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Eliminating the Suffering and Death Due to Cancer

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NCI and PanCAN Partner on Unique "Mapping" Project

The National Cancer Institute (NCI) is teaming with the Pancreatic Cancer Action Network (PanCAN) to develop a national map that tracks all pancreatic cancer research and clinical trials. The mapping concept is intended to "connect the dots" between all those involved in pancreatic cancer research to speed the development of national strategies and leverage resources for pancreatic cancer research. The research map is a tool designed for the research community, and for organizations like PanCAN and the Lustgarten Foundation.

"By joining forces with the advocacy and research communities, the map will serve to integrate information on new research and discoveries," says NCI Director Dr. Andrew C. von Eschenbach. New discoveries in this area are desperately needed. Pancreatic cancer is the fourth leading cause of cancer death, with a median survival after diagnosis of only 6 months. Only 4 percent of patients survive for 5 years.

The map, explains PanCAN co-founder Paula Kim, will include both

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Director's Update

Working Group Maps the Way to Healthier Women Worldwide

On July 27, along with the Advisory Committee to the Director, I had the privilege of receiving the report and recommendations of the Women, Tobacco, and Cancer Working Group during a teleconference with the working group's co-chairs, distinguished scientists Drs. Ellen R. Gritz and C. Tracy Orleans. The report, available at http://planning.cancer.gov/whealth/reports/wtobacco.htm, represents the collaborative efforts of an outstanding team of scientists, clinicians, and advocates who participated in a public/private partnership to map an achievable solution to the problem of tobacco-related morbidity and mortality among women.

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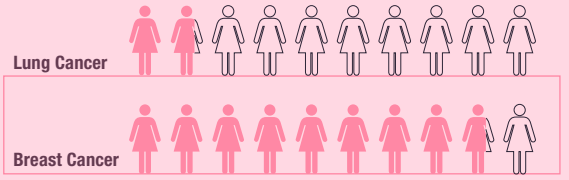
5-year Lung Cancer & Breast Cancer Survival Rates among Women



Even though in 2004 more women will be diagnosed with breast cancer (215,990 women) than lung cancer (80,660 women), more women will die of lung cancer (68,510 women) than breast cancer (40,110 women). This is due to poorer survival rates among women with lung cancer compared with those with breast cancer; the 5-year relative survival rate is 17.2% for lung cancer compared with 87.7% for breast cancer (portrayed in graphic).

Sources: *Cancer Facts and Figures 2004*. American Cancer Society, 2004.
Annual Report to the Nation on the Status of Cancer, 1975–2001. *Cancer* Volume 101 (1), July 1, 2004.

("Mapping" Project continued from page 1)
publicly and privately funded research and will be posted on a public Web site in November. "We see it as a really great tool that will help NCI, the advocacy community, and the entire research community zero in on how to move forward and make progress," she says. "This will be an especially good resource for young researchers, because they can see who is working in the areas in which they are interested and find people to collaborate with."

Dr. Tony Hollingsworth, who studies pancreatic cancer at the University of Nebraska as part of an NCI-funded Specialized Programs of Research Excellence (SPORE) on gastrointestinal cancers, agrees that one of the project's key roles will be to promote collaboration. Often, Dr. Hollingsworth says, researchers may not know of other work in the field until it is published. "But publications often lag behind the science," he says. "So creating a resource that allows researchers to identify what is happening earlier may help expedite collaborative arrangements."

The map project comes at an opportune time, with interest in pancreatic cancer research beginning to surge, says Dr. Barbara Conley, of NCI's Medical Oncology Clinical Research Unit, who participated in the NCI Progress Review Group on pancreatic cancer. Funding for pancreatic cancer research increased three-fold between 1997 and 2003, she says. "I think it's a field that's blossoming," Dr. Conley says. "I have a lot of hope that we can make good progress over the next 5 years."

NCI has funded pancreatic cancer SPOREs, and further harbingers of progress came earlier this year with the publication of two studies that detailed genetically engineered mouse models of pancreatic cancer that closely mimicked the development of pancreatic cancer in humans (see Jan. 13 *NCI Cancer Bulletin*).

