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Eliminating the Suffering and Death Due to Cancer

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Brain Cancer Study Supports Fluorescence-Guided Surgery

An experimental surgery for brain cancer in which patients take a drug that causes tumor tissue to appear fluorescent during an operation seemed to be superior to conventional surgery in a randomized clinical trial.

The multicenter phase III trial, in Germany, involved 270 patients treated for malignant glioma, the most common brain cancer.

Patients who took the drug were more likely to have their tumors removed completely and to be free of disease 6 months after the procedure than patients who had conventional microsurgery with white light.

The drug is a natural compound called 5-aminolevulinic acid. When taken about 3 hours before surgery, it induces the synthesis of fluorescent molecules in cancerous tissue, which can be seen by surgeons through special operating microscopes.

Some previous studies have suggested that treatments for malignant glioma are most effective when all or most of the cancer has been surgically removed.

The trial tested the idea that fluorescence can help guide surgeons during

(continued on page 2)

Director's Update

Cancer Center Directors Ready to Take on Greater Leadership Role

Last week, NCI's senior leadership hosted our semi-annual meeting in Washington, D.C., of the directors of all NCI-designated Cancer Centers. This was the fourth such meeting with NCI, a dialogue I began during my presidency of the Association of American Cancer Institutes. As with the previous meetings, its goal was to encourage frank discussions and gain honest input from the directors on some of the most pressing issues facing NCI—a dialogue never more important than in this period of decreasing NCI budgets. Every aspect of the Center Directors' mission—from core grant support to Center members' R01s—is feeling the pressure of few dollars.

Their input couldn't have been more timely as NCI faces difficult fiscal decisions.

At the meeting, members of a special Cancer Center Directors' Working Group, led by Dr. John Mendelsohn from the University of Texas M.D. Anderson Cancer Center, presented draft reports on their recommendations on how the Centers

(continued on page 2)

(Brain Cancer Study continued from page 1)
the difficult task of trying to identify and remove the abnormal areas without harming the healthy brain. The borders between these tissues are often unclear.

The researchers say that surgery with 5-aminolevulinic acid is "easy to do and does not interrupt the operation."

"We are using the approach in all our patients undergoing surgery for malignant gliomas in a compassionate use program," says Dr. Walter Stummer of the Heinrich-Heine University in Düsseldorf, who led the trial.

The trial was stopped early after an interim analysis of the results clearly favored the experimental group. It is not yet known, however, whether patients who have the experimental surgery live longer than other patients.

According to findings published in the May *Lancet Oncology*, tumors were completely removed in 65 percent of the experimental group and 36 percent of conventional group. Side effects after surgery were similar between the two groups a week after surgery.

The experimental strategy was associated with a clinical benefit. After 6 months, 41 percent of the experimental group had not relapsed, compared with 21 percent in the conventional group.

An editorial accompanying the results observes that many tools have been developed to improve the outcomes of surgeries for this disease, but few have been tested in prospective clinical trials.

The trial "is a step forward in the study of surgery for malignant glioma," write Drs. Fred Barker of Massachusetts General Hospital and Susan Chang of the University of California, San Francisco.

They caution, however, that the study did not show a significant overall survival benefit. "The best estimate of the overall survival benefit was modest—about 1.7 months," says Dr. Barker.

For reasons that are not yet clear, the results show a strong correlation between the complete removal of tumors and a patient's age and performance on tests. Patients older than age 55 seemed to benefit more than younger patients.

"I found it interesting that patients in the experimental group had fewer repeat surgeries but tended to survive longer," says Dr. Stummer. This demonstrates how much "patients profit from simply having better surgery at the beginning of therapy."

For patients with malignant glioma, he continues, the goal should be the complete surgical removal of tumors. "Surgery with 5-aminolevulinic acid is a modern, simple, cost-effective, and safe way of achieving this goal," he says. ◆

By Edward R. Winstead

(Director's Update continued from page 1)
can help NCI reduce the cancer burden by identifying achievable goals and specific milestones, and by defining the opportunities and potential barriers to achieving our goals. They also presented ideas on ways in which the Centers can extend their research beyond their local communities; provide leadership in the wide dissemination of best practices in cancer care and prevention; and develop innovative ways to work in a collaborative, multidisciplinary way on key opportunities in integrating biology. I am confident that this document will become a vital implementation plan to achieve our promise to our patients.

