About Poland Data on Causes of Death

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General

The official statistical agency responsible for collecting, coding and verifying the data on vital statistics is the Central Statistical Office (CSO) of Poland. It also carries out population censuses and prepares up-to-date estimates of the population. All vital events are registered in the local registry offices that transmit the information to 16 regional statistical offices. The CSO gathers the data from all regions on a regular basis and publishes it in annual population yearbooks. Data on population size and vital events, in particular death counts by causes, have been publicly available on the CSO website since 2002 (http://demografia.stat.gov.pl/bazademografia/). Data concerning earlier periods may be obtained for free or purchased (if the format requires more detail or for data that refers to the period before 1970) via direct inquiry to the CSO (dane@stat.gov.pl). The data on death counts were obtained from the CSO, either from unpublished (but available for free) tables on vital statistics (1970-2007) or from the CSO website (2008-2014).

The following revisions of the International Classification of Diseases have been used:

1959-1969 7th revision (3-digit items)

1970-1979 8th revision (3-digit items)

1980-1996.1 9th revision (3-digit items)

1997-Present 10th revision (4-digit items).

Territorial coverage

There were no territorial changes in Poland during the period covered by the available data (1970-2019).

Part I – Vital statistics and population censuses

1. Death count data

Coverage and completeness

The registration of deaths is complete and refers to all vital events taking place in the whole territory of Poland.

Specific details: infant mortality

Until 1994, Poland used a definition of infant death different from that recommended by the WHO. In medical practice and the national system for collecting public statistics, there were four categories of birth: live birth, stillbirth, unable to live with signs of life and unable to live without signs of life. In practice, the two latter categories referred to children whose birthweight ranged from 601 to 1000

grams. Infants born with signs of life weighing between 601 and 1000 grams (Figure 1) were registered as live births only if they survived the first 24 hours; otherwise they were registered as unable to live with signs of life. Births in which the weight did not exceed 601 grams were not included in birth statistics. After adopting the definition recommended by the WHO in 1994, births of children unable to live with signs of life were included in the category of live births (and their deaths assigned to death registers), whereas births of children unable to live without signs of life were assigned the category of stillbirths. In parallel, the required birthweight a newborn to be registered as a birth was changed from 601 grams to 500 grams. The data disclosed by the CSO was already supplemented by the number of births unable to live with signs of life, such that comparison with the period since 1994 was possible. In line with the CSO practice, death counts of children unable to live with signs of life were included in the following cause-of-death categories: "777 Immaturity, unqualified" (1970-1979) and "765 Disorders relating to short gestation and unspecified low birthweight" (1980-1994). However, in 1994 some infant deaths were inappropriately coded as "779 other and ill-defined conditions originating in the perinatal period", which required a further correction, which is described in the reconstruction information (point 8). After the correction, the adjusted data on number of births, infant deaths and infant deaths by causes are fully comparable for the periods before and after 1994.

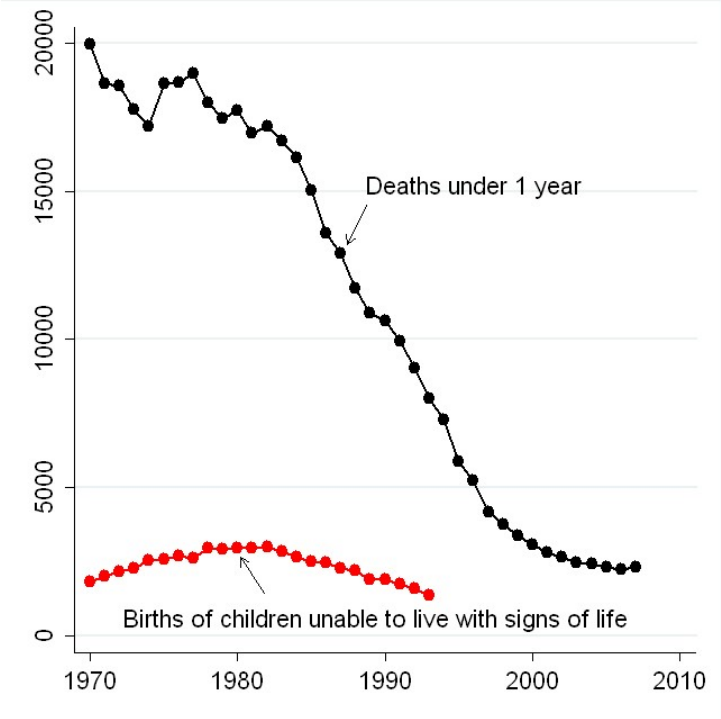

Figure 1 Number of deaths under 1 year (live births only) and births of newborns unable to live with signs of life, Poland 1970-1988

Source: Own elaboration based on CSO data.

2. Population count data

Coverage and completeness

In the period 1958-1982, the population count data referred to the current (*de facto*) residents, and the period 1983-2005 referred to persons registered for permanent (*de jure*) residence. After each population census (conducted in 1960, 1970, 1978, 1988, 2002 and 2011), the CSO calculated the population estimates backwards for the intercensal years (1970-77, 1978-87, 1988-2001, 2002-11).

However, due to different political contexts and different methodologies applied in the 1988, 2002 and 2011 population censuses (see Specific Details), large disruptions in population estimates appear between 1988/89, 2001/02 and 2010/11. According to the HMD methodology, the official population estimates for 1989-2002 were recalculated backwards on the basis of the results of the 2002 census. However, similar population estimates for the period 2003-2011 that are based on the results of the 2011 census were not available until November 2015. Presented population estimates were obtained from the CSO website and were calculated on the basis of a different methodology than the HMD methodology. Thus, the comparability of population estimates is not ensured for the periods before and after 2002.
The population estimates for 1970-2019 were obtained from the HMD.

Specific details

The 1988 population census was a complete study covering the whole territory of Poland and conducted during the communist regime. Due to specific political circumstances, the scale of refused participation in the study was relatively low. The 2002 population census was a complete study covering the whole territory of Poland as well; however, due to a higher level of social distrust, many people refused to participate in the study. The 2011 population census was conducted on the basis of a mixed methodology that included self-reporting via internet, information from the population register, tax office registers and other registers, as well as a representative survey study covering 20% of the resident population of Poland.

3. Birth count data

Coverage and completeness

The registration of births is considered complete and covers the entire territory of Poland.

Specific details

Until 1994 Poland has been using a definition of infant birth and infant death that is different from that recommended by the WHO. With the adoption of the definition recommended by the WHO in 1994, births of children with weight not exceeding 601 grams were not included in statistics of live births (see Specific Details in the “Death Count Data” section). All data used in the database, including births before 1994, were adjusted to the most recent WHO-like definition.

