Scientific Institute of Public Health
Unit of Epidemiology

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List of Abbreviations

DRD: Drug-related death

EMCDDA: European Monitoring Centre for Drugs and Drug Addiction.

ICD: International statistical classification of diseases, injuries and causes of death.

NIS: National Institute of Statistics.

RR: Relative Risk.

Summary

The EMCDDA "Selection B" was applied to the general mortality register of Belgium of 1987 through 1997 to extract data on the 890 drug-related deaths. Univariate and multivariate methods (Poisson regression) were used to analyze these data. The results reveal a sudden rise in drug-related mortality in 1993. This rise could be partly due to an improvement of the death certification quality. Also, almost three out of four drug-related deaths were men. In more than 90% of the cases where the substances involved were mentioned on the death certificate, opiates were involved. Among people aged 65 years or older, a lot of drug-related deaths were observed (mostly women) with "nondependent abuse of drugs – other, mixed or unspecified" as the cause of death. This made the suspicion rise that the corresponding "Selection B"-code might extract deaths that were not due to illicit substances. Also the difference between the regions was striking: the Walloon Region accounts for the most drug-related deaths. However, additional analyses nuanced this difference. The Poisson regression resulted in a model that tries to explain drug-related deaths and the relative risks show that those at the highest risk are men, people between 20 and 35 years old. In the Walloon and Brussels Capital Region, most deaths are expected.

1. Introduction

In 2002, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) finished the third version of their "DRD Standard"[1], a protocol for the EU member states to report data on drug-related deaths. These drug-related deaths are one of the five epidemiological key indicators of the EMCDDA in studying the drug phenomenon. Every time new drug-related mortality data are acquired, it is reported to the monitoring centre using a standardized form, allowing for comparison between the EU member states. The amount of data on these forms however is limited. Therefore, this report aims to conduct a more profound exploratory study of the mortality data registered in Belgium during the period 1987-1997 by means of univariate and multivariate analyses. Nevertheless, the EMCDDA "DRD Standard" is used for data extraction.

2. Material and Method

2.1. Mortality data

Generally speaking, studies on drug-related deaths (can) use three main sources of data: general mortality registers, special registers and other (usually cohort) studies. The general mortality register in Belgium is the database managed by the National Institute of Statistics (NIS). It contains all the deaths and covers the whole of Belgium. In every (or almost every) country a general mortality register is available. More specific are the special registers. These are usually databases managed by services in more specific, specialised fields, for instance a police database. In Belgium the police keeps a database wherein information on encountered overdoses is stored. In a cohort mortality study, a specific group of people is followed over a certain period of time (a group of drug users in treatment, heroin addicts serving a prison sentence, opiate users during methadone substitution treatment, …) to estimate the mortality rate.

Since no real and recent mortality cohort studies have been conducted in Belgium, this possible source of data did not prove to be useful. Furthermore, because overdoses are not registered on a regular, systematic basis by the police, and no other special registers are available, our only eligible source of data on national level is the general mortality register. This register contains data on the immediate and underlying causes of every decease, based on the information provided by a medical doctor.

2.1.1. Death certificates

With every decease in Belgium, a medical doctor has to certify the death and fill out what is referred to as a "death certificate". This document, officially called "Model III C" (or "Model III D" in the case of the decease of a child that had not yet attained the age of one year) contains various information on the deceased person, divided over 4 sections: A through D[2] (the actual order is C, A, B, D; see annexes):

- Section A provides information concerning the deceased person him-/herself like, among others, the name as well as his/her address. Important here is the possible (forensic) objection to burial or cremation: this permits further inquiry into the circumstances and causes of the decease in case of unnatural, uncertain or violent death. In these cases, only after the necessary inquiries, or even an inquest, permission for burial or cremation can be granted.
- Section B of the certificate contains the time and place of death as well as the deceased person's gender.
- The third section, C (which is actually the first sheet of the document), is anonymous and contains the cause(s) of death (immediate cause of death and underlying cause of death). Since this part is confidential, it is sealed in a special envelope after completion before being sent to the appropriate authorities.
- The final part, section D, is the only part of the certificate that is not filled out by the medical doctor, but by the municipality instead. This section D provides some demographic (gender, date of birth, date of death, nationality) and social data like the municipality of residence, educational level, social status, occupation and civil status.

Eventually, all the death certificates together make up a source of data on all (known) deaths. But before a database is created, these documents pass through various institutions.

2.1.2. Trajectory of the certificates

The information contained on the death certificates is needed by various institutions. Consequently, it takes some time before the NIS can supply the data at national level. A detailed scheme of the trajectory of the different death certificate sections is provided in figure 1.

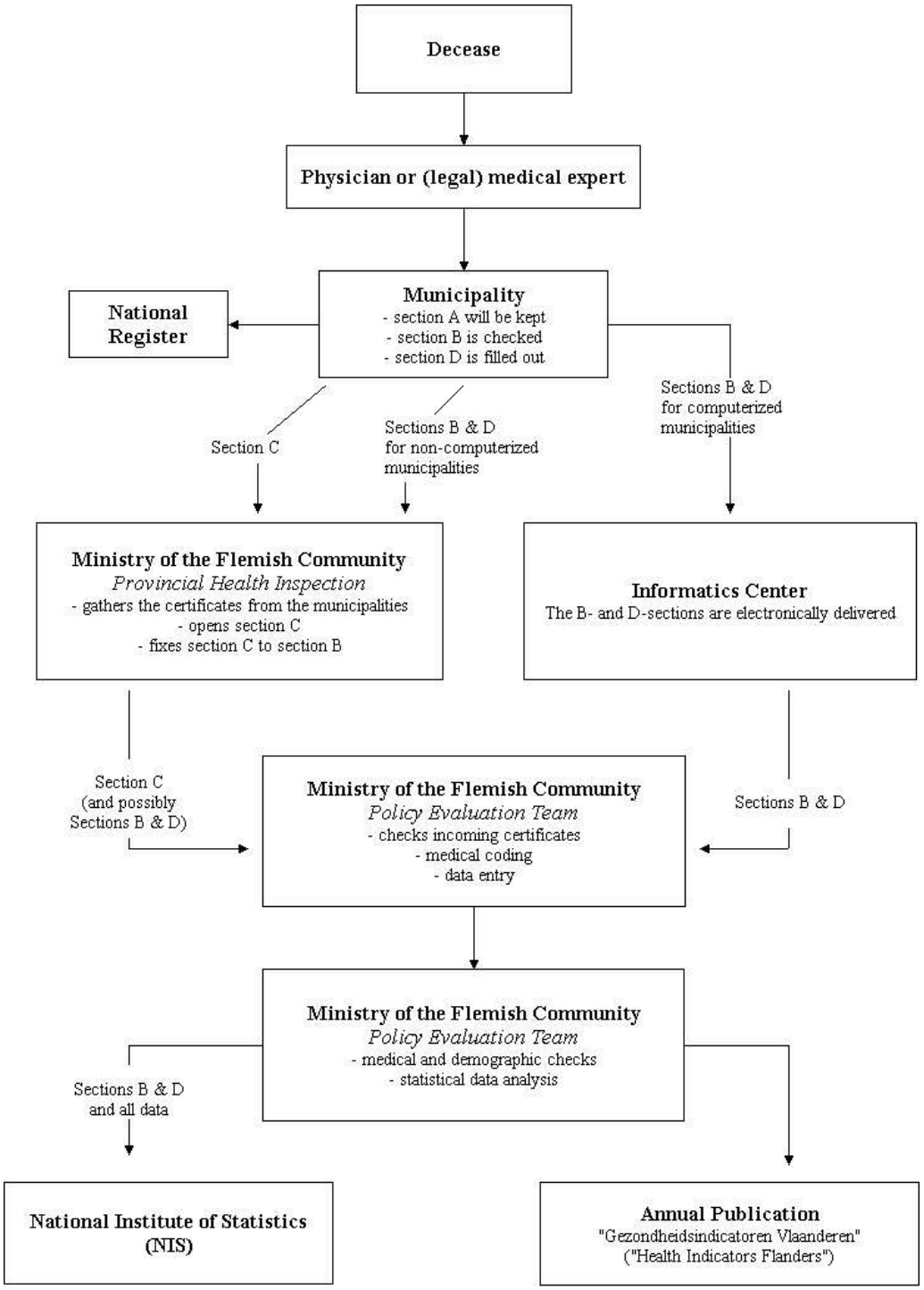

Figure 1. *Death certificate trajectory.*

This scheme applies to the Flemish Community and the Brussels Capital Region (the Flemish Community carries out the coding and processing for both). For the French-speaking Community, replace the word "Flemish" by "French-speaking" and

"Gezondheidsindicatoren Vlaanderen" by "Indicateurs de Santé – Communauté française ("Health Indicators French-speaking Community")".

It is important to notice that during this whole process, coding takes place. The information written on the certificates is translated (transformed) into standardized codes . For instance, every nationality is represented by a certain specified number in the database ("Belgian" would become "00" and "Japanese" would be coded as "89"). The causes of death are coded according to the International Classification of Diseases, Ninth Revision[3] (ICD-9) and Tenth Revision (ICD-10) from the data of 1998 onward (cfr. infra).

2.1.3. Data collection and case extraction

The data, coming from the death certificates, finally arrive at the NIS. Here, supplementary checks are made and a database containing the deaths for the whole country is created. Unfortunately, due to problems at the level of the administration of the French-speaking Community, the NIS could not deliver national data more recent than of the year 1997.

For each death, the NIS databases include among others the following information: gender, date of birth, date of death, nationality, civil status, educational level, place of residence, place of death as well as the immediate and underlying (or contributing) causes of death... In this report, the region where the deceased person lived is used (region "de jure", i.e. based on his official residential address, as opposed to the region "de facto", being the region where the death occured).

Drug-related deaths used in the present study were extracted from the NIS database using the criteria of the EMCDDA DRD-Standard. This standard has defined three different "selections", each consisting of certain ICD-codes which can be used to extract the drug-related deaths from the national mortality register. The EMCDDA "Selection A" is the narrowest selection and comprises, in short, psychoses, dependences and nondependent abuse as well as accidental poisonings due to illegal drugs. "Selection C" on the other hand is the broadest selection, also comprising suicides and undetermined poisonings, and this not only for illegal drugs but also for cases where the death was due to psychopharmaceutical drugs. In this report, the intermediate selection, "Selection B"

was used. The EMCDDA standard defines a drug-related death according to the "Selection B" is defined as follows (table 1; annex I):

- "when their underlying cause of death was drugs psychoses, drug dependence, nondependent drug abuse, accidental poisoning, suicide and self-inflicted poisoning, and poisoning with undetermined intent"; furthermore,
- "cases will be included when the death was due to a standard list of specific drugs: opiates, cocaine, amphetamines and derivatives, cannabis, and hallucinogens"[1].

The above EMCDDA statement serves as our practical definition of a drug-related death for this report.

Table 1. Selected drug-related deaths and their matching ICD-9 codes.

Category of drug-related death	Selected ICD-9 code(s)
Drug psychoses	292
Drug dependence	304.0, 304.2-9
Nondependent drug abuse	305.2-3, 305.5-7, 305.9
Accidental drug poisoning	E850.0, E850.8(†), E854.1-2, E855.2, and E858.8(†)
Suicide and self-inflicted drug poisoning	E950.0(†) , E950.4(†)
Drug poisoning undetermined intent	E980.0(†), E980.4(†)

(†) In combination with N-codes (N965.0, and/or N968.5, and/or N969.6, and/or N969.7.)
Source: EMCCDA DRD-Standard, version 3[1]

In all, the data for 11 years were collected: from 1987 through 1997, the last year available at national level. All data from this period were coded according to the ICD-9 classification. After 1997, coding will be done using the ICD-10 classification.

Note that in some extracted cases, missing values were encountered. However, all these values concern the region of residence only, and even then, their number amounts only to one or two per year maximum (except for 1992 with four such cases).

2.2. Statistical analyses

- Univariate descriptive analyses, mainly based on tabulation, were made to sketch a global picture of the distribution of drug-related deaths by various variables, as well as possible trends in these distributions.

Mortality rates in the three regions were standardized for age and gender using the direct and indirect methods[4]. For the direct standardization, the whole Belgian population was used as standard population.

The number of potential years of life lost was also calculated. This analysis used the age of 65 as a cut-off point[5]. Therefore, the numbers given represent the potential years of life lost *before the age of 65 years old*.

- Multivariate analyses using the Poisson regression were also carried out to model mortality rates accounting for possible counfonding factors and/or interactions between significant risk factors hightlighted in the univariate analyses. The population number was used as an offset.

For all data processing and analyses, the software packages SPSS 11.0 and SAS 8.0 for Windows have been used.

3. Results

3.1. Univariate descriptive analyses

In all, 890 cases of drug-related deaths were extracted from the NIS database for the period 1987-1997.