Their input couldn't have been more timely as NCI faces difficult fiscal decisions. We must all work together with the broad cancer community in making key resource allocation decisions and the Cancer Centers are the cornerstone of our National Cancer Program. They are where the majority of our grantees reside. Institutions with NCI-designated Cancer Centers receive over 60 percent of NCI grant dollars. So the input of the directors as leaders at their institutions is important to us all.

They appreciated the message presented by NIH Director Dr. Elias Zerhouni about the current political and budgetary environment driving the NIH budget process. He told them of the cancer community's unique opportunity to be the first to propose a new vision of how to render cancer care that will resonate with both policy makers and the public. (For more details, please see Dr. Zerhouni's Guest Commentary.)

As Dr. Mendelsohn noted, the Cancer Centers are offering to play expanded leadership and coordination roles in reducing the cancer burden nationwide. This critical consensus regarding our joint responsibilities will complement NCI's mission to focus on supporting cancer research. The Cancer Centers' mission as an extension of NCI into the community encompasses both research and patient care. The Centers are the site of translation. With increased restraints on the federal budget, we need to leverage our current investments to increase research outcomes—and the Cancer Centers are the lynchpin in this process with their strong public-private partnerships and involvement with the philanthropic community.

The Cancer Centers also share NCI's commitment to better manage the nation's cancer research dollars over a longer period of time than is possible with a focus on the yearly federal

(continued on page 5)

Spotlight

The National Coalition for Cancer Survivorship—Changing the Lexicon of Cancer

"Every day, approximately 4,000 Americans become survivors when they hear the words, 'You have cancer,'" says Ellen Stovall, president and CEO of the National Coalition for Cancer Survivorship (NCCS), a survivor-led advocacy organization that targets change at the federal level.

"Twenty years ago the founders of NCCS selected the term 'survivor' to describe those living with, through, and beyond cancer. But the term is not reserved only for those of us who have been diagnosed with the disease," Ms. Stovall continues. "It includes all those who support the person with cancer: families, friends, and caregivers. By sharing the burden that cancer places on each of us, we're able to move beyond the diagnosis and focus on living meaningful, productive lives despite it."

Ms. Stovall should know. After surviving two bouts of Hodgkin lymphoma—the first of which was diagnosed at stage IV only 6 weeks after she had become a new mother—and now leading this advocacy organization for the past 14 years, she's seen firsthand how partnership in the cancer community can make a significant difference in patients' access to quality cancer care.

This year marks the 20th anniversary for NCCS. To celebrate the occasion, the coalition paid tribute to 20 individuals at an awards gala held April 26 in Washington, D.C., where they were recognized as Rays of Hope.

Among the awardees was NCI's Dr. Julia Rowland, who directs the Office of Cancer Survivorship in the Division of Cancer Control and Population Sciences. "We honored Dr. Rowland as one of NCCS's Rays of Hope for her outstanding accomplishments as a scientist, clinician, and her long-standing dedication as an ardent advocate for quality behavioral and psychosocial research," explains Ms. Stovall.

Ellen Stovall of NCCS (left) congratulates NCI's Dr. Julia Rowland on her Ray of Hope award.

"It's a deeply humbling privilege to be among such an august group of people," says Dr. Rowland, who began working with NCCS shortly after it was founded, when she was the director of a post-treatment resource program that she started for patients at Memorial Sloan-Kettering Cancer Center. "NCCS realized long ago that by talking about survivorship from the day of diagnosis, not only would this give patients, caregivers, and family members hope, but it would force the medical establishment to address quality-of-life issues for patients undergoing treatment."

NCCS is credited with numerous other changes, many of which have been made at the federal level. For example, the founding chair, Barbara Hoffman—herself a cancer survivor and lawyer who was concerned with issues of discrimination against patients with cancer—helped write the Americans for Disabilities Act in 1990. NCCS later contributed to the Medicare Cancer Coverage Improvement Act of 1993 and the Health Insurance Portability & Accountability Act of 1996, and was credited with President Clinton's executive memorandum in 2000 that guaranteed routine patient care costs coverage for Medicare beneficiaries who enroll in clinical trials.

And at NCI, the Office of Cancer Survivorship that Dr. Rowland now leads was created in 1996 after then-director Dr. Richard Klausner read the NCCS report, *Imperatives for Quality Cancer Care: Access, Advocacy, Action and Accountability*.

To increase the effectiveness of cancer survivors in addressing national issues, in 2004 NCCS launched Cancer Advocacy Now!™, a grassroots network that trains survivors in legislative advocacy and provides them with Web-based forums where they can describe how cancer has affected their lives and how they have coped with it.

