
<td>22.4</td>
</tr>
<tr>
<td>France</td>
<td>29.6</td>
<td>11.1</td>
<td>20.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>26.8</td>
<td>10.6</td>
<td>18.6</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>27.3</td>
<td>8.9</td>
<td>17.9</td>
</tr>
<tr>
<td>Germany</td>
<td>24.9</td>
<td>10.7</td>
<td>17.5</td>
</tr>
<tr>
<td>Japan</td>
<td>20.6</td>
<td>11.8</td>
<td>16.1</td>
</tr>
<tr>
<td>Norway</td>
<td>23.3</td>
<td>8.0</td>
<td>15.5</td>
</tr>
<tr>
<td>Poland</td>
<td>23.9</td>
<td>4.4</td>
<td>13.9</td>
</tr>
<tr>
<td>Singapore</td>
<td>14.7</td>
<td>11.5</td>
<td>13.1</td>
</tr>
<tr>
<td>Canada</td>
<td>20.4</td>
<td>5.2</td>
<td>12.7</td>
</tr>
<tr>
<td>USA</td>
<td>19.9</td>
<td>4.8</td>
<td>12.2</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>19.4</td>
<td>2.1</td>
<td>10.5</td>
</tr>
<tr>
<td>Uruguay</td>
<td>16.6</td>
<td>4.2</td>
<td>10.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>12.3</td>
<td>7.2</td>
<td>9.7</td>
</tr>
<tr>
<td>Portugal</td>
<td>14.9</td>
<td>4.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Ireland</td>
<td>14.4</td>
<td>4.7</td>
<td>9.5</td>
</tr>
<tr>
<td>UK</td>
<td>12.4</td>
<td>3.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Spain</td>
<td>11.6</td>
<td>3.9</td>
<td>7.7</td>
</tr>
<tr>
<td>Italy</td>
<td>11.2</td>
<td>4.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.5</td>
<td>4.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Chile</td>
<td>9.8</td>
<td>1.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Venezuela</td>
<td>7.8</td>
<td>1.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Greece</td>
<td>5.5</td>
<td>1.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Colombia</td>
<td>5.1</td>
<td>1.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.9</td>
<td>0.7</td>
<td>2.3</td>
</tr>
</tbody>
</table>
3. RISK FACTORS

The presence of a psychiatric disorder (including alcoholism and drug abuse) represents the strongest risk factor for suicide, and for this reason prevention and treatment of psychiatric disorders would undoubtedly have a significant effect on prevention of suicide. It is generally stated that psychological autopsy studies in the U.S. and Europe show that over 90% of patients who succeed in committing suicide have a psychiatric illness at the time of death, and that two disorders, depression and alcoholism, are associated with 80-85% of suicides.


| DEPRESSION AND SUBSTANCE ABUSE |
| ARE IMPORTANT RISK FACTORS FOR |
| SUICIDE |

This finding has been supported by a number of other studies. For instance, in a 3- to 4-year follow-up study in which patients with depression, mania or schizophrenia were compared with normal controls, 9 to 11% of the patients with psychiatric disorders who had died had committed suicide, but none of the controls (49). In another study of 5,412 hospitalized psychiatric patients, the risk of suicide was 11 to 67 times higher for patients with acute or chronic schizophrenia, affective disorders, or alcohol and other drug abuse than would be expected in a control population (7). It is therefore very important to stress the centrality of psychiatric morbidity both for the occurrence and the prevention of suicide.

Table 2. Psychiatric diagnoses in 5,588 cases of suicide.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic brain syndrome</td>
<td>308</td>
<td>5</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>947</td>
<td>16</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>612</td>
<td>10</td>
</tr>
<tr>
<td>Affective disorders</td>
<td>1,400</td>
<td>24</td>
</tr>
<tr>
<td>Neurotic &amp; personality disorders</td>
<td>1,340</td>
<td>22</td>
</tr>
<tr>
<td>Other mental disorders</td>
<td>1,259</td>
<td>21</td>
</tr>
<tr>
<td>No diagnosis</td>
<td>137</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6,003</td>
<td>100</td>
</tr>
</tbody>
</table>
There are some indications, however, that the predominance of depression and substance abuse over other psychiatric diagnoses among those who committed suicide may not be as overwhelming as indicated previously. In fact reviewing data from 13 major published studies (1-4, 6-9, 13, 22, 32, 34, 39, 41, 42, 51) which analyzed the psychiatric diagnosis made in cases of suicide from both general population and from populations of mental patients, a less clear picture comes out (Table 2). Some of these studies cover series of patients from a single hospital over many years while others cover all cases of suicide in a specific country, again over several years.