Year

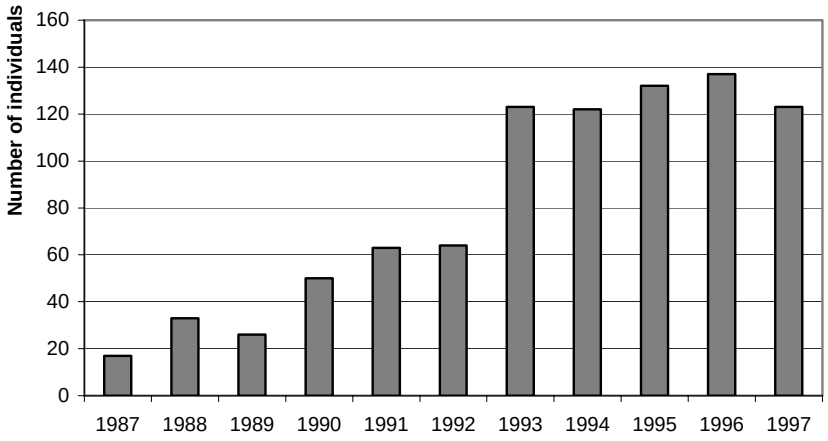

Figure 2. *Number of drug-related deaths by year, Belgium, 1987-1997 (n=890).*

The number of drug-related deaths rises between 1987 and 1992, with the exception of 1989 (figure 2). A great and sudden increase in drug-related mortality however is observed in 1993: 123 cases as opposed to 64 in 1992. From 1993 onwards, the number of deaths seems to remain more or less stable.

Year
Gender

Each year, more men than woman die of drug-related causes, with 651 men as opposed to 239 women (73.1% were men, all years added together, table 2).

In 1988, the percentage of female deaths reaches its highest value with nearly half of the drug-related deaths. However, almost ten years later, in 1997, much less women died of drug-related causes compared to men: only 21.1% as opposed to 45.5% in 1988.

Table 2. Drug-related deaths by gender, Belgium, 1987-1997 (%; n=890).

Year	Men	Women
1987	58.8	41.2
1988	54.5	45.5
1989	57.7	42.3
1990	76.0	24.0
1991	69.8	30.2
1992	78.1	21.9
1993	68.3	31.7
1994	75.4	24.6
1995	72.0	28.0
1996	78.8	21.2
1997	78.9	21.1

Year
Age
Gender

A distribution of the number of drug-related deceases by five-year age categories results in the following:

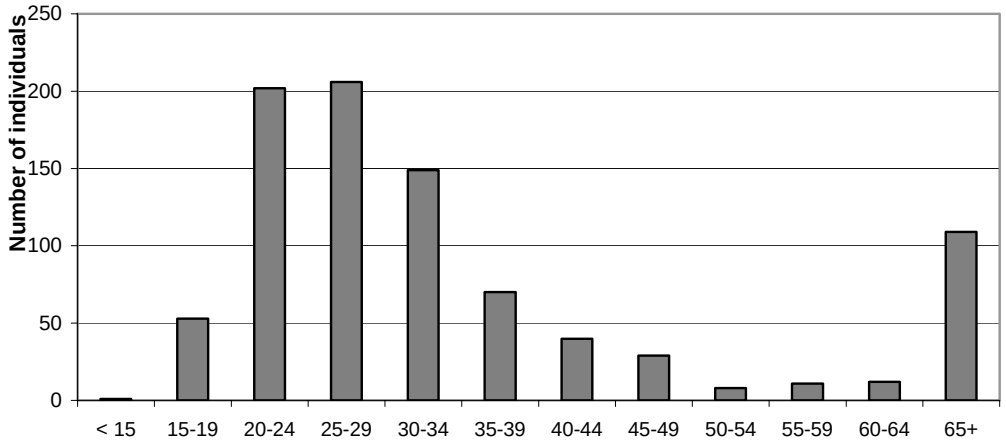

Figure 3. *Number of drug-related deaths by age group, Belgium, 1987-1997 (n=890).*

Most drug-related deaths (62.5%) occur in people aged between 20 and 34 years old (figure 3). Almost no persons (1 individual) below the age of 15 have been reported to have died due to drug-related causes; in 11 cases the deceased person has not yet attained the full age of 18 years old. Once past the age of 25-29 years old, drug-related

mortality steadily decreases. For the period 1987-1997, the mean age at death is 35.5 years old while the mode age is 23 years old; the median amounts to 29 years old.

Remarkable, however, is the high number of cases observed in the age group of people of 65 years or older.

Table 3. Number of drug-related deaths by gender and age group, Belgium, 1987-1997 (n=890).

Age group	Males	Females	Total
< 15	0	1	1
15-19	44	9	53
20-24	173	29	202
25-29	170	36	206
30-34	121	28	149
35-39	58	12	70
40-44	33	7	40
45-49	21	8	29
50-54	5	3	8
55-59	6	5	11
60-64	3	9	12
65+	17	92	109
Total	651	239	890

The number of deaths in the category of people of 65 years or older seems disproportionate, especially when considering the fact that these deaths are supposed to implicate the involvement of illicit substances. Therefore, it was chosen to limit the analyses to the ages of 15-49 years olds for the multivariate analyses and some of the univariate analyses at the end of this section: the age categories between 50 and 64 years old as well as the category of persons younger than 15 years have too small a number of drug-related deaths to be significant, and the category of 65 years or older has quite a questionably high number.

It is also remarkable to notice that among the female deceased individuals of at least 65 years old, 75 (81.5%) died because of "nondependent abuse of drugs – other[1], mixed or unspecified" (the so-called DRD code 19). This too adds to the doubt that these deaths are not really the object of this study.

Figure 4 clearly shows that almost all of the deaths certified als "nondependent abuse of drugs – other, mixed or unspecified" are found in the category of people of 65 years or

[1] In this case "other" means any drug, excluding alcohol, tobacco, cannabis, hallucinogens barbiturates (and tranquilizers), morphine type drugs, cocaine type drugs, amphetamine type drugs and antidepressants.

older. The high number of deaths in this age category and the use of the vague code "nondependent abuse of drugs – other, mixed or unspecified" will be treated in greater detail in the discussion section.

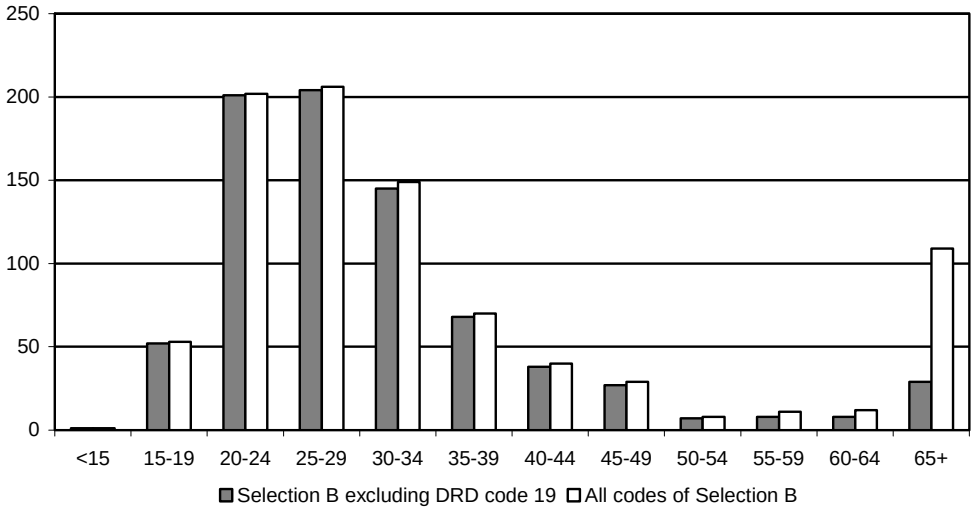

Figure 4. *Age distribution of the number of drug-related deaths before (n=890) and after excluding EMCDDA DRD code 19, Belgium, 1987-1997 (n=788).*

Year Region

Until 1993 the number of drug-related deaths seems to be more or less the same among all three regions and the same trend can be observed.

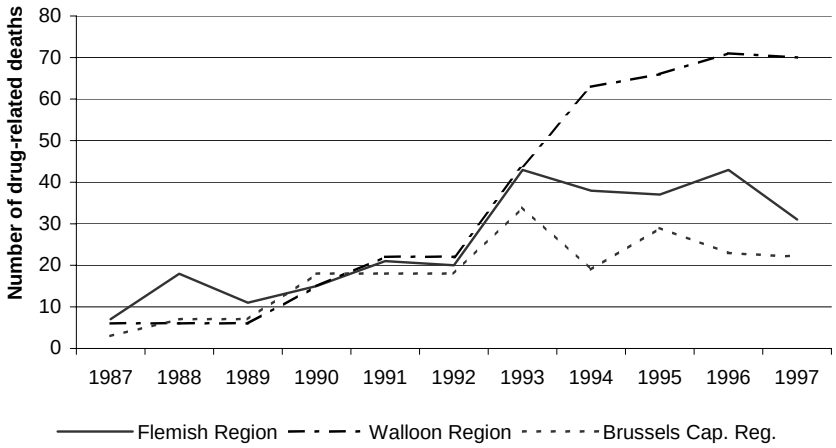

Figure 5. *Number of drug-related deaths by region, 1987- 1997 (n=873)[2].*

[2] The 17 cases with an unknown region of residence were omitted.

However, while the Flemish Region and the Brussels Capital Region seem to have reached their highest point in 1993, drug-related mortality keeps rising further in the Walloon Region.

From 1990 onwards, the number of deaths in the Walloon Region grows more and more important, claiming a larger share of the total number of drug-related deaths in Belgium (30% of the drug-related deaths in 1990, rising to 56.9% in 1997).

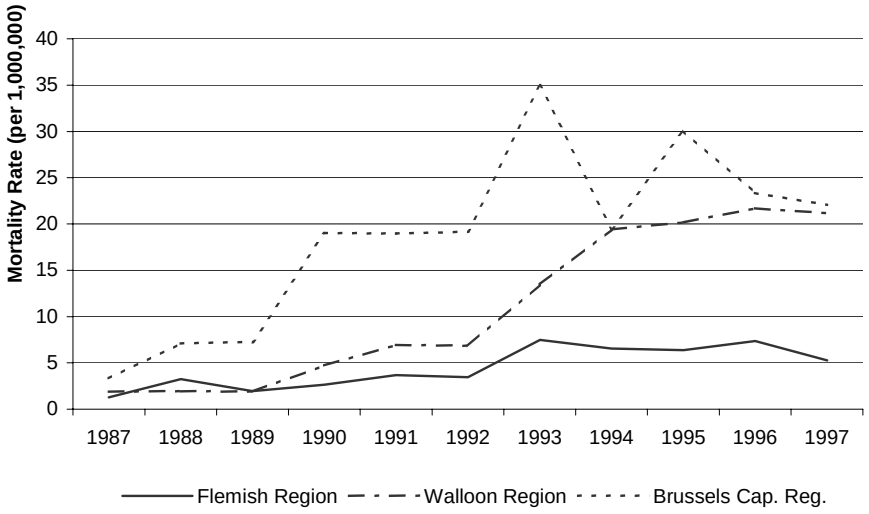

Figure 6. *Age- and gender-adjusted mortality rates by region per 1,000,000 persons, 1987-1997 (n=873).*

The mortality rate seems to have been the highest in the Brussels Capital Region during all of the 11 studied years. The Brussels Capital Region has by far the least inhabitants of all three regions (ranging from ±95,000 to ±97,000 inhabitants), followed by the Walloon Region (±3,200,000 to ±3,300,000 inhabitants) and the Flemish Region with the most inhabitants (±5,700,000 to ±5,900,000)[3] and thus is more susceptible to erratic changes in mortality rates and ratios even due to relatively small changes in the actual number of drug-related deaths.

[3] The number of inhabitants is based upon figures of the midyear population.

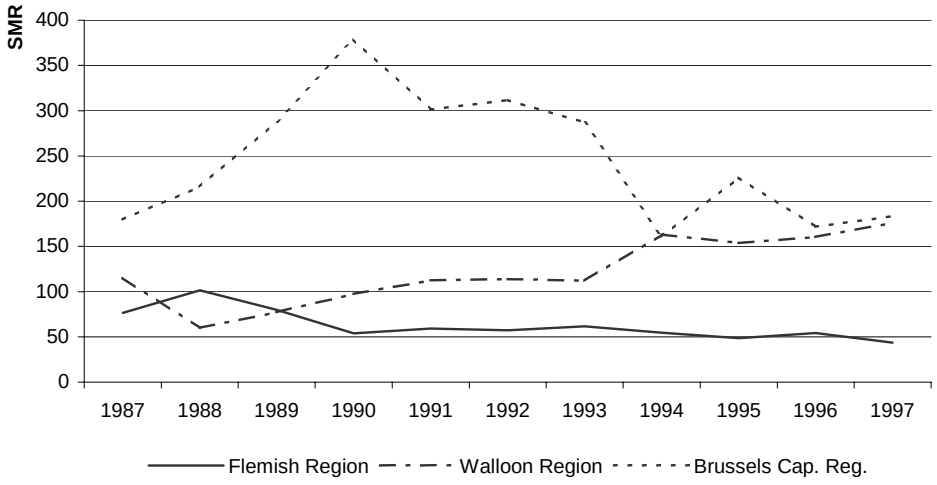

Figure 7. *Standardized Mortality Ratios (standardized for age and gender) by region, 1987-1997 (n=873).*

It can be observed that the Flemish Region has the lowest mortality ratio concerning drug-related deaths. Please note that the information shown in figure 7 represents ratios; it provides information on the three regions *relative* to the overall Belgian population.

