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Eliminating the Suffering and Death Due to Cancer

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Targeted Therapy for Imatinib-Resistant GI Cancer Approved

On January 26, the Food and Drug Administration (FDA) approved the experimental drug sunitinib (Sutent) for treating an uncommon gastrointestinal cancer in patients who are resistant to or unable to take the primary treatment, imatinib (Gleevec).

Many patients with this cancer, gastrointestinal stromal tumor (GIST), become resistant to imatinib within 2 years.

Sunitinib is a targeted therapy that inhibits multiple proteins involved in the growth of cancer cells and the formation of blood vessels that supply tumors with nutrients, a process called angiogenesis.

The drug was also approved for treating advanced renal cell carcinoma, a form of kidney cancer.

In granting approval for GIST, the FDA cited results from a randomized phase III clinical trial comparing sunitinib and placebo in more than 300 patients who had failed imatinib therapy.

The findings had been presented earlier that day at the 2006 Gastrointestinal Cancers Symposium in San Francisco.

The results show that the relative risk of death was reduced by half in the sunitinib group compared with the placebo group, and the time for can-

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Director's Update

Guest Update by Dr. John E. Niederhuber

NCI's Intramural Program: A Cornerstone for Success

To the public, NCI is often thought of in terms of being the largest supporter of cancer research in the world. That is clearly one of NCI's most important functions. Perhaps the untold story, however, is the outstanding research being carried out by the talented scientists and clinicians in the institute's intramural program, the foundation of which entails the Center for Cancer Research (CCR) and the Division of Cancer Epidemiology and Genetics (DCEG).

NCI's intramural researchers perform essential basic, clinical, and epidemiologic research, upon which a great deal of extramural research is eventually based. Much of this work is rooted in multidisciplinary, collaborative science that takes advantage of the breadth and depth of the National Institutes of Health (NIH) research environment. In many cases, the research conducted by the intramural program is both high risk and high impact, involving complex investigations that offer tremendous promise conducted in the most thoughtful, rigorous fashion to ensure meaningful results. The intramural program also serves as the training ground for

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cers to progress was more than four times longer in the sunitinib group than in the placebo group.

Median overall survival has not yet been reached in this ongoing research study. The independent committee monitoring data during the trial made sunitinib available to all participants after interim results clearly favored the drug.

A small group of patients who could not take imatinib took sunitinib as a first-line treatment and had "excellent" responses, the researchers said. The drug, a capsule taken once daily, was generally well tolerated by patients.

Sunitinib, which was previously referred to by the code name SU11248, will be marketed by Pfizer. The drug is the first targeted therapy proven to be effective in a randomized trial after another targeted therapy failed, but others are being evaluated.

"We expect to see a lot more of these targeted therapies appearing in rapid succession," said Dr. George Demetri of the Dana-Farber Cancer Institute, who presented the findings in San Francisco.

He calls sunitinib a "multitargeted" therapy because in addition to blocking the KIT and PDGFRA proteins, which are targeted by imatinib, the new drug also inhibits multiple signaling proteins involved in angiogenesis and tumor growth.

To illustrate the drug's effectiveness, Dr. Demetri described a GIST patient who began taking sunitinib after imatinib failed. The patient's pain was relieved and the tumor stopped growing within a week, but it took 8 months of therapy for the tumor to shrink.

"The drug was shutting down the disease, but it did not shrink the tumor initially," Dr. Demetri said. Targeted therapies, he suggested, may increasingly help patients live longer "by controlling the disease even if they do not change the size of tumors."

The effects of these new therapies on tumors, he adds, can be seen with imaging technologies that are now used to develop targeted agents.

The development of sunitinib has been rapid. The drug was first taken by a patient with GIST in 2002—just 4 years before FDA approval was announced. ◆

By Edward R. Winstead

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thousands of investigators launching their careers in science.

The history of the intramural program is marked by some of the seminal moments in cancer research history: the discovery of Li-Fraumeni syndrome, a genetic disorder found to predispose family members to multiple forms of cancer; the discovery of interleukin-2, which spearheaded the burgeoning field of immunotherapy; the early development of paclitaxel, the first natural product-based cancer drug; and the discoveries that clearly defined the central role of human papillomavirus (HPV) infection in cervical cancer, as well as the development of the underlying technology for the HPV vaccine that has demonstrated tremendous success in recent clinical trials, and the development of Highly Active Antiretroviral Therapy for HIV/AIDS. There are many others.

