

## President's Page

# Mortality from Coronary Artery Disease in Greece: Where in Europe Do We Belong?

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**C**ardiovascular disease is undoubtedly one of the main causes of death in Europe. According to official statistical data,<sup>1</sup> 4.3 million deaths per year in Europe are due to cardiovascular disease, comprising 48% of the total (54% in women, 43% in men). Around half the deaths from a cardiovascular cause are from coronary artery disease (CAD), while 1 in 3 are due to cerebrovascular stroke.

CAD is itself the most common cause of death in Europe, responsible for about 1.9 million deaths per year. It is estimated that 1 European in 5 dies from CAD (22% of women, 21% of men). CAD is also the most common cause of premature death (individuals aged <65 years) in Europe, accounting for 401,000 deaths annually in this age group (17% of men, 12% of women). In the countries that make up the European Union, CAD is responsible for 104,000 deaths in the under 65s. Here, CAD is the cause of death in 13% of men aged <65 years, while lung cancer – the commonest cancer in men – accounts for 10%.<sup>2</sup>

Mortality from CAD shows significant deviations among the various regions of Europe. In general terms, it is much higher in countries of central and eastern Europe compared with northern, southern, and western Europe. Thus, for example, mortality from CAD in men under 65 years of age living in Ukraine is 14 times higher than in France, and for women it is 12 times higher. In addition, CAD mortality is higher in western than in southern Europe. For example, mortality from CAD in Ireland is 1.6 times higher than in Italy for men aged under 65 years and 1.8 times higher for women.

However, it wasn't always like that. In the last 30 years, mortality from CAD has decreased significantly in most northern and western European coun-

tries,<sup>3</sup> but has increased rapidly in some countries of central and eastern Europe. For example, in the decade from 1994-2004, CAD mortality in men under 65 years of age decreased in Finland by 37% and in Great Britain by 42%, whereas it increased by 57% in Albania and by 19% in Ukraine. For women in the same age group, there was a reduction by 35% in Finland and by 49% in Great Britain, whereas in Albania and Ukraine mortality increased by 46% and 19%, respectively.

It should be stressed that, according to the results of various studies,<sup>4,5</sup> the largest part (58%) of the above reduction in the incidence of CAD was the result of a reduction in the major risk factors – mainly smoking – as a consequence of organised action and the policies applied in those countries (primary prevention). A much smaller percentage (42%) was attributable to improvement in the treatment of CAD, or to secondary prevention.

So what about Greece? Tables 1 and 2 show the official statistical data for mortality (per 100,000 population) from CAD in men and women, respectively, aged <65 years, for the years 1979, 1989, 1989, and 2005. The tables include countries for which there are relatively complete data from 1972 to 2005.

### Observations

1. 1979: Greece was in fourth place as regards the best (lowest) mortality from CAD in men over the whole of Europe, losing only to France and two other Mediterranean countries (Spain, Portugal). Greece was clearly better placed than neighbouring Italy and almost all the EU countries.

**Table 1.** Mortality from coronary artery disease (per 100,000 population) in men aged 0-64 years in various European countries for the years 1979, 1989, 1989, 2005.