Year
Nationality

For almost every year, 80 to 90% of the individuals that died of drug-related causes have the Belgian nationality. In all, 760 individuals out of 890 are Belgian, 28 have the Moroccan nationality, 15 come from France and 12 are Turkish. In the total of remaining cases (n=75), more than 25 other nationalities are implied. A trend throughout the years could not be observed.

Of all cases where the deceased person does not have the Belgian nationality, 53.1% has a nationality from another European country, 30% has a nationality from somewhere outside of Europe and the remaining 16.9% concerns stateless people, or people whose nationality is simply not known.

Year
Civil status

When distributing the cases by civil status, the majority of deceased individuals were found to be single. The second-largest category is the group of married persons (see figure below).

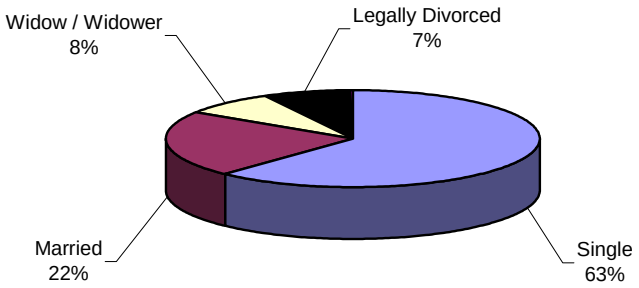

Figure 8. *Distribution of drug-related deaths by civil status, Belgium, 1987-1997 (n=890).*

Throughout the years, the distribution between the different civil statuses does not seem to have changed, with the exception of the year 1987, when the categories of single people and married people both account for 41% of the drug-related deaths (both categories represent 7 cases out of 17 that year). Of course, these percentages are influenced by the low number of cases in that year.

Year
Toxicology

Of all 890 drug-related deaths, 702 are cases where the substance(s) involved is (are) known[4] (78.9%), which we will refer to as drug-related deaths "with a known toxicology". In all other cases, the drug(s) used is (are) either unknown or unspecified. Opiates were involved in 663 deaths (94.4%) among the aforementioned 702.

Every year, in more than half of the drug-related cases, the substances involved were identified and mentioned on the death certificates (table 4). From 1992 through 1996 the

[4] Actually, to be even more correct, one should say "cases where the substances involved are known AND mentioned on the death certificate". For instance, when a physician concludes that a person has died of nondependent abuse of a mixture of e.g. cocaine and amphetamine type stimulants, the ICD-9 code on the death certificate would read 305.9 meaning "Nondependent abuse of drugs – other, mixed or unspecified". Drug-related deaths like these however cannot be counted as cases "with a known toxicology", simply because *we* cannot be sure that the physician actually identified the substance(s) involved in the decease, although in some cases he very well might have.

Table 4. Number and percentage of cases with opiates involved among the cases with a known toxicology, Belgium, 1987-1997 (n=890).

Year	Cases with known toxicology		Opiates involved among known toxicology	
	N	%	*N*	%
1987	12	70.6	8	66.7
1988	20	60.6	19	95.0
1989	16	61.5	13	81.3
1990	28	56.0	26	92.9
1991	44	69.8	40	90.9
1992	52	81.3	49	94.2
1993	99	80.5	94	94.9
1994	103	84.4	101	98.1
1995	115	87.1	109	94.8
1996	121	88.3	113	93.4
1997	92	74.8	91	98.9

percentage rises over 80% as opposed to the years before when the proportion of drug-related deaths with a known toxicology fluctuates between 55 and 70%. Except for 1987 and 1989, the percentage of opiate-related deaths among the cases with a known toxicology amounts to at least 90%.

Concerning the substances mentioned on the death certificates, it is noteworthy that in no less than 663 cases of drug-related decease one or more opiates were involved. Local anaesthetics, including cocaine, were mentioned in at least[5] 18 cases while psychodysleptics (including cannabis and hallucinogens) were found to be involved in (only) at least 7 deaths. Finally, psychostimulants (like amphetamines) have almost not been reported to have contributed to a decease at all (only 5 cases, althoug again this is a minimum).

Year
Cause

The causes of death used can be divided into roughly five categories: drug dependence, nondependent abuse of drugs, accidental poisoning, suicide and self-inflicted poisoning and finally poisoning with undetermined intent.

[5] We say "mentioned in ***at least*** x cases" because a number of ICD-9 codes describe drug-related causes without explicitly stating the substance. For instance, ICD-9 code "304.7" describes the cause "Drug dependence, combination of morphine-type drug with any other". In this case we know that an opiate was involved, but the other substance(s) are not specified and might as well be stimulants, hallucinogens, …

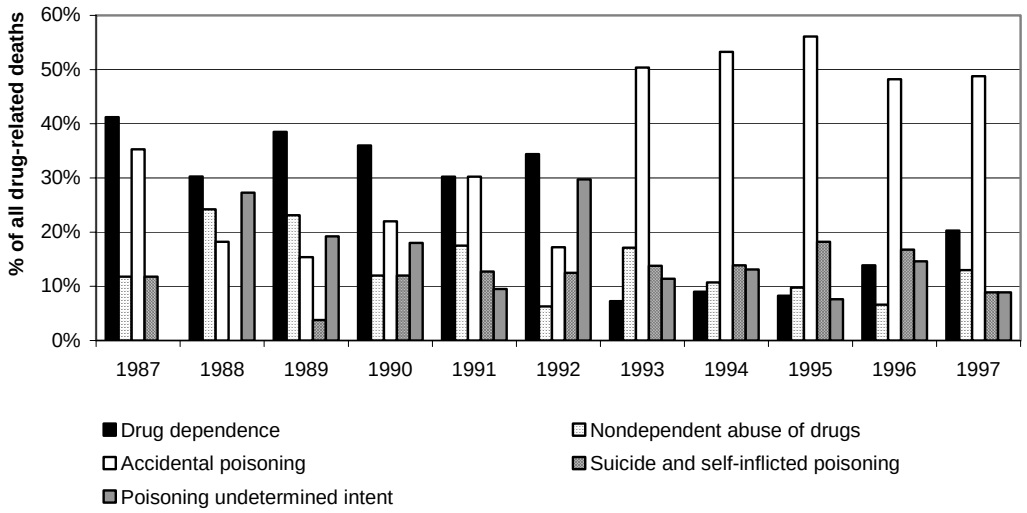

Figure 9. *Distribution of drug-related deaths by category of cause, Belgium, 1987-1997 (n=890).*

Until 1992 drug dependence accounts for roughly 30-40% of the drug-related deaths (figure 9). Its share drops below 10% in 1993 however. From 1993 onwards, accidental poisoning profiles itself as the main category of cause of death, accounting for about half of the drug-related deceases. Also, in 1993 the percentage of all drug-related deaths where the intent could not be determined drops to about a third (11%) of its value the year before (30%). Suicide and self-inflicted poisoning keeps rising slowly from 1989 onwards, but drops again slightly after 1995.

Year
Ill-defined cases
Region

As previously mentioned, the rise of drug-related mortality throughout the years 1987 until 1992 is suddenly interrupted by a serious increase, boosting the numbers from 64 to 123.

Numerous hypotheses are possible, most of them very difficult to check; one of these hypotheses is an improvement of the quality of death certification. There is, however, a range of codes of the ICD-9 that could provide some indication of the efficiency or quality of certification. The ICD-9 codes 780 through 799 represent so-called "Symptoms, signs and ill-defined conditions" (which will simply be referred to as "ill-defined cases"). These categories are applicable to, among others, cases in which it is not possible to make a more specific diagnosis, to signs or symptoms that existed at the initial encounter

though whose cause could not be determined or to conditions that could not be identified or described adequately[3].

The following table presents the number of drug-related deaths by year, according to the EMCDDA Selection B together with the corresponding number of ill-defined cases.

Table 5. Number of drug-related deaths by year compared to the number of ill-defined cases, Belgium, 1987-1997.

Year	N° of drug-related deaths (all ages)	N° of drug-related deaths (15-49y)	N° of ill-defined cases (all ages)	N° of ill-defined cases (15-49y)
1987	17	10	7289	291
1988	33	19	7072	281
1989	26	14	5451	338
1990	50	41	4961	343
1991	63	53	5367	357
1992	64	55	5323	361
1993	123	96	3287	196
1994	122	103	3228	218
1995	132	111	2954	213
1996	137	123	2645	184
1997	123	107	2349	115

The rise in the number of drug-related deaths (+92%) occuring between 1992 and 1993 coincides with the largest decline in number of ill-defined cases (-38.5%) of all these years.

The fall in the number of ill-defined cases might be an indicator of the quality of death certification, comprising among others the detection of the cause of death, the coding of the cause and the completion of the death certificates in general. It is possible that a number of drug-related deaths could not be ascertained and therefore were given a code from the ill-defined category.

Figure 10 shows us the relation between the number of drug-related deaths and the number of ill-defined cases. It can be observed that the number of drug-related deaths increases the most in the Walloon Region when the number of ill-defined cases decreases. Second is the Brussels Capital Region where the number of drug-related deaths also changes quite a lot according to the number of ill-defined cases. In the Flemish Region, changes in drug-related decease and ill-defined cases are the least strongly linked.

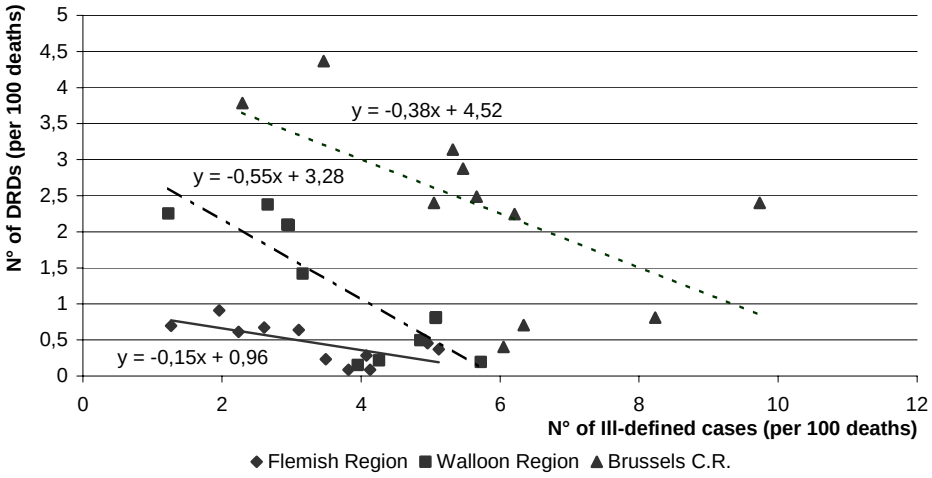

Figure 10. *The number of drug-related deaths compared to the number of ill-defined casesby region, 1987-1997 (15-49y).*

However, figure 10 also allows us to estimate the number of drug-related deaths that are hidden inside the category of ill-defined cases[6] by means of the inclination of the regression line. In other words, an estimate can be made of the number of drug-related deaths that were not coded as such, but ended up as an ill-defined case.

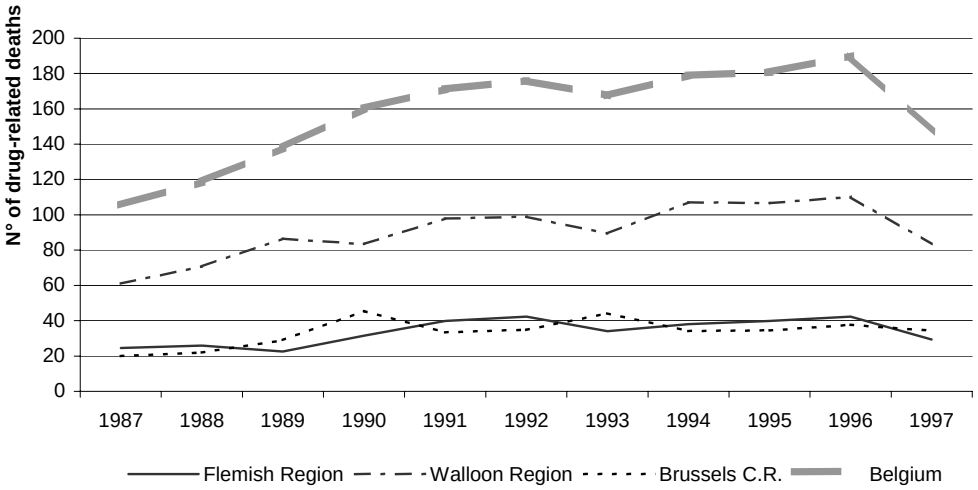

Figure 11. *Number of drug-related deaths including estimate among ill-defined cases by region, 1987-1997 (15-49y).*

The number of drug-related deaths shown in figure 11 consists of the number of drug-related deaths extracted from the database of the NIS (for 15-49 year olds), added to the estimated number of drug-related deaths that were hidden inside in the ill-defined deaths category. This puts the observed trends in quite a new perspective.
But even then the question remains, however, why the number of ill-defined cases dropped so sharply in 1993.