"NCI is pleased to partner with PanCAN, advocates, and the research community in this innovative project," said Ms. Cherie Nichols, director of NCI's Office of Science Planning and Assessment. "To increase research opportunities, it is important for all of us to have a greater understanding of the research portfolio and its potential." ◆

(Director's Update continued from page 1)
Under the leadership and guidance of Ms. Anna Levy, deputy director of NCI's Office of Women's Health, and Dr. Michele Bloch, medical officer in NCI's Tobacco Control Research Branch, the working group's starting point was the 2001 report of the Surgeon General, *Women and Smoking*—a comprehensive, scientific review of smoking's effects on women's health and strategies to reduce smoking by women. In February 2003, some of the most knowledgeable and experienced experts in the fields of tobacco-related disease and women's health met in Houston, Texas to discuss this topic. Their collective wisdom, experience, and creative ideas form the substance of this report.

In the United States, lung cancer mortality for white women increased by more than 600 percent between 1950 and 1997, exceeding mortality from breast cancer. Today it is estimated that 1 in 5 U.S. women smoke and 170,000 women die each year from diseases directly related to smoking. While prevalence rates have decreased in the last decade overall, they remain stubbornly high in specific minority and economically disadvantaged populations. For instance, 40 percent of Native American women smoke, compared with 22 percent of white women. Higher smoking rates are related to lower educational levels.

In its report, *Women, Tobacco, and Cancer: An Agenda for the 21st Century*, the working group recommends strategies to meet five overall goals in the areas of discovery, development, delivery, partnerships, and evaluation and surveillance that will contribute to reducing and ultimately eliminating the harmful health effects of smoking in women.

The recommendations include 1) increasing understanding of sex and gender differences that affect tobacco use and related cancers among women, women's perceptions of risk, and women's responses to health interventions; 2) developing new and more effective interventions to prevent and treat tobacco use and environmental tobacco smoke (ETS) exposure, especially in high-risk populations; 3) ensuring widespread delivery of the most effective interventions to target groups; 4) harnessing existing collaborations and building new partnerships to maximize development and dissemination of effective interventions; and 5) monitoring tobacco use and exposure to ETS and evaluating progress toward reducing the impact of tobacco use and tobacco-related disease.

The report issues a challenge to federal and non-federal organizations, communities, and individuals alike to carry forward the strategies outlined within it. I have confidence that its significance and impact on preventing needless suffering for women, girls, and their families will more than prove itself with time. We welcome your input into the possible strategies for successful implementation of these important recommendations. ◆

Dr. Andrew C. von Eschenbach
Director, National Cancer Institute

Special Report

Advancing Cancer Research and Communication with Telemedicine

It eliminates travel, reduces work time and effort, helps manage data, and brings expert care and advice to cancer patients in remote locations. It's TELESYNERGY®—the National Institutes of Health's (NIH) state-of-the-art telemedicine system.

In collaboration with NIH's Center for Information Technology (CIT), NCI researchers have directed their use of TELESYNERGY and its Medical Consultation WorkStations to enhance cancer treatment, research, and communication. Communicating via TELESYNERGY makes meeting management with e-mail and faxes seem like the old days of typewriters and Telexes; it allows many people at different locations to interact as if they were in the same room, viewing and discussing the same medical images in real time. Recently, for example, principal investigators from Bombay and New Delhi, India, met "face to face" in real time with NCI staff in Brussels, Belgium to discuss and establish protocol and data management for an international pediatric cancer trial without the worry and expense of plane tickets, hotel reservations, passports, or lost luggage.

"The TELESYNERGY system is capable of transmitting diagnostic-quality radiology and pathology images; manipulating remote location microscopes and video cameras to examine biopsy samples; and using a patient exam camera that produces high-resolution views of dermatological lesions, skin coloration, and other physical symptoms," said Dr. C. Norman Coleman, Associate Director of NCI's Radiation Research Program in the Division of Cancer Treatment and Diagnosis. "It is also accelerating NCI's efforts to eliminate cancer health disparities."

This ability to simultaneously display high-resolution images in a number of locations has been a major factor in setting up NCI's Cancer Disparities Research Partnership (CDRP) conceptualized by NCI's Dr. Frank Govern who worked closely with Dr. Ken Kempner of CIT in the implementation of TELESYNERGY in the United States and other countries. Currently, TELESYNERGY links experienced institutions involved in NCI-sponsored research to a pilot group of 12 community hospitals with radiation oncology facilities that care for a disproportionate number of medically underserved, low-income, ethnic, and minority populations.

