

Cancer Control in Central and Eastern Europe

CARLO LA VECCHIA,^a PIERFRANCO CONTE^b^aDepartment of Clinical Sciences and Community Health, Università degli Studi di Milano, Milan, Italy; ^bDivision of Medical Oncology, Istituto Oncologico Veneto, University of Padova, Padova, Italy

Disclosures of potential conflicts of interest may be found at the end of this article.

In the last decade, cancer mortality has declined by approximately 1% per year in both sexes in most areas of the world, including higher- and lower-income regions [1].

However, as remarked by Vrdoljak et al. [2], appreciable differences in cancer incidence and mortality persist throughout various areas of the world, including Europe. In the 1990s, after the end of nonmarket economies in most of Central and Eastern Europe, the overall difference in cancer mortality between Central/Eastern and Western Europe was approximately 50% in men and 30% in women, and it was more than 100% across extremes for males. In fact, in the year 2000, total cancer mortality was 258.5 deaths per 100,000 men in Hungary and 122.0 per 100,000 men in Sweden [3].

Some of these differences are due to risk factor exposure (i.e., greater tobacco and alcohol consumption), which caused exceedingly high lung, upper digestive, and respiratory tract cancer mortality in Central and Eastern Europe [4–10]. Some of the excess in Central and Eastern Europe is due to the greater prevalence of *Helicobacter pylori* infection and dietary aspects, which imply persistently elevated gastric cancer mortality [11].

In Central and Eastern Europe, persistent delays and inadequacies in cancer management exist as well. These include inadequacies in screening and early diagnosis, which are reflected in persistently high cervical cancer rates in those areas of the continent [7, 12].

Furthermore, mortality from several cancers highly curable with medical therapies including testicular cancer [7, 13], Hodgkin's lymphomas [6, 7] and leukemias [10, 14] remains higher in Central and Eastern Europe compared with Western Europe [7], but also compared with North America and selected major countries of South America, including Brazil and Argentina [15]. Likewise,

although some decline in breast cancer mortality—another neoplasm largely amenable to cure—has been observed in recent years in Central and Eastern Europe [16], this decline has been smaller than that in Western Europe.

The correlation between health expenditure and mortality-to-incidence ratio throughout Europe addressed by Vrdoljak et al. [2] suggests that health expenditure plays a major role in the control of cancer mortality. An increase in cancer control expenditure would most likely have a favorable effect on cancer mortality in Central and Eastern Europe. However, it is now clear that countries such as Brazil and Argentina, with gross national per capita products comparable to or, in some instances, lower than those in several Central and Eastern European countries, have achieved a better management in highly treatable cancers, such as Hodgkin's lymphoma [15] than that achieved by several countries in Central and Eastern Europe. Besides expenditure, therefore, several measures aimed at improving clinical management (addressing gaps in specialty training and facilities from pathological diagnosis to multidisciplinary treatments), and optimizing cancer control (such as antismoking measures), as outlined by Vrdoljak et al. [2], are required to reduce cancer rates in Central and Eastern Europe to levels comparable with those in other high-income countries.

More than a generation has now passed since the end of nonmarket economies in Central and Eastern Europe. It is time for this area of the continent to close the gap in cancer incidence and mortality rates with Western Europe and other high-income areas of the world [17, 18].

DISCLOSURES

The authors indicated no financial relationships.

REFERENCES

1. Hashim D, Boffetta P, La Vecchia C et al. The global decrease in cancer mortality: Trends and disparities. *Ann Oncol* 2016;27:926–933.
2. Vrdoljak E, Bodoky G, Jassem J et al. Cancer control in Central and Eastern Europe: Current situation and recommendations for improvement. *The Oncologist* 2016 (in press).
3. Levi F, Lucchini F, Negri E et al. Trends in mortality from major cancers in the European Union, including acceding countries, in 2004. *Cancer* 2004;101:2843–2850.
4. Jha P, Peto R, Zatonski W et al. Social inequalities in male mortality, and in male mortality from smoking: Indirect estimation from national death rates in England and Wales, Poland, and North America. *Lancet* 2006;368:367–370.
5. Garavello W, Bertuccio P, Levi F et al. The oral cancer epidemic in Central and Eastern Europe. *Int J Cancer* 2010;127:160–171.
6. Bosetti C, Levi F, Ferlay J et al. The recent decline in mortality from Hodgkin lymphomas in Central and Eastern Europe. *Ann Oncol* 2009;20:767–774.
7. Bosetti C, Bertuccio P, Malvezzi M et al. Cancer mortality in Europe, 2005–2009, and an

Correspondence: Carlo La Vecchia, M.D., Department of Clinical Sciences and Community Health, Università degli Studi di Milano, Via Vanzetti, 5 - 20133 Milano, Italy. Telephone: 39 02 5032 0863; E-Mail: carlo.lavecchia@unimi.it Received May 18, 2016; accepted for publication June 7, 2016. ©AlphaMed Press 1083-7159/2016/\$20.00/0 <http://dx.doi.org/10.1634/theoncologist.2016-0230>

overview of trends since 1980. *Ann Oncol* 2013; 24:2657–2671.

8. Castro C, Bosetti C, Malvezzi M et al. Patterns and trends in esophageal cancer mortality and incidence in Europe (1980–2011) and predictions to 2015. *Ann Oncol* 2014;25:283–290.

9. Malvezzi M, Bosetti C, Rosso T et al. Lung cancer mortality in European men: Trends and predictions. *Lung Cancer* 2013;80:138–145.

10. Malvezzi M, Carioli G, Bertuccio P et al. European cancer mortality predictions for the year 2016 with focus on leukaemias. *Ann Oncol* 2016;27: 725–731.

11. Ferro A, Peleteiro B, Malvezzi M et al. World-wide trends in gastric cancer mortality (1980–2011), with predictions to 2015, and incidence by subtype. *Eur J Cancer* 2014;50:1330–1344.

12. Levi F, Lucchini F, Negri E et al. Cervical cancer mortality in young women in Europe: Patterns and trends. *Eur J Cancer* 2000;36:2266–2271.

13. Levi F, La Vecchia C, Boyle P et al. Western and Eastern European trends in testicular cancer mortality. *Lancet* 2001;357:1853–1854.

14. Bertuccio P, Bosetti C, Malvezzi M et al. Trends in mortality from leukemia in Europe: An update to 2009 and a projection to 2012. *Int J Cancer* 2013; 132:427–436.

15. Chatenoud L, Bertuccio P, Bosetti C et al. Hodgkin's lymphoma mortality in the Americas, 1997–2008: Achievements and persistent inadequacies. *Int J Cancer* 2013;133:687–694.

16. Bosetti C, Bertuccio P, Levi F et al. The decline in breast cancer mortality in Europe: An update (to 2009). *Breast* 2012;21:77–82.

17. Zatoński W, Didkowska J. Closing the gap: Cancer in Central and Eastern Europe (CEE). *Eur J Cancer* 2008;44:1425–1437.

18. Zatonski WA, Bhala N. Changing trends of diseases in Eastern Europe: Closing the gap. *Public Health* 2012;126:248–252.