|    |                   | 1979      | 1989              |           | 1999              |           | 2005              |           |
|----|-------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|
| 1  | France            | 41        | France            | 29        | France            | 21        | France            | 17        |
| 2  | Spain             | 45        | Spain             | 35        | Italy             | 28        | Switzerland       | 20        |
| 3  | Portugal          | 48        | Portugal          | 37        | Luxembourg        | 29        | Netherlands       | 22        |
| 4  | <b>Greece</b>     | <b>53</b> | Belgium           | 43        | Portugal          | 29        | Italy             | 25        |
| 5  | Romania           | 56        | Switzerland       | 43        | Switzerland       | 29        | Spain             | 25        |
| 6  | Switzerland       | 58        | Italy             | 44        | Spain             | 31        | Norway            | 27        |
| 7  | Italy             | 67        | <b>Greece</b>     | <b>53</b> | Denmark           | 35        | Portugal          | 27        |
| 8  | Bulgaria          | 78        | Luxembourg        | 56        | Netherlands       | 35        | Luxembourg        | 28        |
| 9  | Belgium           | 80        | Iceland           | 57        | Belgium           | 36        | Sweden            | 29        |
| 10 | Poland            | 83        | Austria           | 64        | Sweden            | 38        | Austria           | 30        |
| 11 | Austria           | 89        | Netherlands       | 64        | Norway            | 40        | Denmark           | 30        |
| 12 | Luxembourg        | 91        | Sweden            | 65        | Austria           | 48        | Iceland           | 30        |
| 13 | Netherlands       | 97        | <b>EU</b>         | <b>69</b> | Iceland           | 48        | Ireland           | 39        |
| 14 | Sweden            | 99        | Romania           | 75        | Malta             | 50        | <b>EU</b>         | <b>40</b> |
| 15 | Norway            | 107       | Malta             | 77        | <b>EU</b>         | <b>51</b> | Great Britain     | 44        |
| 17 | Denmark           | 110       | Denmark           | 78        | <b>Greece</b>     | <b>54</b> | Malta             | 45        |
| 17 | Hungary           | 114       | Bulgaria          | 85        | Great Britain     | 58        | Finland           | 48        |
| 18 | Slovakia          | 116       | Norway            | 85        | Ireland           | 62        | <b>Greece</b>     | <b>50</b> |
| 19 | Iceland           | 119       | <b>All Europe</b> | <b>96</b> | Finland           | 63        | Czech Republic    | 55        |
| 20 | Malta             | 127       | Great Britain     | 102       | Czech Republic    | 78        | Poland            | 57        |
| 21 | Czech Republic    | 132       | Ireland           | 110       | Poland            | 85        | Slovakia          | 74        |
| 22 | Ireland           | 146       | Poland            | 112       | Bulgaria          | 87        | Bulgaria          | 80        |
| 23 | Great Britain     | 148       | Finland           | 118       | Slovakia          | 96        | Romania           | 90        |
| 24 | Finland           | 183       | Slovakia          | 130       | <b>All Europe</b> | <b>99</b> | <b>All Europe</b> | <b>99</b> |
| 25 | Russia            | *         | Hungary           | 133       | Romania           | 100       | Hungary           | 105       |
| 26 | <b>All Europe</b> | *         | Czech Republic    | 135       | Hungary           | 116       | Russia            | 242       |
| 27 | <b>EU</b>         | *         | Russia            | 152       | Russia            | 208       | Belgium           | *         |

\*no data

2. 1989: During the intervening decade the mortality from CAD in Greek men did not change at all, remaining steady at 53 deaths per 100,000 population. However, Greece dropped to seventh place in the table, because the educational and preventive measures applied, and the adoption of a more healthy lifestyle by the citizens in some European countries began to bear fruit, and as a result some central European countries (Belgium, Switzerland) and Italy overtook Greece, achieving lower mortality.

3. 1999: Again, during the decade 1989-1999 mortality from CAD in Greek men remained invariable (54/100,000). However, CAD mortality showed a significant decrease, to levels lower than in Greece, in almost all countries of the (not enlarged) EU, as well as in most countries of central and northern Europe, with the result that Greece fell to seventeenth place in the table.

4. 2005: For the first time, mortality from CAD among Greek men showed a small drop (7.4%) compared with 1999. However, this mortality (50/100,000) was now around double that in other Mediterranean countries. In addition, CAD mortality in Greece was clearly greater than in all EU countries, as well as all countries of central and northern Europe, including Finland, the country that at one time carried the “sceptre” for the highest CAD mortality in the world. In 2005 Greece had a lower CAD mortality only compared to countries of eastern Europe (formerly Eastern Bloc); those countries, however, (with the exception of Russia) were already seeing a reduction and indeed a more rapid one than in Greece.

5. The progress of CAD mortality in Greek women aged under 65 years from 1979 to 2005 followed almost exactly the same course as in men.

**Table 2.** Mortality from coronary artery disease (per 100,000 population) in women aged 0-64 years in various European countries for the years 1979, 1989, 1989, 2005.