Generally speaking, "affective disorder" is the most frequently observed diagnosis (in 24% of the cases, closely followed by neurotic and personality disorders (22%) and other mental disorders (21%). This does not confirm previous reports giving the diagnosis of depression in people who committed suicide in the range of 60-80% and represents a lower contribution to the total pool of mental disorders associated with suicide. Treatment for depressed people is highly justifiable and beneficial for those people, but it should be no surprise that efforts mostly concentrated on the treatment of depression would not be reflected in global mortality rates from suicides (MRS). Following a simple epidemiological reasoning, even with a treatment for depression with an efficacy of 100% which would reach all depressed subjects in a given general population (efficiency of 100%), a decrease in the MRS of not more than 30% could be reasonably expected. Assuming that, generally speaking, less than 50% of depressed patients receive proper treatment, which is effective in no more than 70% of the cases, the expected reduction in MRS becomes something around 10%.

Confirming this impression are the findings by Goldstein et al (21) who in a follow-up study of a sample of almost 2,000 high-risk hospitalized patients with affective disorders demonstrated the impossibility of identifying any of the 46 who committed suicide, from the base-line clinical data.

Other risk factors for suicide include male sex, older age, living alone, and the presence of physical illness. For alcoholics, the recent loss of someone close is a risk factor (36). Previous suicide attempts are also associated with an increased risk of suicide in psychiatric patients (21, 24).

It has also been found that loss of a parent during the ages of six to fourteen is especially common in later suicides (26).
The different access to instruments of suicide seems to be associated with differences in suicide rates. For instance the detoxification of domestic gas in Switzerland was correlated with a decrease in the suicide rate as well as with a decrease in the use of domestic gas to commit suicide (28). One report found a reduction in suicide rates among persons 15 to 24 years of age when access to handguns was restricted (40, 45). Another very recent study found that the presence of one or more guns in the home was associated with an increased risk of suicide (23). In the latter study, persons who committed suicide were more likely to have lived alone, to have taken psychotropic medication, and to have been arrested for drug or alcohol abuse. These findings are consistent with known risk factors for suicide.

A recent study which assessed the effect of access to lethal methods of injury on suicide rates found that differences between communities in these rates were largely related to differences in accessibility (33). Almost all the differences in overall suicide risks among counties in New York were explained by the fact that different methods of injury were available in the counties. These methods included jumping from high places, taking overdoses of legally prescribed drugs, and inhaling carbon monoxide.

Finally, there are several selected groups at high risk for suicide, including immigrants and native groups, such as the native North Americans, survivors of the suicide of significant others and inmates of prisons and jails.

4. PREVENTIVE MEASURES

From an ecological perspective we can conceptualize suicide as in Figure 1, which gives us an opportunity to re-examine options to the prevention of suicide. The two main components in this perspective are

(i) the identification of vulnerable groups, and

(ii) limitation of access to specific methods of suicide.

As stated above, there are several groups at high risk for suicide, including the elderly, those living in isolation, depressed people, non-integrated immigrants and native groups, such as the native North Americans, and the aboriginal groups in countries such as Australia and Taiwan. Other high-risk groups include survivors of the suicide of significant others. Finally, another high-risk group includes inmates of prisons and jails.

Early intervention with these groups might prevent suicide (44). Preventive interventions with immigrants include interventions aimed at facilitating the adaptation process to the host country. Therefore, language courses, educational and employment opportunities, can all facilitate this process and result in a general improvement of psychological well-being; similar measures should be considered for native groups.

Also as stated above, limiting access to instruments of suicide can reduce the suicide rate (33, 11, 25, 50). Apparently, it was Oliver and Hetzel (37) who first raised the importance of availability of means (sedatives, in the case they studied) and suicide rates. The issue remained controversial for a period, some claiming that in the absence of one specific
means suicidal subjects would shift to another, and some maintaining that this shift would not occur to the majority of subjects, and that overall rates of suicide would drop proportionally to the contribution of the eliminated specific method (29). The concept of accessibility suggests that access to the means often foretells the end. For instance, use of a firearm is one of the most efficient means of committing suicide, and it is not difficult to see how the easy availability of a gun can facilitate suicide using it (25).

**SIX BASIC STEPS FOR THE PREVENTION OF SUICIDE**

- TREATMENT OF PSYCHIATRIC PATIENTS
- GUNS POSSESSION CONTROL
- DETOXIFICATION OF DOMESTIC GAS
- DETOXIFICATION OF CAR EMISSION
- CONTROL OF TOXIC SUBSTANCES AVAILABILITY
- TONING DOWN REPORTS IN THE PRESS

Based on the best available knowledge we can propose the following specific actions for the prevention of suicide, thus decreasing mortality rates associated with suicide:

4.1 Guns control

**ACTION: GUNS POSSESSION CONTROL**

Several studies have shown an association between possession of handguns at home and suicide rates (e.g. 23, 31). For this reason, legislation restricting access to handguns may have a beneficial effect on suicide rates.