Year
Age
PYLL

Finally, figure 12 presents the number of "Potential Years of Life Lost" per 100,000 person-years. For comparative reasons, the mean age and the mode age are given as well.

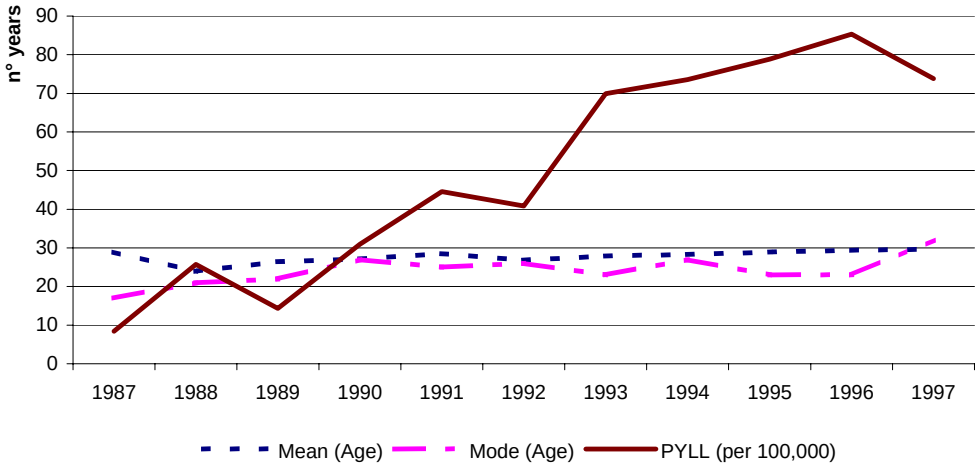

Figure 12. *Mean age, mode (age) and Potential Years of Life Lost before the age of 65 per 100,000, Belgium, 1987-1997 (15-49y).*

Clearly, the number of Potential Years of Life Lost rises throughout the years. Changes in the age of decease could explain differences in these numbers: the younger a person dies, the more Potential Years of Life are lost. However, since the mean age and the mode remain stable, this is not the case. Therefore it is logical that the number of Potential Years of Life Lost follows the same trend as the number of drug-related deaths itself.

3.2. Multivariate analyses

The explanatory analyses were restricted to drug-related deaths observed in the age group 15-49 years old in order to eliminate the bias due to an unexpected high number of

drug-related deaths observed among older women. Herefore, and because of missing values for region of residence, 732 drug-realted deaths were analyzed.

Poisson Regression

Considering the fact that our data set contains counts as response variable and categorical and continuous variables as explanatory variables, we have used the Poisson regression[7]. For this analysis, the following variables were used: year, gender, age (group), region of residence, number of drug-related deaths, number of ill-defined cases and finally the population.

Using the Poisson regression, we tried to find an appropriate model describing the variation in the number of drug-related deaths. The final model found was:

$$\log(\text{death rate}) = \beta_0 + \beta_1 \cdot \text{year} + \beta_2 \cdot \text{gender}_{\text{female}} + \beta_3 \cdot \text{region}_{\text{Bxl}} + \beta_4 \cdot \text{region}_{\text{FC}} + \beta_5 \cdot \text{year} \cdot \text{region}_{\text{Bxl}} + \beta_6 \cdot \text{year} \cdot \text{region}_{\text{FC}} + \beta_7 \cdot \text{age}_{15\text{-}19} + \beta_8 \cdot \text{age}_{20\text{-}24} + \beta_9 \cdot \text{age}_{25\text{-}29} + \beta_{10} \cdot \text{age}_{30\text{-}34} + \beta_{11} \cdot \text{age}_{35\text{-}39} + \beta_{12} \cdot \text{age}_{40\text{-}44}$$

where:

$\text{gender}_{\text{female}}$ = 1 if the person was female, else = 0.

$\text{region}_{\text{Bxl}}$ = 1 if the person was a resident of the Brussels Capital Region, else = 0.

$\text{region}_{\text{FC}}$ = 1 if the person was a resident of the Flemish Community, else = 0.

$\text{age}_{15\text{-}19}$ = 1 if the person was 15-19 years old, else = 0.

$\text{age}_{20\text{-}24}$ = 1 if the person was 20-24 years old, else = 0.

$\text{age}_{25\text{-}29}$ = 1 if the person was 25-29 years old, else = 0.

$\text{age}_{30\text{-}34}$ = 1 if the person was 30-34 years old, else = 0.

$\text{age}_{35\text{-}39}$ = 1 if the person was 35-39 years old, else = 0.

$\text{age}_{40\text{-}44}$ = 1 if the person was 40-44 years old, else = 0.

The mortality rate due to drug-related deaths is strongly influenced by gender, age group, the region of residence, the year and by the interaction between the year and the region of residence (table 6). Our model came out with a log likelihood of almost 135 and a deviance of 1.1 per degree of freedom.

Relative Risk

Table 6. Relative risks of variable values and level of significance.

Variable		Coefficient Estimate	Relative Risk (95% CI)	Signif. Level
Intercept		-13.1020		
Gender				
	Female	-1.5653	0.21 (0.17-0.25)	< 0.0001
	Male	0	1	-
Age group				
	15-19	0.6260	1.87 (1.19-2.94)	< 0.01
	20-24	1.8583	6.41 (4.34-9.47)	< 0.0001
	25-29	1.7803	5.93 (4.02-8.75)	< 0.0001
	30-34	1.4184	4.13 (2.77-6.15)	< 0.0001
	35-39	0.6501	1.91 (1.24-2.97)	< 0.01
	40-44	0.1495	1.16 (0.71-1.88)	n.s.†
	45-49	0	1	-
Region of Residence				
	Brussels Cap.	1.4306		< 0.0001
	Flemish Reg.	-0.7793		0.0014
	Walloon Reg.	0		-
Year		0.2578		< 0.0001
Interaction Region-Year				
	Brussels Cap.	-0.1288		< 0.0001
	Flemish Reg.	-0.0765		0.0196
	Walloon Reg.	0		-

† n.s. = not significant

Almost every variable value contributes a significant effect to the number of drug-related deaths. The risk to die of a drug-related cause is five times lower in females than in males after removing the effect of the other significant variables. The age categories between 20 and 34 years olds show a risk that lies more than 4 times higher than the reference age group of 45-49 years olds (again, after removing the other significant variables' effect).
The relative risks for the different regions are more complex due to the interaction with the secular trend. Taking 1987 as reference year, on average the rate of the yearly change is higher in the Walloon Region (factor of 1.30) than in both other regions (for the Flemish Region 1.20; for the Brussels Capital Region 1.14).

The quantile-quantile plot of the standardized deviance residual suggests that the validity of the model is quite good (figure 13).

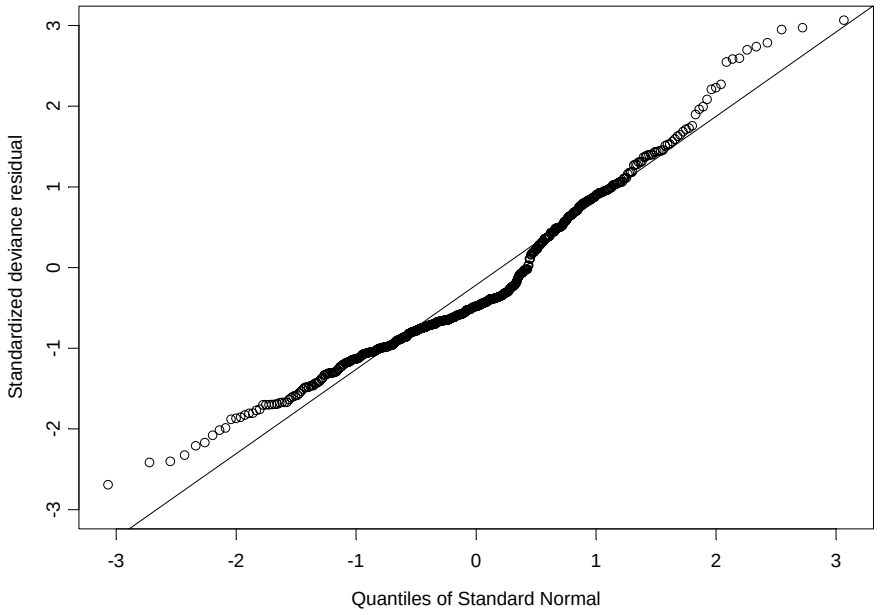

Figure 13. *Quantile-quantile plot of the standardized deviance residual*

Expected rates

The significant interaction between the year and the region of residence is illustrated by figure 14 for a fixed age. Displaying the expected rates, based on the aforementioned Poisson model, it shows that the rise in the Walloon Region is higher than in the Flemish Region and tends to join that of the Brussels Capital Region.

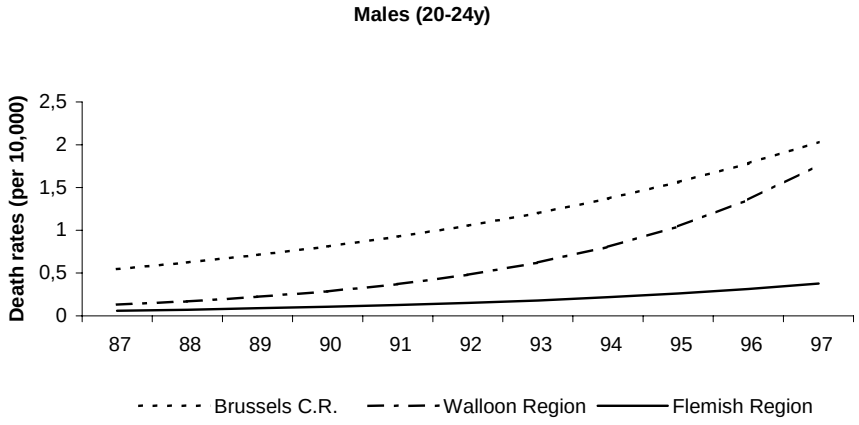

Figure 14. *Expected values for males aged 20-24 years old by region (per 10.000 people)*

Clearly, the expected number of drug-related deaths rises quicker in the Walloon Region. Also, the expected rate of increase in drug-related deaths becomes higher throughout the years. The Flemish Region and the Brussels Capital Region show a more steady rise. A different trend could not be observed between men and women (the evolution for women is the same, though the rates are approximately five times lower).

4. Discussion

4.1. Nondependent abuse of drugs – other, mixed or unspecified

The definition of "drug-related death" used in this report is based on the EMCDDA's "Selection B". Among this selection of 34 different codes, the so-called DRD code 19, described in the ICD-9 as "nondependent abuse of drugs – other, mixed or unspecified" elicits some comments.

First off, apparently 78.4% of all cases in this category (80 cases) concerns people of 65 years or older. Also, it is this type of drug-related death that caused the disproportionate amount of drug-related deaths in that age category. A second remark concerns the definition of this type of decease. The ICD-9 mentions as supplementary explanation to the aforementioned definition "laxative habit", "misuse of drugs not otherwise specified" and finally "nonprescribed use of drugs or patent medicinals". It is clear that enough room for interpretation remains to use this category for deaths that have nothing to do with illegal substances, but rather with prescribed or nonprescribed medicines. The fact that this category of death applies mostly to people in our database of 65 years or older, only strenghtens this suspicion. Therefore, it might be useful to examine if in other countries the same distribution of this type of drug-related death can be observed. If so, the inclusion of this code might miss its purpose when studying drug-related deaths, and it might be better to exclude it from the "Selection B"; it could remain included in the "Selection C" however, since in that selection deaths due to psychopharmaceutical drugs are included as well.

4.2. Difference between regions

One of the most remarkable observations among the results of this report, was the difference in the number of drug-related deaths by region. While the observed trend seems quite the same in all three regions in the first years, from 1993 onwards the number of drug-related deaths rises disproportionately in the Walloon Region. The calculated expected values suggest that this difference could continue to grow in the

future; but also in the Brussels Capital Region the expected values rises quicker every year. The question remains why there is such a difference in drug-related deaths between the regions. Why is the growth in the number of drug-related deaths expected to rise more quickly in the Walloon Region than in the Flemish Region or the Brussels Capital Region?

