Assessment of Cancer Incidence in the eight-county area surrounding the DOE Oak Ridge Reservation

What do the findings mean?

Although higher rates of certain cancers were identified in some of the counties evaluated, no consistent pattern in cancer occurrence was identified. Given the large number of statistical analyses conducted in this assessment, it is not unusual to find some increases and some decreases in cancer occurrence. The reasons for the increases and decreases are unknown. The increases could simply be the result of heightened awareness and screening in particular areas.

What are the advantages of conducting an assessment of cancer incidence?

This type of evaluation responds to community concerns about perceived increases of cancer. This assessment can also provide detailed information about the status of cancer rates in a county and can be used to identify the need for any further public health activities. In addition, evaluating cancer incidence data is more reliable than reviewing deaths due to cancer. Death certificates might not indicate when people had cancer if they died of other causes.

Are there limitations to this assessment?

Yes—there are several limitations associated with the available data from the Tennessee Cancer Registry: (a) the data are only about 80% complete for the time period of study (1991–2000); (b) some of the reported numbers of specific cancer types are very small, making the rates unstable; (c) information is not collected on potential risk factors for cancer, including a family history of particular cancers, use of tobacco products, eating habits, obesity, lack of exercise, exposure to radiation or other cancer-causing agents, and certain genetic changes; and (d) the data only contain an individual's address at the time a cancer case was diagnosed, which can result in over- or undercounting of cases because you cannot determine the length of time a person has lived in a county or if a person has moved out of a county prior to diagnosis.

Can the assessment of cancer incidence tell me the cause of cancer?

No. An assessment of cancer incidence cannot determine the cause of cancer in a population. There are many factors that can increase the risk of getting cancer, such as smoking, diet, heredity, and occupational exposures. It is also not possible in an assessment of cancer incidence to determine why someone developed cancer because (a) the causes of most types of cancer are unknown, (b) different types of cancer can have different causes, (c) cancer can take a long time to develop (usually 20–40 years), and (d) information on individual exposure data is unavailable. Therefore, an assessment of cancer incidence cannot determine a cause and effect relationship between risk factors and cancer.

Where can I get a copy of the assessment of cancer incidence?

Copies of this document are available from the ATSDR Information Center at 1-800-232-4636 or online at www.atsdr.cdc.gov/HAC/oakridge/.

Who can I contact if I have questions about the assessment of cancer incidence?

Please contact Dr. Dhelia (Dee) Williamson, Epidemiologist, with any questions. Her mailing address is Dr. Dhelia Williamson, ATSDR, Division of Health Studies, 1600 Clifton Road NE, MS E-31, Atlanta, GA 30333. You can also e-mail her at djw8@cdc.gov, call her direct line at 1-404-498-0586, or call her toll-free at 1-800-232-4636, extension 0586.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. It was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as the Superfund legislation). ATSDR's mission is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and disease related to toxic substances.

Assessment of Cancer Incidence

in the eight-county area surrounding the DOE Oak Ridge Reservation

What is an assessment of cancer incidence and what will it tell you?

An assessment of cancer incidence evaluates the number of new cancer cases in a particular geographic area, such as a county, in a given time period. It provides information about the cancer rates in a community and is used to determine if any unusual pattern or higher frequency of a disease is occurring within the community relative to a reference population, usually the state.

Why did ATSDR conduct the assessment of cancer incidence?

Some area residents expressed concerns about the number of cancer cases in communities around the U.S. Department of Energy's (DOE's) Oak Ridge Reservation. To address this concern, the Oak Ridge Reservation Health Effects Subcommittee requested that ATSDR conduct an assessment of cancer incidence to evaluate cancer rates in these communities.

What information was examined in this assessment and where did it come from?

Cancer incidence data (years 1991–2000) from the Tennessee Cancer Registry were evaluated for 42 different cancer types. For reasons of confidentiality, only cancer types with more than five observed cases were evaluated. The registry collects information about new cancer cases that have been reported from medical facilities in the state, such as hospitals, clinical laboratories, and cancer treatment centers. Registry information on these new cancer cases includes demographic and medical data on each cancer patient, such as primary cancer site, age at diagnosis, birth date, race, and gender.

How were the data analyzed?

