A MESSAGE FROM ASCO’S PRESIDENT

This year, for the first time, the American Society of Clinical Oncology (ASCO) is publishing Clinical Cancer Advances 2005: Major Research Advances in Cancer Treatment, Prevention, and Screening, an annual review of the most significant clinical research presented or published over the past year across all cancer types.

ASCO embarked on this project to provide the public, patients, policymakers, and physicians with an accessible summary of the year’s most important research advances. While not intended to serve as a comprehensive review, this report provides a year-end snapshot of research that will have the greatest impact on patient care.

As you will read, there is much good news from the front lines of cancer research. These pages report on new chemotherapy regimens that sharply reduce the risk of recurrence for very common cancers; the “coming of age” of targeted cancer therapies; promising studies of drugs to prevent cancer; and improvements in quality of life for people living with the disease; among many other advances.

Survival rates for cancer are on the rise, increasing from 50% to 64% over the last 30 years. Cancer still exacts an enormous toll, however. Nearly 1.4 million Americans will be diagnosed this year, and some 570,000 will die of the disease. Clearly, more research is needed to find effective therapies for the most stubborn cancer types and stages. We need to know more about the long-term effects of newer, more targeted cancer therapies, some of which need to be taken over long periods of time. And we need to devote far greater attention to tracking and improving the care of the nearly 10 million cancer survivors in the United States today.

Despite these and other challenges, the message of this report is one of hope. Through the dedicated, persistent pursuit of clinical research and participation in clinical trials by people with cancer, we steadily uncover new and better ways of treating, diagnosing, and preventing a disease that touches the lives of so many. I want to thank the Editorial Board members, the Specialty Editors, and the ASCO Cancer Communications Committee for their dedicated work to develop this report, and I hope you find it useful.

Sincerely,

Sandra J. Horning, MD
President
American Society of Clinical Oncology
Clinical Cancer Advances 2005
Major Research Advances in Cancer Treatment, Prevention, and Screening
A Report from the American Society of Clinical Oncology

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EXECUTIVE SUMMARY

Clinical Cancer Advances 2005 is the first independent annual review of the top advances in cancer treatment, screening, and prevention across all cancer types. Produced by the American Society of Clinical Oncology (ASCO), this report identifies major clinical research advances in a broad range of cancer types.

Major research advances over the past year include new standards of care for breast, lung, and colon cancer, as well as evidence that an increasing number of newer more targeted therapies can improve survival in some of the most common cancers, and are active against a range of other cancers:

• **Adjuvant therapy** – A number of studies over the past year provide new adjuvant therapy strategies for reducing the risk of cancer recurrence and increasing survival for patients with early-stage breast, lung, and colon cancers. Adjuvant therapy involves the administration of chemotherapy alone or with newer targeted drugs following surgery to eliminate clinically undetectable cancer cells.

• **Targeted therapies** – A growing number of targeted therapies that predominately attack cancer cells – leaving most healthy cells intact – proved effective against a range of cancers including breast, colon, lung, kidney, and head and neck cancers, and lymphoma.

In addition, the emerging field of cancer survivorship gathered momentum with important research and policy developments. A major study in 2005 gave the first estimate of the frequency and severity of long-term health problems facing survivors of childhood cancer, and leading institutions – including the Institute of Medicine – issued detailed recommendations for meeting the needs of cancer survivors.

THE STATE OF CLINICAL CANCER RESEARCH

Over the last three decades, investment in clinical cancer research, screening, and prevention has reduced cancer incidence and death rates, increased survival rates, and significantly reduced the symptoms and side effects of cancer and its treatment. As a result, there are nearly 10 million cancer survivors in the United States today, a number that will grow as the U.S. population ages and progress against cancer continues.

Progress against cancer requires participation in clinical research. Every year, clinical trials – in which new approaches are carefully tested to determine their safety and effectiveness – identify new avenues to prevent cancer, detect it early, and increase survival and cure rates.