The mortality rates also showed that one should not be mislead by the low number of drug-related deaths in the Brussels Capital Region. The fact that the Brussels Capital Region has the least inhabitants has an important effect: when examining the mortality rates and the standardized mortality ratios, the Brussels Capital Region has the highest mortality rates. The irregular lines displaying the rates and ratios for the aformentioned region throughout the years could be explained by the fact that the absolute number of drug-related deaths remains quite low, which makes differences seem bigger. In the other two regions, where the absolute number of drug-related deaths is higher, the lines display less brusque, extreme changes.

4.3. Quality of data

Throughout the years, the number of drug-related deaths seems to have increased, especially in the Walloon Region. However, the fact that the numbers increase does not necessarily mean that there are more drug-related deaths happening. Lots of different reasons could explain the rise in numbers:

- Growing awareness, among the medical doctors who fill in the death certificates, of the drug-related deaths problem.
- Increased effectiveness of the detection of substance (ab)use, e.g. better and more accurate tests that can be performed.
- A sudden increase in overall drug use or in the dangerosity of the drugs (e.g. due to higher concentration of the psychoactive substances, or more dangerous impurities with which the drug is adulterated/cut), resulting in an increase of drug-related deaths.
- A rise in the number of cases where the Public Prosecutor orders an autopsy.
- Improvement of the overall quality of certification.
- …

The hypothesis of an improvement of the overall quality of certification is investigated a little more by processing data on ill-defined cases as well. The number of ill-defined cases could be an indicator of the quality of death certification (although it probably will not be the only one). Generally speaking, in the years where more drug-related deaths took place, less ill-defined cases were reported. This link between drug-related deaths and ill-defined cases seems the strongest for the Walloon Region. However, when the number of drug-related deaths that are "hidden" within the category of ill-defined cases (deaths that should have been coded as drug-related, though for some reason ended up as being coded as one of the ill-defined causes) was estimated, we notice that the different trends between the regions disappear: the number of drug-related deaths remains higher in the Walloon Region, but the evolution is more homogenous in the three regions and is more levelled, flattened out. Should this effect be truly present, however, the question remains how come the quality of death certification improved, and especially between 1992 and 1993. Therefore, we cannot stress enough that these presumptions are hypothetical and mere ideas for further research.

4.4. Older age categories

Prudence is in order when interpreting results of the processing of drug-related deaths data, because the delimitation of cases by age can have substantial influence.

The question is if the older age categories should be included in the data set for processing, especially for multivariate analyses. Earlier in this report, it was observed that the number of drug-related deaths falls sharply, down to a negligible number of cases from the age category of 50-54 years onwards, with the exception of the age category of 65 years or older, but this has already been discussed above.

Undoubtedly this is linked to the decreased prevalence of illegal substance use among older persons. In the Health Interview Survey of 2001, the respondents were asked about their use of cannabis and XCT/amphetamines[8]. 4% of the respondents of 45-54 years old report to have used cannabis at least once in their lifetime. Recent use of cannabis (defined as having used cannabis at least once in the month previous to the survey) was reported by 0.5%. These prevalences drop to 0.4% and 0% respectively when looking at the age group of 55-64 years old. The lifetime prevalence of XTC/amphetamines use

amounts to 0.5% for the age group of 45-54 years old, and 0.1% for the age group of 55-64 years old. A break down of the recent use (last month prevalence) of XTC/amphetamines would be pointless, since only 0.3% of the total population aged 15 years or older says to have used XTC/amphetamines during the last 30 days prior to the survey. No other drugs the use was asked for, but it can be expected that their prevalence is even lower. So it is clear that illegal drug use among elder people is very rare, especially taking into account the recent use. If these prevalences are already that low, the number of drug-related deaths in these age categories will be even lower, also explaining why these age categories were left out in some of our analyses.

5. Conclusion

In Belgium there are not many sources of data available to study drug-related deaths. Since there is a lack of other comprehensive databases and mortality cohort studies are almost non-existing, the general mortality register remains the only eligible source, along with its own limitations.

Nevertheless, some interesting findings have been done. It seems that the inclusion of the cause of death "nondependent abuse of drugs – other, mixed or unspecified" distorts the picture of the drug-related deaths phenomenon. Indeed a large number of deaths occuring in the age category of 65 years or older, not related to illicit drug consumption, is included in the "Selection B". It might be very interesting to see if this is also the case in other countries.

Furthermore, a difference between the three regions seems to exist. The Walloon Region apparantly accounts for most of the drug-related deaths. However, this finding is nuanced when some corrections were made to the brute numbers by standardization and by studying the number of ill-defined cases per year. This all shows that drug-related mortality is a complex phenomenon to study.

One question remained however. The sudden increase in mortality from the year 1993 onwards remains puzzling. The possible explanation itself, being an improvement of the quality of death certification, raises a second question: how to explain this improvement in death certification quality? It might also be interesting to see if the data of 1998 onwards display the same trend or not, since they will be coded according to the ICD-10. Further research into these questions could prove insightful for the study of this matter.

It is regrettable though that no other databases on drug-related deaths (at national level) are available. Additional special registers could be used to validate the general mortality register. This could shed some more light on the quality of certification; by matching the general mortality register and (a) special register(s), a better estimate could be made of the number of drug-related deaths that escape detection or coding as such. Cohort

studies could provide more information on other influencing factors, like for instance imprisonment or substitution treatment (see for instance Bird and Hutchinson[9] or Buster, van Brussel and van den Brink[10]) . Since such cohort studies are spanned over a certain time, they give a more dynamic view of the matter studied.

Finally, it would be a great improvement if more recent data were available at national level. At the moment, the NIS data delivery is about six years behind due to problems at the level of the French-speaking Community. If research wants to support public policy, it should make sure that its results presented are based upon data as recent as possible. Concerning data at national level, this remains a problem in Belgium.

This study can for a large part be seen as an exploration of the general mortality register, using the EMCDDA "SelectionB" and highlighting some points of interest. Further research is necessary, however, to complete the picture of drug-related deaths in Belgium.

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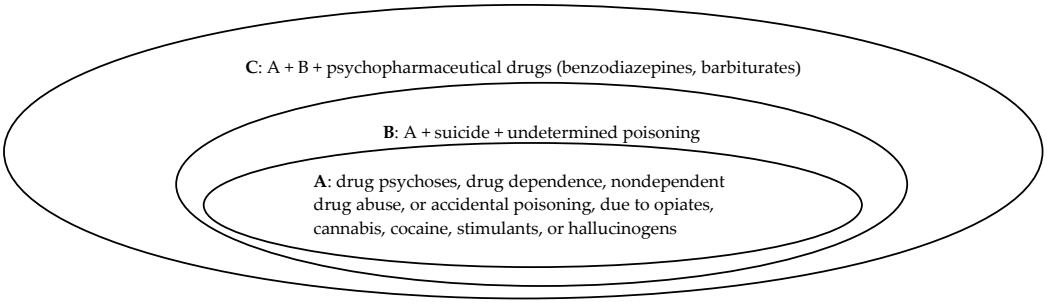
Annexes

Annex I – List of ICD-9 Codes concerning drugs[1].

	A	B	C	Explanation	ICD9-Code(s)
1	+	+	+	Drug psychoses	292
2	+	+	+	Drug dependence, morphine type	304.0
3	-	-	+	Drug dependence, barbiturate type	304.1
4	+	+	+	Drug dependence, cocaine	304.2
5	+	+	+	Drug dependence, cannabis	304.3
6	+	+	+	Drug dependence, amphetamine type and other psychostimulants	304.4
7	+	+	+	Drug dependence, hallucinogens	304.5
8	+	+	+	Drug dependence, other	304.6
9	+	+	+	Drug dependence, combination of morphine-type drug with any other	304.7
10	+	+	+	Drug dependence, combination excluding morphine-type drug	304.8
11	+	+	+	Drug dependence, unspecified	304.9
12	+	+	+	Nondependent abuse of drugs, cannabis	305.2
13	+	+	+	Nondependent abuse of drugs, hallucinogens	305.3
14	-	-	+	Nondependent abuse of drugs, barbiturates and tranquillisers	305.4
15	+	+	+	Nondependent abuse of drugs, morphine type	305.5
16	+	+	+	Nondependent abuse of drugs, cocaine type	305.6
17	+	+	+	Nondependent abuse of drugs, amphetamine type	305.7
18	-	-	+	Nondependent abuse of drugs, antidepressants	305.8
19	+	+	+	Nondependent abuse of drugs, other, mixed, or unspecified	305.9
20	+	+	+	Accidental poisoning, opiates and related narcotics	E850.0
21	+	+	+	Accidental poisoning, mixed including opiates AND cocaine	E850.8 AND N965.0 AND N968.5 **E850.8 AND N965.0**
22	+	+	+	Accidental poisoning, mixed including opiates AND NO cocaine	E850.8 AND N965.0 AND NOT N968.5 **LEAVE EMPTY**
23	+	+	+	Accidental poisoning, including cocaine OR stimulants OR hallucinogens and NO opiates	E850.8 AND (N968.5 OR N969.7 OR N969.6) AND NOT N965.0 **E850.8 AND (N968.5 OR N969.7 OR N969.6)**
24	-	-	-	Accidental poisoning, other, NO opiates, NO cocaine, NO stimulants, NO hallucinogens	E850.8 AND NOT N965.0 AND NOT (N968.5 OR N969.7 OR N969.6)
25	-	-	-	Accidental poisoning, unspecified analgesics, antipyretics, antirheumatics	E850.9
26	-	-	+	Accidental poisoning, barbiturates	E851
27	-	-	+	Accidental poisoning, other sedatives and hypnotics	E852
28	-	-	+	Accidental poisoning, benzodiazepines	E853.2
29	+	+	+	Accidental poisoning, psychodysleptics (including cannabis and hallucinogens)	E854.1
30	+	+	+	Accidental poisoning, psychostimulants (including amphetamines)	E854.2
31	+	+	+	Accidental poisoning, local anaesthetics (including cocaine)	E855.2
32	-	-	-	Accidental poisoning, unspecified other drugs acting on the nervous system	E855.9
33	+	+	+	Accidental poisoning, mixed including opiates AND cocaine	E858.8 AND N965.0 AND N968.5 **E858.8 AND N965.0**

	A	B	C	Explanation	ICD9-Code(s)
34	+	+	+	Accidental poisoning, mixed including opiates AND NO cocaine	E858.8 AND N965.0 AND NOT N968.5 **LEAVE EMPTY**
35	+	+	+	Accidental poisoning, including cocaine OR stimulants OR hallucinogens and NO opiates	E858.8 AND (N968.5 OR N969.7 OR N969.6) AND NOT N965.0 **E858.8 AND (N968.5 OR N969.7 OR N969.6)**
36	-	-	-	Accidental poisoning, other, NO opiates, NO cocaine, NO stimulants, NO hallucinogens	E858.8 AND NOT N965.0 AND NOT (N968.5 OR N969.7 OR N969.6)
37	-	-	-	Accidental poisoning, unspecified other drugs	E858.9
38	-	+	+	Suicide and self-inflicted poisoning, opiates	E950.0 AND N965.0
39	-	-	+	Suicide and self-inflicted poisoning, barbiturates	E950.1
40	-	-	+	Suicide and self-inflicted poisoning, other sedatives and hypnotics	E950.2
41	-	-	+	Suicide and self-inflicted poisoning, benzodiazepines	E950.3 AND N969.4
42	-	+	+	Suicide and self-inflicted poisoning, mixed including opiates AND cocaine	E950.4 AND N965.0 AND N968.5 **E950.4 AND N965.0**
43	-	+	+	Suicide and self-inflicted poisoning, mixed including opiates AND NO cocaine	E950.4 AND N965.0 AND NOT N968.5 ** LEAVE EMPTY**
44	-	+	+	Suicide and self-inflicted poisoning, including cocaine OR stimulants OR hallucinogens and NO opiates	E950.4 AND (N968.5 OR N969.7 OR N969.6) AND NOT N965.0 **E950.4 AND (N968.5 OR N969.7 OR N969.6)**
45	-	-	-	Suicide and self-inflicted poisoning, other, NO opiates, NO cocaine, NO stimulants, NO hallucinogens	E950.4 AND NOT N965.0 AND NOT (N968.5 OR N969.7 OR N969.6)
46	-	-	-	Suicide and self-inflicted poisoning, other unspecified drugs or medicaments	E950.5
47	-	+	+	Poisoning undetermined intent, opiates	E980.0 AND N965.0
48	-	-	+	Poisoning undetermined intent, barbiturates	E980.1
49	-	-	+	Poisoning undetermined intent, other sedatives and hypnotics	E980.2
50	-	-	+	Poisoning undetermined intent, benzodiazepines	E980.3 AND N969.4
51	-	+	+	Poisoning undetermined intent, mixed including opiates AND cocaine	E980.4 AND N965.0 AND N968.5 **E980.4 AND N965.0**
52	-	+	+	Poisoning undetermined intent, mixed including opiates AND NO cocaine	E980.4 AND N965.0 AND NOT N968.5 ** LEAVE EMPTY**
53	-	+	+	Poisoning undetermined intent, including cocaine OR stimulants OR hallucinogens and NO opiates	E980.4 AND (N968.5 OR N969.7 OR N969.6) AND NOT N965.0 **E980.4 AND (N968.5 OR N969.7 OR N969.6)**
54	-	-	-	Poisoning undetermined intent, other, NO opiates, NO cocaine, NO stimulants, NO hallucinogens	E980.4 AND NOT N965.0 AND NOT (N968.5 OR N969.7 OR N969.6)
55	-	-	-	Poisoning undetermined intent, other unspecified drugs or medicaments	E980.5

- A "+" indicates that a DRD-code is selected for selection A, B, or C and a "-" indicates that a DRD-code is not selected.
- The codes or instructions between the asterisks (**……**) are to be followed in case E-codes can only be combined with <u>*one*</u> N-code.