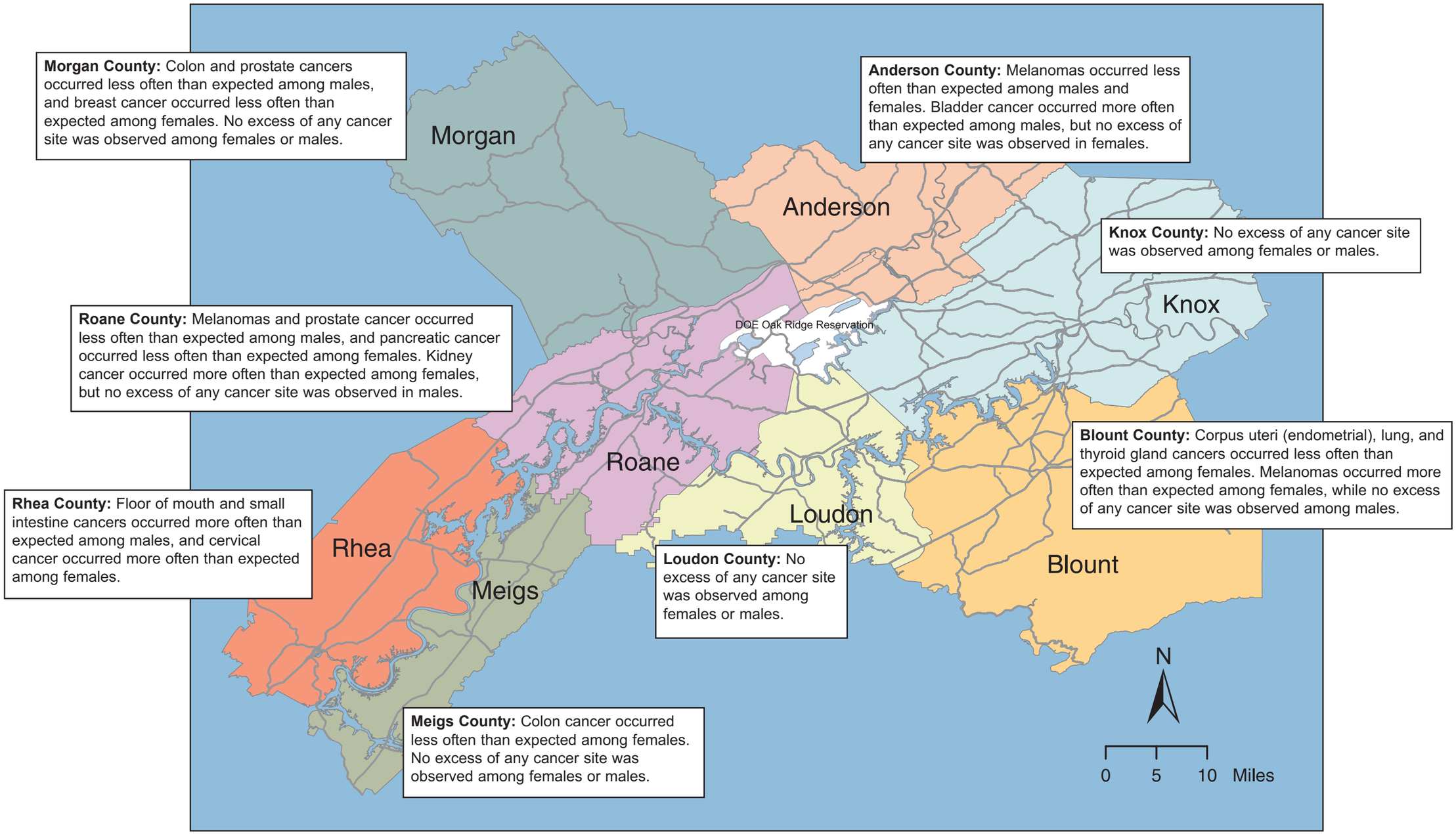
ATSDR used standardized incidence ratios (SIRs) to compare the number of observed cases in each of the eight counties to the expected number of cases in the state. ATSDR used SIRs (adjusted rates) to control for demographic differences that could influence incidence rates between the populations being compared, including age, gender, and race. To calculate SIRs, ATSDR divided the observed number of cases by the expected number of cases for the time period 1991–2000.

What study area was included in this assessment?

The geographic area for this assessment of cancer incidence included eight counties in Tennessee: Anderson, Blount, Knox, Loudon, Meigs, Morgan, Rhea, and Roane. For the years 1991–2000, the rates of cancer incidence in these counties were compared to Tennessee state rates.

What were the findings for the eight-county area?

The results indicate that there were both higher and lower rates of certain cancers in some of the counties examined when compared to Tennessee state cancer incidence rates. No consistent pattern of cancer occurrence was identified. Below are the statistically significant findings for each county.



Morgan County: Colon and prostate cancers occurred less often than expected among males, and breast cancer occurred less often than expected among females. No excess of any cancer site was observed among females or males.

Anderson County: Melanomas occurred less often than expected among males and females. Bladder cancer occurred more often than expected among males, but no excess of any cancer site was observed in females.

Knox County: No excess of any cancer site was observed among females or males.

Roane County: Melanomas and prostate cancer occurred less often than expected among males, and pancreatic cancer occurred less often than expected among females. Kidney cancer occurred more often than expected among females, but no excess of any cancer site was observed in males.

Blount County: Corpus uteri (endometrial), lung, and thyroid gland cancers occurred less often than expected among females. Melanomas occurred more often than expected among females, while no excess of any cancer site was observed among males.

Rhea County: Floor of mouth and small intestine cancers occurred more often than expected among males, and cervical cancer occurred more often than expected among females.

Loudon County: No excess of any cancer site was observed among females or males.

Meigs County: Colon cancer occurred less often than expected among females. No excess of any cancer site was observed among females or males.