While survival rates have improved steadily since the 1970s, clearly more progress is needed. This year, cancer will strike nearly 1.4 million Americans and an estimated 11 million people worldwide. More than 570,000 people in the United States are expected to die of the disease in 2005. (See pp. 24-25: “Cancer Statistics”)

PURPOSE OF THIS REPORT

The American Society of Clinical Oncology – the leading professional society representing more than 23,000 oncologists and other professionals who care for people with cancer – has developed this report to chronicle the major clinical cancer advances over the previous year, and to identify emerging trends and current issues in the field.

The report identifies the top clinical research advances in each cancer type, as well as advances in three cross-cutting areas: prevention, access to high-quality cancer care, and survivorship. (See Box, p. 2: “How This Report Was Developed”)

This report is intended to fill a gap in cancer literature. Until now, there has been no single published report that highlights the major advances in clinical cancer research and care each year. This report is written for all those with an interest in cancer care: the general public, cancer patients and organizations, policymakers, oncologists, and other cancer care professionals.
SUMMARY OF FINDINGS

Following is a summary of the major clinical research advances and emerging cancer issues of 2005, as identified in this report:

Major Clinical Research Advances

New Standards of Care for Early-Stage Breast, Lung, and Colon Cancer

While this report identifies important advances in nearly every type of cancer, several studies stand out as advances that will change the standard of care for some of the most common cancers in the United States. These studies identify three new adjuvant therapy strategies for treating early-stage breast, lung, and colon cancer. (See Box, p. 3: “Adjuvant Therapy: Background”)

• **Trastuzumab (Herceptin) Cuts HER-2 Positive Breast Cancer Recurrence in Half** – Two large clinical trials showed for the first time that adding the targeted monoclonal antibody therapy trastuzumab to standard chemotherapy reduced the risk of recurrence by half and the risk of death by one-third for women whose early-stage breast cancers contained excessive amounts of the HER-2 protein, compared with standard chemotherapy alone. Women with breast cancer that overexpresses HER-2 make up 25% to 30% of all breast cancer cases. (See p. 7)

• **Chemotherapy Increases Survival After Lung Cancer Surgery** – A large study has resolved the debate over the benefit of adjuvant chemotherapy in early-stage non-small cell lung cancer (NSCLC). The study showed that adjuvant chemotherapy reduced the risk of recurrence by 40%, and resulted in significantly higher five-year survival rates compared with surgery alone. This research is particularly important given the lack of effective treatment options and historically low survival rates among lung cancer patients. (See p. 16)

HOW THIS REPORT WAS DEVELOPED

This report was developed under the guidance of a 21-person editorial board made up of leading oncologists and other cancer specialists, including 13 specialty editors for each of the disease-specific and issue-specific sections.

The editors reviewed research published in peer-reviewed scientific journals and early results of research presented at major scientific meetings over a one-year period (November 2004 – October 2005). Only studies that significantly altered the way a cancer is understood or had an important impact on patient care were included. Research in each section is divided into “major advances” and “other notable research,” depending on the impact of the advance on patient care and survival.

While important research is underway in all cancer types, advances that met the above criteria were not demonstrated in all types of cancer over the past year. Cancers included in this year’s report are grouped as follows:

- Blood and lymphatic cancers
- Breast cancer
- Central nervous system tumors
- Gastrointestinal cancers
- Genitourinary cancers
- Gynecologic cancers
- Head and neck cancers
- Lung cancer
- Pediatric cancers
- Skin cancer

The research considered for this report covers the full range of clinical cancer issues:

- Epidemiology (populations at greatest or increasing risk)
- Prevention (lifestyle changes and chemopreventive agents)
- Screening/early detection
- Treatment with traditional therapies (surgery, chemotherapy, and radiation therapy), as well as newer, more targeted therapies (monoclonal antibodies, kinase inhibitors, angiogenesis inhibitors, epidermal growth factor receptor, or EGFR, inhibitors, proteasome inhibitors)
- Access to high-quality care
- Survivorship
• Oxaliplatin-containing Chemotherapy Reduces Risk of Colorectal Cancer Recurrence after Surgery – Two large studies have conclusively demonstrated the value of adjuvant chemotherapy that includes the drug oxaliplatin for patients with early-stage colon cancer. The studies showed that the regimen – which combines oxaliplatin with 5-fluorouracil and leucovorin – lowers the risk of colorectal cancer recurrence by 21% to 24%. (See p. 10)

ADJUVANT THERAPY: BACKGROUND

Beginning in the 1950s, chemotherapy drugs were used primarily to treat advanced cancers that could not be controlled with surgery and/or radiation therapy.

