748 cases of suicide assisted by a Swiss right-to-die organisation

Georg Bosshard, Esther Ulrich, Walter Bär
Institute of Legal Medicine, University of Zurich, Switzerland

Summary

**Background and methods:** In Switzerland, non-medical right-to-die organisations offer instruction and personal guidance in committing suicide to members suffering from incurable diseases. Suicide is usually committed with a lethal dose of barbiturates prescribed by a physician.

This study is a retrospective analysis of all case files of assisted suicide kept during the period 1990–2000 by “Exit Deutsche Schweiz”, the largest Swiss right-to-die organisation.

**Results:** Between 1990 and 2000 Exit assisted in 748 suicides among Swiss residents (0.1% of total deaths, 4.8% of total suicides). 54.4% of the deceased were women. Mean age at death was 73 years in males and 72 years in females (range 18–101 years). Assisted suicide was over-proportionately represented in the German-speaking (p <0.0001), more urbanised (p <0.0001), predominantly Protestant (p <0.0001) cantons. Over the study period the annual number of Exit deaths more than tripled (p <0.0001).

Of the 331 who died in Canton Zurich, 47.4% had cancer, 11.8% cardiovascular/respiratory disease, 12.4% neurological disease and 7.3% HIV/AIDS. The remaining 21.1% suffered from other, usually non-fatal conditions; 76% of these were women.

There were no significant changes in sex, age and distribution of diagnoses during the study period. At first all the lethal substances were taken orally, but by the end of the study period 14% were administered via infusion or PEG catheter.

All assisted suicides in the City of Zurich were duly notified to the authorities.

**Conclusions:** The number of suicides assisted by “Exit Deutsche Schweiz” and the practices followed markedly expanded over this time. There was no apparent relaxation of the indications for assisted suicide. Notification of the authorities appeared to be total.

**Key words:** euthanasia; assisted suicide; barbiturates; Switzerland; Exit

Introduction

Under the Swiss Penal Code, voluntary active euthanasia is punishable by imprisonment (Article 114) whilst assisting in suicide without any self-interest is not illegal (Article 115) [1]. Aid in dying offered by Swiss right-to-die organisations is based on this open legislation [2].

“Exit Deutsche Schweiz”, the German Swiss Exit Association founded in Zurich in 1982, was the first and for many years the only right-to-die organisation offering such assistance [3]. Originally it provided a suicide manual (how to take a cocktail of drugs and if necessary to place a plastic bag over the head). Since the 1990s the organisation has offered instruction and personal guidance through suicide to members suffering from diseases with “poor prognosis, unbearable suffering or unreasonable disability”, who wish to die [4]. In principle these criteria do not preclude people with mental disorders from assistance in suicide. However, in 1998 the Medical Officer of the Canton of Basle prevented the suicide of a 29-year-old mentally ill woman [3], and Exit lost members when the case became public knowledge. As a result, the organisation founded an ethics committee which recommended that people wishing to commit suicide because of mental illness should not be assisted [5]. Information supplied by the organisation indicates that about one-third of requests to Exit lead to assistance in suicide [5].

Another consequence of this incident was the withdrawal of prescription rights from the physician involved, a board member of the Exit organisation. Even so, the legal responsibility of the physician prescribing the lethal dose of barbiturate has still not been clarified [6]. Such prescriptions are written by the family physician, an attending specialist or a physician working with the organisation.

