NATIONAL CANCER INSTITUTE

# NCI Cancer Bulletin

*Eliminating the Suffering and Death Due to Cancer*

May 2, 2006
Volume 3 | Number 18

**In this issue:**



A Publication of the
National Cancer Institute
U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
National Institutes of Health
NIH Publication No. 05-5498

http://www.cancer.gov

## Phone Support Increases Screening Rates Among Low-Income Women

A strategy for promoting cancer screening among low-income women through telephone calls offering encouragement and logistical support has been effective in New York City, and some Medicaid Managed Care Centers are planning to test the approach this summer.

The strategy uses trained counselors to contact by telephone women who are overdue to be screened for breast, cervical, or colon cancer. Women in underserved communities have low screening rates, and screening is one way to prevent deaths from these cancers. In a randomized clinical trial to test the intervention, researchers found that women who received the telephone support—four phone calls on average—had higher screening rates than women who received the standard care of a phone call and a pamphlet. The most dramatic result was a nearly 25-percentage point increase in colon cancer screening among the intervention group during the 18-month trial, the researchers report in the April 18 *Annals of Internal Medicine*.

"We were able to improve rates of cancer screening among women served

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*Director's Update*

## *Finding New and Valuable Research Partners*

That cancer is an immensely complex disease is not a new observation. It has the remarkable capacity to persist silently until it has advanced to a state of imminent lethality; to withstand powerful cytotoxic therapies; and to co-opt other tissue cytokines from the tumor microenvironment in order to proliferate, invade, and metastasize.

It's no wonder, then, that researchers using novel high-throughput technologies to delve further and further into the molecular machinery of tumors and their micro- and macro-environments are confronting serious issues with regard to managing and mining their research data. At this level of complexity, when researchers are, for instance, attempting to tease out from their data patterns of molecular behavior among many competing and cooperating genes, proteins, and cell signaling pathways, they are increasingly in need of new, advanced mathematical tools and a team approach.

A new program just getting off the ground at the NCI Center for Cancer Research (CCR) is attempting to help bridge this gap in what is called integrative systems biology. Led by Drs. David Levens and James McNally, the program will enlist the assistance of

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*(Phone Support continued from page 1)*
by community health centers through a practical and reproducible intervention," says lead researcher Dr. Allen Dietrich of Dartmouth Medical School.

Telephone support is an idea that can easily be adopted around the country, he adds, and many organizations are now running telephone disease-management programs. One such organization is Medicaid. In the next phase of the NCI-funded project, Dr. Dietrich will test the intervention at Medicaid Managed Care Centers. According to the plan, staffers at the care centers will use billing records to identify women who are behind on their screening and who should be contacted by telephone. The programs will be guided by lessons learned from the trial in New York City.

The trial involved 1,400 women who were recruited from 11 community clinics or migrant health centers. About 60 percent of the women spoke Spanish, and of the participants who reported their race, 38 percent said they were African American.

In the trial, screening rates in the intervention group rose 7 percentage points for Pap tests (from 71 percent to 78 percent); 10 points for mammography (from 58 percent to 68 percent); and 24 points for colon cancer screening (from 39 percent to 63 percent). The rates for Pap tests and mammography at the 11 clinics were "quite good" before the trial started, notes Dr. Dietrich, adding, "We were gratified that a modest intervention could improve the rates."

The large increase for colon cancer testing is important, he says, because screening for this cancer has lagged behind that of cervical and breast cancer.

The rise in colon cancer screening alone might be worth the cost of the intervention, says Dr. Mary Barton of the Agency for Healthcare Research and Quality, who wrote an accompanying editorial. She points out that the intervention, in addition to being multilingual and culturally appropriate, encouraged women to raise the issue of screening with their doctors rather than wait for the doctors to raise it.

Women who could not easily communicate with their doctors were given brightly colored cards listing the tests for which they were overdue that could be shared with their doctors at the next visit. "The health coaches were saying to the women, 'You bring it up,'" says Dr. Barton. "This is one of the most interesting and potentially most effective aspects of the intervention." ◆

*By Edward R. Winstead*

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representatives from the University of Maryland's world-renowned physics and math departments to help CCR researchers find solutions to some of their most pressing computational biology challenges.