One facility taking advantage of TELESYNERGY is the Cancer Care Institute (CCI) in Rapid City, S.D. CCI serves approximately 100,000 Native Americans from the inner city, the Black Hills area, and 3 surrounding reservations. Through the CDRP program, Dr. Daniel Petereit, a radiation oncologist at CCI, has linked with the University of Wisconsin-Madison and the Mayo Clinic to conduct clinical trials that offer advanced brachytherapy and tomotherapy treatments with implants to Native Americans with cancer. State-of-the-art therapy, shortened treatment time, and reduction or elimination of geographic dislocation from cultural and community roots are just some advantages that result from this partnership. "We use Native American 'patient navigators' to help us understand the barriers and get tribal support for these studies—it took 54 tribal resolutions, but we're up and running," says Dr. Petereit.

Dr. Yadvindera "Bobby" Bains and staff at the Laredo Medical Center in Texas use their newly installed TELESYNERGY system to consult with physicians and researchers in San Antonio, Texas and at NCI on developing suitable clinical trials for their largely underserved Hispanic population. "The project ensures that properly designed and conducted clinical trials will be available to the predominately Hispanic population of Laredo and Webb Counties," said Dr. Bains. Laredo, on the Texas-Mexico border, has no other major U.S. city within a 140-mile range. The TELESYNERGY system eliminates this geographic barrier. Of the city's 95 percent Hispanic population, 35 percent live below the poverty line. The hospital also serves 40 to 60 *colonias*—unincorporated areas where residents do not have access to running water, electricity, or telephone service and where health care is considered a luxury and not a necessity.

TELESYNERGY is also making an impact outside of the United States. "Internationally, TELESYNERGY has provided a major boost in both care and communication to the partners in the Ireland-Northern Ireland-NCI International Partnership in Cancer Care," said Dr. Coleman. "The consortium was established in 1999 to

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foster collaboration in cancer research between NCI, Ireland, and Northern Ireland. TELESYNERGY WorkStations have been set up at the three sites—St. Luke's Hospital, Dublin; Belfast City Hospital, Belfast; and NCI."

Medical staff at all sites consult through the system on radiation oncology cases and clinical trials and also take part in long-distance education programs. In one case, a consultant in Northern Ireland contacted experts at NCI on a rare cancer case—one the consultant had not seen in 25 years. "This connection had a direct effect on the treatment of this patient and led to improved quality of care," noted Dr. Robert Martino, a colleague of Dr. Kempner and lead author of a 2003 journal article about the program (Martino, RL, et al., *Engineering in Medicine and Biology Society 2003, Proceedings*).

"We've only begun to scratch the surface of the many ways in which telemedicine can be used to deliver diagnostic and treatment services in a variety of settings," said Dr. Coleman. "As more sites have the capabilities to join the network, we can also share the collective expertise of specialists in different types of cancers so that more patients will benefit from research advances." ◆

Correction

In the July 27 issue of the *NCI Cancer Bulletin*, Dr. Vincent DeVita's affiliation was incorrectly identified. Dr. DeVita is the Amy and Joseph Perella Professor of Medicine at Yale Cancer Center, and Professor of Epidemiology and Public Health at Yale School of Public Health.

Cancer Research Highlights

Cetuximab Combination for Colorectal Cancer

Patients with metastatic colorectal cancer unresponsive to irinotecan fare better when given a combination of irinotecan and cetuximab, according to a Merck-funded trial in the July 22 *New England Journal of Medicine*. Though cetuximab alone had significant therapeutic activity, the combination of the two drugs was more effective and cetuximab seemed to circumvent irinotecan resistance.

Cetuximab interferes with a cell-signaling pathway by blocking a site on a cell membrane protein called epidermal growth factor receptor (EGFR). EGFR proteins are involved in the process that causes cells to grow and proliferate; EGFR expression has been correlated with poor prognosis in colon cancer.

Scientists, led by Dr. David Cunningham of the Royal Marsden Hospital in London, treated 218 patients with both cetuximab and irinotecan and 111 patients with cetuximab alone. All patients had metastatic colorectal cancer that had not responded to previous treatment with irinotecan. The rate of response to therapy was greater in the group receiving both drugs: 22.9 percent of patients given combination therapy responded to treatment compared with 10.8 percent given cetuximab alone. The average time to further progression of the disease was also greater for those on the combination therapy (4.1 months) than for those on cetuximab alone (1.5 months).