The important work of the intramural program continues. For example, as recently highlighted in the *NCI Cancer Bulletin*, CCR researchers have led the development of agents that inhibit a target called heat shock protein 90 (HSP90), which aids other proteins that play a critical role in the development and progression of many cancers. This work was based on the discovery that an off-patent antibiotic inhibited HSP90. It is unlikely that the commercial sector would have pursued this research because it was based on a nonproprietary compound. Now that HSP90 inhibition is showing promise, however, six other companies are developing their own proprietary agents.

CCR investigators also are on the cutting edge of imaging technology development to diagnose, monitor, and treat disease, and some are involved in conducting early-phase clinical trials in the NIH Clinical Center, where they often test promising agents or treatment approaches developed in their own laboratories.

DCEG researchers have joined forces with extramural investigators in the formation of cohort, case-control, and family-based consortia in a cost-efficient and coordinated effort to accelerate progress in the discovery of cancer susceptibility genes and their interaction with environmental factors. As part of this effort, DCEG has guided the Cancer Genetic Markers of Susceptibility study, or CGEMS, which is using the latest genetic technologies to perform dense whole genome scans with the initial goal of identifying and validating susceptibility genes for breast and prostate cancers.

The NCI intramural research program is an invaluable and unique asset of the cancer research community. *NCI Cancer Bulletin* readers can expect to learn more about the research being done in the intramural program over the next year. As cancer researchers continue to delve even deeper into the complex mechanisms of cancer initiation, development, and progression, and begin to develop intervention strategies, I believe the intramural program will only accelerate its role as a catalyst for progress. ◆

Special Report

Striking Discrepancies Seen in Smoking-Related Lung Cancer Risk

In one of the largest prospective studies of its kind, researchers from the University of Southern California (USC) Keck School of Medicine report significant racial and ethnic differences in smoking-related lung cancer risk.

In addition to the large size of the cohort, this new study, published in the January 26 *New England Journal of Medicine*, included far broader ethnic and racial representation than previous studies. It found that both African Americans and Native Hawaiians had significantly greater risks of lung cancer related to smoking compared with whites, Hispanics, and Japanese Americans.

National statistics have long documented significant differences in lung cancer incidence rates across populations, explains the study's principal investigator, Dr. Christopher Haiman, of the Keck Department of Preventive Medicine. And, he adds, it's well established that smoking behaviors also vary widely among these groups.

"In our study, among smokers we found quite striking racial and ethnic differences in the effect of smoking on lung cancer risk," he says, "and that these racial and ethnic differences were found to be modified by the number of cigarettes smoked per day."

To conduct the study, Dr. Haiman and colleagues from USC and the Cancer Research Center of Hawaii analyzed data on nearly 184,000 African American, Japanese American, Hispanic, Native Hawaiian, and white men and women in the Multiethnic Cohort Study (MCS). The NCI-funded MCS was established in Hawaii and Los Angeles beginning in 1993 to explore the relationship of diet and other lifestyle factors to cancer.

The analysis included 1,979 new cases of lung cancer diagnosed over an 8-year period. Among those who smoked 10 cigarettes or less a day, whites had a 55-percent lower risk of lung cancer than African Americans, and among those who smoked 11 to 20 cigarettes a day, a 43-percent lower risk. For Hispanics and Japanese Americans, the percentages were lower still. However, once smoking rates reached 30 cigarettes a day—the equivalent of a pack and a half—or more, the risk difference was minimal.

According to Dr. Mukesh Verma, acting chief of the NCI Analytic Epidemiology Research Branch (AERB), Epidemiology and Genetics Research Program, this latter finding could be because biologic or genetic mechanisms that modulate risk may have modest effects compared with the significant carcinogenic effect of heavy smoking.

The analysis ruled out differences in diet, occupation, and level of education as underlying factors to explain the risk disparities. Differences in education levels were related to risk but, the researchers argued, "Education is very likely a surrogate variable for other important exposures, but what these are and whether they are distributed disproportionately in the observed high-risk groups of African Americans and Native Hawaiians are not clear."

Research into the environmental factors that influence lung cancer risk across populations clearly is still necessary, says Dr. Verma. But, he adds, ongoing research as well as whole genome scans, such as those NCI has planned for breast and prostate cancer through the CGEMS study, may eventually pinpoint smoking-related lung cancer susceptibility genes that may help explain these ethnic differences.