Annex II – Death Certificate – Dutch Version

Model III C 0102041111 2182474 92

STROOK C

OVERLIJDEN VAN EEN PERSOON VAN EEN JAAR OF OUDER

*(Strook in te vullen en onder gesloten omslag te plaatsen door de **geneesheer**)*

1. Aard van het overlijden

- ☐ • natuurlijke oorzaak
- ☐ • doding
- ☐ • verkeersongeval
- ☐ • wordt onderzocht
- ☐ • ander ongeval
- ☐ • kan niet bepaald worden
- ☐ • zelfmoord

2. Indien de doodsoorzaak niet natuurlijk is, beschrijf de omstandigheden

.....

.....

.....

.....

Voorbehouden ☐☐☐☐

3. Ongeval

3.1 Plaats van het ongeval

- ☐ • openbare weg
- ☐ • werkplaats (of school voor kinderen)
- ☐ • thuis
- ☐ • onbekend
- ☐ • andere, preciseer .....

.....

3.2 Datum en uur van het ongeval

- • datum **(DDMMJJJJ)** ☐☐ / ☐☐ / ☐☐☐☐
- • uur **(UUMM)** ☐☐ u ☐☐ m

4. Doodsoorzaak (1) — **Duur (2)**

I. Ziekte of aandoening die rechtstreeks de dood tot gevolg had

Logische samenhang van de ziekten/aandoeningen die geleid hebben tot de onmiddellijke doodsoorzaak onder a). Bij vermelding van meerdere ziekten de aan het overlijden ten grondslag liggende het laatst opgeven ("oorspronkelijke doodsoorzaak")

a) .....

veroorzaakt door :

b) ....

veroorzaakt door :

c) ....

veroorzaakt door :

d) ....

SPECIMEN

II. Geassocieerde oorzaken

Bij overlijden nog bestaande ziekten en bijzonderheden, welke tot de dood hebben bijgedragen, doch niet met de onder I. genoemde ziekten in causaal verband staan.

e) ....

f) ....

g) ....

(1) Hier wordt niet de wijze van overlijden bedoeld zoals bvb. : hartfalen, syncope, enz... maar de ziekte, het trauma of de complicatie die de dood veroorzaakte. Gelieve slechts één oorzaak per lijn te vermelden.
(2) Tijdsinterval (bij benadering) tussen het begin van de ziekte/aandoening en de dood (preciseer zo nodig in minuten, uren, weken of maanden, ...)

Voorbehouden

a) ☐☐☐☐☐ b) ☐☐☐☐☐ c) ☐☐☐☐☐ d) ☐☐☐☐☐

e) ☐☐☐☐☐ f) ☐☐☐☐☐ g) ☐☐☐☐☐

5. Indien de overledene een vrouw is, is ze, in de loop van het jaar vóór haar overlijden :

5.1 Zwanger geweest

- ☐ • ja ☐ • neen ☐ • onbekend

5.2 Bevallen

- ☐ • ja ☐ • neen ☐ • onbekend

6. Autopsie/aanvullende onderzoekingen

- ☐ • ja, lopend
- ☐ • neen
- ☐ • ja, voorzien
- ☐ • onbekend

7. Was de attesterende geneesheer de behandelende geneesheer ?

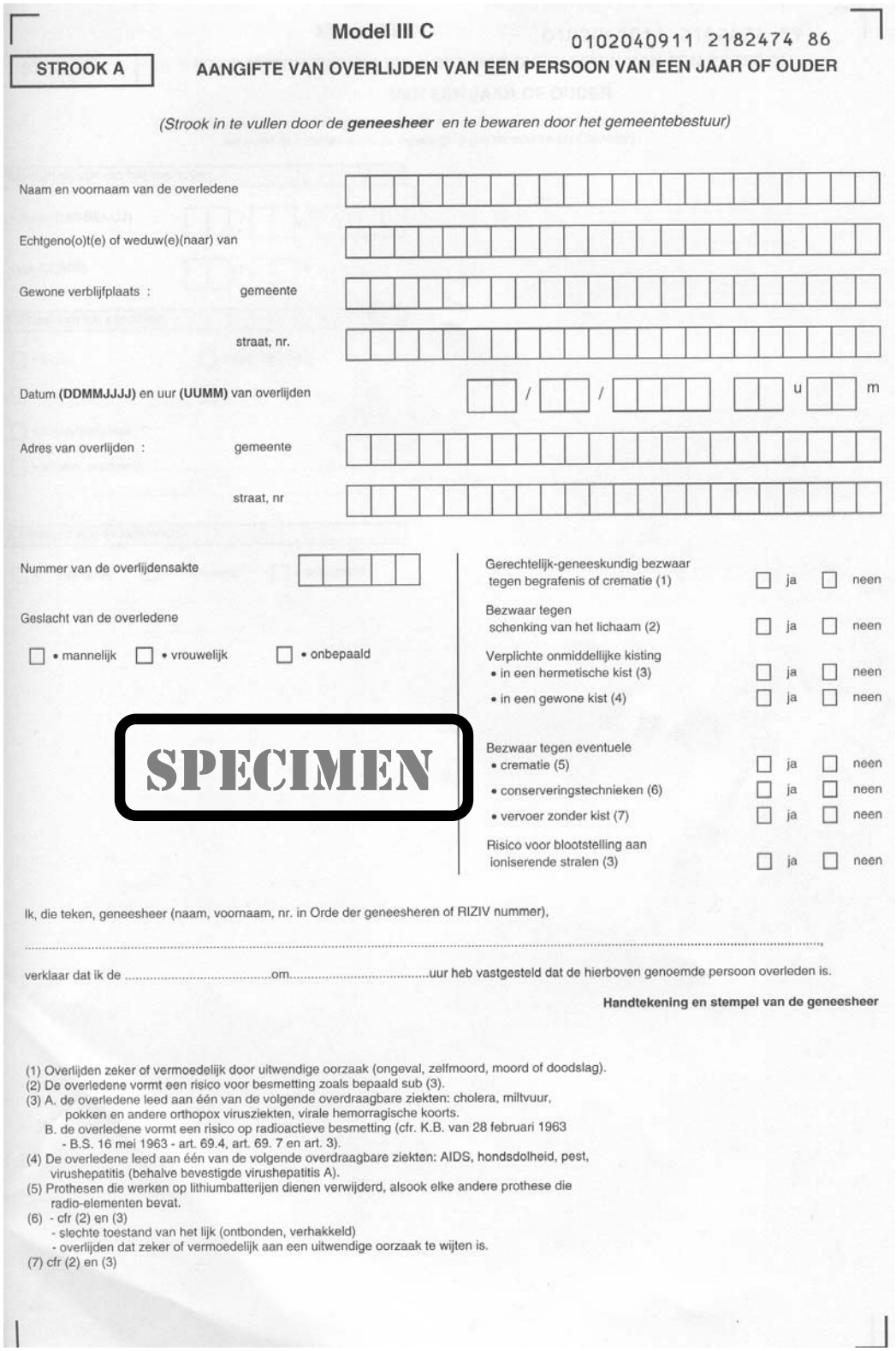
- ☐ • ja
- ☐ • neen

Nr. medisch dossier

Identificatie van de geneesheer

- • RIZIV nummer
- • datum (DDMMJJJJ) ☐☐ / ☐☐ / ☐☐☐☐

naam, voornaam
handtekening
stempel



Model III C

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STROOK A

AANGIFTE VAN OVERLIJDEN VAN EEN PERSOON VAN EEN JAAR OF OUDER

*(Strook in te vullen door de **geneesheer** en te bewaren door het gemeentebestuur)*

Naam en voornaam van de overledene

Echtgeno(o)t(e) of weduw(e)(naar) van

Gewone verblijfplaats : gemeente

straat, nr.

Datum **(DDMMJJJJ)** en uur **(UUMM)** van overlijden / / u m

Adres van overlijden : gemeente

straat, nr

Nummer van de overlijdensakte

Geslacht van de overledene

☐ • mannelijk ☐ • vrouwelijk ☐ • onbepaald

SPECIMEN

Gerechtelijk-geneeskundig bezwaar tegen begrafenis of crematie (1) ☐ ja ☐ neen

Bezwaar tegen schenking van het lichaam (2) ☐ ja ☐ neen

Verplichte onmiddellijke kisting
• in een hermetische kist (3) ☐ ja ☐ neen
• in een gewone kist (4) ☐ ja ☐ neen

Bezwaar tegen eventuele
• crematie (5) ☐ ja ☐ neen
• conserveringstechnieken (6) ☐ ja ☐ neen
• vervoer zonder kist (7) ☐ ja ☐ neen

Risico voor blootstelling aan ioniserende stralen (3) ☐ ja ☐ neen

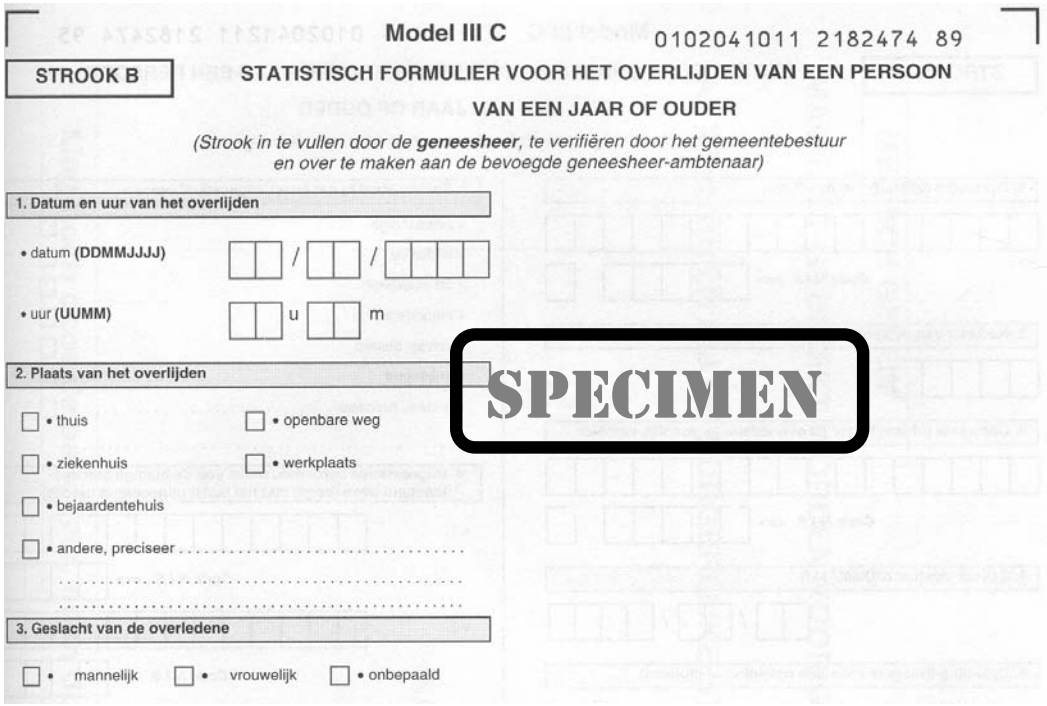
Ik, die teken, geneesheer (naam, voornaam, nr. in Orde der geneesheren of RIZIV nummer),

.....,

verklaar dat ik de .....om.....uur heb vastgesteld dat de hierboven genoemde persoon overleden is.