Today, “Exit Deutsche Schweiz” has more than 50,000 members, almost 1% of the popula-
However, in comparison with all other deaths, men was consistent throughout the age groups. How-
tion of women compared with all other suicides (p <0.0001) (table 1). The higher propor-
tion of women compared with all other suicides (p = 0.02), and more markedly with all other
over-representation in comparison with all other
54.4% were women, a significant
and 101 years old, with a mean age of 72 years
in the Swiss population between 1990 and 2000
(0.1% of total deaths and 4.8% of total suicides
in this period). The deceased were between 18
and 101 years old, with a mean age of 72 years
(m = 73, f = 72). 54.4% were women, a significant
of residents of Canton Zurich (n = 331). Medical diag-
noses were classified according to the International Clas-
sification of Diseases (ICD-10) into five diagnostic
groups: cancer (ICD-10: C00–D09), cardiovascular/respi-
datory diseases (ICD-10: I00–J98), HIV/AIDS (ICD-10: B20–B24), neurological diseases (ICD-10: G00–G99) and other. The first four groups chiefly included fatal diag-
noses, while “other diagnoses” consisted principally of
cases in which no fatal condition was present.
For members who died in the City of Zurich (n = 147),
a cross-check was made against files held at the Institute
of Legal Medicine (ILM), containing the district physi-
cian’s and police reports. Notification of the authorities
and the diagnoses given in the Exit files were reviewed.
Statistical analysis
We compared the number of cases, sociodemo-
graphic factors and medical diagnoses with death certifi-
cate data from the Swiss Federal Statistical Office [10].
Since data for 2000 were not yet available, we substituted
data from 1999. To evaluate changes over the study pe-
dium, data from the first four years (1990–1993) were com-
pared with data from the last four (1997–2000). Simple
two-way contingency tables (chi-square) were used for all
statistical evaluations. Significance level was set at p <0.05.
Results
Number, sex, age at death and canton
of residence of Exit deaths in Switzerland
“Exit Deutsche Schweiz” assisted 748 suicides
in the Swiss population between 1990 and 2000
(0.1% of total deaths and 4.8% of total suicides
over this period). The deceased were between 18
and 101 years old, with a mean age of 72 years
(m = 73, f = 72). 54.4% were women, a significant
over-representation in comparison with all other
deaths (p = 0.02), and more markedly with all other
suicides (p <0.0001) (table 1). The higher propor-
tion of women compared with all other suicides
was consistent throughout the age groups. How-
ever, in comparison with all other deaths, men
were over-represented in the over-85s (p = 0.03).
Residents of German-speaking (p <0.0001), more
urbanised (p <0.0001), predominantly Protestant
(p <0.0001) cantons were more common in the
Exit deaths (table 2).
Developments over the study period
in Switzerland
The number of Exit deaths tripled from 110
0.2% of all deaths at the end of the study period.
This is a highly significant increase in relation both
to total deaths (p <0.0001), which remained con-
stant in Switzerland, and total suicides (p <0.0001),

Methods
Purpose and approach
The aim of this study was independent collection and
analysis of core data on the activities of “Exit Deutsche
Schweiz” in assisted suicide. In October 2000, the Exit
management committee granted us permission to review
their records of assistance in suicide. All records from
1990–2000 were made available, subject to guarantees
of complete anonymity of the data gathered in situ by one of
the research team (E. U.) and strict confidentiality. None
of these data had previously been subjected to external sci-
entific review.
Data collection
The Exit files always consisted of an Exit record sheet
providing information including sex, age, place of resi-
dence, medical diagnosis and date of membership of the
person wishing to die, steps taken to clarify the situation
and the timing of events during assistance. Also routinely
enclosed was an assisted suicide declaration, “Freitod-
Erklärung”, in which the person concerned stated his/her
wish to die in writing. Some files additionally included
medical reports and/or opinions from the family doctor,
attending specialist, hospital or a physician working with
the organisation. Some of these reports were nothing
more than a list of diagnoses, while others contained a spe-
cific assessment of the wish to die in relation to the med-
ical and social situation (opinion). A copy of the prescrip-
tion for the barbiturate used could also be found in some
cases. A few files held correspondence between the mem-
ber and the organisation, or detailed reports from the per-
son wishing to die concerning his/her situation.
To keep the study within reasonable limits, cases were
reviewed at three levels. Sociodemographic data of the de-
ceased (age, sex, year of death and canton of residence)
were obtained for all Exit-assisted suicides in Switzerland
(n = 748). Information relevant to the medico-legal inves-
tigation (diagnosis in relation to the wish to die, length of
membership, medical reports and prescriptions, and how
suicide was committed) was collected from the Exit files
for residents of Canton Zurich (n = 331). Medical diag-
noses were classified according to the International Clas-
sification of Diseases (ICD-10) into five diagnostic
groups: cancer (ICD-10: C00–D09), cardiovascular/respi-
datory diseases (ICD-10: I00–J98), HIV/AIDS (ICD-10: B20–B24), neurological diseases (ICD-10: G00–G99) and other. The first four groups chiefly included fatal diag-
noses, while “other diagnoses” consisted principally of
cases in which no fatal condition was present.
For members who died in the City of Zurich (n = 147),
the organisation, or detailed reports from the per-
son wishing to die concerning his/her situation.