Part II – Information on CoD collection

4. Death certificate

The death certificate (Polish: *karta zgonu*) was introduced by the “Law on corpse burial and cause-of-death reporting” in 1932 (Journal of Law, 1932, No 35, item 359), which was supplemented one year later by an ordinance (Journal of Law, 1934, No 13, item 103). In the period after WW2, the 1959 “Law on cemeteries and corpse burial” (Journal of Law, 1959, No 11, item 62) was supplemented by a 1961 ordinance (Journal of Law, 1961, No 39, item 202) and laid foundations for the modern system for collecting cause-of-death data: it defined the specimen of death certificate and assigned a person with medical training to fill in the death certificate.

The death certificate used since 1997 consists of two separate parts: copy A, also named Statistical form to death certificate (*Karta statystyczna do karty zgonu*), and copy B:

1) Copy A based on the WHO classifications includes personal information (first and last name, date of birth and death, sex) and medical information (direct, intermediate and underlying cause of death, place of death, person stating death, for infants: type of delivery, birth order, weight, length, duration of pregnancy). It is 1 page in total.

2) Copy B includes personal information (identification number in the population register, date of registration), demographic and socio-economic information (marital status, education, place of residence; for married persons: personal data of widower/widow; for infants: year of parent's marriage, date of mother's birth). It is also 1 page in total.

In all regions, the same death certificate is used. No specific death certificate exists for deceased infants.

Copy A of the death certificate is issued by: a medical doctor, nurse or rural midwife who treated the deceased person within a month before death; or, if the deceased person was not under medical supervision, a doctor/nurse/midwife who declared the death; or, in the case of a non-natural death, a doctor who performed a post-mortem examination. In practice, medical doctors complete more than 99% of death certificates. The personal information in copy B is provided by a medical doctor/nurse/midwife, whereas the local registry office fills in demographic, social and economic information.

5. Cause-of-death coding

The code for underlying cause of death is entered by a coder – a medical doctor other than the certifier. The method of coding is manual, decentralized and organized according to procedures introduced in 1997. Before 1997, the underlying cause of death was coded by a medical doctor/nurse/midwife issuing the death certificate.

Since 1997, the circulation of documents notifying the death is as follows (see Fig. 1 in Appendix 1, see also Cierniak-Piotrowska et al. 2015; Fihel 2011; Gawryszewski 2005). A certifier fills in the medical part of copy A that includes the case history and three causes of death (direct, secondary and underlying), as well as the personal information in copy B. Copies A and B of the death certificate are delivered by the person responsible for arranging burial (usually a member of the deceased person's family) to the Registry Office (Polish: *Urząd Stanu Cywilnego*) that is located in the deceased's place of permanent residence. The office completes the demographic and socio-economic information and then sends copy A to the regional statistical office. Part of copy B remains in the Perpetual Archives of the Registry Office, whereas the other part – required for burial – is handed over to the deceased person's family.

In regional statistical offices, copy A has been replaced by an electronic file and, as such, it does not include personal information anymore. Copy A is then transmitted to coders – medical doctors other than certifiers. Based on the information regarding the direct, intermediate and underlying cause of death, a coder enters the code for the underlying cause of death. In the case where doubts exist about the case history of a deceased person, the coder is entitled to contact the person who has filled in copy A of the death certificate. Altogether, there are around 35 coders in Poland. Thus, the procedure includes manual coding, but regional offices use a table of crosses to verify the correctness of the information regarding underlying causes of death (whether the cause is appropriate for a given age group, sex and is not a code with an asterisk). The coding system is displayed in Figure 2.

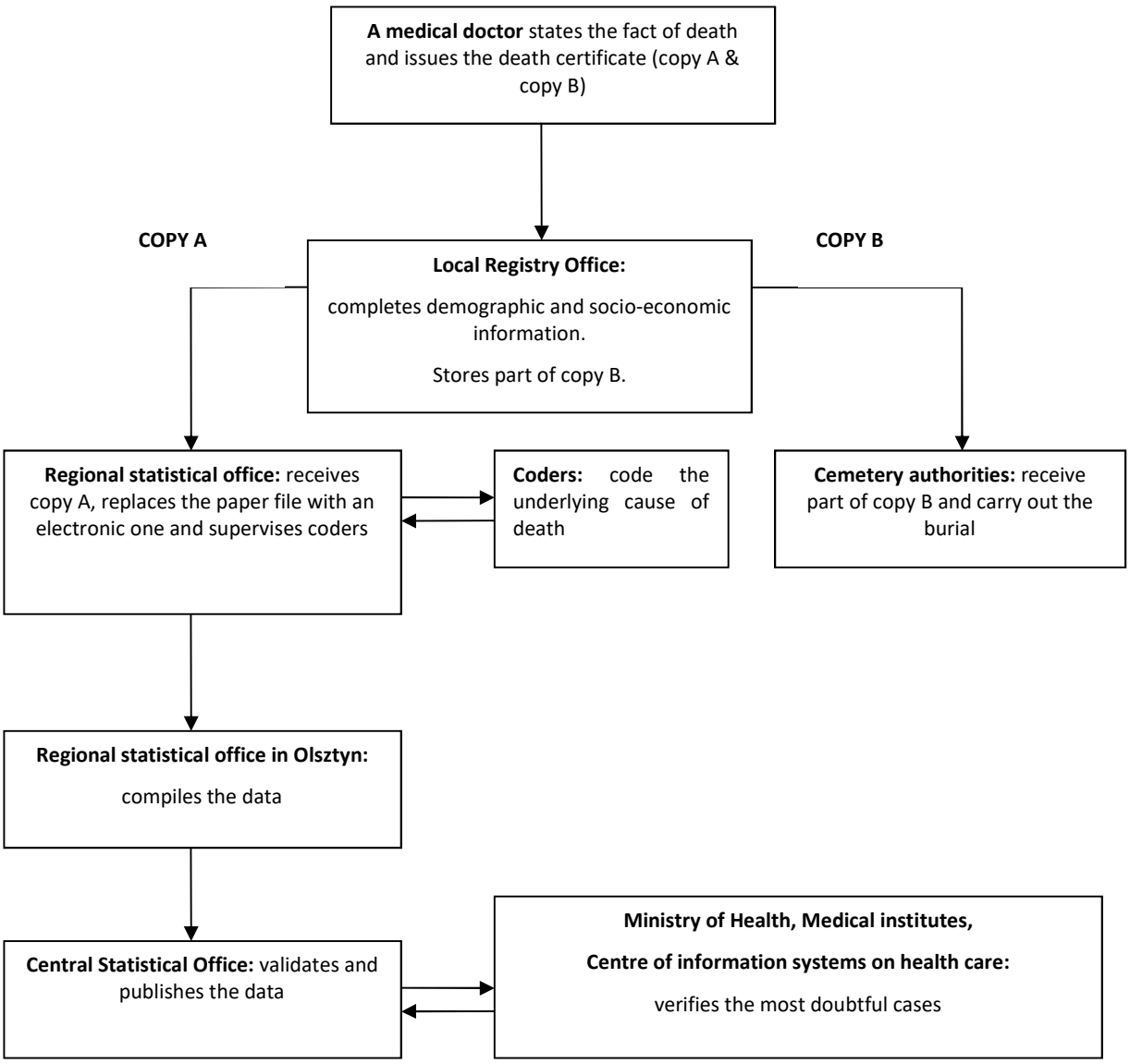

Figure 2 The transmission of the Polish death certificate

Source: Own elaboration based on CSO (2007).