Computer Programs Aid in Breast Cancer Screening

Computer-based tutorials can be valuable tools in educating women at risk for hereditary breast cancer, according to a study in the July 28 *Journal of the American Medical Association*. In an NCI-funded study, Dr. Michael Green of Penn State College of Medicine and his colleagues compared an interactive computer program with routine one-on-one counseling to assess which method yielded better results between high-risk and low-risk women.

Researchers recruited 211 women for the trial, which compared face-to-face genetic counseling with a computer tutorial followed by genetic counseling. They found that the women's knowledge of genetic testing increased and their perception of risk decreased with both mechanisms. Reported anxiety was lower for women in the counseling group, regardless of risk status, but was unchanged for women in the computer group. However, low-risk women significantly decreased their intention to undergo genetic testing. Researchers concluded that the computer program might be substituted for face-to-face genetic counseling for low-risk women, but for high-risk women, it was more effective as an addition to personal genetic counseling.

New Evidence of Protein's Role in Cancer Development

Researchers have found new evidence that fatty acid synthase (FAS)

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protein may play an active role in the development of cancer. In a study published in the July 20 *Proceedings of the National Academy of Sciences*, scientists at Evanston Northwestern Healthcare in Illinois present evidence that in some cancer cells, FAS protein regulates expression of the cancer-causing gene *HER2* and suggest FAS as a potential therapeutic target.

Previous studies have associated FAS overexpression with the development of aggressive breast and ovarian cancers; its role in the process, however, has been unclear. Many other genes for proteins involved in the manufacture of lipids—one function of FAS—are also overexpressed early on in many cancers. To determine whether FAS actively contributes to cancer development, researchers blocked the expression of FAS in malignant and normal cells with chemical inhibitors and RNA interference.

Using breast and ovarian cancer cells that overexpressed the *HER2* gene (which is involved in cell growth and has been associated with poor prognosis in these cancers), the researchers found that levels of *HER2* protein in these cells dropped dramatically when FAS was blocked. This suggests a molecular link between the two. When researchers targeted both FAS and *HER2*, the cancer cells died.

Examining these data, the scientists concluded that "FAS activity is necessary to integrate a number of signaling pathways that regulate metabolism, proliferation, and survival of *HER2*-overexpressing cancer cells." They write that their results provide rationale for developing therapies that target FAS in carcinomas overexpressing *HER2*.

Randomized Control Trials in Lung Cancer Screening

Initial data from NCI's Lung Screening Study (LSS), published in the July issue of *Chest*, "convincingly demonstrate" the feasibility of carrying out a randomized controlled clinical trial to compare chest X-ray (CXR) and low-dose spiral CT (LDCT) for the early detection of lung cancer. The success of the LSS, which tested the viability of quick enrollment and willingness of high-risk patients to join a lung cancer screening trial and established the prevalence of abnormal findings on baseline screening and the extent of diagnostic follow-up, led to the initiation of the National Lung Screening Trial (NLST) in September 2002.

The LSS was conducted over a 12-month period, recruiting 3,318 participants from 6 sites also participating in the NCI's Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial. Patients were randomized either to the LDCT or CXR arm, and subsequent screening was performed for lung cancer detection. For those receiving CT scans, 20.5 percent had a positive test (325 people) compared with 9.8 percent of those receiving CXR (152 people); after follow-up testing, 30 people in the LDCT scan arm were found to have lung cancer compared with 7 in the CXR arm. The study does not evaluate if this detection will reduce cancer mortality, although NLST is designed to answer that question.

Lung cancer is the leading cause of cancer death in the United States. Smokers are at highest risk for the disease, and although quitting smoking reduces risk, nearly half of all lung cancer cases occur in former smokers. Both the LSS and NLST recruited people at increased risk for lung cancer due to their smoking history.

Improving Response Rate in Lung Cancer

Scientists at France's Institut Gustave-Roussy report that double-agent chemotherapy for patients with advanced non-small-cell lung cancer (NSCLC) increases tumor response and improved patient survival when compared with single- or triple-agent therapy. These meta-analysis results were published in the July 28 *Journal of the American Medical Association*.

