Calculation of distribution coefficients for deaths registered under the item *Senility* among diseases of the circulatory system

Deaths coded under ICD-10 item R54 are assigned to *Senility*.

Distribution coefficients were calculated for three groups of diseases of the circulatory system: heart diseases (group 1), cerebrovascular diseases (group 2) and other diseases of the circulatory system (group 3).

Calculations were done by sex for the age group 80 years and over.

1. Correction coefficient K was estimated as a ratio of the total of deaths in 1991 to the total of deaths in 1989

$$K = \frac{D_{tot}^{1991}}{D_{tot}^{1989}} \tag{1}$$

D_{tot}^{1991}: total deaths in 1991

D_{tot}^{1989}: total deaths in 1989

2. Estimated deaths in 1991 for group 2 $D'^{1991}_{gr.2}$ were calculated according to the equation (2). Estimated deaths for group 3 were computed in the same way.

$$D'^{1991}_{gr.2} = D_{gr.2}^{1989} \times K \tag{2}$$

$D_{gr.2}^{1989}$: registered deaths from cerebrovascular diseases at age 80 years and over in 1989, by sex

K: correction coefficient

3. Calculate the distribution coefficient for group 2. The difference between the estimated and registered deaths in 1991 for group 2 was "missing" deaths. The ratio of "missing" deaths for group 2 in 1991 to senility deaths in 1991 was the distribution coefficient for group 2. Distribution coefficients for group 3 were calculated in the same way.

$$M_{gr.2} = \frac{D'^{1991}_{gr.2} - D_{gr.2}^{1991}}{D_{s}^{1991}} = \frac{\Delta D_{gr.2}^{1991}}{D_{s}^{1991}} \tag{3}$$

$D'^{1991}_{gr.2}$: estimated deaths in 1991 for group 2

$D_{gr.2}^{1991}$: registered deaths in 1991 for group 2

D_{s}^{1991} : deaths from senility in 1991

4. Calculate the distribution coefficient for group 1.

$$M_{gr.1} = 1 - M_{gr.2} - M_{gr.3} \tag{4}$$

$M_{gr.2}$: distribution coefficient for group 2

$M_{gr.3}$: distribution coefficient for group 3

Deaths from *senility* were redistributed by coefficients $M_{gr.1}$, $M_{gr.2}$ and $M_{gr.3}$ among the detailed cardiovascular diseases in the 80+ age group for the period 1989-2020. In the 60-79 age group, senility deaths were proportionally redistributed among the detailed diseases of the circulatory system. The redistribution was done after the reconstruction process (Chapter III) and old age mortality adjustments (Chapter I, section 3B).