Like many advances in science, serendipity played a role in the emergence of this program. Dr. Levens had several conversations with his neighbor—Dr. Drew Baden, associate chair of the physics department at Maryland—about the sorts of problems he and others at CCR were facing in analyzing massive biological data sets. At the same time, Dr. McNally had been working with a mathematician, Dr. Bob Pego, in the University's Institute for Physical Sciences and Technology. From these interactions came the realization that the computational tools used by mathematicians and physicists, who often deal with studies involving trillions of data points, could be of assistance to CCR researchers.

The concept they developed—in concert with two others at the University of Maryland, Drs. Wolfgang Losert and Eitan Tadmor—was to find a simple way to link CCR investigators with computational and informational obstacles to the school's math and physics departments' faculty, graduate students, or advanced undergraduate students to gain assistance.

CCR investigators and university faculty and students held a workshop just a few weeks ago at which CCR investigators discussed the type of computational and systems biology challenges they are facing. The Maryland representatives, in turn, offered some thoughts regarding the type of solutions they might be able to provide. The program itself will, initially at least, use an Internet-based tool to connect CCR investigators with participating Maryland faculty and students.

Although this program in computational and systems biology is still in its formative stages, I believe it offers a number of lessons and opportunities for the entire cancer community. First, it is a demonstration that the rigorous application of physical principles to biological questions is becoming more and more possible. Second, it highlights the crosscutting nature of science and the fact that our efforts to make new and important advances against cancer will rely on collaboration with those outside the typical sphere of biomedical research.

Finally, this program provides a model for interactions between cancer researchers and researchers from other scientific disciplines at nearby universities whose expertise they may be able to tap. ◆

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

# Spotlight

## EVS: Definitively Describing Science

No one doubts that 21st century biomedicine is undergoing profound change, as new disciplines, technologies, and paradigms emerge. One new discipline that may transform how science is done is bioinformatics, which uses the latest tools, information technologies, and analytical methods designed to manage the large volumes of data generated from research in the areas of molecular biology, digital imaging, proteomics, and genomics.

"We're at a crossroads," says Dr. Ken Buetow, project director for the cancer Biomedical Informatics Grid™ (caBIG™). "Our success will depend on the cyberinfrastructure that we develop to manage these challenges."

While it has been said that mathematics is the language of science, perhaps the most essential piece of the bioinformatics puzzle is the choice of words used to describe what is being communicated. At NCI, this terminology is collected, created, combined, and controlled via its Enterprise Vocabulary Services (EVS). NCI has taken the lead in the development of these tools to facilitate cancer research.

"Cancer researchers have always needed to organize and report their results in a way that others can find, build upon, and relate to the specific clinical conditions of individual patients," said Larry Wright, a co-director of EVS. "What makes this especially urgent now is the dramatic increase in knowledge at the biological, cellular, and molecular levels."

Moreover, says one of EVS' prime architects, Dr. Nicholas Sioutos, "the growing flood of new information on tumors, patients, therapies, and techniques is increasingly beyond what clinicians and researchers can handle with traditional approaches. We clearly needed a systematic, approved way of describing things—in other words, a muscular yet flexible reference terminology." EVS was launched

EVS Enterprise Vocabulary Services

in 1997, followed by the NCI Thesaurus (NCIt), developed to help track and analyze terminology used in NCI-funded cancer research.

Nine years later, NCIt has evolved into a powerful biomedical ontology—describing the properties and relationships of concepts encountered in the domain of oncology—that is used far beyond NCI. In conjunction with the NCI Metathesaurus, another EVS tool, NCIt provides users with a standardized vocabulary and, thus, a way to search all linked data reliably, unambiguously, and comprehensively. Both terminology reference tools are becoming widely used in the national and international cancer biomedical communities.

Other parts of the federal government, faced with comparable challenges, also have been working on terminology development and standards. The last decade has seen a number of terminologies develop in other countries and contexts, such as biotechnology. The characteristics of cyberspace are being coupled with innovative ways of conducting science, and enormous batches of raw data are being generated with the new tools and technologies. As a result, the cyberinfrastructure challenge now has global proportions.

One of many long-term needs that likely depends on meeting this challenge is the development of electronic national health records. Another is the systematic collection and analysis of clinical trial results, the cornerstone of evidence-based medicine. In the United States, NCI's Physician Data Query cancer information database uses NCIt to help code its online registry of cancer clinical trials for search and retrieval, and to develop and code its evidence-based cancer information summaries.

EVS is jointly operated by the Office of Communications and the NCI Center for Bioinformatics (NCICB), where another EVS co-director, Dr. Frank Hartel, pulls no punches: "We're hoping to change the basic culture of research using information technology."