Early-stage cancers were primarily treated with surgery, sometimes followed by radiation to kill cancer cells lingering near the tumor site. Over time, researchers learned that cancer cells can break away from the primary tumor and begin to spread even when the disease is in an early stage, contributing to cancer recurrence.

Considering the effect of chemotherapy on advanced cancers, in the 1970s researchers began testing different drug combinations after surgery to see if they could reduce recurrence among people with early-stage cancers. Several adjuvant therapy regimens have proven effective. The studies highlighted here extend the arsenal for breast and colon cancer, and provide the first conclusive proof that the strategy can be effective for early-stage lung cancer.

More Targeted Therapies Prove Effective in Wide Range of Cancers

While previous research on targeted therapies has identified a number of drugs that are safe and can shrink tumors, research over the past year (in addition to the trastuzumab data mentioned previously) showed that an increasing number of targeted therapies – in combination with chemotherapy – are effective against common cancers. In addition, a growing number of targeted therapies are showing activity in cancers that have been extremely difficult to treat using traditional approaches like chemotherapy, radiation, and surgery.

• Bevacizumab (Avastin) for advanced lung and colon cancer – Studies of patients with advanced non-small cell lung cancer and advanced colon cancer showed for the first time that adding bevacizumab – an angiogenesis inhibitor that blocks formation of the blood vessels that tumors need to grow – to chemotherapy significantly increased survival compared with those receiving chemotherapy alone. (See pp. 10, 16)

• Rituximab (Rituxan) and I-131 Tositumomab (Bexxar) for B-cell lymphomas – Two studies over the past year showed that the monoclonal antibodies rituximab and tositumomab may significantly prolong remission in B-cell lymphomas. One study demonstrated that the addition of rituximab, an antibody that targets B-cell lymphocytes, to chemotherapy can significantly prolong remission and increase survival in diffuse aggressive lymphoma. A second study showed that radioactively-labeled tositumomab, which also attacks B-cell lymphocytes, was associated with long-term remissions in follicular lymphoma. (See p. 5)

• Cetuximab (Erbitux) for head and neck cancer – A study of head and neck cancer patients showed that adding cetuximab to standard chemotherapy may prolong lives when used after other therapies, while a second study showed that cetuximab in combination...
with standard therapy can help preserve patients’ larynxes (voice boxes). (See p. 15)

• **Various therapies for kidney cancer** – A growing number of early-phase clinical trials are demonstrating the benefit of new targeted therapies for metastatic renal cell carcinoma (RCC), the most aggressive form of kidney cancer. Kidney cancer has been notoriously unresponsive to treatment, with just 15% of patients responding to standard immune therapies. (See p. 12)

**Other Major Advances**

Other major research that significantly improved the understanding, prevention, and treatment of cancer over the past year includes:

• A **vaccine to prevent infection with human papillomavirus (HPV), a virus that is closely associated with the development of cervical cancer** (p. 14)

• A **new treatment for myelodysplastic syndrome (MDS), a disorder of blood-forming cells that can lead to leukemia** (p. 5)

• The **first evidence that chemotherapy given before surgery can increase survival for patients with stomach cancer** (p. 10)

• The **first effective drug for a highly resistant form of brain tumor called glioblastoma** (p. 9)

• **New data on the increase of melanoma and other skin cancers among young people** (p. 18)

**Emerging Issue: Improving the Care of Cancer Survivors**

With progress in treating cancer comes a new and unique challenge – ensuring the long-term health of the growing number of cancer survivors. Over the last several years, cancer survivorship has emerged as a significant issue, with the release of a number of government and independent reports examining the needs of cancer survivors.