**Who does it:**

In the health sector:

Not much is within the range of health workers' routine activities to implement this action, except to inform other sectors and support advocacy groups in favour of reducing individuals' access to firearms.
In other sectors:

Most of the effective work in relation to this action falls within the domain of legislators who can actually create laws which regulate everything from arms production and sales to personal possession and carrying of guns. Police authorities are instrumental in monitoring the enforcement of those laws, as well as are civic associations in promoting compliance.

4.2 Gas detoxification

**ACTION: DETOXIFICATION OF DOMESTIC GAS**

The detoxification of domestic gas in some countries (e.g. Japan, Switzerland and UK) was shown to be correlated with a decrease in the suicide rate as well as with a decrease in the use of domestic gas to commit suicide (28, 29, 12). Therefore the detoxification of domestic gas may also help in preventing people from committing suicide.

**Who does it:**

In the health sector:

Here again not much is within the range of health workers’ routine activities to implement this action, except to inform other sectors and support advocacy groups in favour of the detoxification of domestic gas.

In other sectors:

Authorities in charge of licensing, inspecting and providing domestic gas (for cooking, heating, etc.) have the key role in ensuring that it is free of toxic substances which can cause death when inhaled.

**ACTION: DETOXIFICATION OF CAR EMISSION**

As it is the case with detoxification of domestic gas, there are indications that the reduction of carbon monoxide content in car emission is also associated with a reduction in suicide mortality rates (30, 10, 25). Therefore there are grounds to believe that the detoxification of car exhausts may reduce mortality from suicide, in addition to contributing to a cleaner environment.

**Who does it:**

In the health sector:

Again not much is within the range of health workers’ routine activities to implement this action, except to inform other sectors and support advocacy groups in favour of the detoxification of car emission.
In other sectors:

Car industry and sales sectors are key elements for the reduction of this risk factor. Traffic (and environment) authorities, as well as maintenance and service garages, can also play an important role.

4.3 Control of toxic substances

ACTION: CONTROL OF TOXIC SUBSTANCE SALES

In many places the ingestion of a toxic substance (e.g. pesticides and herbicides) is a preferred method for committing suicide (8). Therefore, reducing easy availability (sales and storage) of these substances can substantially also contribute to a reduction of suicide mortality rates. In many other places, alcoholic beverages are frequently used in combination with other substances whose effects they potentize either with a clear suicide intention or inadvertently but with a lethal consequence; the same is true for several other psychoactive substances.

Who does it:

In the health sector:

The main role of the health sector is to inform authorities about specific risks and to monitor suicides due to intoxication. They have also the responsibility of clearly warning their patients about the risks of mixing alcohol and other psychoactive substances with prescribed medicines.

In other sectors:

Authorities in charge of agriculture and the environment are usually responsible for the control of pesticides, herbicides and similar substances. The responsibility for alcohol sales and advertisement varies from place to place, but those responsible for them should consider pertinent measures to decrease risks.

ACTION: CONTROL OF MEDICINES AVAILABILITY

In 1972 Oliver and Hetzel called attention to the association between suicide mortality rates and availability of sedatives. Since then other drugs have been found to be associated with suicide. There are variations in mortality rates associated with overdoses of antidepressants, suggesting that consideration be given to prescribing medications that are safe for the patients who may become suicidal. As an alternative, patients who risk committing suicide should not be prescribed more than a small amount of potentially lethal drugs, such as tricyclic antidepressants (27). A safe compromise, nevertheless, must be reached between convenience for the patient (in terms of e.g. access to medicine supplies, refills, etc) and safety of a given prescription.
Who does it:

In the health sector:

Health workers have a major role in controlling the amount prescribed and/or supplied of medication potentially toxic or lethal. As mentioned before they are also responsible for correctly informing their patients about the risks of the association between different medicines or between some medicines and psychoactive substances.

In other sectors:

The pharmaceutical industry can greatly contribute by producing appropriate dosage units and packages.

4.4 Press reports

ACTION: TONING DOWN REPORTS ABOUT SUICIDES

Minimizing the unnecessary reporting of suicides in the popular media may be helpful in reducing suicide rates, particularly acts done by imitation. In studies carried out in Vienna, newspaper reports of suicides in the subway system were correlated with subsequent suicide rates (46), thus confirming previous studies done in several other countries, e.g. Canada, The Netherlands, UK, USA (19, 38). Therefore action of the press in toning down the style of reporting about suicides may have significant consequences in reducing the suicide rates. It demonstrates that behavioural changes in the community can make a difference in suicide rates; simply calling attention to some suicides may lead to others. The media can therefore behave responsibly by limiting graphic and unnecessary depictions of suicide.