Historically, scientists have consulted the published biomedical literature, and have adapted and translated what they discover there for their own purposes. Moreover, they generally have not had access to unpublished data. "But experimental data are very expensive to create," says Dr. Hartel, referring to the high cost of mounting basic and clinical studies, "and we can do much better than we have at leveraging the results."

When the data come into a publicly accessible database under NCIt or the Metathesaurus, says Dr. Hartel, their potential value in terms of usability is

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# Cancer Research Highlights

## Gene Signatures May Predict Best Use of Targeted Therapies in Medulloblastoma

Researchers from St. Jude Children's Research Hospital have identified subgroups of children and teenagers with medulloblastoma who appear to have specific genetic alterations that fuel their cancer. In a study published in the April 20 *Journal of Clinical Oncology (JCO)*, the research team identified unique gene signatures for each subgroup based on gene expression profiling of tumor samples, and further demonstrated that the signatures were predictive of mutations in genes in intracellular signaling pathways that influence cancer development and growth.

The results, the researchers contend, could have important implications for testing molecularly targeted agents in children with medulloblastoma.

"Patient tumor samples could be rapidly screened for mutation-specific gene expression signatures using relatively simple and widely available techniques such as real-time PCR [polymerase chain reaction] or IHC [immunohistochemistry]," they wrote. "Gene sequencing efforts could then be focused to confirm the presence of the underlying mutation in tumors in these patients before their enrollment onto a clinical trial of an appropriate molecular targeted therapy."

The researchers, led by Dr. Richard J. Gilbertson, performed gene-expression profiles of tumor samples from 46 pediatric medulloblastoma patients. The resulting gene signatures—the unique expression of 400 to 800 genes compared with expression levels in other tumor samples—grouped the samples into 5 subgroups, A through E. Two of these subgroups, B and D, had particularly "robust" gene expression signatures, the authors explained, with high levels of 100 differentially expressed genes.

Further analysis identified associations between the signatures and mutations in important signaling pathways known to be linked to medulloblastoma, particularly the WNT pathway in subgroup B patients and the SHH pathway in subgroup D patients. The researchers also were able to detect previously unidentified genetic alterations linked to medulloblastoma.

## Breast-Conserving Therapy Riskier for Women with *BRCA* Mutations

Women with mutations in the genes *BRCA1* or *BRCA2*, which greatly increase their risk of breast cancer, have similar rates of in-breast tumor recurrence (IBTR) and higher rates of contralateral breast cancers (CBC) after breast-conserving surgery and radiation therapy than women who do not carry either mutation, reports a study published early online April 24 in *JCO*.

Researchers compared 160 women with breast cancer who carried either *BRCA* mutation with 445 women diagnosed with sporadic breast cancer. No significant difference was found in rates of IBTR between the two groups. However, when women with genetic mutations who had undergone prophylactic removal of their ovaries to reduce their estrogen levels were removed from the analysis, IBTR was significantly higher in mutation carriers than controls. Use of tamoxifen, a drug that blocks estrogen, was associated with reduced IBTR in all groups, but the differences were not significant.

Women with *BRCA* mutations were significantly more likely to develop CBC than women in the control group, and the difference was greater for women who had not had their ovaries removed. Tamoxifen significantly reduced the rate of CBC in all groups. This protective effect was especially strong in women with intact ovaries.

The investigators state that their results "…support consideration of tamoxifen use and bilateral oophorectomy in *BRCA1/2* carriers interested in breast conservation for reduction in both ipsilateral and contralateral breast cancers." They also caution that a significantly higher risk of CBC remains in mutation carriers even with these protective measures and that additional risk-reduction interventions need to be developed for long-term control of the disease.

## Gene Provides Molecular Clues to Aging

A gene best known for its link to a premature aging syndrome also appears to play a role in the normal aging process, NCI scientists reported last week. Because older age is such a significant risk factor for cancer, said lead investigator Dr. Tom Misteli of NCI's CCR, "understanding the mechanisms involved in aging provides insights into the molecular mechanisms involved in creating the cellular environment required

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for a cell to become cancerous." The findings were released early online by *Science* on April 27.

Mutations in the *LMNA* gene produce a faulty form of the protein lamin A that has been linked to Hutchinson-Gilford Progeria Syndrome (HGPS), which causes children to age very rapidly. Drs. Misteli and Paula Scaffidi examined skin cell lines from HGPS patients, very old individuals, and very young individuals to determine what role, if any, lamin A plays in the normal aging process.