Handtekening en stempel van de geneesheer

(1) Overlijden zeker of vermoedelijk door uitwendige oorzaak (ongeval, zelfmoord, moord of doodslag).
(2) De overledene vormt een risico voor besmetting zoals bepaald sub (3).
(3) A. de overledene leed aan één van de volgende overdraagbare ziekten: cholera, miltvuur, pokken en andere orthopox virusziekten, virale hemorragische koorts.
B. de overledene vormt een risico op radioactieve besmetting (cfr. K.B. van 28 februari 1963 - B.S. 16 mei 1963 - art. 69.4, art. 69. 7 en art. 3).
(4) De overledene leed aan één van de volgende overdraagbare ziekten: AIDS, hondsdolheid, pest, virushepatitis (behalve bevestigde virushepatitis A).
(5) Prothesen die werken op lithiumbatterijen dienen verwijderd, alsook elke andere prothese die radio-elementen bevat.
(6) - cfr (2) en (3)
- slechte toestand van het lijk (ontbonden, verhakkeld)
- overlijden dat zeker of vermoedelijk aan een uitwendige oorzaak te wijten is.
(7) cfr (2) en (3)



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STROOK B

STATISTISCH FORMULIER VOOR HET OVERLIJDEN VAN EEN PERSOON VAN EEN JAAR OF OUDER

*(Strook in te vullen door de **geneesheer**, te verifiëren door het gemeentebestuur en over te maken aan de bevoegde geneesheer-ambtenaar)*

1. Datum en uur van het overlijden

• datum **(DDMMJJJJ)** ☐☐ / ☐☐ / ☐☐☐☐

• uur **(UUMM)** ☐☐ u ☐☐ m

SPECIMEN

2. Plaats van het overlijden

☐ • thuis ☐ • openbare weg

☐ • ziekenhuis ☐ • werkplaats

☐ • bejaardentehuis

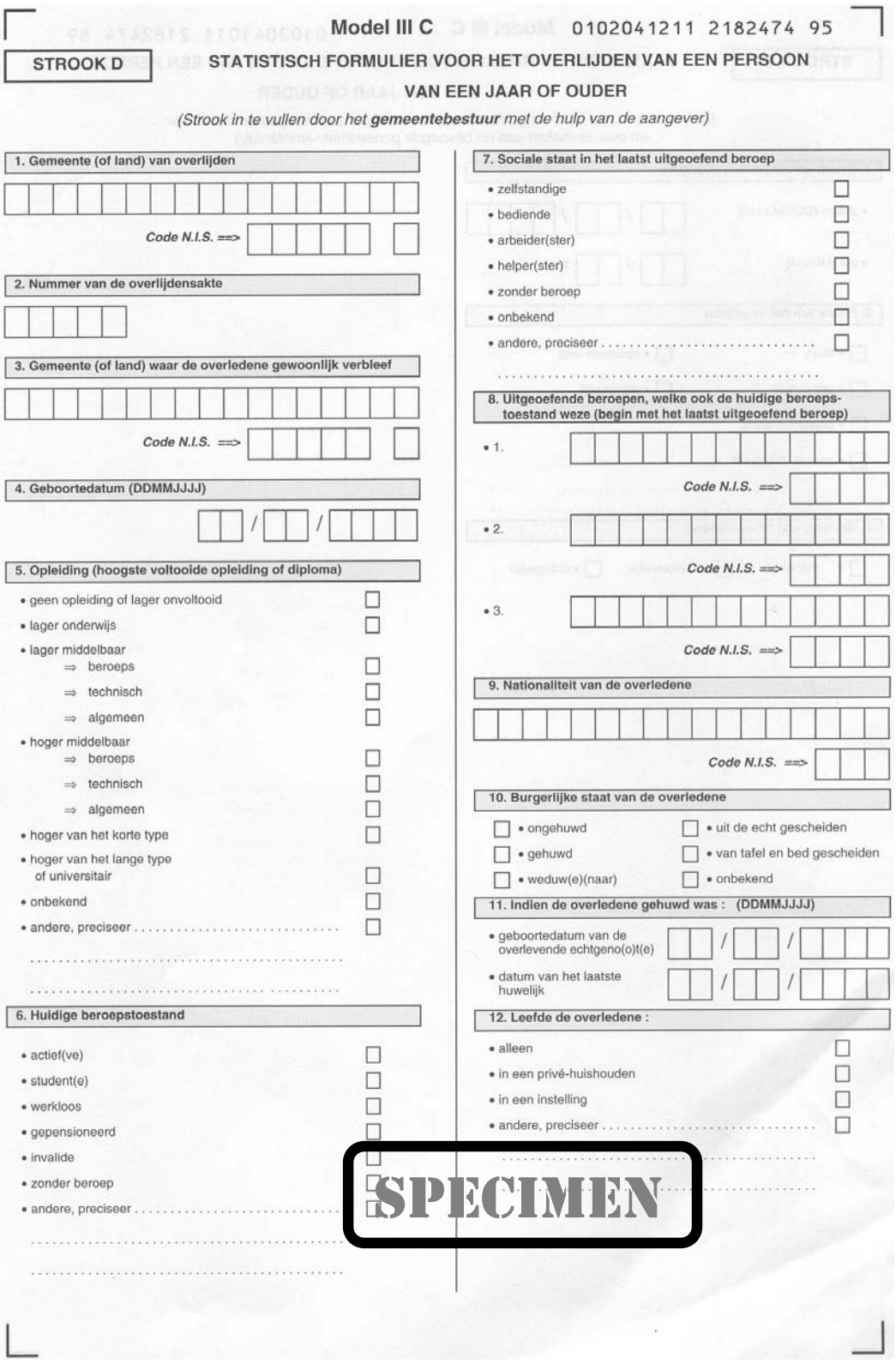
☐ • andere, preciseer .....

.....

.....

3. Geslacht van de overledene

☐ • mannelijk ☐ • vrouwelijk ☐ • onbepaald



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STROOK D

STATISTISCH FORMULIER VOOR HET OVERLIJDEN VAN EEN PERSOON VAN EEN JAAR OF OUDER

*(Strook in te vullen door het **gemeentebestuur** met de hulp van de aangever)*

1. Gemeente (of land) van overlijden

Code N.I.S. ==>

2. Nummer van de overlijdensakte

3. Gemeente (of land) waar de overledene gewoonlijk verbleef

Code N.I.S. ==>

4. Geboortedatum (DDMMJJJJ)

/ /

5. Opleiding (hoogste voltooide opleiding of diploma)

- geen opleiding of lager onvoltooid
- lager onderwijs
- lager middelbaar
  - ⇒ beroeps
  - ⇒ technisch
  - ⇒ algemeen
- hoger middelbaar
  - ⇒ beroeps
  - ⇒ technisch
  - ⇒ algemeen
- hoger van het korte type
- hoger van het lange type of universitair
- onbekend
- andere, preciseer .....

6. Huidige beroepstoestand

- actief(ve)
- student(e)
- werkloos
- gepensioneerd
- invalide
- zonder beroep
- andere, preciseer .....

7. Sociale staat in het laatst uitgeoefend beroep

- zelfstandige
- bediende
- arbeider(ster)
- helper(ster)
- zonder beroep
- onbekend
- andere, preciseer .....

8. Uitgeoefende beroepen, welke ook de huidige beroepstoestand weze (begin met het laatst uitgeoefend beroep)

- 1. *Code N.I.S. ==>*
- 2. *Code N.I.S. ==>*
- 3. *Code N.I.S. ==>*

9. Nationaliteit van de overledene

Code N.I.S. ==>

10. Burgerlijke staat van de overledene

- ongehuwd
- gehuwd
- weduw(e)(naar)
- uit de echt gescheiden
- van tafel en bed gescheiden
- onbekend

11. Indien de overledene gehuwd was : (DDMMJJJJ)

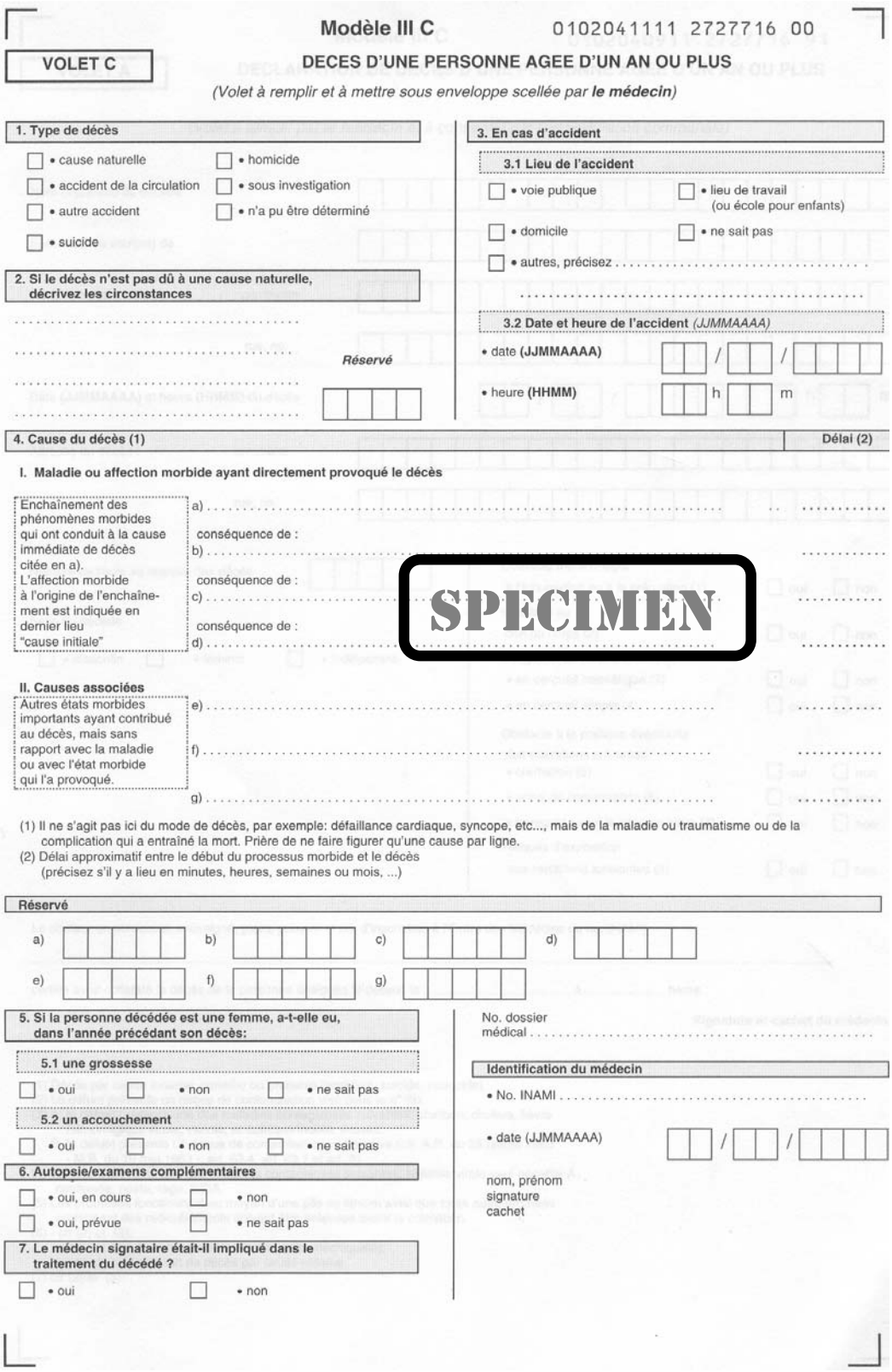
- geboortedatum van de overlevende echtgeno(o)t(e) / /
- datum van het laatste huwelijk / /

12. Leefde de overledene :

- alleen
- in een privé-huishouden
- in een instelling
- andere, preciseer .....

SPECIMEN

Annex III – Death Certificate – French Version



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VOLET C

DECES D'UNE PERSONNE AGEE D'UN AN OU PLUS

*(Volet à remplir et à mettre sous enveloppe scellée par **le médecin**)*

1. Type de décès

- ☐ • cause naturelle
- ☐ • homicide
- ☐ • accident de la circulation
- ☐ • sous investigation
- ☐ • autre accident
- ☐ • n'a pu être déterminé
- ☐ • suicide

2. Si le décès n'est pas dû à une cause naturelle, décrivez les circonstances

.....

.....

.....

.....

Réservé

3. En cas d'accident

3.1 Lieu de l'accident

- ☐ • voie publique
- ☐ • lieu de travail (ou école pour enfants)
- ☐ • domicile
- ☐ • ne sait pas
- ☐ • autres, précisez .....

3.2 Date et heure de l'accident *(JJMMAAAA)*

- • date **(JJMMAAAA)** ☐☐ / ☐☐ / ☐☐☐☐
- • heure **(HHMM)** ☐☐ h ☐☐ m

4. Cause du décès (1) — **Délai (2)**

I. Maladie ou affection morbide ayant directement provoqué le décès

Enchaînement des phénomènes morbides qui ont conduit à la cause immédiate de décès citée en a). L'affection morbide à l'origine de l'enchaînement est indiquée en dernier lieu "cause initiale"

a) .....

conséquence de :

b) .....

conséquence de :

c) .....

conséquence de :

d) .....

SPECIMEN

II. Causes associées

Autres états morbides importants ayant contribué au décès, mais sans rapport avec la maladie ou avec l'état morbide qui l'a provoqué.

e) .....

f) .....

g) .....