Who does it:

In the health sector:

The main role of health workers is of an ethical nature in dealing appropriately with information regarding the death by suicide, particularly of people widely known to the public.

In other sectors:

It is hardly necessary to emphasize the major role journalists have in relation in de-glamorizing news and comments on suicide in the press, and on radio and TV.
4.5 Psychiatric treatment

ACTION: MAINTENANCE TREATMENT OF DEPRESSED PATIENTS

As seen above, the presence of a psychiatric disorder, especially depression and alcohol abuse, is a significant risk factor associated with suicide. For this reason, the early recognition and treatment of these disorders will undoubtedly serve as an important preventive strategy for the primary prevention of many cases of suicide. Particularly important may be educational programmes aimed at increasing knowledge among practitioners about the diagnosis and treatment of depressed patients, who are quite common among primary care attenders. In a study the suicide rate dropped significantly during the year after such educational programme was introduced (43). More recently some studies have identified a reduction in suicide rates in populations of depressed patients in maintenance treatment (14, 35, 20).

Primary prevention should also focus on providing good general mental health services for communities.

Who does it:

In the health sector:

The task of health workers in relation to this action is at least two-fold: first, correctly identifying patients with mental disorders, particularly depressive states; and second, treating them, with an adequate follow-up.

In other sectors:

Other sectors have less of a contribution to this action, except in that which refers to the elimination of the stigma frequently associated with people with mental disorders.

4.6 Other measures

In addition to the actions described above, whose efficacy is supported by the scientific literature, there are grounds to believe - even though no definite evidence exists - that other measures, such as fencing high buildings and bridges, can contribute to a reduction in suicide rates. This is particularly important in places where jumping from high places is a frequently used method to commit suicide; in these places limiting access to jumping from high places may be worthwhile.
MID-LEVEL WORKERS' VERSION
SUICIDE

The problem

Definitions

Suicide can be defined as an act with a fatal outcome that is deliberately initiated and performed by the person himself or herself, in the knowledge, or expectation, of its fatal outcome.

Suicidal acts with a nonfatal outcome are labeled either suicide attempts, attempted suicides, parasuicides, or acts of deliberate self-harm. Currently there is a growing tendency among experts in this field to broaden the concept of suicide and to speak of suicide behaviours instead, with important consequences for prevention. Nevertheless, until this new paradigm is better developed, it is reasonable to continue to operate with the more traditional and accepted concept of suicide.

SUICIDE IS AMONG THE TEN LEADING CAUSES OF DEATH

In this paper primary prevention of suicide is understood as measures to prevent the act which may result in the fatal outcome; it does not necessarily cover parasuicide, suicidal ideation or other suicidal behaviours.
Conceptual models relevant for prevention

Several conceptual models have been put forward in the attempt to explain this complex phenomenon; of those relevant for prevention the most important are the medical model, the sociological model and the ecological model.

The medical model in general proposes that a disease - the target event for prevention - is the result of the interaction of an agent (cause), a host (human being) and an environment (physical, psychological and social conditions). Prevention, following this model, requires the previous identification of a specific etiology or of conditions - in the environment or in the host - under which the disease process is started.

According to the most widespread medical model of suicide, suicide is a sign and/or a consequence of a given mental disorder; in other words, a mental disorder acts as the agent and suicide becomes the undesired outcome, target of preventive actions. In this case, successfully treating a person for the mental disorder would consequently reduce or prevent suicide.

The sociological model categorizes suicides as anomic, altruistic, egoistic and fatalistic. Anomic suicide is considered the prototype of suicide and a result from weak or absent social norms and regulations.

An analysis of social categories indicate gender, age, ethnicity, marital status, employment and migrant status as relevant variables relating to suicide. Groups at high risk for suicide include men, the elderly (and more recently the youth, in some places), ethnic minorities, people living alone, the unemployed and migrants. Of all the above only employment is amenable to overall direct intervention, the others being either natural and unavoidable factors (gender, age and ethnicity) or variables difficult to control, such as marital status and migration. Preventive activities, therefore, should first identify specific elements - or the chain of representations - in each of these variables which may lead to suicide.
The *ecological model* considers suicide as the final step in a series of independent - yet inter-related - factors and pathways, each of them drawing from different domains, as summarized in Figure 1. From this model it is possible to conceive the primary prevention of suicidal acts as any action that contributes to decreasing the frequency of those acts, irrespective of their conditioning or triggering factors. This approach is known as reduction of or restricting access to means of suicide and will be further discussed later on.