They found that, compared with cells in young individuals, cells from HGPS patients and those of healthy older individuals shared many of the same cellular defects, including more unrepaired DNA damage, lower levels of certain proteins in the nucleus, and altered chemical modification patterns. They also found that when they prevented the production of the faulty lamin A protein in cells from healthy older donors, the defects were reversed, directly implicating the lamin A protein as the cause of the age-related cellular defects.

One of the most intriguing aspects of this work is the observation that unlike other premature aging diseases, HGPS patients do not develop tumors. Exploiting the molecular differences among the various premature aging syndromes will be a valuable tool in understanding the link between aging and cancer, says Dr. Misteli.

## Mammography Follow-Up by Breast Cancer Survivors Declines Over Time

The use of surveillance mammography among breast cancer survivors declines significantly over time despite the high risks for recurrence, according to a study published early online April 24 in *Cancer*.

The retrospective study included 797 women with primary breast cancer in the HMO Administrative Data project, a part of the NCI-sponsored Cancer Research Network. Researchers found that 80 percent of the women "underwent mammograms during the first year after treatment for breast cancer," but the percentage of women having mammograms during each yearly period decreased significantly over time. During the fifth year of follow-up, only 63 percent of the women had mammograms, reported investigators led by Dr. Chyke A. Doubeni of the University of Massachusetts. This decline occurred despite the approximately threefold increased risk of cancer in the previously unaffected breast, the researchers noted.

Older women with other illnesses or late-stage breast cancer were less likely to have follow-up mammograms. On the other hand, patients who underwent breast-conserving surgery were more likely to get subsequent screening.

"The strongest association with surveillance mammography in the current study was found with outpatient visits to gynecologists or primary care physicians," the scientists found. "The primary explanation may be that women who visit gynecologists or primary care physicians have greater awareness of their preventive care needs. This finding suggests that involving primary care physicians and gynecologists in the follow-up of breast cancer survivors…may be beneficial."

They recommend that efforts be made "to increase awareness among health care providers and breast cancer survivors on the value of follow-up mammography." ◆

# Funding Opportunities

### Understanding the Effects of Emerging Cellular, Molecular, and Genomic Technologies on Cancer Health Care Delivery

Announcement Number: PA-06-281
New Application Receipt Dates: 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 funding opportunity will use the R21 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3398. Inquiries: Dr. Louise Wideroff—wideroff@nih.gov

### Stem Cells and Cancer

Announcement Number: PA-06-282
New Application Receipt Dates: June 1 and Oct. 1, 2006; Feb. 1, June 1, and Oct. 1, 2007; Feb. 1, 2008.

This is a renewal of PA-05-086 and will use the R21 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3399. Inquiries: Dr. R. Allan Mufson—am214t@nih.gov

### Diet-Induced Changes in Inflammation as Determinants of Colon Cancer

Announcement Number: PA-06-283
New Application Receipt Dates: June 1 and Oct. 1, 2006; Feb. 1, June 1, and Oct. 1, 2007; Feb. 1 and June 1, 2008.

This is a renewal of PA-05-125 and will use the R21 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3400. Inquiries: Dr. Young S. Kim—yk47s@nih.gov ◆

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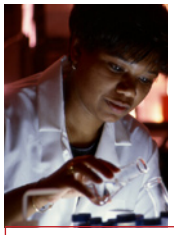
greater because of the applied semantics. "The combination of controlled terminology and the conceptual framework provides a description that will be easily understood—and can be relied on—by other people who later need to evaluate the data's significance." The system also doesn't discriminate against data that wasn't published.

"We package and tag the data according to a well-designed intellectual framework, which is continually being revised and refined based on feedback from our users," said Dr. Hartel. "Every day, hundreds of users are engaged in data retrieval and classification across a wide range of working contexts. If it's not working, the users let us know that enhancements or corrections are needed to reflect the needs of working scientists."

The NCI Metathesaurus provides another way to synchronize NCIt with the larger scientific community by crossmapping terms in NCIt to those from other biomedical terminologies, at last count totaling more than 50. EVS developers also update the growing Metathesaurus each month. Currently, there are more than 2.5 million terms with which a user can begin a query. Not only are the terms able to be crossreferenced to show equivalence (for example, "imatinib mesylate" is also referred to as Gleevec, STI-571, and other terms), but they also are nested within some 1.1 million larger concepts and 5 million relationships.