One regional statistical office – in the city of Olsztyn – is responsible for gathering the information on deaths in Poland and creating one electronic dataset. The paper files of copies A are destroyed shortly after compiling the dataset, including all death counts that took place in a given year. This is done 10-12 months after the deaths. The dataset is transmitted to the CSO that verifies and validates the correctness of cause-of-death information. In the final step of the data compilation procedure, the CSO is entitled to ask one of the 5 appointed scientific-research medical institutions to verify the most doubtful cases.

Autopsies are conducted when a criminal act is suspected of having contributed to death. In practice, *post mortem* examinations are applied to approximately 7% of deaths – this percentage has been stable over recent years.

6. Classifications in use and collected data

6.1 Classification changes

The following revisions of the International Classification of Diseases have been in use in Poland:

1932- 1950 Nomenclature from 1932, based on the 4th ICD revision

1951-1958 Nomenclature from 1950, based on the 4th ICD revision and USSR classification

1959-1969 7th ICD revision (3-digit items)

1970-1979 8th ICD revision (3-digit items)

1980-1996 9th ICD revision (3-digit items)

1997-present 10th ICD revision (4-digit items).

6.2 Collected data

For the years 1959-1969, the data were obtained in paper format at the archive of the Central Statistical Office (*Zgony według wieku i płci zmarłych oraz przyczyn zgonu*). For the years 1970-2011, the data were obtained in electronic format directly from the Central Statistical Office (*Zgony według wieku i płci zmarłych oraz przyczyn zgonu*) and can be made available upon request.

Table 1 provides information on collected data and current classifications used in the given period.

Table 1. Overview of the collected data for Poland

Period	*Classification*	*Number of items*	*List*	*Age group format*	*Data type*
1959–1969	ICD7	947	3-digit items	0-1 year, 1-4, 5-9, 10-14, …, 85+, unknown	*Paper*
1970-1979	ICD-8	873	3-digit items	0-1 year, 1-4, 5-9, 10-14, …, 85+, unknown	*Electronic*
1980-1996	ICD-9	911	3-digit items	0-1 year, 1-4, 5-9, 10-14, …, 85+, unknown	*Electronic*
1997-2003	ICD-10	10,505	4-digit items	0-1 year, 1-2, 2-3, 3-4, 5-9, 10-14, …, 85+, unknown	*Electronic*
2004-2019				0-1 year, 1-2, 2-3, 3-4, 5-9, 10-14, …, 85-89, 90-95, 95+, unknown	

6.3 Data sources

For the years 1959-2011, the only published data (Central Statistical Office, Demographic Yearbook, table 100(157) *Zgony według wybranych przyczyn*, Warszawa: Central Statistical Office) concern groups of causes or selected causes of death. All demographic yearbooks published by the Central Statistical Office include useful information on specific events (such as change of definition of infant death in 1994 or medical doctors' strike in 1996-2002), both in Polish and English (see, for instance, Central Statistical Office, Demographic Yearbook 2003, *Dział II. Ruch naturalny ludności*, Part II. Vital statistics of population, Warszawa: Central Statistical Office, pp. 149-158). For the years 2002-2014, the most specific data on death counts by causes, age and sex are published on the CSO website (http://demografia.stat.gov.pl/bazademografia/Tables.aspx) in tables entitled 3. *Zgony według wieku i płci zmarłych oraz przyczyn zgonów* (3. Deaths by age, sex and causes).

6.4 Specific treatment of the raw data

Before conducting reconstruction several problems needed to be solved.

First, for the year 1959 the original cause-specific data were aggregated into small groups consisting of from 1 to 5 items. The data were disaggregated in such small groups by single causes of deaths on the basis of similar distribution for the year 1961. Similarly, cause-specific data for the year 1960 were missing, so they were estimated on the basis of the analogous distribution for 1961.

Second, in 1967 110 deaths were registered without specification of age. These deaths were redistributed proportionally across all age groups but the total number of death may differ from other sources, such as the Human Mortality Database.

Third, after the implementation of the 9th ICD revision, many medical doctors – coders at the time – were confused about newly introduced categories denoting external causes of death. Instead of using categories ranging from "E800" to "E999", which referred to the sort of accident leading to injury, some coders filled in categories from 800 to 999 as a response to the sort of injury. To give an example, some doctors reported the category "820", depicting fracture of neck of femur instead of defining the sort of accident leading to this fracture (categories "E800-E929"). The computer system aggregating the mortality data automatically added the letter "E", which in this case denoted a non-traffic accident involving motor-driven snow vehicle ("E820"). Similarly, deaths wrongly coded as "other" and unspecified effects of external causes (categories "990-995") were approved by the computer system as injuries due to war operations ("E990-E995"). In 1980-82, some external deaths were registered according to the sort of injury and some according to the sort of accident leading to injury. Since 1983, external causes of deaths have been coded properly. As it was not possible in any way to distinguish between external deaths that were coded properly and wrongly, the transition between the 8th and the 9th ICD revision for external causes was based on the years 1979 and 1983. After the transition, the death counts due to external causes in 1980-1982 were re-established proportionally to the average distribution of deaths due to external causes registered in 1979 and 1983.

Fourth, in the period 1996-2002, the Polish medical doctors' strike took place. One form of protesting was to neglect the duty of reporting case histories that are necessary for coding peoples' underlying cause of death. In the two most affected years, 1997 and 1998, over 20% of death certificates (80,500 and 75,000, respectively) lacked medical diagnoses (Figure 3). Moreover, in 1997 the 10th ICD revision was enforced, which led to further discontinuities and deteriorated comparability of cause-of-death trends. The missing data needed to be reconstructed before performing the transition from the 9th to the 10th ICD revision (Fihel, Mesle, Vallin 2013; see Figure 4 for a selected cause). As far as causes of death are concerned, the general idea of data reconstruction was to distribute lacking death counts proportionally to those reported. The estimations were computed in a different way for the period 1997-1999 (when the scale of the strike was substantial) and for the years 1996 and 2000-2002. For the years 1997-1999, the additional data containing distribution of registered deaths according to the main ICD chapters and regions (split by *voivodships* and rural/urban areas) were obtained and, therefore, the redistribution was made first at the regional level across the ICD main chapters, and second at the national level across single causes of deaths inside each ICD chapter. For the years 1996 and 2000-2002, additional data was not available, so the missing death counts were distributed directly across single causes of deaths. All calculations were made separately by age, sex and place of residence (rural/urban).