"I feel so fortunate to have found a cause and an organization that have

(continued on page 6)

Cancer Research Highlights

Sentinel Node Biopsy Improves Quality of Life in Early-Stage Breast Cancer

In the May 3 *Journal of the National Cancer Institute (JNCI)*, investigators reported results from the first multicenter randomized trial to compare postoperative quality of life between patients with early-stage breast cancer who underwent sentinel node biopsy and those who underwent standard axillary lymph node clearance.

Standard axillary lymph node clearance involves removal of all the lymph nodes in the armpit region. The procedure can cause considerable morbidity, and most women with early-stage breast cancer do not have metastases to their lymph nodes. In sentinel lymph node biopsy, a single node that is directly connected to the tumor site by the lymphatic system is examined for metastases. If none are found, no further lymph nodes are removed.

The ALMANAC trial randomly assigned patients to two groups: 1) standard axillary clearance or 2) sentinel node biopsy with delayed axillary clearance (or axillary radiation therapy if metastases were found). Surgeons performing sentinel node biopsies received special training through the trial centers. Researchers evaluated patients in both groups for side effects and for perceived quality of life.

Patients in the standard axillary treatment group were significantly more likely to report moderate or severe lymphedema at 1, 3, 6, and 12 months after surgery than were patients undergoing sentinel node biopsy. Patients in the standard axillary treatment group also had greater sensory loss and nerve damage up to 12 months after surgery. Self-reported quality of life was significantly higher at all time points for patients undergoing sentinel node biopsy than for the standard treatment group.

The authors conclude that sentinel node biopsy is a safe and effective alternative treatment for patients with early-stage breast cancer. However, they caution that data on "…relapse-free and overall survival following sentinel lymph node biopsy are required before this procedure can be accepted as the standard of care."

Study Details Factors Inhibiting Colon Cancer Patients from Completing Treatment

Hospitalization due to intolerance of side effects from the 5-fluorouracil family of drugs and low social or psychological support are the factors most closely related to whether patients with stage III colon cancer complete adjuvant chemotherapy after surgery, according to a study in the May 3 *JNCI.*

Previous research identified various demographic factors indicating a reduced likelihood of a patient starting chemotherapy, including race, tumor characteristics, and income. In this study, when analyzing whether patients completed therapy, those who were female, widowed, elderly, or hospitalized during treatment were less likely to follow through with adjuvant chemotherapy, though stopping meant increasing their risk of dying from the disease.

The authors found that the strongest predictor of an incomplete course was whether a patient was admitted to the hospital again after surgery and after beginning chemotherapy—"probably representing complications from cancer therapy," they wrote. If rehospitalization occurred within 6 weeks after surgery, patients had a 66-percent chance of continuing treatment compared with a 79-percent chance for those who were not readmitted; for those rehospitalized 7 weeks or more postsurgery, the gap was even wider.

The researchers based their analysis on SEER program data linked to Medicare claims for 3,193 patients with stage III colon cancer between 1991 and 1998. Acknowledging limitations of the study, the authors conclude that interventions improving social and physical support for patients during treatment could be tested to improve adherence in the future.

Nonhormonal Therapies Have Little Effect on Hot Flashes

Hot flashes occur in half of all women undergoing menopause, and also are associated with cancer treatments such as tamoxifen and oophorectomy. Estrogen and other hormone treatments were widely used until 2002 when two large trials showed a small increased risk of blood clotting, stroke, coronary events, and cancer.

(continued on page 5)

(Highlights continued from page 4)
Thus, information about nonhormonal treatment is of interest to cancer patients and researchers.

A review and meta-analysis of all such trials appeared in the May 3 *Journal of the American Medical Association*. Dr. Heidi D. Nelson and colleagues of the Oregon Health & Science University identified 4,249 potentially relevant trials published in English and selected 24 for meta-analysis.

Trials with antidepressants (primarily selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors) reduced by 1.13 the number of daily hot flashes compared with placebo. Trials with the high blood pressure drug, clonidine, showed 0.95 fewer hot flashes per day. Trials with gabapentin, an anticonvulsant, resulted in 2.05 fewer hot flashes per day. No reduction was seen with soy isoflavone extracts and results were inconclusive with red clover isoflavone extracts. "Overall, the effect of these agents on hot flashes is modest, and they all have side effects," said Dr. Jennifer Eng-Wong of the Medical Oncology Branch in NCI's Center for Cancer Research (CCR).