statistics [3]. Two much smaller right-to-die organisa-
tions, “Exit International”, founded in 1997 and
“Dignitas”, founded in 1998, are both splinter
matures throughout the age groups. How-

As with all suicides, assisted suicides must be
notified in Switzerland as unnatural deaths, to be
investigated on the spot by the authorities in con-
junction with a forensic medical officer [9]. Pros-
ection follows if doubts subsist regarding the de-
cended's decision-making capacity. Since there is
no central notification of assisted suicide in
Switzerland, only the right-to-die organisations
themselves have an overview of these cases.
748 cases of suicide assisted by a Swiss right-to-die organisation

Table 1
Exit-assisted suicides (Exit deaths) among Swiss residents 1990-2000: Sex and age distribution in comparison with all other deaths and with all other suicides. Figures are numbers (column percentage) of people.

<table>
<thead>
<tr>
<th>Variable of the deceased</th>
<th>Exit deaths (n = 748)</th>
<th>All other deathsb (n = 688,900)</th>
<th>p valuec</th>
<th>All other suicidesb (n = 14,759)</th>
<th>p valuec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, all ages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>341 (45.6)</td>
<td>343,600 (49.9)</td>
<td>0.02</td>
<td>10,807 (73.2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Women</td>
<td>407 (54.4)</td>
<td>345,300 (50.1)</td>
<td></td>
<td>3,952 (26.8)</td>
<td></td>
</tr>
<tr>
<td>Sex, age &lt;44 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>37 (58.7)</td>
<td>28,600 (67.8)</td>
<td>0.12</td>
<td>4,790 (76.8)</td>
<td>0.001</td>
</tr>
<tr>
<td>Women</td>
<td>26 (41.3)</td>
<td>13,600 (32.2)</td>
<td></td>
<td>1,445 (23.2)</td>
<td></td>
</tr>
<tr>
<td>Sex, age 45–64 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>76 (40.9)</td>
<td>59,500 (65.4)</td>
<td>&lt;0.0001</td>
<td>3,451 (72.1)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Women</td>
<td>110 (59.1)</td>
<td>31,500 (34.6)</td>
<td></td>
<td>1,338 (27.9)</td>
<td></td>
</tr>
<tr>
<td>Sex, age 65–84 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>177 (46.8)</td>
<td>183,000 (54.8)</td>
<td>0.002</td>
<td>2,172 (68.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Women</td>
<td>201 (53.2)</td>
<td>151,100 (45.2)</td>
<td></td>
<td>987 (31.2)</td>
<td></td>
</tr>
<tr>
<td>Sex, age &gt;85 yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>51 (42.1)</td>
<td>72,500 (32.7)</td>
<td>0.03d</td>
<td>394 (68.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Women</td>
<td>70 (57.9)</td>
<td>149,100 (67.3)</td>
<td></td>
<td>182 (31.6)</td>
<td></td>
</tr>
</tbody>
</table>

- All ages
- Data from Swiss Federal Statistical Office
- Chi-square test
- Over-representation of men

Table 2
Exit-assisted suicides (Exit deaths) among residents of different Swiss cantons 1990–2000 related to language, region and religion in comparison with all other deaths. Figures are numbers (column percentage) of people.