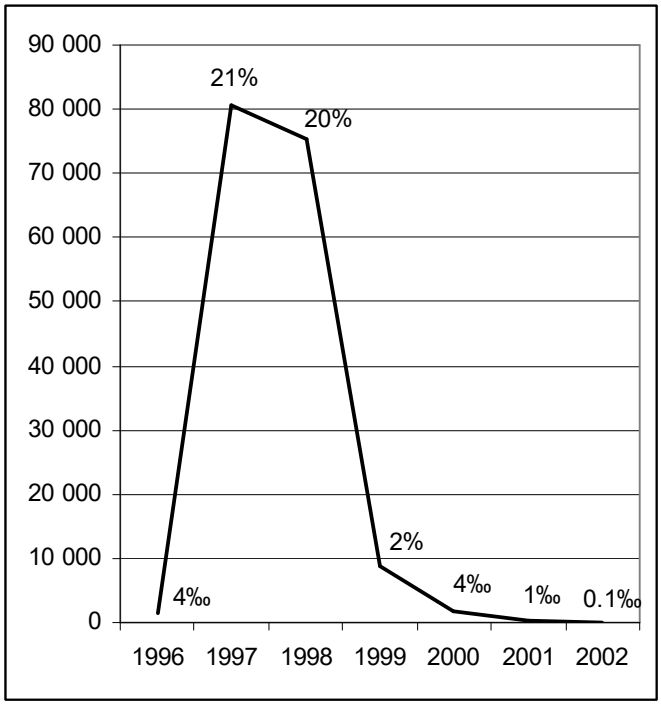

Figure 3 Number and share of data lacking due to the medical doctors' strike in Poland, 1996-2002

Source: Own elaboration based on CSO data.

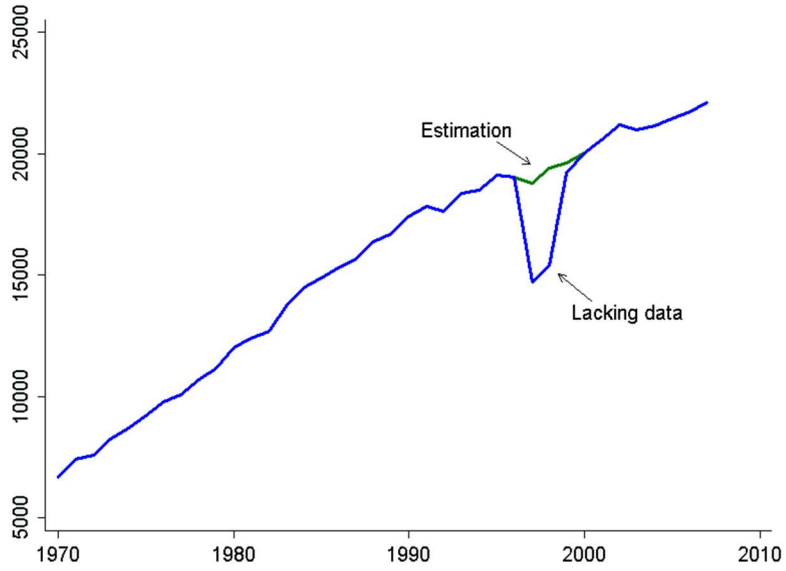

Figure 4 Reconstruction of death counts for malignant neoplasms of bronchus and lung (C34), which were lacking due to the medical doctors' strike

Source: Own elaboration based on CSO data.

7. Specific transition documents

No documents related to the transition were produced by the statistical office. No double coding was used in the years of transition.

Part III – Reconstruction information

8. Reconstruction of coherent time series

Three transitions were carried out: between ICD-7 and ICD-8, ICD-8 and ICD-9, and between ICD-9 and ICD-10.

Transition from the 7th to the 8th ICD revision

A total of 425 associations were established (Table 2), coefficients were calculated for each age group separately.

Table 2. The number of associations in three transitions established for Poland, by type of association

Type of association	*Number of associations*		
	ICD7/8	ICD8/9	ICD9/10
1:1	265	433	60
1:N	42	26	489
N:1	27	20	3
N:N	91	81	101
Total	425	560	653

Transition from the 8th to the 9th ICD revision

A total of 571 associations were calculated for all age groups together (Table 3). Selected coefficients have been recalculated according to the separate age groups.

Table 3. The number of associations in the transition from the 8th to the 9th and from the 9th to the 10th ICD revisions, by type of association

Type of association	Number of associations	
	ICD-8/9	ICD-9/10
1:1	444	61
1:N	16	486
N:1	29	3
N:N	82	105
Total	571	655

An example of association and reconstructed time series in the transition from the 8th to the 9th ICD revision is presented below. Uraemia, used in the 8th ICD revision, is a rather loose term referring to the final stage of renal failure. In the 9th ICD revision it was replaced by "584 acute renal failure", but observed trends of mortality from uraemia and acute renal failure showed serious divergence (Figure 5). This indicated that – with the transition to the 9th ICD revision – classifying procedures changed regarding renal failure. Thus, in order to balance mortality from uraemia, we added two other pathological units: "586 renal failure, unspecified" and "588 disorders resulting from impaired renal function" (Table 4, Figure 5); and all coefficients in this association were calculated proportionally to

death counts registered in 1979 and 1980. This case constitutes an example of the 1:N association type in which a generally defined unit was split into three diseases.

Table 4. Transition from the 8th to 9th ICD revision. Fundamental association no. 359

ICD-9	Number of deaths		ICD-8
	1980	1979	
"584 Acute renal failure"	233	655	P "792 Uraemia"
"586 Renal failure, unspecified"	288		P
"588 Disorders resulting from impaired renal function"	117		P
	638	655	

Source: Own elaboration based on CSO data.