In 2005, new data for the first time painted a stark picture of the long-term health problems faced by a large proportion of childhood cancer survivors, finding that they are five times more likely than their healthy siblings to have moderate or severe health problems as adults. In addition, the Institute of Medicine (IOM) issued major new recommendations to address adult survivors’ long-term needs. (See p. 21, “Cancer Survivorship,” and p. 23, “ASCO Initiatives: Cancer Survivorship, Prevention, and High-Quality Care”)

**CONCLUSION – WHERE WE ARE IN THE FIGHT AGAINST CANCER**

As the research highlighted in this report demonstrates, significant progress has been made in the understanding and management of cancer over the past year. Such progress was observed not only in treatment, but also in the areas of prevention, screening, and quality of life. Major advances were achieved for some of the most common cancers, as well as for rarer cancers that have been traditionally very difficult to treat. Survival rates are steadily increasing, resulting in a large and growing population of cancer survivors.

However, this progress comes with new and persistent challenges. While more people are surviving cancer, they have unique and significant long-term health needs that must be addressed. Therapeutic gains for certain types and stages of cancer have been minimal, while other cancer types and stages have resisted nearly all attempts at effective treatment, requiring more intensive research efforts. And while newer, more targeted therapies are showing promise, they can be costly, and more research is needed to determine how to best use these drugs, as well as the long-term toxicities associated with their use. It is also important to note that just as today’s higher survival rates are the result of treatment advances made 10 to 20 years ago, the advances in this report may take several years to be incorporated into patient care, and will require additional time to show a widespread impact on population-based survival rates.

The advances outlined in this report demonstrate the essential role of clinical cancer research in finding new solutions for a group of diseases that strike half of men, and one-third of women in the United States. The nation has made great strides against cancer, and research each year brings us closer to the National Cancer Institute’s goal of eliminating suffering and death from the disease over the next decade.
CANCERS OF THE BLOOD AND LYMPHATIC SYSTEM

Cancers of the blood and lymphatic system (also called “hematologic” cancers) include leukemias, lymphomas, multiple myeloma, and myelodysplastic syndromes. A number of promising advances involving novel targeted therapies for hematologic cancers were made in the last year, as well as a particularly important advance for people with myelodysplastic syndromes.

MAJOR ADVANCES

New Treatment for MDS Reduces Genetic Abnormalities and Need for Blood Transfusions

Researchers at the H. Lee Moffitt Cancer Center have demonstrated the effectiveness of a new treatment – a drug called lenalidomide (RevLimid) – for a distinct form of myelodysplastic syndromes (MDS). MDS is a group of disorders resulting in the failure of bone marrow to adequately produce blood cells. Approximately 30% of MDS patients subsequently develop acute myeloid leukemia. MDS patients tend to be elderly and require frequent blood transfusions to manage symptoms of anemia and fatigue caused by the disease.

In this study, lenalidomide was shown to be effective for the type of lower-risk MDS characterized by the deletion of a specific region of genetic material, “del5q” (about 10% of MDS cases). Of 146 transfusion-dependent patients with the genetic abnormality, 64% responded to lenalidomide and did not need further blood transfusions. Three-quarters of those who responded had fewer marrow cells with the abnormality, and more than half of them had no evidence of the genetic abnormality.

Researchers found that the drug was also well-tolerated – an important feature for MDS patients, who are often elderly and unable to tolerate the side effects of aggressive treatments.1

OTHER NOTABLE RESEARCH

A number of other studies provide important new treatment options – or promising new directions – for patients with multiple myeloma and lymphoma.

• **Thalidomide Lowers Recurrence in Multiple Myeloma** – Multiple myeloma, a cancer of the bone marrow, often recurs after initial therapy. A study by researchers at the University of Arkansas showed that adding the drug thalidomide to standard chemotherapy for multiple myeloma increases the likelihood of cancer remission and reduces the risk that the disease will return.