Currently there is a growing tendency among experts in this field to broaden the concept of suicide and to speak of suicide behaviours instead, with important consequences for prevention. However, despite some promising programmes for the prevention of suicide behaviours, none of them have yet been in operation for a long enough time to make evaluation possible. Therefore, until this new paradigm is better developed, it is reasonable to continue to operate with the more traditional and accepted concept of suicide.

**Its frequency**

![400,000 people commit suicide every year around the world](image)

Suicide is among the 10 leading causes of death for all ages in most of the countries for which information is available throughout the world; in some countries it is indeed among the top three causes of death for people aged 15-34 years. Rates as high as 1 suicide per 1,500 population have been reported (e.g. Hungary) or even 1 suicide per 1,000 population in some isolated regions (e.g. Falkland Islands). On average it can be reasonably estimated that during one year approximately some 400,000 people commit suicide around the world.
Figure 1. Suicide: an ecological model.

Socio-cultural environment

Physical environment

SUICIDAL INTENTION

SUICIDAL ACT

FATAL OUTCOME

NON-FATAL OUTCOME
Table 1 presents some data concerning suicide rates in some selected countries. As one can see, it affects equally both developed and developing countries, and similarly countries with quite distinct cultural traditions, e.g. Surinam, Sri Lanka, Switzerland and Japan, an exception being perhaps constituted by Islamic countries.

In addition, in Europe ten times as many people made a nonfatal attempt or deliberately harmed themselves seriously enough to require some sort of medical assistance. The actual number of people engaging in some form of deliberate self-harm is unknown, but is probably much greater because, in many cases, there is no contact with medical services. In North America and Europe, 4% to 5% of persons aged 15 years or over have at some time attempted to commit suicide or to harm themselves intentionally.

The research evidence available suggests characteristic differences between suicide and attempted suicide in relation to the methods of self-harm that are chosen, the clinical aspects (such as psychiatric diagnosis and treatment), the psychological features, and the personality patterns. Also, there are differences in the age and sex of the people involved and in the emotional precipitants of the behaviour. In terms of social antecedents, such as unemployment or loss of work, suicide and attempted suicide, these populations seem to overlap considerably.

These data clearly demonstrate the magnitude of the problem and its relevance in terms of public health, and the need for developing effective preventive strategies able to prevent people from committing a dramatic, lethal act.

Its causes

It is generally stated that over 90% of patients who succeed in committing suicide have a psychiatric illness at the time of death, and that two disorders, depression and alcoholism are associated with the majority of cases of suicide. There is no dispute about the importance of mental disorders as a risk factor for suicide.
<table>
<thead>
<tr>
<th>Suicide rate by sex</th>
<th>male</th>
<th>female</th>
<th>both sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>58.0</td>
<td>20.7</td>
<td>38.6</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>48.8</td>
<td>22.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Finland</td>
<td>48.9</td>
<td>11.7</td>
<td>29.8</td>
</tr>
<tr>
<td>Switzerland</td>
<td>34.3</td>
<td>11.6</td>
<td>22.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>32.0</td>
<td>13.8</td>
<td>22.7</td>
</tr>
<tr>
<td>Austria</td>
<td>34.6</td>
<td>11.6</td>
<td>22.6</td>
</tr>
<tr>
<td>Denmark</td>
<td>30.0</td>
<td>15.1</td>
<td>22.4</td>
</tr>
<tr>
<td>France</td>
<td>29.6</td>
<td>11.1</td>
<td>20.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>26.8</td>
<td>10.6</td>
<td>18.6</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>27.3</td>
<td>8.9</td>
<td>17.9</td>
</tr>
<tr>
<td>Germany</td>
<td>24.9</td>
<td>10.7</td>
<td>17.5</td>
</tr>
<tr>
<td>Japan</td>
<td>20.6</td>
<td>11.8</td>
<td>16.1</td>
</tr>
<tr>
<td>Norway</td>
<td>23.3</td>
<td>8.0</td>
<td>15.5</td>
</tr>
<tr>
<td>Poland</td>
<td>23.9</td>
<td>4.4</td>
<td>13.9</td>
</tr>
<tr>
<td>Singapore</td>
<td>14.7</td>
<td>11.5</td>
<td>13.1</td>
</tr>
<tr>
<td>Canada</td>
<td>20.4</td>
<td>5.2</td>
<td>12.7</td>
</tr>
<tr>
<td>USA</td>
<td>19.9</td>
<td>4.8</td>
<td>12.2</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>19.4</td>
<td>2.1</td>
<td>10.5</td>
</tr>
<tr>
<td>Uruguay</td>
<td>16.6</td>
<td>4.2</td>
<td>10.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>12.3</td>
<td>7.2</td>
<td>9.7</td>
</tr>
<tr>
<td>Portugal</td>
<td>14.9</td>
<td>4.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Ireland</td>
<td>14.4</td>
<td>4.7</td>
<td>9.5</td>
</tr>
<tr>
<td>UK</td>
<td>12.4</td>
<td>3.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Spain</td>
<td>11.6</td>
<td>3.9</td>
<td>7.7</td>
</tr>
<tr>
<td>Italy</td>
<td>11.2</td>
<td>4.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.5</td>
<td>4.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Chile</td>
<td>9.8</td>
<td>1.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Venezuela</td>
<td>7.8</td>
<td>1.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Greece</td>
<td>5.5</td>
<td>1.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Colombia</td>
<td>5.1</td>
<td>1.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.9</td>
<td>0.7</td>
<td>2.3</td>
</tr>
</tbody>
</table>
DEPRESSION AND ALCOHOLISM ARE IMPORTANT RISK FACTORS FOR SUICIDE.