The study's findings don't change the public health message on smoking, stresses Dr. Virginia Hartmuller, the AERB program director for the grant that funds MCS. "The bottom line is health care professionals should still tell their patients that they are far more likely to get lung cancer if they smoke, and they can reduce their risks by quitting." ◆

By Carmen Phillips

For more information on NCI's tobacco control efforts, visit the Tobacco Control Research Branch Web site at http://www.cancercontrol.cancer.gov/tcrb. ◆

Cancer Research Highlights

Surgical Expertise and Patient Outcomes After Ovarian Cancer Surgery

Two companion studies, published in the February 1 *Journal of the National Cancer Institute,* examined whether outcomes after ovarian cancer surgery were influenced by the specialty training of the surgeon, or the number of procedures performed either by the surgeon or in the individual hospital. These NCI-sponsored studies were led by Drs. Deborah Schrag at Memorial Sloan-Kettering Cancer Center and Craig Earle at Dana-Farber Cancer Center, in collaboration with investigators at NCI and the Society of Gynecologic Oncologists. This study was stimulated by prior research indicating that some women with ovarian cancer are not receiving optimal care.

Both studies included women aged 65 or older with ovarian cancer who were reported to NCI's Surveillance, Epidemiology, and End Results registries between 1992 and 1999, and had available corresponding Medicare claims. One study focused on surgical specialty and utilized data on patients' sociodemographic characteristics, stage of disease, and comorbidities to assess whether evidenced-based care was received. Other outcomes assessed included surgical complications, short-term surgical mortality, and overall survival.

Patients were significantly more likely to receive evidenced-based care when treated by a gynecologic oncologist than by a gynecologist or general surgeon. Survival rates were higher among patients treated by a gynecologic oncologist or general gynecologist than by a general surgeon. The authors state, "Ovarian cancer patients treated by gynecologic oncologists had marginally better outcomes than those treated by general gynecologists and clearly superior outcomes compared with patients treated by general surgeons."

The second study examined whether the procedure volume of the surgeon or the associated hospital influenced outcomes. Measurements of outcomes included 60-day and 2-year postoperative mortality and overall survival.

Neither surgeon nor hospital procedure volume significantly influenced 60-day mortality although hospitals that performed higher volumes of procedures did have significantly lower 2-year mortality. The investigators concluded that neither hospital nor surgeon procedure volume was strongly associated with overall survival. These findings suggest that specialized training, more than surgeon volume, improved patient outcomes. The authors conclude that data from these two studies support that it is preferable for patients with ovarian cancer to be operated on by gynecologic oncologists when possible.

Methylation and Silencing of a Tumor-Suppressor Gene

While it is common knowledge that genetic mutations can lead to cancer, the importance of epigenetic events—chemical changes that affect gene expression—is now coming to the forefront of cancer research. DNA methylation is an epigenetic mechanism commonly involved in the control of gene expression and chromosome stability. Abnormal methylation of a gene can silence tumor suppressor genes or activate oncogenes, leading to tumor formation.

A study published in the January 24 *Proceedings of the National Academy of Sciences* identifies a probable tumor suppressor gene that is silenced when overmethylated, leading to aggressive cellular behavior. The investigators isolated this gene, *TCF21*, from patients with lung cancer, or with head and neck cancer. The gene is a transcription factor that plays an important role during embryogenesis, helping immature mesenchymal cells differentiate into mature epithelial cells. Investigators found a statistically significant difference in methylation of this gene between tumor and normal cells, both in samples taken from patients and in established cell lines.

When *TCF21* was silenced, cells reverted to less differentiated behavior, including an increased ability for migration and increased cell division. Treatment of cell lines in which *TCF21* was methylated and silenced with decitabine, a drug that can demethylate genes, reactivated *TCF21*. "Because this gene is silenced by DNA methylation," says first author Dr. Laura Smith, of Ohio State University, in an accompanying press release, "it might be possible to reactivate it using drugs that reverse the methylation process. This could provide a new strategy for treating these cancers."

Omega-3 Fatty Acids Unlikely to Prevent Cancer

An analysis of numerous, large population cohort studies did not detect

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evidence of a significant link between dietary intake of omega-3 fatty acids (found in fish) and the incidence of several major cancer types, according to a review study published in the January 25 *Journal of the American Medical Association*.