In this Aventis-funded study, Institut researchers examined the results of 57 clinical trials conducted from 1980 to 2001 and totaling 11,160 patients. They included only phase III clinical trials performed on patients with advanced, inoperable NSCLC. Based on analyses of these data, the researchers found that adding a drug to single-agent chemotherapy resulted in a two-fold increase in tumor response rate (from 13 percent to 26 percent) and a 5 percent increase in the 1-year survival rate. In these trials, when a third drug was added to double-agent chemotherapy, the benefit was not significant. While tumor response rate increased from 23 percent to 31 percent, there was no significant increase in the 1-year survival rate. In both cases, adding a drug led to increased toxic effects.

These results should be reassuring to doctors, as current clinical practice in treating advanced NSCLC generally includes double-agent chemotherapy, which performed best in the trials surveyed. However, in an accompanying editorial, Drs. Athanassios Argiris and Joan Schiller of Northwestern University and the University of Wisconsin, respectively, point out that two-drug therapy regimens help only 35 to 40 percent of patients live a year or longer. They write that the

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(Research Highlights from page 5)
future of NSCLC research lies in the continued development of targeted therapies.

Breast Cancer Screening Using MRI Technique

Magnetic resonance imaging (MRI) was found to be more effective than mammography in the detection of breast cancer tumors in high-risk women, according to an article published in July 29 *New England Journal of Medicine*. Dr. Mieke Kriege and colleagues, in a Dutch Health Insurance Council-funded study, investigated whether MRI screening could detect breast cancer earlier than standard mammography screening in women genetically predisposed to breast cancer.

MRI provides information that is not obtainable through mammograms, but it is costly and unproven in certain populations.

A total of 1,909 women were enrolled in the Dutch study, where the median follow-up time was approximately 3 years. The researchers stated that "the overall discriminating capacity of MRI was significantly better than that of mammography." MRI screening was found to be a better method for high-risk women due to its capacity to detect small-scale tumors. Although the MRI was found to be more sensitive than mammography screening, scientists reported that caution must be used due to the lower specificity of MRI than mammography. This finding could lead to more uncertain screening results, requiring follow-up visits. ◆

Featured Clinical Trial

Biological Therapy to Treat Kaposi's Sarcoma

Name of the Trial
Phase II Study of Bevacizumab in Patients With Classic or Epidemic Kaposi's Sarcoma (NCI-03-C-0110). See the protocol summary at http://cancer.gov/clinicaltrials/NCI-03-C-0110.

Principal Investigator
Dr. Robert Yarchoan, NCI Center for Cancer Research

Dr. Robert Yarchoan
Principal Investigator

Why Is This Trial Important?
Kaposi's sarcoma (KS) is a tumor that generally develops in multiple sites on the skin. It can also arise in the mouth or internal organs, including the intestinal tract and lungs. Classic KS usually occurs in older men of Jewish, Italian, or Mediterranean heritage. Until recently, KS was a rare cancer. Beginning in the early 1980s, however, there was a marked increase in KS as part of the acquired immunodeficiency syndrome (AIDS) epidemic. We now know that KS is caused by a herpesvirus called Kaposi's sarcoma-associated herpesvirus (KSHV) or human herpesvirus-8.

Bevacizumab (Avastin®), a type of biological agent called a monoclonal antibody, blocks the formation and growth of new blood vessels (angiogenesis) by targeting a protein called vascular endothelial growth factor (VEGF). Angiogenesis is necessary for all tumors to grow, but KS may be particularly vulnerable to agents that inhibit angiogenesis because blood vessel cells are the main component of KS lesions.

"Some cytotoxic drugs can control Kaposi's sarcoma," said Dr. Yarchoan, "but these are not curative, in part because they can't eradicate the virus that causes it. We thus need to develop effective therapies that can be tolerated for long periods of time. Bevacizumab is reasonably well-tolerated and targets the central feature of KS, the formation of new blood vessels."

Who Can Join This Trial?
Researchers seek to enroll 8-27 patients aged 18 or over who have been diagnosed with KS. See the full list of eligibility criteria for this trial at http://cancer.gov/clinicaltrials/NCI-03-C-0110.

Where Is This Trial Taking Place?
This study is taking place at the NIH Warren G. Magnuson Clinical Center in Bethesda, Md.