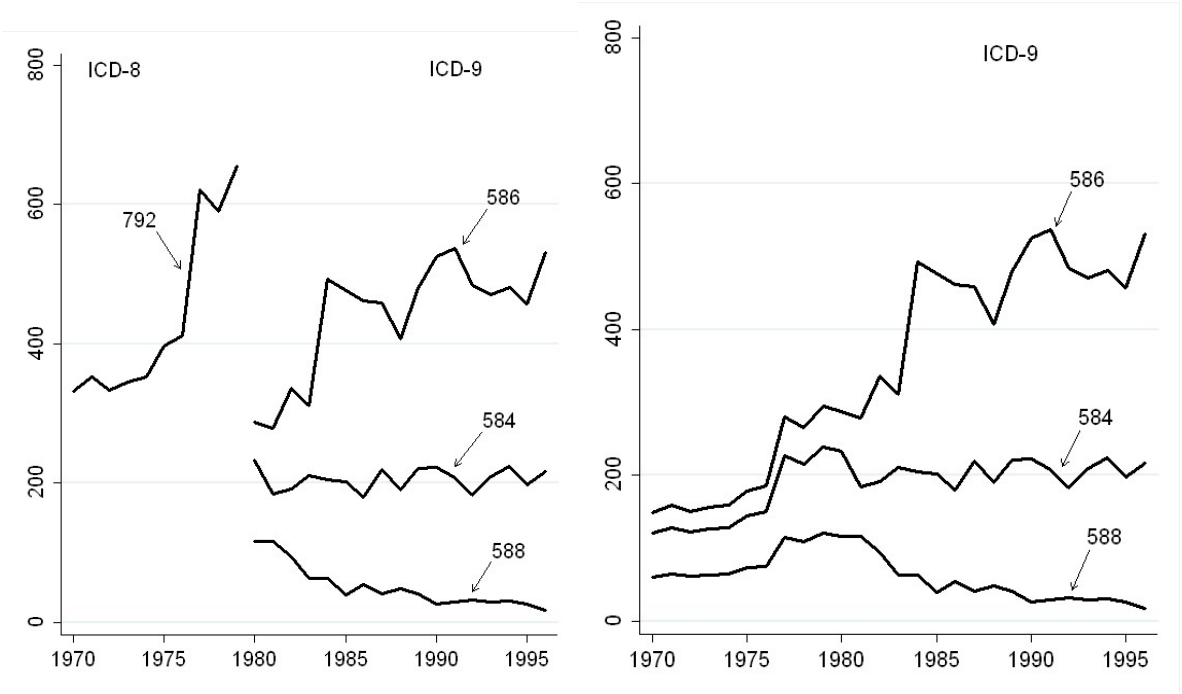

Figure 5 Transition from the 8th to the 9th ICD revision. Example of "792 uraemia" split into "584 Acute renal failure", "586 Renal failure, unspecified", and "588 Disorders resulting from impaired renal function", Poland 1970-1996

Source: Own elaboration based on CSO data.

Transition from the 9th to the 10th ICD revision

A total of 655 associations were calculated for all age groups together (Table 2). Selected coefficients have been recalculated according to the separate age groups. An example of reconstitution of long-term cause-of-death series according to the 10th ICD revision refers to viral hepatitis (B15-B19). After the implementation of the 10th ICD revision, mortality from hepatitis increased quite unexpectedly by 50%, which could be attributed to previous misclassification of hepatitis as a liver disease in the 9th ICD revision. In parallel, the transition to the 10th ICD revision caused one digestive disease – denoted in the 9th ICD classification under "571 chronic liver disease and cirrhosis" –to reveal a serious drop in mortality. Thus, hepatitis reconstruction of cause-of-death series had to be based not only on viral diseases, but also on categories belonging to other ICD chapters, in this case digestive diseases (Table 5, Figure 6).

Table 5. Transition from the 9th to 10th ICD revision. Fundamental association no. 80.

ICD-10	Number of deaths		ICD-9
	1997	1996	
"B15 Acute hepatitis A"	0	191	P "070 Viral hepatitis"
"B16 Acute hepatitis B"	117		P "070"
		4,720	P "571 Chronic liver disease and cirrhosis"
"B17 Other acute viral hepatitis"	15		P "070"
"B18 Chronic viral hepatitis"	114		P "070"
			P "571"
"B19 Unspecified viral hepatitis"	40		P "070"
"B94.2 Sequelae of viral hepatitis"	16		P "070"
"K70 Alcoholic liver disease"	618		P "571"
"K71 Toxic liver disease"	68		P "571"
"K72 Hepatic failure, not elsewhere classified"	157		P "571"
		153	T "570 Acute and subacute necrosis of liver"
"K73 Chronic hepatitis, not elsewhere classified"	60		P "571"
"K74 Fibrosis and cirrhosis of liver"	3,952		P "571"
"R17 Unspecified jaundice"	4		P "070"
	5,161	5,064	

Source: Own elaboration based on CSO data.

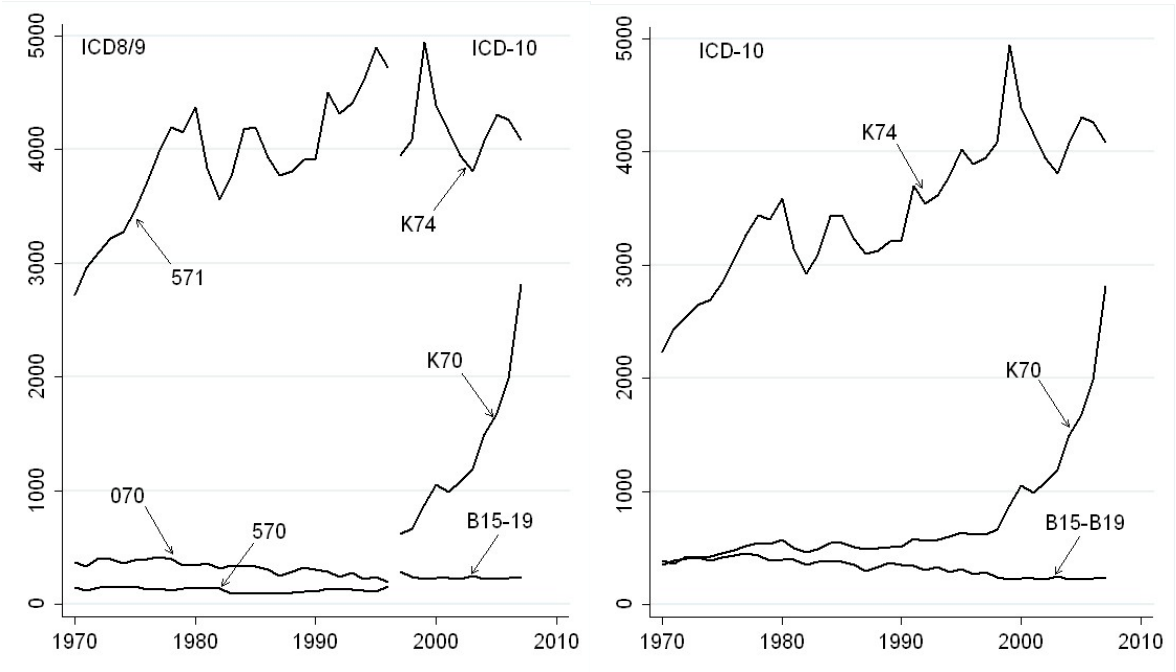

Figure 6 Transition from the 9th to the 10th ICD revision. Examples of "B15-B19 viral hepatitis", "K70 alcoholic liver disease" and "K74 fibrosis and cirrhosis of liver", reconstructed on the basis of "070 viral hepatitis", "570 Acute and subacute necrosis of liver", "571 chronic liver disease and cirrhosis", Poland 1970-2007

Source: Own elaboration based on CSO data.

Another example concerns mortality from heart failure and cardiac arrest. Those two categories were characterised by large discontinuities in the transition from the 9th to 10th ICD revision (Figure 7). According to the WHO translator, ICD-10 category cardiac arrest (I46) should be matched with cardiac dysrhythmias (ICD-9 category 427), which in the Polish case turned out to be quantitatively insufficient. On the other hand, a significant drop in mortality from heart failure was registered at the transition from the ICD-9 category "428" to the ICD-10 category "I50". Presumably, lack of a separate unit for cardiac arrest in the 9th ICD revision resulted in misclassifications of deaths as heart failures. Therefore, we reclassified both those causes of death (Figure 7, Table 6).