The reviewers analyzed 38 articles covering 20 population cohorts that included more than 700,000 individuals. The participants were studied for the effects of consuming omega-3—either in fish, dietary supplements, or both—on the incidence of 11 different types of cancer, although more than

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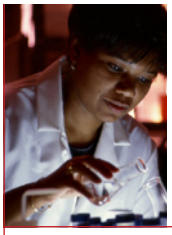
Notes

Request for Information on Knockout Mice

NCI is participating in a trans-NIH effort to acquire as many of the published strains of knockout mice as possible for deposition in public repositories. The NCI research community is invited to help NIH in this process by nominating strains from a list of potentially available strains. Instructions for participating can be found in Request for Information NOT-DA-06-008, which will be posted soon at http://grants.nih.gov/grants/guide/index.html. The deadline for responses is February 7.

NCI Funding Policy Available Online

Information about NCI's official funding policy for FY 2006 Research Project Grants (RPGs) is available online at http://deainfo.nci.nih.gov/grantspolicies/FinalFundLtr.htm. Information about the major RPG funding mechanisms for competing and noncompeting awards is included. Information about funding policies for other institutes can be found online at http://grants.nih.gov/grants/financial/index.htm. ◆



Featured Clinical Trial

Treatment for Recurrent Head and Neck Cancer

Name of the Trial
Phase III Randomized Study of Radiotherapy, Cisplatin, and Paclitaxel versus Cisplatin-Based Chemotherapy Alone in Patients with Previously Irradiated Unresectable Locally Recurrent Squamous Cell Carcinoma of the Head and Neck (RTOG-0421). See the protocol summary at http://cancer.gov/clinicaltrials/RTOG-0421.

Principal Investigator
Dr. Stuart Wong, Radiation Therapy Oncology Group

Why Is This Trial Important?
The initial treatment of head and neck cancer often includes radiotherapy, with or without chemotherapy or surgery. Despite aggressive treatment, however, the risk of recurrent cancer is high. For patients whose head and neck cancer has recurred locally after prior radiation therapy, the optimal treatment is surgical resection. Unfortunately, few of these patients are able to have surgery due to the location and/or size of the tumor.

In this trial, researchers are randomly assigning patients with inoperable, recurrent head and neck cancer who were treated initially with radiotherapy to one of two types of treatment. One group will be treated with concurrent radiotherapy and chemotherapy, and the second group will be treated with chemotherapy alone.

"Chemotherapy is the current standard of care for locally recurrent, previously irradiated head and neck cancer, but such treatment is usually only palliative, not curative," said Dr. Wong. "Results from previous studies have suggested that better local control, and even long-term survival, may be achieved for some patients treated with both chemotherapy and re-irradiation.

"With this trial, we hope to establish the superiority of concurrent re-irradiation and chemotherapy for patients with recurrent head and neck cancer."

Who Can Join This Trial?
Researchers seek to enroll 240 patients aged 18 and over with inoperable, recurrent squamous cell carcinoma of the head and neck who have previously been treated with radiotherapy. See the list of eligibility criteria at http://cancer.gov/clinicaltrials/RTOG-0421.

Where Is This Trial Taking Place?
Study sites in the United States are recruiting patients for this trial. See the list of study sites at http://cancer.gov/clinicaltrials/RTOG-0421.

Contact Information
For more information, see the list of study contacts at http://cancer.gov/clinicaltrials/RTOG-0421, or call the NCI Cancer Information Service at 1-800-4-CANCER (1-800-422-6237). 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.

Funding Opportunities

Interdisciplinary Research Consortium

RFA-06-008

Application Receipt Date: Dec. 19, 2006.

This funding opportunity will use the U54, R01, R21, competitive supplements, T90/R90, K01, R25, and P30 award mechanisms. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3320. Inquiries: Dr. Greg Farber—farberg@mail.nih.gov; Dr. Michael F. Huerta—mhuert1@mail.nih.gov

Structural Biology of Membrane Proteins

PA-06-119

Application Receipt Dates: Feb. 1, June 1, and Oct. 1, 2006; Feb. 1, June 1, and Oct. 1, 2007; Feb. 1, June 1, and Oct. 1, 2008; Feb. 1, 2009.

This is a renewal of PA-02-060. This funding opportunity will use the R01 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3321. Inquiries: Dr. Peter C. Preusch—preuschp@nigms.nih.gov; Dr. Jean Chin—chinj@nigms.nih.gov

PHS 2006-02 Omnibus Solicitation of the NIH, CDC, and FDA for Small Business Innovation Research Grant Applications

PA-06-120

Application Receipt Dates: April 1, Aug. 1, and Dec. 1, 2006.