In an editorial, Drs. Jeffrey Tice and Deborah Grady of the University of California, San Francisco noted that "Hormone therapy is more effective than nonhormonal alternatives but should probably be avoided by women at high risk for venous thromboembolic events, cardiovascular disease, and breast cancer."

Cells from Cancer-Resistant Mice Cure Cancer in Other Mice

Researchers say they have cured some mice of cancer by injecting the animals with immune cells harvested from a mouse strain that is resistant to the disease. According to findings published online in the *Proceedings of the National Academy of Sciences* (*PNAS*), the injections eradicated large tumors in mice with highly aggressive cancers. The injected mice were also protected against developing various forms of cancer later in life.

The donor cells came from descendants of a single mouse that was found to remain healthy after being injected with cancer cells that should have caused tumors and certain death. A researcher in the laboratory of Dr. Zheng Cui at Wake Forest University School of Medicine made the discovery in 1999.

Since then, Dr. Cui and his colleagues have bred more than 2,000 of the so-called spontaneous regression/complete remission (SR/CR) mice, though the mice have not yet been widely studied outside their laboratory. The researchers believe, based on the patterns of inheritance in the mice, that a single gene is responsible for the ability to resist cancer. The gene has not yet been identified, however, and the researchers suggest that it may be a "transposon" that resides on different chromosomes in different mice.

The *PNAS* study explores the source of the immunity in cancer-resistant mice and whether the research could lead to a therapeutic strategy for treating cancer in humans. Though the experiments were mainly in mice, the researchers were encouraged. A major finding was that "resistance to cancer could be entirely transferred to cancer-sensitive mice for both treatment and prevention of malignancy." ◆

(Director's Update continued from page 2)
budget cycle. This means developing 5-year plans using NCI's strategic plan, while keeping the investigator-initiated research pool strong to incorporate new ideas, scientific developments, and technology advances. It also means protecting our future talent pipeline via mechanisms that provide enhanced support for new investigators, such as NIH's new "Pathway To Independence" awards.

The Center Directors' collective experience and unabated commitment to their institutions and the communities they serve, as well as to the highest quality research and patient care, makes their readiness to assume a greater leadership role a dramatic and significant milestone in NCI's mission to lessen the burden of cancer for the American people. I know I speak for the entire NCI senior leadership team when I say we are extremely fortunate to have such a well-established, nationwide program as part of the National Cancer Institute. We all recognize just how much we owe those who came before us—those who had the wisdom and vision to create the national Cancer Centers' Program. They have deeded to all of us a tremendous responsibility to continue to build on their foundation. ◆

Dr. John E. Niederhuber
NCI Deputy Director and Deputy Director for Translational and Clinical Sciences

Funding Opportunities

For a complete listing of current NCI funding opportunities, please go to the HTML version of today's *NCI Cancer Bulletin* at http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_050906/page5 ◆

(Spotlight continued from page 3)

truly given me my life's work," says Ms. Stovall. "I learned about NCCS while I was dealing with my second diagnosis of Hodgkin's disease and a good deal of uncertainty about my long-term prognosis. I picked up an NCCS newsletter in my doctor's office and remember vividly the tagline at the top of page, which read, 'From the moment of diagnosis and for the balance of life, an individual diagnosed with cancer is a SURVIVOR.' From that day on, I was hooked on the organization and the incredibly wonderful people who, to this very day, continue to dedicate themselves to NCCS and its mission to advocate for quality cancer care for all." ◆

By Brittany Moya del Pino

CCR Grand Rounds

May 16: Oncology Nursing Lecture. Dr. Laurel Northouse, Mary Lou Willard French Professor of Nursing, University of Michigan School of Nursing, Co-Director, Socio-Behavioral Program, University of Michigan Comprehensive Cancer Center. "The Importance of Families in Cancer Care."

May 23: Dr. Timothy J. Triche, Professor of Pathology & Pediatrics, University of Southern California Keck School of Medicine, Pathologist-in-Chief, Children's Hospital Los Angeles. "Genomic Analysis of Cancer: Improved Diagnosis and Treatment."

CCR Grand Rounds are held 8:30 to 9:30 a.m. at the NIH campus in Bethesda, Md., in the Clinical Center's Lipsett Amphitheater. ◆

Featured Clinical Trial

Neoadjuvant Therapy for Rectal Cancer

Name of the Trial
Randomized Study of Preoperative Chemoradiotherapy Comprising Radiation Therapy and either Capecitabine or Fluorouracil with or without Oxaliplatin in Patients with Resectable Rectal Cancer (NSABP-R-04). See the protocol summary at http://cancer.gov/clinicaltrials/NSABP-R-04.

