

## EUROCARE-4 studies bring new data on cancer survival



The EUROCARE studies represent an excellent example of a largely informal collaboration, which now involves over 80 cancer registries across 23 countries. Previous studies have studied differences in survival for individual cancers between countries for patients diagnosed in 1985–89 (EUROCARE-2)<sup>1</sup> and 1990–94 (EUROCARE-3).<sup>2</sup> Possible explanations for differences in survival have been explored for some cancers through so-called high-resolution studies.<sup>3–5</sup> These studies involved much smaller numbers of patients, but attempted to study the effect of disease stage at diagnosis and of treatment through analysis of individual patient records.

Two important new reports from the EUROCARE collaborators are published in this issue of *The Lancet Oncology*. The first report<sup>6</sup> involved around 2.7 million adult cancer cases diagnosed in 1995–99. Changes in survival relative to those diagnosed in 1994 are presented, together with an analysis for all cancers combined of the relation between total national expenditure on health and 5-year relative survival. The second report<sup>7</sup> was confined to a subset of 47 registries, which were able to provide historical data and information on patients diagnosed in 2000–02 with follow-up to December, 2003. This approach enabled the authors to provide more up-to-date information on survival by use of period analysis<sup>8</sup> and to compare findings from European countries with those from the SEER (Surveillance, Epidemiology, and End Results) database from the USA. Additionally, patterns in survival for five regions in Europe have been analysed for four 3-year time periods (1991–93, 1994–96, 1997–99, and 2000–02).

The most important findings from these two EUROCARE studies can be summarised in six points. First, for most cancers, survival has increased and between-country survival differences have decreased over time; Berrino and colleagues state explicitly that the European survival gap is narrowing.<sup>6</sup> Verdecchia and co-workers are perhaps more cautious when they state that, “the wide variations in cancer survival in Europe, which have persisted for many years, might be on the verge of decreasing”.<sup>7</sup> Second, despite these welcome improvements, differences in survival for individual cancers between countries and regions of Europe, which had been noted in 1990–94, were still apparent in 1995–99 and 2000–02.<sup>6,7</sup> Generally, survival for the

four most common cancers and for ovarian cancer was best in Nordic countries (except Denmark) and central Europe, intermediate in southern Europe, lower in the UK and Ireland, and lowest in eastern Europe.<sup>6</sup> Third, countries with higher national expenditure on health (during 1994–2002) generally had better all-cancer survival. However, Denmark and the UK had lower survival than countries with similar expenditure.<sup>6</sup> Fourth, increasing age had a major negative effect on cancer survival, most of this was due to differences in short-term (ie, 1-year) survival.<sup>6</sup> The relative survival estimates for each country were adjusted for the age-specific risks of death from other causes in that country, so this effect of age could be due to older people presenting with more advanced disease or receiving less effective treatment (or both). Fifth, survival for solid cancers in Europe as a whole was lower than reported from the USA; although this finding does not seem to be relevant for testicular cancer and some haematological malignancies.<sup>7</sup> Sixth, the reported differences between European countries in relative survival—that is, survival adjusted for international differences in the background risks of death—are not trivial. If all countries in Europe had attained the average relative survival at 5 years of patients diagnosed in Norway, Sweden, and Finland during 1995–99, about 12% fewer deaths from cancer would have been noted in the participating countries in the 5 years after diagnosis.<sup>6</sup>

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Results from the EUROCARE-4 studies could help improve cancer care in the future

Andrew Parsons/PA Photos

Can the EURO CARE results be trusted? The authors provide convincing evidence that any biases or artefacts in cancer registration (eg, under-ascertainment of long-term survivors or misclassification of dead patients as still being alive) would be very unlikely to have accounted for the reported differences in survival between countries.<sup>6</sup> However, ten of the countries involved in the reports were represented by regional registries, which covered only a proportion of their respective populations (eg, in 1998, Germany 1%; Czech Republic 8%; Poland 9%; Spain 16%; Switzerland 17%; France 17%; Italy 28%). These registries might not be representative of the country as a whole. For example, the authors point out that registries in Italy were mainly located in the wealthier north of the country. As survival tends to be higher in more affluent populations, the results for Italy as a whole might be overestimated. Findings from countries with incomplete registration should be treated with caution.

During the development of the NHS Cancer Plan in England in 2000,<sup>9</sup> the UK Department of Health convened an international workshop to discuss the validity of earlier EURO CARE reports. This workshop was of particular relevance given the poor survival for the UK, and was attended by leaders of the EURO CARE programme, independent epidemiologists, cancer specialists, and policymakers. The clear consensus was that the reported differences between countries were, to a large extent, real. Furthermore, findings from the high-resolution studies indicated that the poor results from the UK were attributable mainly to patients having more advanced disease at diagnosis than patients in other European countries. For policymakers, this conclusion is clearly of great importance, because it indicates that particular emphasis should be put on achieving earlier diagnosis.

The limitations of the EURO CARE programme as it currently stands should also be recognised and, where possible, addressed. Assessment of incidence, survival, and mortality is essential for the development of rational policies on cancer control. Cancer registration is a prerequisite for this process. Benchmarking performance between countries can provide useful additional insights to help inform policy. Countries that were not able to participate in EURO CARE-4 or which have incomplete registration should consider the benefits of complete registration and participation in this European initiative.

The EURO CARE authors should be commended on publishing survival data earlier than has previously been

possible. The use of period analysis has contributed to this. However, the patients reported in the most recent cohort (2000–02) were all diagnosed some 5 to 7 years ago. The findings would be much more useful if this time lag could be narrowed further.

How should the EURO CARE programme move forward? In addition to striving for wider coverage and improved timeliness, greater depth of information is also needed. Improved collection of comparable data on staging should be given highest priority, preferably supplemented with information on duration of symptoms. This would enable direct investigation of some of the most probable reasons for observed differences between countries. Even if this cannot be done across all participating registries, a subset of registries could work on this. We need to know whether reported differences can be attributed to late presentation by patients, delays within health-care systems, or differences in treatment if constrained health-care resources are to be used for maximum benefit.

In conclusion, EURO CARE-4 brings welcome news of improvements in cancer survival across the 1990s and into the early part of this century. The findings also show that many more lives could be saved if the outcomes in all countries were brought up to the standards of the best countries.

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