This funding opportunity will use the R43 and R44 award mechanisms. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3322. Inquiries: Michael Weingarten—mw498z@nih.gov

PHS 2006-2 Omnibus Solicitation of the NIH for Small Business Technology Transfer Grant Applications

PA-06-121

Application Receipt Dates: April 1, Aug. 1, and Dec. 1, 2006.

This funding opportunity will use the R41 and R42 award mechanisms. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3323. Inquiries: Michael Weingarten—mw498z@nih.gov

Preapplication for Interdisciplinary Research Consortium

PAR-06-122

Letter of Intent Receipt Date: Mar. 21, 2006.

Application Receipt Date: Apr. 18, 2006.

This funding opportunity will use the X02 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3324. Inquiries: Dr. Greg Farber—farberg@mail.nih.gov; Dr. Michael Huerta—mhuert1@mail.nih.gov ◆

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half of the reports were for either breast, colorectal, or prostate cancers.

The combined studies provided 65 estimates of associations between omega-3 and cancer incidence, but "only 10 were statistically significant," reported the researchers led by Dr. Catherine H. MacLean with RAND Health. Significant associations between omega-3 fatty acid consumption and cancer risk were reported for breast, colorectal, lung, prostate, and skin cancers. "However, for breast, lung, and prostate cancer, there were significant associations for both increased risk and decreased risk and far more estimates that did not demonstrate any association," the researchers noted.

Across the cohorts, no trend was found linking omega-3 fatty acids with a reduced overall cancer risk. "Likewise, there is little to suggest that omega-3 fatty acids reduce the risk of any single type of cancer," the authors wrote.

Nasopharyngeal Meta-Analysis Shows Chemotherapy Works

Nasopharyngeal cancer (NPC) is rare in the United States and Western Europe, but endemic in many areas of the world (including China, Southeast Asia, North Africa and the Middle East), where it is strongly associated with the Epstein-Barr virus. Standard treatment for locally advanced disease is radiation therapy. While chemotherapy is often used as well, 11 large international trials failed to produce definitive evidence of additional benefit.

A meta-analysis using updated individual data from 1,753 patients in 8 of the trials confirmed that adding chemotherapy, especially during the course of radiation therapy, improved overall survival by 18 percent compared with those receiving radiation alone. Event-free survival improved by 24 percent.

Writing in the January 1 *International Journal of Radiation Oncology·Biology·Physics*, Dr. Bertrand Baujat, of the Institut Gustave-Roussy in Villejuif, France, and colleagues say the treatment effect is "small, but significant."

Cisplatin plus 5-fluouracil proved to be the best chemotherapy regimen, though the data demonstrating this were not uniform across all trials, nor as consistently strong for overall survival as for event-free survival. Subgroup analyses of those patients receiving chemotherapy before and after radiation therapy showed no significant advantage. ◆

Spotlight

Family Physicians Provide Appropriate Follow-Up Care for Early Breast Cancer

A large randomized trial of women who had completed treatment for early-stage breast cancer found that primary care physicians and cancer specialists provide follow-up care of equal quality, according to a study in an early online edition of the *Journal of Clinical Oncology*. The findings suggest that, in general, women who prefer to see their family physicians for follow-up care do not have to worry about decreased quality of life or an increased risk of a serious clinical event due to an undetected recurrence.

After treatment for early-stage breast cancer, women need regular follow-up visits to monitor their health and check for a recurrence. Follow-up care in most Western countries has traditionally been provided by cancer specialists (oncologists).

However, preliminary studies have suggested that patient satisfaction increases when follow-up care is handled by a primary care physician, with no reduction in quality of life or increase in time to diagnosis of recurrence. The authors designed the current study to address this question more definitively.

Nine hundred sixty-eight women who had completed chemotherapy or radiation therapy after surgery for early-stage breast cancer participated in the study at six regional cancer centers in Ontario, Canada. The women were randomly assigned to receive follow-up care from either a cancer center doctor or from their own family physician.

"Health outcomes for women after primary treatment of breast cancer are the same if they are followed by their family physicians or cancer center specialists."

—Drs. James Khatcheressian and Thomas Smith

Participating family physicians received one-page guidelines that recommended the timing for follow-up visits and required tests. The investigators measured the incidence of recurrence-related serious clinical events in both groups and assessed health-related quality of life.

The study's lead author is Dr. Eva Grunfeld of the Dalhousie University Division of Medical Oncology in Halifax, Nova Scotia, Canada.