<table>
<thead>
<tr>
<th>Characteristic of canton</th>
<th>Exit deaths (n = 748)</th>
<th>All other deaths (n = 688,900)</th>
<th>p valueb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>703 (94.0)</td>
<td>495,000 (71.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>French</td>
<td>27 (3.6)</td>
<td>164,200 (23.8)</td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>18 (2.4)</td>
<td>29,700 (4.3)</td>
<td></td>
</tr>
<tr>
<td>Urban / rural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanised</td>
<td>491 (65.6)</td>
<td>351,400 (51.0)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Rurald</td>
<td>257 (34.4)</td>
<td>337,500 (49.0)</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant</td>
<td>558 (74.6)</td>
<td>387,600 (56.3)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Catholic</td>
<td>190 (25.4)</td>
<td>301,300 (43.7)</td>
<td></td>
</tr>
</tbody>
</table>

- Data from Swiss Federal Statistical Office
- Chi-square test
- German-speaking compared with French- / Italian-speaking
- Defined as more than 33.3% of all residents living in a rural area

Medical diagnoses of Exit deaths in the Canton Zurich

Between 1990 and 2000, “Exit Deutsche Schweiz” assisted at 331 suicides of residents of Canton Zurich, i.e. 0.3% of total deaths and 8.8% of total suicides in this region. Of these, 78.9% were principally suffering from fatal diseases: 47.4% from cancer, 11.8% from cardiovascular/respiratory diseases, 7.3% from HIV/AIDS and 12.4% from neurological diseases (table 4). Compared with natural deaths, Exit deaths represented 0.5% of total deaths due to malignancy, 0.1% of those due to cardiovascular/respiratory disease, which decreased slightly over the same period (figure 1). Sex and age distribution did not change significantly between these periods (table 3).

Figure 1
Exit deaths, total deaths and total suicides in Switzerland from 1990 to 2000, index year is 1990 (100 corresponds to 637,398 deaths, 1467 suicides and 30 Exit deaths per year respectively).
1.7% of those due to HIV/AIDS and 1.2% of those due to neurological diseases. Of particular note in this last group was that 4.5% of persons with multiple sclerosis and 3.4% of those with amyotrophic lateral sclerosis voluntarily ended their lives prematurely.

The remaining 70 cases (21.1%) embraced principally non-fatal diagnoses such as musculoskeletal disorders (20 cases, viz. 5 rheumatoid arthritis, 8 osteoporosis and 7 arthrosis), 13 cases of chronic pain syndrome and diagnoses such as “blindness” and “general weakness”. The wish to die was related to mental disorder in 9 cases (8 depression and 1 psychosis).

Of the total 331 cases in Canton Zurich, 159 were males and 172 (52%) females. 142 men (mean age 71 years) and 119 women (46%) (mean age 67 years) had fatal diseases. In contrast, “other diagnoses” comprised 17 men and 53 women (76%) of higher mean ages (80 and 83 years respectively).

Developments over the study period in Canton Zurich

In the 331 case records studied the proportions of persons with cancer and of persons without fatal medical conditions (“other diagnoses”) did not change significantly (table 5). Assisted suicides of persons with less than 4 weeks’ Exit membership increased from 4% to 10% (p = 0.2), while the median duration of membership prior to death increased from 2 to 3 years. By the end of the study period there was a highly significant increase in the number of medical reports (p <0.0001) and in identification of the physician prescribing the barbiturates (p <0.0001), who was the attending or family physician in 31% of cases and a physician working with the right-to-die organisation in 52%. At the beginning of the 1990s secobarbital, pentobarbital or a combination of various hypnotics were used, all taken orally. Between 1997 and 2000, pentobarbital was used almost exclusively, administered by intravenous infusion or PEG catheter in 14% of cases (significant increase, p = 0.004).

Table 3

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>58 (53)</td>
<td>185 (48)</td>
<td>0.3</td>
</tr>
<tr>
<td>Women</td>
<td>52 (47)</td>
<td>204 (52)</td>
<td></td>
</tr>
<tr>
<td>Age group men</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;64 yr</td>
<td>17 (29)</td>
<td>57 (31)</td>
<td>0.8</td>
</tr>
<tr>
<td>&gt;65 yr</td>
<td>41 (71)</td>
<td>128 (69)</td>
<td></td>
</tr>
<tr>
<td>Age group women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;64 yr</td>
<td>20 (38)</td>
<td>59 (29)</td>
<td>0.2</td>
</tr>
<tr>
<td>&gt;65 yr</td>
<td>32 (62)</td>
<td>141 (71)</td>
<td></td>
</tr>
</tbody>
</table>

a Both sexes
b Chi-square test

Barbiturates as means of suicide (Canton Zurich)