|    |                   | 1979      |                   | 1989      |                   | 1999      |                   | 2005      |  |
|----|-------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|--|
| 1  | France            | 7         | France            | 5         | France            | 4         | France            | 3         |  |
| 2  | Spain             | 9         | Spain             | 7         | Italy             | 6         | Iceland           | 3         |  |
| 3  | <b>Greece</b>     | <b>11</b> | Switzerland       | 8         | Luxembourg        | 6         | Luxembourg        | 4         |  |
| 4  | Switzerland       | 12        | Italy             | 9         | Spain             | 6         | Spain             | 4         |  |
| 5  | Italy             | 14        | Portugal          | 10        | Switzerland       | 6         | Switzerland       | 4         |  |
| 6  | Portugal          | 15        | Belgium           | 11        | Portugal          | 8         | Italy             | 5         |  |
| 7  | Poland            | 16        | <b>Greece</b>     | <b>11</b> | Belgium           | 9         | Norway            | 6         |  |
| 8  | Belgium           | 17        | Iceland           | 13        | Denmark           | 9         | Portugal          | 6         |  |
| 9  | Austria           | 18        | Austria           | 14        | Finland           | 10        | Austria           | 7         |  |
| 10 | Norway            | 19        | Luxembourg        | 14        | Netherlands       | 10        | Finland           | 7         |  |
| 11 | Netherlands       | 20        | Netherlands       | 14        | Sweden            | 10        | Netherlands       | 7         |  |
| 12 | Romania           | 20        | Sweden            | 14        | <b>Greece</b>     | <b>11</b> | Sweden            | 7         |  |
| 13 | Sweden            | 20        | Norway            | 17        | Norway            | 11        | Denmark           | 9         |  |
| 14 | Luxembourg        | 21        | <b>EU</b>         | <b>17</b> | <b>EU</b>         | <b>12</b> | Ireland           | 9         |  |
| 15 | Bulgaria          | 23        | Finland           | 19        | Austria           | 14        | <b>EU</b>         | <b>9</b>  |  |
| 17 | Denmark           | 27        | Denmark           | 20        | Ireland           | 14        | <b>Greece</b>     | <b>10</b> |  |
| 17 | Iceland           | 30        | Bulgaria          | 22        | Iceland           | 15        | Malta             | 11        |  |
| 18 | Finland           | 31        | Poland            | 24        | Great Britain     | 15        | Great Britain     | 11        |  |
| 19 | Czech Republic    | 32        | <b>All Europe</b> | <b>25</b> | Malta             | 17        | Poland            | 12        |  |
| 20 | Slovakia          | 32        | Malta             | 26        | Czech Republic    | 19        | Czech Republic    | 13        |  |
| 21 | Hungary           | 33        | Romania           | 27        | Poland            | 19        | Slovakia          | 19        |  |
| 22 | Great Britain     | 37        | Great Britain     | 28        | Bulgaria          | 24        | Bulgaria          | 21        |  |
| 23 | Ireland           | 40        | Ireland           | 30        | Slovakia          | 26        | <b>All Europe</b> | <b>27</b> |  |
| 24 | Malta             | 49        | Czech Republic    | 33        | <b>All Europe</b> | <b>28</b> | Hungary           | 28        |  |
| 25 | Russia            | *         | Slovakia          | 34        | Hungary           | 32        | Romania           | 28        |  |
| 26 | <b>All Europe</b> | *         | Hungary           | 37        | Romania           | 34        | Russia            | 60        |  |
| 27 | <b>EU</b>         | *         | Russia            | 37        | Russia            | 50        | Belgium           | *         |  |

\*no data

## Conclusions

As regards mortality from CAD, Greece has shown the features of:

- a Mediterranean country in 1979
- a central European country in 1989
- a western or northern European country in 1999
- an eastern European country in 2005

This prompts the question:

### Where in Europe do we belong?

## References

1. European cardiovascular disease statistics. 2008 edition. Steven Allender, Peter Scarborough, Viv Peto and Mike Rayner, British Heart Foundation Health Promotion Research Group Department of Public Health, University of Oxford; Jose Leal, Ramon Luengo-Fernandez and Alastair Gray, Health Economics Research Centre, Department of Public Health, University of Oxford.
2. Murray JL, Lopez AD. The global burden of disease. WHO: Geneva; 1996.
3. Newey C, Nolte E, Mckee M, Mossialos E. Avoidable mortality in the Enlarged European Union. ISS Statistics 2. Brussels: ISS; 2004.
4. Tunstall-Pedoe H, Kuulasmaa K, Mahonen M, Tolonen H, Ruokokoski E, Amouyel P; for the WHO MONICA Project. Contribution of trends in survival and coronary event rates to changes in coronary heart disease mortality: 10 year results from WHO MONICA Project populations. Monitoring trends and determinants in cardiovascular disease. Lancet. 1999; 353: 1547-1557.
5. Unal B, Critchley J, Capewell S. Explaining the decline in coronary heart disease mortality in England and Wales between 1981 and 2000. Circulation. 2004; 109: 1101-1107.

