

Main Identity

From: "NCCD/DCPC Cancer Inquiries (CDC)" <nccdcpcinfo@cdc.gov>
To: <starkey@uri.edu>
Cc: "CDC-INFO" <CDC-INFO@cdc.gov>
Sent: Monday, March 26, 2007 11:48 AM
Subject: FW: CDC-INFO E-mail Inquiry - Public - Status Of Debate Related To Cause Of Increased Incidence of Cancer - Normal

March 26, 2007
starkey@uri.edu
Jim Starkey

Dear Jim Starley,

Thank you for your inquiry about the effect of increased cancer screening on apparent incidence rates, geographical variations in cancer incidence, and the possible role of the depleted ozone layer in increasing cancer rates. This question was sent to the Centers for Disease Control and Prevention (CDC) Division of Cancer Prevention and Control (DCPC) mailbox from CDC-INFO with a request for additional information.

Accurate information about cancer incidence and mortality rates in the United States are collected and compiled by state cancer registries. CDC's National Program for Cancer Registries (NPCR) and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program collect data for the entire U.S. population. The most recent United States Cancer Statistics 2003 Incidence and Mortality data has just been released and is on the Internet at <http://www.cdc.gov/cancer/npcr/uscs/>. Trends in cancer incidence compiled as part of NCI's SEER Program are also available on the Internet (<http://seer.cancer.gov/>).

While the trend for many cancers, such as lung cancer and colorectal cancer for all races, men and women combined, has been towards a significantly lower incidence in the past decades, the incidence of other cancers, such as cancer of the kidney and renal pelvis, has been increasing. Looking through the tables, you will also notice substantial differences in incidence for specific cancers between men and women and in different geographic areas. The situation with skin cancer, the type of cancer most closely associated with ultraviolet (UV) radiation exposure that might increase with depletion of the ozone layer, shows more complicated trends. For example, according to SEER data incidence trends for cancer of the skin (excluding basal and squamous cell carcinoma, all races, male and female) showed a 6.1% annual percentage change (an increase) for 1975-1981, a smaller 2.9% annual percentage change for 1981-2001, and a decrease of 2.2% in annual percentage change for 2001-2003. There are many factors that

could impact on these incidence rates, including some of the factors you mentioned in your question.

Introduction of new more sensitive screening and diagnostic methods that pick up cancers at an earlier stage would tend to increase the apparent incidence. People in the US are more aware of the risk of skin cancer, and in addition to more use of UV-blocking sunscreen and more cautious tanning practices, there has been better screening of potential skin lesions. However, any effect of increased screening on apparent incidence rates is temporary and will diminish after a period of time once the screening method is routinely used and the bulk of "latent cases" that were missed by previous screening methods are accounted for.

There are regional differences in the incidence of different cancers, and scientists think that these reflect a complicated interplay of differences in the environment, differences in risk factors such as lifestyle differences, differences in the population such as age distribution and genetic makeup, and other geographic variations. Research into regional differences in lifestyle factors that could be modified (such as tobacco smoking or eating certain foods) has identified some clearly beneficial practices could produce measurable improvements in cancer incidence. Skin cancer risk can be reduced by protecting against strong sun exposure and sunburn, but the impact of changes in UV levels due to depletion of the ozone layer is much harder to demonstrate. Scientists try to account for multiple risk factors in trying to assess the effects of one factor. For example, as people live longer, the crude incidence rate can go up for diseases like cancer that affect older adults more than younger people. Cancer statisticians frequently give "age adjusted" rates to better compare trends as the age distribution in a population changes.

Determining the effect of increased UV exposure resulting from a decrease in the protective ozone layer is a particularly difficult problem. There have been studies that attempt to assess the impact of climate change on skin cancer incidence in a particular population. Two such studies are "Climate change, ozone depletion and the impact on ultraviolet exposure of human skin." Diffey, *Phys Med Biol* 2004 Jan 49(1):1-11, and "Skin cancer and ultraviolet-B radiation under the Antarctic ozone hole: southern Chile, 1987-2000." Abarca and Casiccia, *Photodermatol Photoimmunol Photomed*. 2002 Dec;18(6):294-302. There is a general consensus that environmental factors like increased UV exposure due to a loss of the ozone layer could potentially produce increases in some types of cancer, such as skin cancer, but there considerable debate on the magnitude of the effect (if any).

We hope this information is helpful. For further information on the programs and activities of the CDC's Division of Cancer Prevention and Control, please visit our

Web site at <http://www.cdc.gov/cancer>.

Sincerely,

Centers for Disease Control and Prevention
Division of Cancer Prevention and Control
National Center for Chronic Disease Prevention and Health Promotion

Service Record: 1-34243006

Actual Inquiry: -----Original Message-----

From: starkey@uri.edu
Sent: 3/15/2007 10:03:53 AM
To: "cdcinfo@cdc.gov" <cdcinfo@cdc.gov>
Cc: ""
Subject: Cancer Questions

Name: jim starkey Email: starkey@uri.edu Mailing Address: Organization:
Other Questions/Comments: what is the status of the debate on whether increase in
incidence is due to more screening, geographic distribution or damaged ozone?

Contact Info: starkey@uri.edu

[THREAD ID:1-KDVU3] [SR No.:1-34243006]