Who to Contact
For more information, call the NCI Clinical Studies Support Center (CSSC) at 1-888-NCI-1937. The CSSC provides information about cancer trials taking place on the NIH campus in Bethesda, Md. The call is toll free and confidential. ◆

An archive of "Featured Clinical Trial" columns is available at http://cancer.gov/clinicaltrials/ft-all-featured-trials.

Notes

Ki Hong Speaks on Cancer Prevention

NCI's Office of Preventive Oncology in the Division of Cancer Prevention hosted the 2004 Annual Advances in Cancer Prevention Lecture, "Convergence of Molecular Targets for Cancer Prevention and Therapy" on July 29. Dr. Waun Ki Hong, American Cancer Society professor and chair of the Department of Thoracic/Head and Neck Medical Oncology at the University of Texas M. D. Anderson Cancer Center, is recognized as one of the founders of the field of chemoprevention. Dr. Hong addressed four key issues during his speech: molecular-based prevention, phenotypic reversion, oral cancer prevention, and lung cancer prevention. Dr. Hong noted the importance of multidisciplinary team approaches to translational cancer prevention research.

Dr. Hong also discussed molecular targeting agents and how they can influence cancer prevention and treatment, allowing for a more precise and tailored intervention. For example, molecular targeting agents can be used alone or with other agents in individuals at high risk for cancer to possibly delay or prevent cancer development.

Lipscomb Joins Emory

Dr. Joseph Lipscomb, chief of NCI's

Outcomes Research Branch, Division of Cancer Control and Population Sciences, will leave NCI in August to join the Rollins School of Public Health at Emory University. Dr. Lipscomb will be a professor of public health in the Department of Health Policy and Management, with additional faculty appointments at Emory's Winship Cancer Institute and School of Medicine. He also will serve as director for Cancer Economics and Outcomes Research in the Emory Center for Health Outcomes and Quality. He was named Distinguished Cancer Scientist by the Georgia Cancer Coalition.

Dr. Steven Clauser will serve as acting branch chief for the Outcomes Research Branch, and Dr. Molla S. Donaldson will assume a leadership role as a key member of the NCI-wide committee on the potential research uses for medical records data available from clinical practice information systems.

Symposium Honors Distinguished NIH Researcher

On July 30, the Laboratory of Genetics in NCI's Center for Cancer Research (CCR) held a symposium to celebrate Dr. Michael Potter's 50th year at NIH. Dr. Beverly Mock, chief of the Laboratory of Genetics, and Dr. Michael Gottesman, deputy director of Intramural Research, NIH, gave introductory and closing remarks, respectively, complementing Potter on "his first 50 years of research at the NIH." Symposium speakers discussed current research in B cell neoplasia in addition to highlighting Dr. Potter's many contributions to the field. Speakers included Potter's longtime collaborators: Drs. Fritz Melchers; Martin Weigert; Herbert C. Morse, III; Selina Chen-Kiang; and Michael Cancro.

Dr. Potter is a pivotal figure in the development of B cell immunology. He obtained his M.D. from the University of Virginia in 1949 and in 1954, after serving as a U.S. Army Medical Officer, joined the Leukemia Studies Section at NCI under Dr. Lloyd Law. From 1982 through 2003 he served as chief of the Laboratory of Genetics. Dr. Potter is a member of the National Academy of Sciences and recipient of numerous distinguished awards, including the 1984 Albert Lasker Medical Research Award and 1983 Paul-Ehrlich and Ludwig-Darmstaedter Prize. He is currently the co-chair of NCI's B Cell Lymphoma Working Group. In addition, he has served as a mentor and friend to numerous students and colleagues who traveled from the United States, Canada, and Europe to attend.

Dr. Potter spoke about his early years at NCI, relating to a standing-room-only group of colleagues, collaborators, and former students that when he came to the NCI he "felt like a kid in a candy store." His enthusiasm remains undiminished 50 years later.

STAR Enrolls 19,000th Woman

The Study of Tamoxifen and Raloxifene (STAR) reached its enrollment goal of 19,000 postmenopausal women at increased risk of breast cancer on June 23. Women already being evaluated to join may do so until October 2004. STAR, coordinated by the National Surgical Adjuvant Breast and Bowel Project (NSABP) and funded primarily by NCI, will determine whether the osteoporosis drug raloxifene is as effective in reducing a woman's chance of developing breast cancer as tamoxifen.