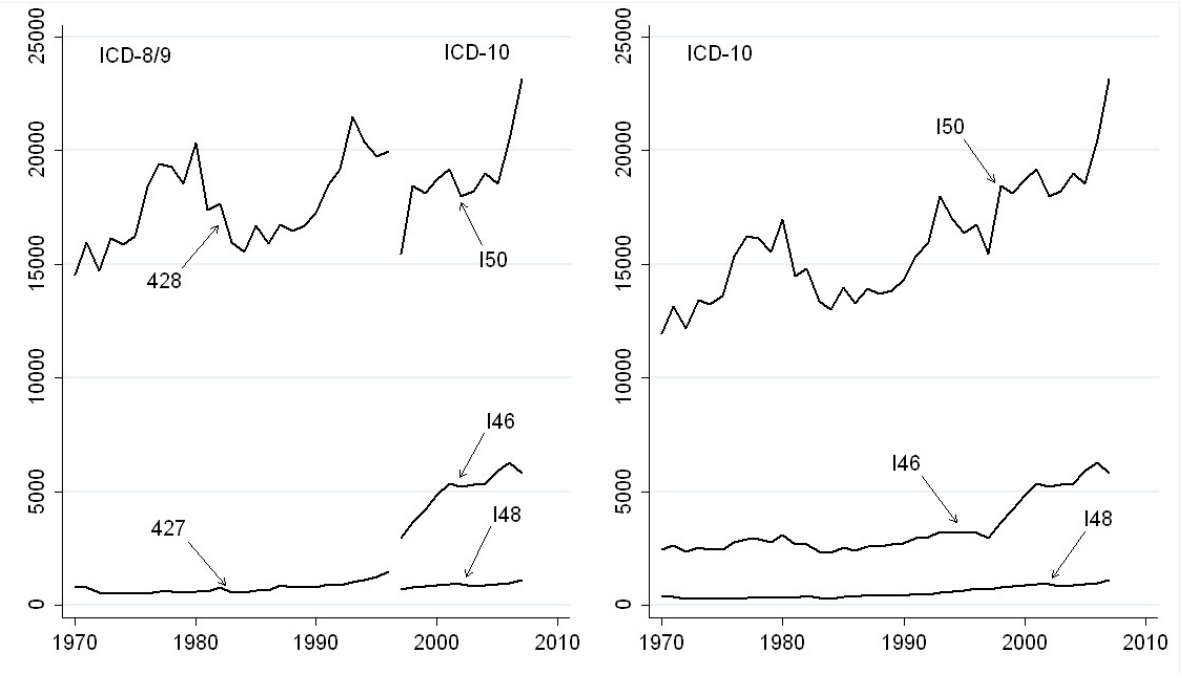

Figure 7 Transition from the 9th to the 10th ICD revision. Example of "I46 cardiac arrest", "I48 atrial fibrillation and flutter" and "I50 heart failure", reconstituted on the basis of "427 cardiac dysrhythmias" and "428 heart failure"

Source: Own elaboration based on CSO data.

Table 6. Transition from the 9th to 10th ICD revision. Fundamental association no. 296.

ICD-10	Number of deaths		ICD-9
	1997	1996	
"I44 Atrioventricular and left bundle-branch block"	73	125	P "426 Conduction disorders"
"I45 Other conduction disorders"	112		P "426"
		19,966	P "428 Heart failure"
"I46 Cardiac arrest"	2,986		P "428"
		1,466	P "427 Cardiac dysrhythmias"
"I47 Paroxysmal tachycardia"	47		P "427"
"I48 Atrial fibrillation and flutter"	695		P "427"
"I49 Other cardiac arrhythmias"	497		P "427"
"I50 Heart failure"	15,476		P "428"
"J80 Adult respiratory distress syndrome"	62		P "514 Pulmonary congestion and hypostasis"
		79	
"J81 Pulmonary oedema"	166		P "514"
			P "428"

"R00 Abnormalities of heart beat"	4	64	P "785 Symptoms involving cardiovascular system"
"R01 Cardiac murmurs and other cardiac sounds"	0		P "785"
"R02 Gangrene, not elsewhere classified"	4		P "785"
"R57 Shock, not elsewhere classified"	89		P "785" P "428"
"R58 Haemorrhage, not elsewhere classified"	5		P "785"
	20,216	21,700	

Source: Own elaboration based on CSO data.

A posteriori corrections

For the transition between ICD-8 and ICD-9, *a posteriori* corrections were applied for three causes of death and for selected age groups.

The first correction concerned mortality at age 55-59 that resulted from "459 other disorders of circulatory system", which in the years 1984-1986 increased 5-fold compared to the earlier and later period. Since in other age groups a similar rise was not observed, this anomaly was recognized as an error originating at the stage of compiling mortality data. "Excessive" death counts were calculated on the basis of number of deaths registered in 1983 for the 459 item and the "429 ill-defined descriptions and complications of heart disease" item; then the excessive deaths were moved into the latter.

The second correction referred to infant mortality due to "779 other and ill-defined conditions originating in the perinatal period", which remained in 1980-1996 at a very stable level for dozens of yearly deaths; but, in 1994, it reached an unreliable number of 854 (Figure 8). This was due to misclassification of births unable to live with signs of life, which in 1994 started to be included in the category of live births. According to the CSO instructions, these deaths should be merged into "765 disorders relating to short gestation and unspecified low birthweight", but in this first year of adoption of the WHO definition they were misclassified as category "779". Since an unusual drop in mortality from "765" in 1994 confirms this practise of misclassification, both time series were smoothed by moving "excessive" death counts in this particular year.