In 300 of the Exit deaths in Canton Zurich, a barbiturate was the only drug used (following ingestion of an anti-emetic) and was taken orally in 276 cases. In 261 cases 10–12 g pentobarbital was taken orally: the median interval before death was 23 minutes (range 7–1075 minutes, table 6). In 15 cases 10–15 g secobarbital was ingested and the median time to death was 25 minutes (range 11–626 minutes). In 22 cases, 10–15 g pentobarbital was administered intravenously and caused death after a median time of 16 minutes (range 4–45 minutes). In two further cases, pentobarbital was administered via PEG catheter.

Notification rate, verification of diagnosis, post-mortem investigations of the cases in the city of Zurich

147 Exit deaths in the city of Zurich (place of death) were reviewed, all of which were notified as unnatural deaths and investigated by the Institute of Legal Medicine (ILM).

For 61 cases without a medical report in the Exit file, the diagnosis stated on the Exit record sheet was checked in the ILM records. 35 of these contained a record that the forensic medical offi-
748 cases of suicide assisted by a Swiss right-to-die organisation

Table 5

<table>
<thead>
<tr>
<th>Variable of the deceased</th>
<th>Exit deaths 1990–1993 (n = 51)</th>
<th>Exit deaths 1997–2000 (n = 166)</th>
<th>p value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnoses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malignancy</td>
<td>30 (59)</td>
<td>74 (45)</td>
<td>0.07b</td>
</tr>
<tr>
<td>HIV / AIDS</td>
<td>5 (10)</td>
<td>7 (4)</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular/respiratory disease</td>
<td>3 (6)</td>
<td>33 (20)</td>
<td></td>
</tr>
<tr>
<td>Nervous system</td>
<td>4 (8)</td>
<td>20 (12)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>9 (18)</td>
<td>32 (19)</td>
<td>0.8c</td>
</tr>
<tr>
<td>Duration of membership in “Exit”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 week</td>
<td>2 (4)</td>
<td>6 (4)</td>
<td>0.2d</td>
</tr>
<tr>
<td>1 –&lt;4 weeks</td>
<td>0</td>
<td>10 (6)</td>
<td></td>
</tr>
<tr>
<td>4 –&lt;1 year</td>
<td>15 (29)</td>
<td>36 (22)</td>
<td></td>
</tr>
<tr>
<td>1 –&lt;5 years</td>
<td>17 (33)</td>
<td>44 (27)</td>
<td></td>
</tr>
<tr>
<td>&gt;=5 years</td>
<td>17 (33)</td>
<td>70 (42)</td>
<td></td>
</tr>
<tr>
<td>Medical report or opinion issued by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending or family physician</td>
<td>6 (12)</td>
<td>87 (52)</td>
<td></td>
</tr>
<tr>
<td>Exit physician</td>
<td>0</td>
<td>21 (13)</td>
<td></td>
</tr>
<tr>
<td>Hospital physician</td>
<td>2 (4)</td>
<td>45 (27)</td>
<td></td>
</tr>
<tr>
<td>No report or opinion in the file</td>
<td>43 (84)</td>
<td>13 (8)</td>
<td>&lt;0.0001f</td>
</tr>
<tr>
<td>Prescribing physician recorded by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending or family physician</td>
<td>4 (8)</td>
<td>52 (31)</td>
<td></td>
</tr>
<tr>
<td>Exit physician</td>
<td>0</td>
<td>86 (52)</td>
<td></td>
</tr>
<tr>
<td>Not recorded in the file</td>
<td>47 (92)</td>
<td>28 (17)</td>
<td>&lt;0.0001f</td>
</tr>
<tr>
<td>Lethal drug, mode of administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentobarbital orally</td>
<td>11 (22)</td>
<td>141 (85)</td>
<td></td>
</tr>
<tr>
<td>Secobarbital orally</td>
<td>12 (24)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Other/combination orally</td>
<td>28 (55)</td>
<td>1 (1)</td>
<td></td>
</tr>
<tr>
<td>Pentobarb. via gastric tube/infusion</td>
<td>0</td>
<td>24 (14)</td>
<td>0.004f</td>
</tr>
</tbody>
</table>