"It's a remarkable achievement," said NSABP Chairman Dr. Norman Wolmark. "Women at increased risk for developing breast cancer chose to be proactive about finding options to prevent the disease. We owe a debt of gratitude to these women who are leading the charge in preventing breast cancer."

STAR participants are randomly assigned to daily tamoxifen or raloxifene for 5 years, and will obtain close follow-up care. STAR began in 1999 and some women have already completed their 5 years of study treatment; results are expected in the summer of 2006. ◆

Guest Commentary by Richard H. Carmona

The 40-Year Battle Against Tobacco: Building Knowledge, Identifying Gaps

The work of dedicated public and private partners has produced many positive public health outcomes—such as reducing the use of tobacco. And as we know, public health campaigns are built upon scientific data and research-based evidence. That's why it is so critical that we continue to develop new understanding and identify gaps in our knowledge—such as the effects of smoking on women.

The Office of the Surgeon General has a long history in exposing the risks of tobacco use. In 1964, Surgeon General Dr. Luther Terry issued the groundbreaking report on smoking and health. Dr. Terry called for a fundamental change in how our nation viewed tobacco at the time. He knew that by issuing the results of the research available to him—research that showed causality between smoking and disease—he was taking aim at one of the most pervasive symbols of American life: the cigarette.

In May 2004, we released *The Health Consequences of Smoking: A Report of the Surgeon General*. This latest report resulted from a collaboration of leading scientists, including Dr. Jonathan Samet of the Johns Hopkins Bloomberg School of Public Health, who served as senior scientific editor, and researchers and staff from the Centers for Disease Control and Prevention, the Office of the Surgeon General, and the Office of the Secretary of Health and Human Services.

This report summarizes four decades of evidence showing that smoking causes disease in nearly every organ of the body. Smoking kills an estimated 440,000 Americans each year, and more than 12 million Americans have died from smoking-related illnesses since 1964. It is estimated that 1 in 5 U.S. women smoke, and 170,000 women die each year from smoking. Smoking costs the United States $75 billion in direct medical costs and $82 billion in lost productivity.

Cancer was one of the first diseases linked to smoking. One of our key findings in the 2004 report is that smoking is associated with the vast majority of lung cancers, along with cancers of the mouth, throat, larynx, esophagus, pancreas, kidney, bladder, cervix, and stomach, as well as acute myeloid leukemia.

Publishing the report is only one step in reaching people with this critical health information. To ensure that we reach as many Americans as possible, we have also produced a consumer's version of the report in easy-to-understand language. It is already being used in community settings, doctors' offices, places of worship, and schools. The "people's piece" is also available online and features a link to an animated, interactive Web site of the human body. We are packaging the people's piece and the Web site with lesson plans for teachers to present smoking and health information using technology that students will find interesting and engaging.

For the medical and scientific community, we now have a new database that will make the 1,600 key scientific articles cited in the report available online. This database will be continually updated as new studies are published.

NCI recently formed the Women, Tobacco, and Cancer Working Group to identify ways to stimulate scientific research and translate knowledge into interventions to prevent tobacco-related cancers in women in the United States and worldwide. The NCI-led Working Group met this past February and produced a report: *Women, Tobacco, and Cancer: An Agenda for the 21st Century*.

The goals of the NCI Working Group are to bring a greater understanding of how and why women are affected by nicotine addiction. With this information, they will work with the health community to determine the best ways to educate the American people about the dangers of smoking. I hope that this new information and the efforts of all our partners will help motivate people to quit smoking and will convince young people to never start. ◆

Vice Admiral Dr. Richard H. Carmona
Surgeon General
U.S. Public Health Service
Department of Health and Human Services

This *NCI Cancer Bulletin* is produced by the National Cancer Institute (NCI). NCI, which was established in 1937, leads a national effort to eliminate the suffering and death due to cancer. Through basic and clinical biomedical research and training, NCI conducts and supports research that will lead to a future in which we can prevent cancer before it starts, identify cancers that do develop at the earliest stage, eliminate cancers through innovative treatment interventions, and biologically control those cancers that we cannot eliminate so they become manageable, chronic diseases.

For more information on cancer, call 1-800-4-CANCER or visit http://cancer.gov.

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