Participating women were followed for a median of 4.5 years after diagnosis, the period in which most relapses occur. No statistically significant differences were found between the two groups in either quality of life issues or the number of serious clinical events (for example, uncontrolled local recurrence or spinal cord compression).

In an accompanying editorial, Drs. James Khatcheressian and Thomas Smith, of the Massey Cancer Center of Virginia Commonwealth University in Richmond, write that the study "shows conclusively that the health outcomes for women after primary treatment of breast cancer are the same if they are followed by their family physicians or cancer center specialists."

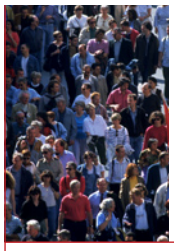
The study's authors note that reliance on family physicians for follow-up breast cancer care is "likely to be more convenient…and potentially less costly" to the patient. However, they emphasize that if family physicians do assume more responsibility for follow-up care, the oncology community must make an effort to keep them informed about the most up-to-date standards of treatment.

Dr. Jo Anne Zujewski, a medical oncologist and breast cancer specialist with NCI's Cancer Therapy Evaluation Program, agrees with this sentiment: "If changes in practice do occur, the information needs to go out to primary physicians." ◆

By Sharon Reynolds

Featured Meetings and Events

A calendar of scientific meetings and events sponsored by the National Institutes of Health (NIH) is available at http://calendar.nih.gov. ◆



Community Update

World Cancer Day Focuses on Childhood Cancers

A new report on childhood cancers summarizes the progress that has been made in treating these diseases in recent decades, while also documenting the disparities that exist in cancer care for children around the world. The authors emphasize the need for parents to recognize signs of the disease and to seek medical treatment from trained professionals whenever possible.

The report, *Childhood Cancer: Rising to the Challenge*, will be released on February 4, which has been designated World Cancer Day. The International Union Against Cancer (UICC), a nongovernmental organization based in Geneva, produced the report and will make it available on their Web site.

On World Cancer Day, the UICC and its collaborators will focus attention on access to cancer care for children in developing countries and the critical importance of a proper diagnosis early in the disease.

"Knowing the common signs and symptoms of childhood cancer is one of the most important steps in fighting this disease and saving thousands of children's lives each year," says Isabel Mortara, executive director of the UICC. "Too many children are unnecessarily dying each year because they are not diagnosed or are diagnosed too late."

In the United States and Western Europe, the treatment of childhood cancers is a success story of modern medicine. Advances made since the 1960s, when there was little expectation that children with cancer would survive, have led to cure rates of 80 percent for many childhood tumors.

But the progress has exposed a huge divide between countries that are rich in resources and those that lack resources, notes Dr. Tim Eden of the International Society of Pediatric Oncology in the report's introduction.

"Of the children who develop leukemia and cancer, 80 percent live in poor or developing countries where in the face of other huge challenges—including starvation, drought, natural disasters, and infection—cancer is not yet considered a priority," Dr. Eden writes.

To address this issue, the UICC initiated a project last year entitled "My Child Matters." Money has been allocated to 14 projects in 10 low- and middle-income countries to increase awareness and improve the coordination of care and the training for professionals working with cancer in children. Sanofi-Aventis is funding about three-quarters of the projects, with the remainder funded by NCI.

"These projects will help communicate the message that childhood cancer can be treated and is often curable," says Dr. Franco Cavalli, Chair of the UICC Childhood Cancer Campaign Advisory Committee. The projects will occur in Bangladesh, Egypt, Honduras, Morocco, Philippines, Senegal, Tanzania, Ukraine, Venezuela, and Vietnam.

The report also discusses the social and cultural beliefs that determine how some parents in developing countries view cancer. For instance, families who feel they are being punished by their child's illness may not seek timely medical care or even follow prescribed medication.

"It is not enough to introduce Western-style medicine into a community while ignoring the social and cultural beliefs underlying attitudes towards the disease," the authors write. Acknowledging these beliefs will be critical to making advances in childhood cancer treatment more widely available around the world, they conclude. ◆

The *NCI Cancer Bulletin* is produced by the National Cancer Institute (NCI). NCI, which was established in 1937, leads the national effort to eliminate the suffering and death due to cancer. Through basic, clinical, and population-based biomedical research and training, NCI conducts and supports research that will lead to a future in which we can identify the environmental and genetic causes of cancer, 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://www.cancer.gov.

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