* Chi-square test
b Malignancy compared with all other diagnostic groups
c “Other diagnoses” compared with all previously-mentioned diagnostic groups
d <4 compared with >4 weeks
e “No report” compared with the rest
f “Pentobarbital via gastric tube/infusion” compared with oral administration

Table 6
Time interval between oral ingestion of lethal dose of pentobarbital (10, 12, or 15 g) and death. Figures are numbers (column percentage) of deaths.

<table>
<thead>
<tr>
<th>Time interval</th>
<th>cases (n = 261)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–15 min</td>
<td>70 (27)</td>
</tr>
<tr>
<td>16–30 min</td>
<td>115 (44)</td>
</tr>
<tr>
<td>31–60 min</td>
<td>44 (17)</td>
</tr>
<tr>
<td>&gt;1–2 h</td>
<td>11 (4)</td>
</tr>
<tr>
<td>&gt;2–12 h</td>
<td>20 (8)</td>
</tr>
<tr>
<td>&gt;12 h</td>
<td>1 (0.4)</td>
</tr>
</tbody>
</table>

cancer had contacted the family or attending physician directly, and in a further 22 cases there was a record of a statement by relatives to the investigative authorities. By this means the diagnostic group given by Exit was eventually confirmed in all these 57 cases. In one case, however, the diagnosis of lung cancer given by Exit was actually carcinoma of the oesophagus with pulmonary metastases. In three cases Exit gave a non-specific diagnosis of “cancer” when the type of malignancy was actually known.

Post-mortem and toxicological investigations were carried out in five of the 147 cases investigated by the ILM. In four cases the post-mortem findings confirmed the Exit diagnosis. In the fifth case, the accompanying Exit staff member had refused to provide information on preparation of the suicide, the drugs taken or the deceased’s medical situation. The post-mortem showed prostate cancer and an old thalamic haemorrhage. As in the other four cases, toxicological investigation found lethal pentobarbital blood concentrations.
Discussion

This is, to our knowledge, the first independent comprehensive overview of the suicide-related activities of the right-to-die organisation “Exit Deutsche Schweiz”, and of the distinguishing features of the deceased.

Incidence

Exit deaths comprised 0.1% of total deaths in Switzerland over the entire study period and 0.2% between 1997 and 2000. In Oregon, as reported in 1998–2001 under the Death with Dignity Act, assisted suicide accounted for less than 0.1% of all deaths [11]. In 1995, in the Netherlands, the incidence of reported cases of physician-assisted suicide and voluntary active euthanasia (physician-assisted death) made up 1.1% of total deaths [12]. However, an extensive anonymous investigation of physicians (death certificate study) showed that the true incidence was more than twice as high [13]. Although illegal, assistance in dying is also performed in other countries [14–16].

The number of unreported cases of assisted suicide or euthanasia in Oregon and Switzerland is not known. However, the finding of 147 Exit cases from the City of Zurich in the records of our own institute is a reliable indication that all Exit-assisted suicides were duly notified. The overall incidence of medical end-of-life decisions in Switzerland has recently been investigated in a multinational European death certificate study, the results of which should be available soon [17].

Sex and age

Altogether we found that women were over-represented among Exit deaths as a proportion of total deaths, although men were over-represented in the over-85s. In contrast, Frei and co-workers recently reported a strong over-representation of women over the age of 65 among 35 Exit deaths investigated in the Basle region [18]. This difference is due to a different comparison group (ordinary suicides) rather than to a different study population. In 1702 cases of assisted dying reported to the public prosecutor in North Holland between 1984 and 1993, assistance was given more often to men than to women, with no differences between the sexes in the percentage of deaths in old age [19].