Principal Investigator
Dr. Robert Beart, National Surgical Adjuvant Breast and Bowel Project

Dr. Robert Beart

Why This Trial Is Important
More than 40,000 new cases of rectal cancer are diagnosed each year in the United States. Surgery is the primary form of treatment for rectal cancer, but recurrence is common using surgery alone.

Presurgical treatment with chemotherapy and radiation therapy, known as neoadjuvant therapy, may help prevent cancer recurrence in the region around rectal tumors. Furthermore, neoadjuvant therapy has been shown to reduce the size of rectal tumors before surgery, and it may allow more patients to undergo sphincter-saving procedures. Preserving sphincter function without increasing the risk of local or regional recurrence is an important consideration in the treatment of rectal cancer.

To be eligible for this trial, patients must have rectal tumors that can be completely removed by surgery. They will be treated with chemotherapy and radiation therapy at the same time for 5 to 6 weeks before surgery. They will be divided into four groups based on the type of chemotherapy administered: intravenous (IV) 5-fluorouracil (5-FU) alone, IV 5-FU plus IV oxaliplatin, oral capecitabine alone, and oral capecitabine plus IV oxaliplatin.

"We hope to improve neoadjuvant therapy for rectal cancer with the use of oral capecitabine and addition of oxaliplatin and, through the collection of tissue samples, learn how to identify those patients who will benefit from neoadjuvant therapy," said Dr. Beart.

Who Can Join This Trial
Researchers seek to enroll 1,606 patients aged 18 and over with stage II or III rectal cancer that can be surgically removed. See the list of eligibility criteria at http://www.cancer.gov/clinicaltrials/NSABP-R-04. This trial is eligible for special Medicare coverage: http://www.cancer.gov/clinicaltrials/developments/NCD179N.

Study Sites and Contact Information
Multiple study sites in the United States are recruiting patients for this trial. See the list of study sites and contacts at http://www.cancer.gov/clinicaltrials/NSABP-R-04 or call NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237) for more information. The toll-free call is confidential. ◆

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

Notes

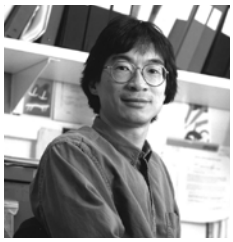
NCI Annual Report Available

This week, NCI released its Annual Report for 2004, *The Nation's Progress in Cancer Research*, available online at http://www.cancer.gov/nci-annual-report.pdf. The report highlights some of the successes that have accelerated progress toward eliminating the suffering and death due to cancer. It includes a sample of NCI's scientific and programmatic accomplishments and illustrates the breadth and depth of the work being done by NCI scientists and grantees. In many ways, 2004 was a pivotal year for cancer research; the report details research from the nation's—and the world's—laboratories, medical clinics, and patients' bedsides that shows the progress being made.

Udey Named CCR Deputy Director

Dermatology Branch Chief Dr. Mark Udey has been named Deputy Director of CCR. Dr. Udey majored in chemistry at the University of Wisconsin-Madison and received his M.D. and Ph.D. degrees from Washington University. He completed medical and dermatology residencies at Barnes Hospital and was a faculty member in dermatology at Washington University before coming to NIH in 1989. His research focuses on elucidating important aspects of epidermal Langerhans cell and dendritic cell biology. He has recently expanded his area of interest into developing vaccines for cancer.

Dr. Udey has served the CCR community in a wide range of positions, including his current work as a member of the Institute Tenure Committee, the Protocol Review and Monitoring Committee, and the Immunology Faculty Steering Committee. He has also served on the Promotion and Tenure Review Committee and the Intramural Advisory Board.



Wu Elected to NAS

Dr. Carl Wu, chief of the Laboratory of Molecular Cell Biology, was one of 72 new members chosen by the National Academy of Sciences (NAS) on April 25. Election to the Academy is considered one of the highest honors in American science and engineering.

Dr. Wu obtained his Ph.D. in 1979 and conducted postdoctoral research at Harvard University. In 1982, he joined NCI's Laboratory of Biochemistry. He was appointed chief of the Laboratory of Molecular Cell Biology in 1996. Dr. Wu received the 1987 Outstanding Young Scientist Award from the Maryland Academy of Sciences and the 1992 Young Investigator Award from the American Society of Biochemistry and Molecular Biology. He was elected to the American Academy of Arts and Sciences in 1998.