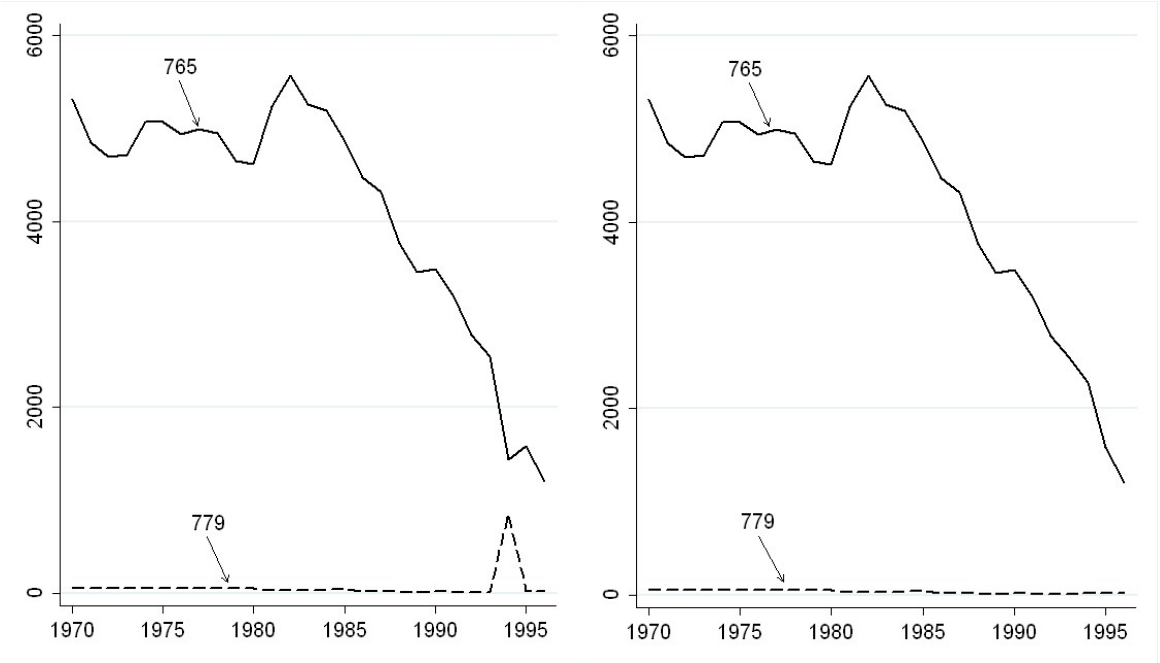

Figure 8 Death counts from "765 disorders relating to short gestation and unspecified low birthweight" and "779 other and ill-defined conditions originating in the perinatal period", before (left) and after (right) *a posteriori* correction, age under 1

Source: Own elaboration based on CSO data.

The third correction referred to a new ICD-9 category, "794 nonspecific abnormal results of function studies". In 1980, 117 deaths – mostly at old age – were registered due to this cause; however, in the following years, mortality from this category radically diminished to 48 deaths in 1981, 33 in 1982 and to 2 or less deaths annually later on. The correction was made with the use of "other ill-defined and unknown causes of morbidity and mortality", a category existing in the 8th and 9th ICD revisions. Subsequently, the coefficients for the transition from the 8th to the 9th ICD revision were calculated (Figure 9).

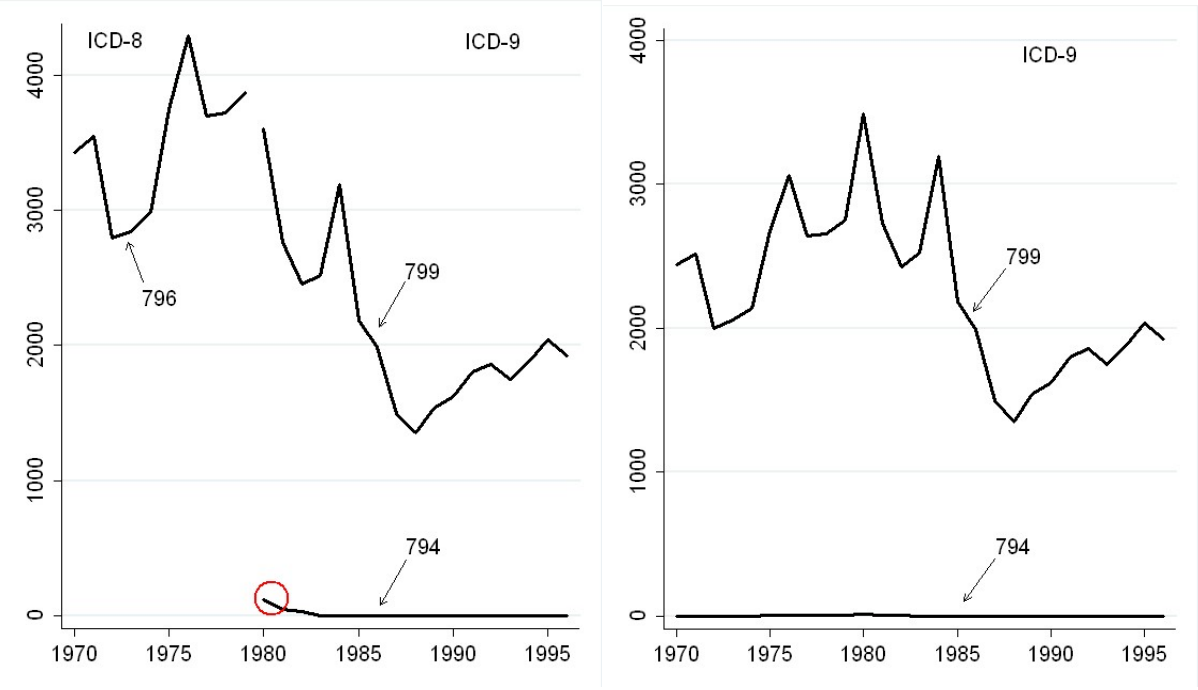

Figure 9 Death counts from "794 nonspecific abnormal results of function studies" "other ill-defined and unknown causes of morbidity and mortality" (796, 799), before (left) and after (right) *a posteriori* correction

Source: Own elaboration based on CSO data.

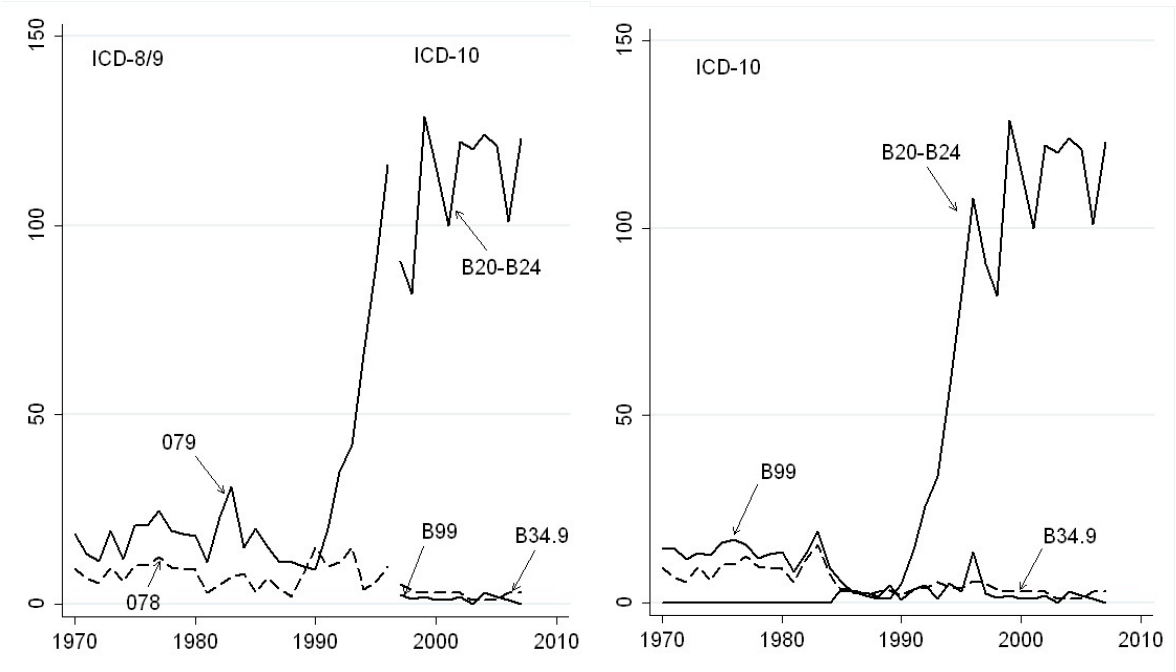

Figure 10. HIV/AIDS-related categories (B20-B24), "viral infection, unspecified" (B34.9) and "other and unspecified infectious diseases", reconstituted on the basis of "078 other diseases due to viruses and Chlamydiae" and "079 viral infection in conditions classified elsewhere and of unspecified site", before (left) and after (right) reconstruction

Source: Own elaboration based on CSO data.