Diagnostic groups

Cancer patients formed the largest diagnostic group among Exit deaths, but the percentage (47%) was low compared with 77% of the assisted suicides in Oregon and up to 80% of physician-assisted deaths in the Netherlands [11, 13, 20]. In patients with multiple sclerosis, amyotrophic lateral sclerosis or HIV/AIDS, the proportion of Exit deaths was markedly higher than in cancer patients. In North Holland, physician-assisted death rates were the highest in AIDS patients (six times higher than for cancer), followed by multiple sclerosis and amyotrophic lateral sclerosis (both twice as high) [20].

21% of the persons assisted by “Exit Deutsche Schweiz” had no apparent fatal medical condition (“other diagnoses”), a markedly higher proportion than reported from the Netherlands and Oregon. In North Holland, using similar diagnostic groups, 7% of physician-assisted deaths between 1984 and 1993 were due to “other diagnoses”, while in Oregon the Death with Dignity Act allows assistance in suicide only for terminally ill people [11, 20].

Exit deaths in old age and among mentally ill patients

The 70 persons with “other diagnoses” in the Exit deaths were distinguished by a high mean age. It must be assumed that multimorbidity rather than a single fatal illness sometimes predominated amongst these elderly people.

The high proportion of women (76%) in this group cannot be explained simply by their longer life expectancy, since amongst the total 331 cases men were actually older than women. It is more a case of over-representation of women without fatal disease contrasting with over-representation of men with such conditions. Our figures correspond to Waern’s recent findings that serious physical illness in old age may be a stronger risk factor for suicide in men than in women [21].

9 Exit deaths (3%) were directly connected with mental disorders. This number does not include cases with concomitant mental disorder. A special checklist, used by Exit since 1998, revealed a depressive disorder associated with a somatic disease in 18% of 132 cases investigated [7]. However, “ordinary” suicides and Exit suicides seem to relate to different populations. Among the Exit deaths examined in the files of the Basle University Institute of Legal Medicine between 1992 and 1997, 14% had been treated at least once as in- or outpatients at a public psychiatric institution, whereas among the “ordinary” suicides in this region during the same period the corresponding figure was 37% [18].

“Exit Deutsche Schweiz” on the slippery slope?

There was a striking increase – tripling – in the number of Exit deaths over the 11-year study period. However, sociodemographic factors (age, gender distribution) and medical factors (diagnoses) relating to the deceased remained relatively unchanged. Since the quality of the records improved, we conclude that this increase stems more from a growing number of requests than from relaxation of the indications for assisted suicide or from progressive laxity in decision-making. Concern remains whether the persistence of the death wish was tested adequately in those cases where the prescribing physician was not the attending or
family doctor, particularly when Exit membership was of short duration (sometimes less than a week). Such practice stands in contrast to Emanuel and co-workers’ finding that, among terminally ill patients who were seriously considering euthanasia or physician-assisted suicide, half changed their minds over the next few months [22].

A significant procedural change occurred after 1997, when i.v. infusions and gastric tubes were introduced for drug administration. These cases have been classified as assisted suicide by the authorities, since the final decisive step causing death (i.e. starting the infusion) had actually been taken by the person wishing to die [23]. This means that even severely ill people, e.g. with difficulties in swallowing, are now no longer excluded from assisted suicide in Switzerland [24]. In the Netherlands, however, these techniques would probably be classed as voluntary active euthanasia [25].

Practical issues
The rapid increase in parenteral administration of barbiturates since 1997 may be a consequence of the observation that after oral ingestion several hours can elapse before death. In the present study the median and range of time to death following oral administration are somewhat shorter than reported for the 91 assisted suicides in Oregon in the period 1998–2001 (30 minutes, range 4 minutes to 37 hours) [11]. Like Preston in Washington and Hedberg in Oregon, we found no records of serious complications or cases of reawakening from coma [11, 26]. These findings are noteworthy in the light of the ongoing international debate on the effectiveness of purely orally administered drugs in assisted suicide [25, 27, 28].

Limitations of the results
Records held in Exit’s archives were the main source of information, so it is not wholly impos

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