McMahon to Speak on Translational Research

Dr. James McMahon, program director of the Molecular Targets Development Program at NCI-Frederick, will speak on "Translational Research at NCI's Center for Cancer Research" at Johns Hopkins University's Advanced Biotechnology Studies Programs Annual Research Symposium on Thursday, May 11, from 6:00 to 9:00 p.m. at the Johns Hopkins University Montgomery County Campus, Building III, Room 121. A poster session follows the lectures, including the first group of NCI fellows in the Molecular Targets and Drug Discovery Technologies concentration and students who have completed research projects as part of their degree requirements for the Master of Science in Biotechnology and Bioinformatics.

Tobacco Control Conference Slated for June

The NIH State-of-the-Science Conference on Tobacco Use: Prevention, Cessation, and Control will take place at the Natcher Conference Center on the NIH campus on June 12–14. After considering the scientific evidence presented at the meeting, an unbiased, independent panel will prepare and present a state-of-the-science statement addressing the key conference questions.

This conference is intended for researchers interested in tobacco prevention, cessation, and control; health care professionals; health care system professionals; health policy experts; public health practitioners; and interested members of the public. The conference is free, but registration is required. For additional information, go to http://consensus.nih.gov/2006/2006TobaccoSOS029html.htm. ◆

Guest Commentary by Dr. Elias A. Zerhouni

NIH Budget—Myths, Realities, and Strategies

I was delighted to be able to address the leaders of NCI and the Comprehensive Cancer Centers at their retreat on May 2 (see Director's Update). It was an excellent opportunity to provide some background and context on the forces that are driving NIH's current budget environment and the impact on maintaining the cancer research community's astounding progress in stimulating a paradigm shift in cancer care.

Support for NIH's mission remains strong across the nation and among members of the U.S. Congress. But we are in the midst of a difficult transition period as the federal government grapples with emerging priorities involving the national defense, homeland security, the aftermath of Hurricane Katrina, and costly—albeit necessary—preparations in anticipation of a pandemic influenza outbreak.

We are also dealing with an unprecedented increase in the number of grant applicants and applications due to the massive capacity-building among U.S. research institutions over the past few years. For example, NIH received as many additional new grant applications (8,359) in the last 2 years as there were during the preceding 5-year period (8,302). Essentially, the demand for grants took off just as the NIH budget was landing after years of tremendous growth.

The NIH community must meet these new challenges with adaptive planning that allows us to continue pursuing new discoveries with vigor and vision. We have been planning over a considerable period of time for how best to manage our resources in this period of flattening funding scenarios that followed the extraordinary doubling of the NIH budget from 1998 to 2003. I am confident that the measures NIH has taken will help preserve the great momentum we have witnessed in cancer research. For example, NIH has been proactive in managing these challenges by launching programs for new investigators to maximally preserve their opportunities for funding. In addition, despite a flat budget, our FY 2007 plans call for increasing the number of available new and competing awards by about 3 percent.

As a responsible steward of NIH funds, Congress is appropriately asking for assurances that its investment in medical research is a wise choice. Fortunately, we have a very impressive case to make. Discoveries fueled by NIH support are transforming the practice of medicine. We can now clearly envision an era when the treatment paradigm of medical care will change to become increasingly more predictive, personalized, and preemptive. We will identify disease before symptoms appear, tailor therapy to the individual, and strike disease before it strikes, thus increasing the likelihood that overall costs to society may be reduced.

That is my message to House and Senate committees this year—a message that is proving to be very effective. Legislators are surprised and gratified to learn that the cumulative costs of funding the fight against cancer over the past 30 years total a mere $260 per American, or about $9 per year. The return on that investment has been strong: Mortality rates for cancer have been falling for several years; and NCI has stimulated development of more effective and targeted therapies, increases in early detection and treatment of cancer, and the initiation of truly transformative research.

The public health impact of the cancer community's efforts has been tremendous. It is especially important now to educate the public at the local, regional, and national levels about the critical role the nation's investment in biomedical research is playing in improving the health of Americans.

Great communities are not defined during times of sunny weather, but by their response during the inevitable stormy times. I trust that the cancer community will remain strong in carrying out its vision to transform how we will prevent, detect, or treat cancer, and render optimal cancer care in the future. ◆

Dr. Elias A. Zerhouni
Director, National Institutes of Health