

*Editorial***Cancer Survivorship: Unique Opportunities for Research****Leslie L. Robison**

University of Minnesota Cancer Center, Minneapolis, Minnesota

While the extent of progress in the war on cancer is sometimes debated, it is indisputable that the number of individuals in the population who have previously been diagnosed with cancer continues to grow. Data from the U.S. Surveillance, Epidemiology, and End Results program indicate that 65.5% of cancer patients diagnosed between 1995 and 2000 will survive ≥ 5 years. Site-specific malignancies for which the proportion of 5-year survivors is expected to exceed 60% include colon and rectum, breast, prostate, cervix, oral cavity and pharynx, larynx, melanoma, uterus, testis, bladder, Hodgkin and non-Hodgkin lymphoma, and thyroid cancer. Moreover, 80% of childhood cancer patients diagnosed under age 15 are expected to survive ≥ 5 years.

The ongoing expansion in the number of cancer patients who are surviving longer, with an increasing proportion being cured, has focused new attention on the broad and diverse spectrum of research in cancer survivorship. The National Cancer Institute Office of Cancer Survivorship (<http://survivorship.cancer.gov>), established in 1996, estimates that there are ~ 8.9 million cancer survivors in the United States, of whom about 13% were diagnosed >20 years ago. Whether survivorship is defined as beginning at the time of cancer diagnosis or once some chronological milestone (e.g., 2 years, 5 years, etc.) has been reached, it can be argued that, from a research perspective, the definition does not really matter as long as it is appropriate to the question(s) being addressed.

The growing and heterogenous survivor population provides remarkable opportunities for clinical and epidemiologic research relating to cancer biology, etiology, early detection, outcomes, and prevention. Moreover, in this population, the issue of exposure assessment, which often plagues epidemiologic investigations, becomes a significant asset. Few other groups have been exposed to such a broad range of agents, with known mechanisms of action, capable of producing striking biological effects. The ability to document precise exposures (e.g., radiation, chemotherapeutic agents, blood products, etc.), spanning a wide range of dose intensities, enables researchers to focus their investigations and study hypotheses with precision. Age-, gender-, and dose-specific

effects can be determined with a large degree of confidence. A broad range of outcomes can be studied, from carcinogenesis and organ dysfunction to quality of life and psychosocial status.

Importantly, the type and intensity of exposures in this population, to radiation or specific chemotherapeutic agents, afford investigators novel opportunities to conduct pharmacogenetic studies to examine interactions between genetic factors and exposures that may modify individual responses to treatment. For example, polymorphisms in phase I and II genes as well as DNA repair genes can be investigated to determine their impact on risk of sequelae, such as second malignancies or organ-specific toxicities. These types of studies can provide insights into the identification of high-risk populations.

Additionally, because of their cancer diagnosis and subsequent treatment, cancer survivors may represent uniquely high-risk populations where intervention strategies can be optimally applied and tested. Potential interventions encompass a broad range of topics, both biological (e.g., chemoprevention) and behavioral (e.g., tobacco, diet, cancer screening, etc.).

Together with great opportunity, numerous challenges exist to the conduct of outstanding survivorship research. The inherent heterogeneity of survivor populations (e.g., variations in diagnosis, cancer characteristics, treatment, etc.) and the potential interplay of demographic, social, and medical factors may influence late effects of therapy. The multifactorial nature of late effects research often demands large sample sizes within the context of well-characterized survivor cohorts. Another challenge relates to the completeness of long-term follow-up of cancer survivors (e.g., lost to follow-up rates and surveillance bias), which can negatively impact the quality of research. These challenges necessitate innovative methods and rigorous attention to methodologic issues.

Cancer Epidemiology Biomarkers & Prevention recognizes the increasing importance of survivorship research. We are actively soliciting the submission of high-quality manuscripts reporting on research that addresses, in the most rigorous scientific fashion, issues relating to cancer survivorship. It is our vision that *Cancer Epidemiology Biomarkers & Prevention* becomes a premier source for dissemination of outstanding survivorship research.

Cancer Epidemiol Biomarkers Prev 2004;13(7):1093

Requests for reprints: Leslie L. Robison, University of Minnesota Cancer Center, MMC 422, Minneapolis, MN 55455. Phone: 612-626-2902; Fax: 612-626-4842. E-mail: robison@epi.umn.edu

Cancer Epidemiology, Biomarkers & Prevention

AACR American Association
for Cancer Research

Cancer Survivorship: Unique Opportunities for Research

Leslie L. Robison

Cancer Epidemiol Biomarkers Prev 2004;13:1093.

Updated version Access the most recent version of this article at:
<http://cebp.aacrjournals.org/content/13/7/1093>

E-mail alerts [Sign up to receive free email-alerts](#) related to this article or journal.

Reprints and Subscriptions To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.

Permissions To request permission to re-use all or part of this article, use this link <http://cebp.aacrjournals.org/content/13/7/1093>. Click on "Request Permissions" which will take you to the Copyright Clearance Center's (CCC) Rightslink site.