(1) Il ne s'agit pas ici du mode de décès, par exemple: défaillance cardiaque, syncope, etc..., mais de la maladie ou traumatisme ou de la complication qui a entraîné la mort. Prière de ne faire figurer qu'une cause par ligne.

(2) Délai approximatif entre le début du processus morbide et le décès (précisez s'il y a lieu en minutes, heures, semaines ou mois, ...)

Réservé

a) ☐☐☐☐☐ b) ☐☐☐☐☐ c) ☐☐☐☐☐ d) ☐☐☐☐☐

e) ☐☐☐☐☐ f) ☐☐☐☐☐ g) ☐☐☐☐☐

5. Si la personne décédée est une femme, a-t-elle eu, dans l'année précédant son décès:

5.1 une grossesse

☐ • oui ☐ • non ☐ • ne sait pas

5.2 un accouchement

☐ • oui ☐ • non ☐ • ne sait pas

6. Autopsie/examens complémentaires

- ☐ • oui, en cours
- ☐ • non
- ☐ • oui, prévue
- ☐ • ne sait pas

7. Le médecin signataire était-il impliqué dans le traitement du décédé ?

☐ • oui ☐ • non

No. dossier médical .....

Identification du médecin

- • No. INAMI .....
- • date (JJMMAAAA) ☐☐ / ☐☐ / ☐☐☐☐

nom, prénom
signature
cachet

Modèle III C 0102040911 2727716 91

VOLET A

DECLARATION DE DECES D'UNE PERSONNE AGEE D'UN AN OU PLUS

*(Volet à remplir par **le médecin** et à conserver par l'administration communale)*

Nom et prénom du décédé

Epoux(se) ou veuf(ve) de

Résidence habituelle : commune

rue, no.

Date **(JJMMAAAA)** et heure **(HHMM)** du décès / / h m

Adresse du décès : commune

rue, no.

Numéro de l'acte au registre des décès

Sexe du décédé

☐ • masculin ☐ • féminin ☐ • indéterminé

SPECIMEN

Obstacle médico-légal à l'inhumation ou à la crémation (1) ☐ oui ☐ non

Obstacle au don du corps (2) ☐ oui ☐ non

Obligation de mise immédiate:
- en cercueil hermétique (3) ☐ oui ☐ non
- en cercueil simple (4) ☐ oui ☐ non

Obstacle à la pratique éventuelle des opérations suivantes:
- crémation (5) ☐ oui ☐ non
- soins de conservation (6) ☐ oui ☐ non
- transport avant la mise en bière (7) ☐ oui ☐ non

Risques d'exposition aux radiations ionisantes (3) ☐ oui ☐ non

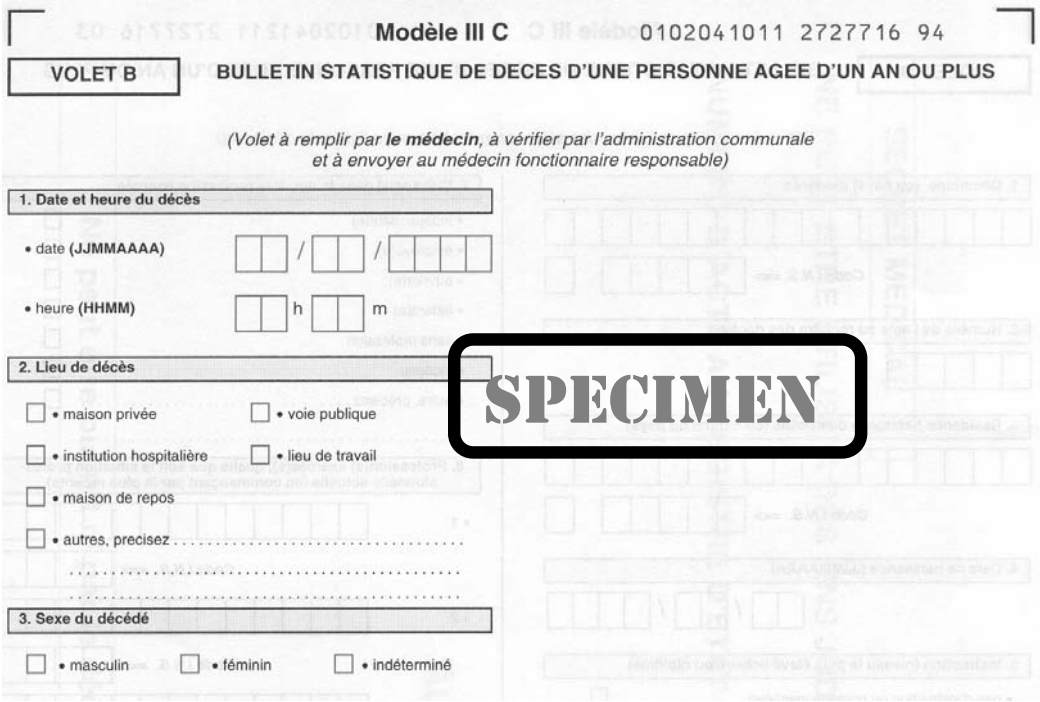
Le docteur en médecine, soussigné, (nom, prénom et no. d'inscription à l'Ordre des Médecins ou no. INAMI)

.....,

certifie avoir constaté le décès de la personne désignée ci-dessus le .....à..... heure.

Signature et cachet du médecin

(1) Décès par cause externe, certaine ou probable (accident, suicide, homicide).
(2) Le défunt présente un risque de contamination visé sous le n° (3).
(3) A. le défunt présente une des maladies contagieuses suivantes: charbon, choléra, fièvre hémorragique virale, variole, et autres orthopox viroses;
B. le défunt présente un risque de contamination radioactive (cfr. A.R. du 28 février 1963 - M.B. du 16 mai 1963 -; art. 69.4, art. 69.7 et art. 3).
(4) Le défunt présente une des maladies contagieuses suivantes: hépatite virale sauf hépatite A confirmée, peste, rage, SIDA.
(5) Les prothèses fonctionnant au moyen d'une pile au lithium ainsi que toute autre prothèse renfermant des radio-éléments doivent être enlevées avant la crémation.
(6) - cfr (2) et (3);
- mauvais état du corps (putréfaction ou corps déchiqueté);
- certitude ou suspicion de décès par cause externe.
(7) cfr (2) et (3).



Modèle III C 0102041011 2727716 94

VOLET B **BULLETIN STATISTIQUE DE DECES D'UNE PERSONNE AGEE D'UN AN OU PLUS**

*(Volet à remplir par **le médecin**, à vérifier par l'administration communale et à envoyer au médecin fonctionnaire responsable)*

1. Date et heure du décès

- date **(JJMMAAAA)** ☐☐ / ☐☐ / ☐☐☐☐
- heure **(HHMM)** ☐☐ h ☐☐ m

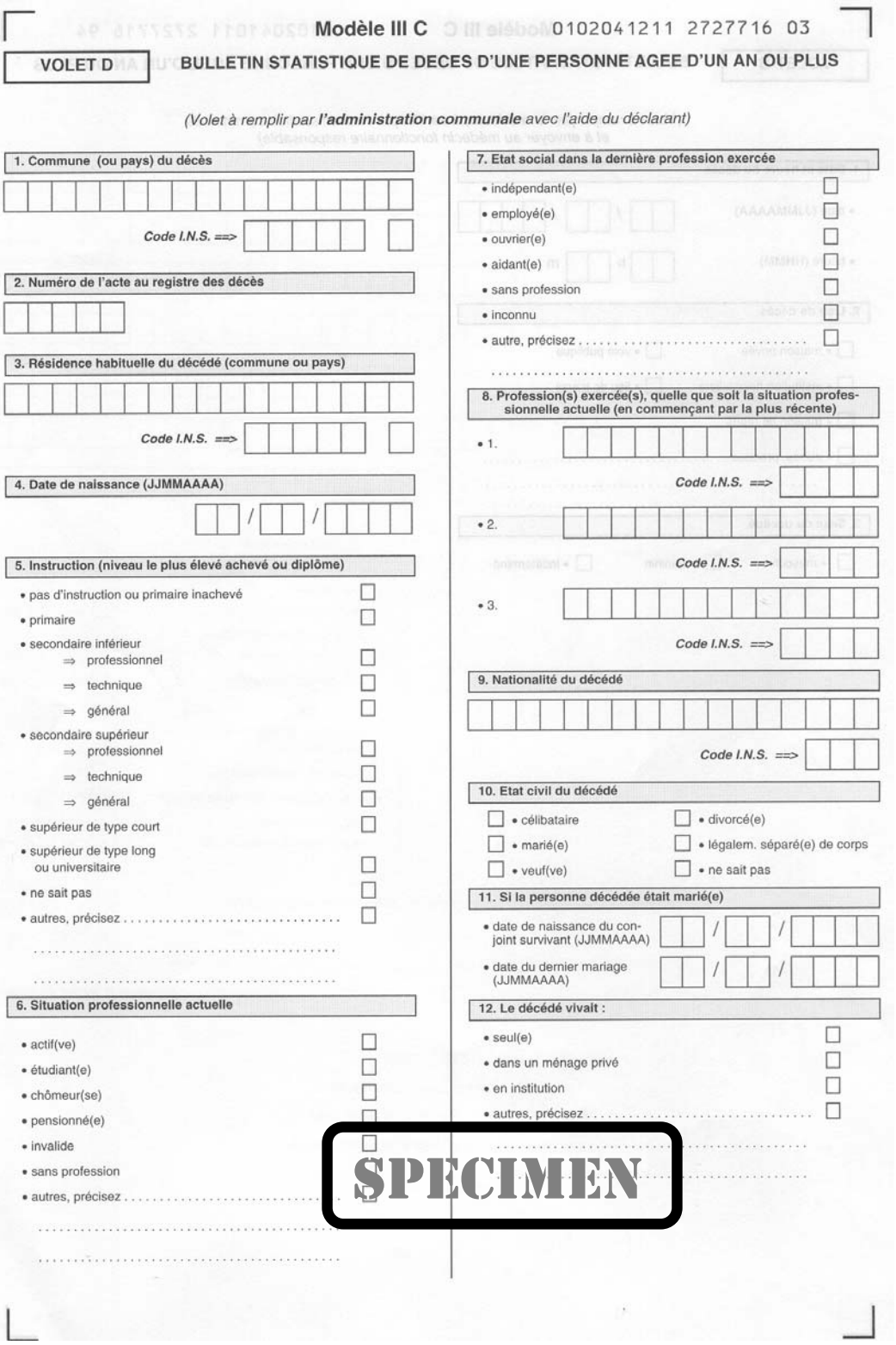
2. Lieu de décès

- ☐ maison privée
- ☐ voie publique
- ☐ institution hospitalière
- ☐ lieu de travail
- ☐ maison de repos
- ☐ autres, precisez .....

3. Sexe du décédé

- ☐ masculin
- ☐ féminin
- ☐ indéterminé

SPECIMEN



Modèle III C 0102041211 2727716 03

VOLET D **BULLETIN STATISTIQUE DE DECES D'UNE PERSONNE AGEE D'UN AN OU PLUS**

*(Volet à remplir par **l'administration communale** avec l'aide du déclarant)*

1. Commune (ou pays) du décès

Code I.N.S. ==>

2. Numéro de l'acte au registre des décès

3. Résidence habituelle du décédé (commune ou pays)

Code I.N.S. ==>

4. Date de naissance (JJMMAAAA)

5. Instruction (niveau le plus élevé achevé ou diplôme)

- pas d'instruction ou primaire inachevé
- primaire
- secondaire inférieur
  - ⇒ professionnel
  - ⇒ technique
  - ⇒ général
- secondaire supérieur
  - ⇒ professionnel
  - ⇒ technique
  - ⇒ général
- supérieur de type court
- supérieur de type long ou universitaire
- ne sait pas
- autres, précisez .....

6. Situation professionnelle actuelle

- actif(ve)
- étudiant(e)
- chômeur(se)
- pensionné(e)
- invalide
- sans profession
- autres, précisez .....

7. Etat social dans la dernière profession exercée

- indépendant(e)
- employé(e)
- ouvrier(e)
- aidant(e)
- sans profession
- inconnu
- autre, précisez .....

8. Profession(s) exercée(s), quelle que soit la situation professionnelle actuelle (en commençant par la plus récente)

- 1. *Code I.N.S. ==>*
- 2. *Code I.N.S. ==>*
- 3. *Code I.N.S. ==>*

9. Nationalité du décédé

Code I.N.S. ==>

10. Etat civil du décédé

- célibataire
- marié(e)
- veuf(ve)
- divorcé(e)
- légalem. séparé(e) de corps
- ne sait pas

11. Si la personne décédée était marié(e)

- date de naissance du conjoint survivant (JJMMAAAA)
- date du dernier mariage (JJMMAAAA)

12. Le décédé vivait :

- seul(e)
- dans un ménage privé
- en institution
- autres, précisez .....

SPECIMEN