The EVS products are open source and configured for users to download and access using public application programming interfaces. NCIt can be obtained under an open-content license. All related tools can be found on the EVS Web site. ◆

*By Addison Greenwood*



# Featured Clinical Trial

## Targeted Treatment for Recurrent or Progressive Lung Cancer

**Name of the Trial**
Phase II Study of Sorafenib in Patients with Recurrent or Progressive Stage IV Non-Small-Cell Lung Cancer (NCI-05-C-0049). See the protocol summary at http://cancer.gov/clinicaltrials/NCI-05-C-0049. This trial was originally featured in the October 18, 2005, issue of the *NCI Cancer Bulletin*.

**Principal Investigator**
Dr. Martin Gutierrez, NCI CCR

**Why This Trial Is Important**
Lung cancer is the leading cause of cancer-related death in the United States, and it has often spread (metastasized) by the time it is diagnosed. For patients with metastatic lung cancer, the prognosis is poor. Consequently, new and more effective treatments for metastatic lung cancer are needed.

In this clinical trial, researchers are testing a new drug called sorafenib to see if it can cause tumors to shrink or disappear in patients with metastatic non-small-cell lung cancer (NSCLC) that has recurred or progressed after previous treatment with chemotherapy. Sorafenib inhibits a protein called Raf kinase, which helps promote cell proliferation. Blocking Raf kinase activity may halt the spread of cancer cells.

Sorafenib also inhibits two other proteins named vascular endothelial growth factor receptors 2 and 3 (VEGFR2 and VEGFR3), which help tumors form new blood vessels (a process called angiogenesis). By blocking VEGFR2 and VEGFR3 activity, sorafenib may help cut off the blood supply to tumors and cause them to die.

"Sorafenib is a molecularly targeted oral medication with both antiproliferative and antiangiogenic properties," said Dr. Gutierrez. "It has shown some promising results against NSCLC in an earlier phase I study, and it appears to be well tolerated. Most of the toxicity that we have seen has been mild and easy to control."

**Who Can Join This Trial**
Researchers seek to enroll up to 40 patients aged 18 or over with recurrent or progressive stage IV NSCLC. See the list of eligibility criteria at http://cancer.gov/clinicaltrials/NCI-05-C-0049.

**Study Site and Contact Information**
This study is taking place at the NIH Clinical Center in Bethesda, Md. For more information, call the NCI Clinical Studies Support Center (CSSC) at 1-888-NCI-1937. 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.

## NCI Releases Report on Cancer Incidence in Middle East

NCI has released a new monograph on cancer incidence in Cyprus, Egypt, Israel, and Jordan, as part of the Joint Cancer Registration Project of the Middle East Cancer Consortium. The monograph is available at http://mecc.cancer.gov, under "Cancer Registry Project." Look for more information on the monograph in an upcoming issue of the *NCI Cancer Bulletin*. ◆

# Notes

### Free Telephone Workshop for Cancer Survivors Scheduled

On April 25, Cancer*Care*, in collaboration with NCI, the Lance Armstrong Foundation, the Intercultural Cancer Council, Living Beyond Breast Cancer, and the National Coalition for Cancer Survivorship, presented the first of a free three-part telephone education workshop series, "Cancer Survivorship: Living With, Through, and Beyond Cancer." Part I of the series, which was held the same day, provided "Stress Management Tips for Survivors." The dial-in number to listen to the program is 1-800-625-5288, access code 843404. It will run 24 hours a day, 7 days a week for at least the next year, and the speakers' presentations will be relevant for a year or more.

Part II, "Is It My Cancer or Am I Getting Older?" will take place on May 23; and Part III, "Managing Your Costs of Recovery," is scheduled for June 20. No phone charges apply, but preregistration is required. To register or to access an archived workshop, go to http://www.cancercare.org/TEW.

### Symposium to Highlight Health Communication Research

Principal investigators from the Centers of Excellence in Cancer Communication Research will present recent research findings at the symposium, "Advancing the Science, Extending the Reach, and Improving the Effectiveness of Health Communication." The event will be held at the Natcher Conference Center on the NIH campus on May 10 from 3:00 to 5:00 p.m., followed by the opportunity to survey more than 20 interactive demonstrations and exhibits from 5:00 to 6:00 p.m.

The symposium is free; no registration is necessary. For more information, contact Dr. Linda Harris at 301-451-9477 or harrisl@mail.nih.gov.