There are some indications, however, that the predominance of depression and substance abuse over other psychiatric diagnoses among those who committed suicide may not be as overwhelming as indicated previously. Generally speaking, "affective disorder" is the most frequently observed diagnosis (in 24% of the cases, closely followed by neurotic and personality disorders (22%) and other mental disorders (21%) (Table 2).

Table 2. Psychiatric diagnoses in 5,588 cases of suicide.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic brain syndrome</td>
<td>308</td>
<td>5</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>947</td>
<td>16</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>612</td>
<td>10</td>
</tr>
<tr>
<td>Affective disorders</td>
<td>1,400</td>
<td>24</td>
</tr>
<tr>
<td>Neurotic &amp; personality disorders</td>
<td>1,340</td>
<td>22</td>
</tr>
<tr>
<td>Other mental disorders</td>
<td>1,259</td>
<td>21</td>
</tr>
<tr>
<td>No diagnosis</td>
<td>137</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6,003</td>
<td>100</td>
</tr>
</tbody>
</table>
Other vulnerable people are men, the elderly, those living alone, and those with some chronic, incurable physical illness. Previous suicide attempts are also associated with an increased risk of suicide in psychiatric patients. Finally, there are several selected groups at high risk for suicide, including immigrants and native groups, such as the native North Americans, survivors of the suicide of significant others and inmates of prisons and jails.

**MALE SEX, OLDER AGE, LIVING ALONE
AND THE PRESENCE OF PHYSICAL ILLNESS
ARE ALSO RISK FACTORS FOR SUICIDE**

One solution: prevention

The different access to instruments of suicide seems to be associated with differences in suicide rates. For instance, the detoxification of domestic gas in Switzerland was correlated with a decrease in the suicide rate as well as with a decrease in the use of domestic gas to commit suicide. One report found a reduction in suicide rates among persons 15 to 24 years of age when access to handguns was restricted. Another very recent study found that the presence of one or more guns in the home was associated with an increased risk of suicide. In the latter study, persons who committed suicide were more likely to have lived alone, to have taken psychotropic medication, and to have been arrested for drug or alcohol abuse. These findings are consistent with known risk factors for suicide.

A recent study which assessed the effect of access to lethal methods of injury on suicide rates found that differences between communities in these rates were largely related to differences in accessibility. Almost all the differences in overall suicide risks
among counties in New York were explained by the fact that different methods of injury were available in the counties. These methods included jumping from high places, taking overdoses of legally prescribed drugs, and inhaling carbon monoxide.

Targeting vulnerable groups (such as the ones indicated above), and limiting access to preferred methods of suicide represent the most efficient means of reducing suicide rates. Specific actions include adequate treatment of people with mental disorders, guns possession control, gas detoxification (for instance, of domestic gas and of car exhausts), control of toxic substances (such as pesticides), and toning down press reports on suicide.

As stated above, there are several groups at high risk for suicide, including the elderly, those living in isolation, depressed people, non-integrated immigrants and native groups, such as the native North Americans, and the aboriginal groups in countries such as Australia and Taiwan. Other high-risk groups include survivors of the suicide of significant others. Finally, another high-risk group includes inmates of prisons and jails.

Early intervention with these groups might prevent suicide. Preventive interventions with immigrants include interventions aimed at facilitating the adaptation process to the host country. Therefore, language courses, educational and employment opportunities, can all facilitate this process and result in a general improvement of psychological well-being. Similar measures should be considered for native groups.

Also as previously mentioned, limiting access to instruments of suicide can reduce the suicide rate. Apparently, it was Oliver and Hetzel, in 1972, who first raised the importance of availability of means (sedatives, in the case they studied) and suicide rates. The issued remained controversial for a period, some claiming that in the absence of one specific means suicidal subjects would shift to another, and some maintaining that this shift would not occur to the majority of subjects, and that overall rates of suicide would drop proportionally to the contribution of the eliminated specific method. The concept of accessibility suggests that access to the means often foretells the end. For instance, use of
a firearm is one of the most efficient means of committing suicide, and when guns are available the impulse to use them may be overpowering.