Another problem concerned HIV/AIDS mortality, which was not registered under the 9th ICD revision and needed to be restored. According to the WHO ICD translator, the ICD-9 correspondent category denoting HIV/AIDS should be "078 other diseases due to viruses and Chlamydiae" but it turned out to be insufficient in the Polish case. The "lacking" death counts from HIV/AIDS were found in the ICD-9 category "079 viral infection in conditions classified elsewhere and of unspecified site". In our fundamental association, each ICD-10 category denoting HIV/AIDS mortality was constituted by both "078" and "079" categories for each age group separately (Figure 10).

For the transition between ICD-9 and ICD-10, two *a posteriori* corrections were made. The first correction referred to the "I51.6 Cardiovascular disease, unspecified" item, for which 565 deaths were registered in 1997, 42 in 1998 and 12 in 1999. The "excessive" deaths in 1997 were moved into the "I51.5 Myocardial degeneration" item.

The second correction referred to the "J70.9 Respiratory conditions due to unspecified external agent" item, for which 442 deaths were registered in 1997, 118 in 1998, 85 in 1999 and 46 in 2000. The "excessive" deaths in 1997-1998 were moved into the items: "J18.9 Pneumonia, unspecified", "J42 Unspecified chronic bronchitis", and "J45.9 Asthma, unspecified".

9. Redistribution of ill-defined causes of death

Ill-defined causes of death were redistributed proportionally among other causes of death and accidents for the whole period.

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List of acronyms

CSO - Central Statistical Office

Appendixes

After applying the quality check test, some additional modification of data had place.

Appendix 1. Recoded sex –specific causes.

Original cause	Target cause
D071	D099
D072	D099

Appendix 2. Recoded age –specific causes.

year	sex	origcause	cause	age 0-5	age 5-10	age 10-15	age 15-20
1972	females	G20_	G219				2.3
1974	females	G20_	G219		1		
1979	males	G20_	G219		2.5	1	
1980	males	G20_	G219		2.5		1
1980	females	G20_	G219		1		
1984	males	G20_	G219		1	3	
1984	females	G20_	G219		1		
1985	females	G20_	G219		1	1.5	
1986	females	G20_	G219	1	1		1.5
1989	males	G20_	G219			1.5	2.5
1989	females	G20_	G219				1
1990	males	G20_	G219		1	1	1
1992	males	G20_	G219			1	1.5
1993	females	G20_	G219				1
1994	males	G20_	G219		1.5		

Appendix 3. Recorded non-UCD codes.

Original cause	Target cause	Type
A09_	A099	obsolete
A90_	A979	obsolete
A91_	A979	obsolete
B485	B488	dragger
B960	A493	non-UCD
B961	A498	non-UCD
B962	A498	non-UCD
B963	A492	non-UCD
B964	A498	non-UCD
B965	A498	non-UCD
B966	A498	non-UCD
B967	A498	non-UCD
B968	A498	non-UCD
C141	C140	error
C80_	C809	obsolete

C832	C839	obsolete
C834	C839	obsolete
C836	C839	obsolete
C842	C849	obsolete
C843	C849	obsolete
C850	C859	obsolete
C881	C887	obsolete
C912	C919	obsolete
C932	C939	obsolete
C941	C947	obsolete
C945	C947	obsolete
C952	C859	obsolete
C961	C969	obsolete
C963	C969	obsolete
C97_	C969	non-UCD
D463	D469	obsolete
D752	D759	obsolete
D760	D763	obsolete
F100	X45_	non-UCD
F110	X42_	non-UCD
F120	X42_	non-UCD
F130	X41_	non-UCD
F140	X42_	non-UCD
F150	X41_	non-UCD
F160	X42_	non-UCD
F170	X49_	non-UCD
F180	X46_	non-UCD
F190	X40_	non-UCD
F70_	F709	obsolete
F71_	F719	obsolete
F72_	F729	obsolete
F73_	F739	obsolete
F78_	F789	obsolete
F79_	F799	obsolete
G903	G909	obsolete
H547	H549	obsolete
I150	I139	non-UCD
I151	N289	non-UCD
I152	E349	non-UCD
I158	I139	non-UCD
I159	I139	non-UCD
I220	I212	non-UCD
I221	I212	non-UCD
I228	I212	non-UCD
I229	I212	non-UCD
I230	I212	non-UCD

I231	I212	non-UCD
I232	I212	non-UCD
I233	I212	non-UCD
I234	I212	non-UCD
I235	I212	non-UCD
I236	I212	non-UCD
I238	I212	non-UCD
I240	I212	non-UCD
I252	I258	non-UCD
I48_	I489	obsolete
I848	K649	obsolete
I849	K649	obsolete
K258	K259	error
K268	K269	error
K350	K358	obsolete
K351	K358	obsolete
K359	K358	obsolete
K511	K519	obsolete
K85_	K859	obsolete
L412	L419	obsolete
L89_	L899	obsolete
M304	M308	error
M723	M729	obsolete
M725	M729	obsolete
N180	N189	obsolete
N188	N189	obsolete
O60_	O600	obsolete
O96_	O969	obsolete
O97_	O979	obsolete
P703	P969	non-UCD
P704	P969	non-UCD
P708	P969	non-UCD
P709	P969	non-UCD
P720	P969	non-UCD
P722	P969	non-UCD
P728	P969	non-UCD
P729	P969	non-UCD
Q314	Q319	obsolete
Q350	Q359	obsolete
Q352	Q359	obsolete
Q354	Q359	obsolete
Q356	Q359	obsolete
Q358	Q359	obsolete
Q616	Q619	error
R500	R509	obsolete
R501	R509	obsolete

R50_	R509	obsolete
R69_	R99_	non-UCD
R95_	R959	obsolete
V308	V309	error
V338	V339	error
V348	V349	error
V378	V349	error
V388	V389	error
V638	V639	error
V648	V649	error
V658	V659	error
V678	V649	error
V688	V689	error