### NCI Observes National Women's Health Week

National Women's Health Week begins on Mother's Day, May 14, and ends on May 20. This year's theme is "Reconnecting with Your Health." National Women's Check-Up Day is Monday, May 15—a day when women are encouraged to take steps to improve their health by visiting their community health centers, hospitals, and other health providers for preventive health services.

Information about treatment, prevention, genetics, screening, clinical trials, literature, research, and statistics for cancers that occur mainly in women can be found at http://www.cancer.gov/cancertopics/types/womenscancers. Highlights of NCI-supported research to understand, prevent, diagnose, and treat cancers in women is available at http://women.cancer.gov. Information about other federal, state, regional, and local planned events celebrating National Women's Health Week can be found at http://www.4woman.gov/whw/index.cfm.

### HINTS Data Available for Public Use

Data from the second administration of the Health Information National Trends Survey (HINTS) is now available to the general public. Go to http://hints.cancer.gov for information on the survey and how to register to use the data. ◆

## Disparities Progress and Challenges at ICC

Several hundred researchers, advocates, policymakers, and cancer survivors came to Washington, D.C., April 19–23, for the Intercultural Cancer Council's (ICC's) 10th Biennial Symposium on minorities, the medically underserved, and cancer. Conference attendees left the event encouraged about the future of cancer disparities research, but there were reminders that much work still remains to address cancer's unequal burden. Also, ICC released a report on lagging cancer survivorship among minorities, *Cancer Survivorship and the Medically Underserved: Reducing the Disparities in Cancer Care.*

One promising approach to cancer disparities that was highlighted during the week was the work of the Department of Health and Human Services (HHS) Health Disparities Council's Subcommittee on Cancer, which is charged with implementing some of the recommendations of the Trans-HHS Cancer Health Disparities Progress Review Group (PRG) report.

During a town hall-style meeting hosted by cancer radio personality Dr. Elmer Huerta and HHS Assistant Secretary for Minority Health, Dr. Garth Graham, six HHS agencies charged with carrying out the PRG recommendations reported on their progress. Dr. Rochelle Rollins, of NCI, listed NCI strategies that address the PRG recommendations, including implementation of the new Community Networks Program grants, the Patient Navigator initiative, and the Cancer Control PLANET Web resource tool. ◆

# A Conversation with Larry Wright

*Larry Wright is co-director of the NCI Enterprise Vocabulary Services (EVS) in the NCI Office of Communications. He has worked for 30 years on computer information systems and biomedical informatics, and came to NCI from Yale University and the National Library of Medicine (NLM).*

### What's it like to keep a vast system like EVS functioning?

EVS will thrive only if it grows and evolves with the needs of our users. Cancer science and systems change rapidly, and we have to keep up to be useful. We add hundreds of new terms each month and try to respond within 24 hours to requests for new terms. We have a team of editors who scan the scientific literature in their respective specialties. We are constantly evaluating other terminologies and ontologies that might enhance EVS. Above all, we spend a lot of time talking with our users and partners trying to figure how to extend and tailor our systems to better meet their needs.

### What strategic partnerships have expanded the reach of EVS?

The growing number of partners using EVS resources has been very exciting. For several years, we've been working with the Food and Drug Administration (FDA), the Veterans Administration, and NLM to create a common framework for drug terminology and to exchange data. An example is the new Structured Product Labeling, adopted by the FDA for electronic exchange of drug information, where EVS is playing a major role providing terminology.

Perhaps our most visible and constant partnership is with the NCI-designated Cancer Centers and other participants in the caBIG™ network. We've partnered with NLM to create and extend the PubMed Cancer Subset and with the Clinical Data Interchange Standards Consortium to develop standard terminology for clinical trial data. We are also working with the Centers for Disease Control and Prevention, providing terminology support for their effort to model electronic health data reporting for cancer registries.

### It sounds like a fast-growing enterprise; where do you expect to go in the future?

As we widen our partnerships and integrate with more information systems, we are creating a broader and deeper framework. Building scientific knowledge into the ontology layer of NCI Thesaurus and working with other groups on shared approaches can help make this possible. EVS has a built-in user community with caBIG™, and their needs and priorities continue to push us in new directions. Our growing collaborations on drug terminology led us to craft the NCI Drug Dictionary as a terminology-based resource with extensive information on both approved and investigational drugs. We need to expand this kind of public information outreach into other areas, such as our current and detailed NCI Thesaurus disease ontology, which offers a unique resource on the current classification of cancers. ◆

## 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. ◆

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. Contact the *NCI Cancer Bulletin* staff at ncicancerbulletin@mail.nih.gov.