Based on the best available knowledge the following specific actions can be proposed for the prevention of suicide, thus decreasing mortality rates associated with suicide:

**SIX BASIC STEPS FOR THE PREVENTION OF SUICIDE**

- Treatment of psychiatric patients
- Guns possession control
- Detoxification of domestic gas
- Detoxification of car emission
- Control of toxic substances availability
- Toning down reports in the press

**Guns control**

**ACTION: GUNS POSSESSION CONTROL**

Several studies have shown an association between possession of handguns at home and suicide rates. For this reason, legislation restricting access to handguns may have a beneficial effect on suicide rates.
Who does it:

In the health sector:

Not much is within the range of health workers' routine activities to implement this action, except to inform other sectors and support advocacy groups in favour of reducing individuals' access to firearms.

In other sectors:

Most of the effective work in relation to this action falls within the domain of legislators who can actually create laws which regulate from arms production and sales to personal possession and carrying of guns. Police authorities are instrumental in monitoring the enforcement of those laws, as well as are civic associations in promoting compliance.

Gas detoxification

ACTION: DETOXIFICATION OF DOMESTIC GAS

The detoxification of domestic gas in some countries (e.g. Japan, Switzerland and UK) was shown to be correlated with a decrease in the suicide rate as well as with a decrease in the use of domestic gas to commit suicide. Therefore the detoxification of domestic gas may also help in preventing people from committing suicide.

Who does it:

In the health sector:

Here again not much is within the range of health workers' routine activities to
implement this action, except to inform other sectors and support advocacy groups in favour of the detoxification of domestic gas.

In other sectors:

**ACTION: DETOXIFICATION OF CAR EMISSION**

As it is the case with detoxification of domestic gas, there are indications that the reduction of carbon monoxide content in car emission is also associated with a reduction in suicide mortality rates. Therefore there are grounds to believe that the detoxification of car exhausts may reduce mortality from suicide, in addition to contributing to a cleaner environment.

**Who does it:**

In the health sector:

Again not much is within the range of health workers' routine activities to implement this action, except to inform other sectors and support advocacy groups in favour of the detoxification of car emission.

In other sectors:

Car industry and sales sectors are key elements for the reduction of this risk factor. Taffic (and environment) authorities, as well as maintenance and service garages, can also play an important role.
CONTROL OF TOXIC SUBSTANCE SALES

In many places the ingestion of toxic a substance (e.g. pesticides and herbicides) is a preferred method for committing suicide. Therefore, reducing easy availability (sales and storage) of these substances can also substantially contribute to a reduction of suicide mortality rates. In many other places, alcoholic beverages are frequently used in combination with other substances whose effects they potentialize either with a clear suicide intention or inadvertently but with a lethal consequence; the same is true for several other psychoactive substances.

Who does it:

In the health sector:

The main role of the health sector is to inform authorities about specific risks and to monitor suicides due to intoxication. They also have the responsibility of clearly warning their patients about the risks of mixing alcohol and other psychoactive substances with prescribed medicines.

In other sectors:

Authorities in charge of agriculture and the environment are usually responsible for the control of pesticides, herbicides and similar substances. The responsibility for alcohol sales and advertisement varies from place to place, but those responsible for them should consider pertinent measures to decrease risks.
ACTION: CONTROL OF MEDICINES AVAILABILITY

In 1972 Oliver and Hetzel called attention to the association between suicide mortality rates and availability of sedatives. Since then other drugs have been found to be associated with suicide. There are variations in mortality rates associated with overdoses of antidepressants, suggesting that consideration be given to prescribing medications that are safe for the patients who may become suicidal. As an alternative, patients who risk committing suicide should not be prescribed more than a small amount of potentially lethal drugs, such as tricyclic antidepressants. A safe compromise, nevertheless, must be reached between convenience for the patient (in terms of e.g. access to medicine supplies, refills, etc) and safety of a given prescription.

Who does it:

In the health sector:

Health workers have a major role in controlling the amount prescribed and/or supplied of medication potentially toxic or lethal. As mentioned before they are also responsible for correctly informing their patients about the risks of the association between different medicines or between some medicines and psychoactive substances.

In other sectors:

The pharmaceutical industry can greatly contribute by producing appropriate dosage units and packages.
Press reports

ACTION: TONING DOWN REPORTS ABOUT SUICIDES

Minimizing the unnecessary reporting of suicides in the popular media may be helpful in reducing suicide rates, particularly acts done by imitation. In studies carried out in Vienna, newspaper reports of suicides in the subway system were correlated with subsequent suicide rates, thus confirming previous studies done in several other countries, e.g. Canada, The Netherlands, UK, USA. Therefore, action of the press in toning down the style of reporting suicides may have significant consequences in reducing the suicide rates. It demonstrates that behavioural changes in the community can make a difference in suicide rates; simply calling attention to some suicides may lead to others. The media can therefore behave responsibly by limiting graphic and unnecessary depictions of suicide.

