Centers for Medicare & Medicaid Services (CMS)
& the National Cancer Institute (NCI):
Cancer Epidemiology Research

The NCI sponsors the SEER program, which contracts with 15 tumor registries to provide selected information on all newly diagnosed cancers in their reporting areas; CMS provides Medicare claims and enrollment records for the elderly and disabled populations. The linked database has been used to study a wide variety of issues related to cancer epidemiology and health services research.

Lead Agency:

The research data project is a joint effort between the Centers for Medicare & Medicaid Services (CMS) and the National Cancer Institute (NCI).

Agency Mission:

The mission of CMS is to administer the Medicare, Medicaid, and State Children's Health Insurance Programs and to promote quality care for beneficiaries.

Principal Investigators:

Gerald F. Riley, M.S.P.H.
Senior Researcher
Centers for Medicare & Medicaid Services
7500 Security Blvd.
Mail stop C3-21-27
Baltimore, MD 21244

Joan L. Warren, Ph.D.
National Cancer Institute
EPN Room 4005
6130 Executive Blvd., MSC 7344
Bethesda, MD 20892-7344

General Description:

The Surveillance, Epidemiology, and End Results (SEER)-Medicare database is the linkage of two large population-based data sources that provide detailed information about elderly persons with cancer. The CMS collaborates with the NCI to link SEER data to Medicare claims and enrollment records for elderly and disabled populations. NCI sponsors the SEER program, which contracts with 15 tumor registries to provide selected information on all newly diagnosed cancers in their reporting areas. These areas currently include about 25 percent of the U.S. population. The SEER data collected about each new cancer case includes site of cancer, month and year of diagnosis, data

about the cancer (e.g., histology, stage, and grade), type of surgical treatment, radiation therapy, patient demographics, follow-up of vital status, and cause of death. National statistics on cancer incidence, survival, and mortality are generated from the SEER database.

The CMS provides Medicare claims and enrollment data for the SEER-Medicare linked database, including information on specific procedures like cancer screening services, chemotherapy, and post-treatment surveillance. Diagnoses reported on the claims can be used to identify comorbid conditions, and costs of care can be estimated from payment data. Enrollment records indicate enrollment and disenrollment from managed care. Medicare records for a 5 percent sample of cancer-free beneficiaries residing in SEER reporting areas are also included in the database for comparison purposes.

The SEER-Medicare linked database includes cancer cases diagnosed from 1973 to 2002, and cases diagnosed from 2003-2005 are currently being added. Medicare data are available from 1991 to 2006. The database has been used to study a wide variety of issues related to cancer epidemiology and health services research. Several studies have addressed patterns of care by cancer site, as well as outcomes of care. Costs of cancer care have been estimated by phase of care, as well as on a lifetime basis from diagnosis to death. Effects of comorbidities on treatment and outcomes have been studied, and comparisons made of treatment under managed care and fee-for-service. Additional topics include volume-outcome studies and disparities in cancer treatment and outcomes.

The linked database has been used by CMS and NCI researchers to study numerous policy issues related to cancer epidemiology and health services. The data have also been made available on a de-identified basis to epidemiologists and health services researchers outside these two agencies for research purposes, subject to strict confidentiality rules, and appropriate reviews and approvals. To date, over 250 articles have appeared in the peer-reviewed literature based on SEER-Medicare data. The agencies intend to continue updating the linkage on a biannual basis for the foreseeable future.

Excellence: What makes this project exceptional?

The SEER and Medicare data have complemented each other to produce a unique powerful tool for examining issues related to cancer care for the elderly. The linked database has made possible a broad range of studies that have resulted in more than 250 published articles in peer-reviewed journals. The project has required close collaboration between CMS and NCI, as well as with the participating SEER registries.

Significance: How is this research relevant to older persons, populations and/or an aging society?

Cancer greatly affects the elderly, as 60 percent of new cancers and 70 percent of cancer deaths now occur in the population of those over the age of 65. The SEER-Medicare linked data provide a powerful tool for studying patterns of care, outcomes, and costs of cancer care among the elderly population.

Effectiveness: What is the impact and/or application of this research to older persons?

Research based on SEER-Medicare data has provided important information to policymakers, providers, and beneficiary organizations concerned with cancer care for the elderly.

Innovativeness: Why is this research exciting or newsworthy?

The linked database provides a unique wealth of information, not available in other databases, on a very large number of cancer cases among the elderly population. SEER data on cancer incidence, survival, and mortality are linked to Medicare data on cancer screening services, chemotherapy, and post-treatment surveillance.