Who does it:

In the health sector:

The main role of health workers is of an ethical nature in dealing appropriately with information regarding the death by suicide, particularly of people widely known to the public.

In other sectors:

It is hardly necessary to emphasize the major role journalists have in relation in de-glamorizing news and comments on suicide in press, and on radio and TV.
Psychiatric treatment

ACTION: MAINTENANCE TREATMENT OF DEPRESSED PATIENTS

As seen above, the presence of a psychiatric disorder, especially depression and alcohol abuse, is a significant risk factor associated with suicide. For this reason, the early recognition and treatment of these disorders will undoubtedly serve as an important preventive strategy for the primary prevention of many cases of suicide. Particularly important may be educational programmes aimed at increasing knowledge among practitioners about the diagnosis and treatment of depressed patients, who are quite common among primary care attenders. In a study the suicide rate dropped significantly during the year after such an educational programme was introduced. More recently some studies have identified a reduction in suicide rates in populations of depressed patients in maintenance treatment.

Primary prevention should also focus on providing good general mental health services for communities.

Who does it:

In the health sector:

The task of health workers in relation to this action is at least two-fold: first, correctly identifying patients with mental disorders, particularly depressive states; and second, treating them, with an adequate follow-up.

In other sectors:

Other sectors have less contribution to this action, except in what refers to the elimination of the stigma frequently associated to people with mental disorders.
Other measures

In addition to the actions described above, whose efficacy is supported by the scientific literature, there are grounds to believe - even though no definite evidence exists - that other measures, such as fencing high buildings and bridges, can contribute to a reduction in suicide rates. This is particularly important in places where jumping from high places is a frequently used method to commit suicide; in these places limiting access to jumping from high places may be worthwhile.
GENERAL PUBLIC VERSION
SUICIDE

The problem

Suicide is an act with a fatal outcome that is deliberately initiated and performed by the person himself or herself in the knowledge, or expectation, of its fatal outcome.

Its frequency

Suicide is among the 10 leading causes of death for all ages in most of the countries for which information is available throughout the world; in some countries it is indeed among the top three causes of death for people aged 15-34 years. On average it can be reasonably estimated that during one year approximately some 400,000 people commit suicide around the world.
Its causes

There are several theories to explain why people commit suicide. Doctors link it to mental and physical diseases, whereas sociologists rather see it as being associated with socio-economic factors, such as political unrest and unemployment.

DEPRESSION AND ALCOHOLISM ARE IMPORTANT RISK FACTORS FOR SUICIDE

People with some psychiatric disorders are the most vulnerable to the risk of suicide, and two disorders, depression and alcoholism, are associated with almost half of all suicides. Other vulnerable people are men, the elderly, those living alone, and those with some chronic, incurable physical illness. Previous suicide attempts are also associated with an increased risk of suicide in psychiatric patients.

MALE SEX, OLDER AGE, LIVING ALONE AND THE PRESENCE OF PHYSICAL ILLNESS ARE ALSO RISK FACTORS FOR SUICIDE
One solution: prevention

Targeting vulnerable groups (such as the ones indicated above), and limiting access to preferred methods of suicide represent the most efficient means of reducing suicide rates. Specific actions include adequate treatment of people with mental disorders, guns possession control, gas detoxification (for instance, of domestic gas and of car exhausts), control of toxic substances (such as pesticides), and toning down press reports on suicide.

**SIX BASIC STEPS FOR THE PREVENTION OF SUICIDE**

- Treatment of psychiatric patients
- Guns possession control
- Detoxification of domestic gas
- Detoxification of car emission
- Control of toxic substances availability
- Toning down reports in the press

Who does it

Several people working in many different sectors, such as legislators and parliamentarians, police officers, car makers and gas supply officers, officers in the agricultural and environmental sectors, and journalists can all be effective in the reduction of suicide rates.

In addition to the above, health workers have a major role in identifying vulnerable groups and providing them with appropriate treatment and help.
REFERENCES


8. Bowles J R. Suicide in Western Samoa: and example of a suicide prevention program in a developing country. In: Diekstra R & Gulbinat W (Eds.) Preventive strategies on suicide: the state of the art. in press.


47. WHO. Consultation on strategies for reducing suicidal behaviour in the European Region (Doc. EUR/ICP/PSF 024(s)). Copenhagen, WHO-EURO, 1989.