Thalidomide, given in the 1950s to pregnant women to combat nausea and help them sleep, became infamous when it caused severe birth defects by stopping new blood vessels from forming in the fetus. This same effect on blood vessel formation may explain the anticancer activity of thalidomide, since tumors rely on a blood supply for nutrients.2

• **Targeted Therapies Change Outlook for Lymphoma** – Several studies over the last year demonstrated the potential role for targeted therapies in treating lymphomas:

  • **Monoclonal antibodies.** A study examining rituximab (Rituxan) – which blocks a specific protein on B-lymphocytes – added to chemotherapy showed that the combination significantly increased the cure rate and survival of younger patients with diffuse aggressive lymphoma, and could take the place of a more intensive chemotherapy regimen. A second study showed that the radioactively-labeled tositumomab (Bexxar), which also attacks B-lymphocytes, may prolong remission in follicular lymphoma patients. Although follicular lymphoma is slow-growing and current treatments may control the disease for several years, most patients eventually die from the disease or from complications of its treatment.3,4

  • **Proteasome inhibitors.** Two other studies showed that the drug bortezomib (Velcade) – which inhibits the proteasome, an enzyme complex that plays an important role in regulating cell function and growth – shrunk tumors in nearly half of patients with mantle cell lymphoma.5,6
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BREAST CANCER

While early detection and more effective treatments for breast cancer have significantly improved the outlook for women with the disease, the possibility of breast cancer recurrence remains an ongoing concern for most women after their initial therapy. In addition, effectively treating advanced breast cancer remains an ongoing challenge.

Research over the past year provides a number of new tools for preventing recurrence, with particularly important findings regarding use of the targeted therapy trastuzumab.

MAJOR ADVANCES

Trastuzumab (Herceptin) Cuts Breast Cancer Recurrence in Half, Increases Survival

Trastuzumab, which targets and blocks a protein called HER-2, has been used since 1998 to treat breast cancer that has returned after surgery or has spread to other parts of the body. An analysis of two large trials indicates that trastuzumab can also be extremely effective if used earlier in the course of treatment, immediately following surgery, to prevent recurrence.

The findings represent a very significant advance in breast cancer treatment, and will change the care of the 25% to 30% of breast cancer patients whose tumors contain excessive amounts of the HER-2 protein. The protein is associated with an increased risk of cancer recurrence and a decreased sensitivity to chemotherapy.

The analysis showed for the first time that adding trastuzumab to standard chemotherapy for early-stage breast cancer that expresses HER-2 reduced the risk of recurrence in women by 52% after three years compared with chemotherapy alone. In addition, women who received trastuzumab as part of their therapy had a 33% lower risk of death after three years; three-year survival rates were 94.3% for the women who received trastuzumab, compared with 91.7% of those who received chemotherapy alone.1

It should be noted that all three trials showed an increased risk of congestive heart failure associated with the drug. The incidence of severe congestive heart failure or death from heart problems after three years in the first two trials ranged from 2.9% to 4.1% in the women taking trastuzumab, versus 0.0% to 0.8% in the control group. In the HERA trial, 1.7% of women in the trastuzumab group developed congestive heart failure after one year, versus 0.06% of the control group. Longer-term follow-up will be necessary to determine whether these heart problems are reversible.

OTHER NOTABLE RESEARCH

• Bevacizumab (Avastin) Slows Cancer Growth – Bevacizumab, which is approved for treating advanced colorectal cancer, may also have a role in the treatment of breast cancer. A study led by researchers at Indiana
University Cancer Center showed that adding bevacizumab to the standard chemotherapy drug paclitaxel (Taxol) nearly doubled the time it took for cancer to grow in women whose breast cancer had returned or spread to other parts of the body, compared with women who received paclitaxel alone.3

- **Low-Fat Diet and Regular Exercise May Reduce Risk of Breast Cancer Recurrence** – Emerging data suggest that lifestyle changes such as improved diet and exercise may reduce breast cancer recurrence and mortality. Researchers from the Women’s Intervention Nutrition Study examined the effect of a strict low-fat diet on postmenopausal women with early-stage breast cancer, finding that the risk of breast cancer recurrence was 24% lower for the women who followed the low-fat diet, with a potentially greater benefit for women with tumors that were not fueled by the hormone estrogen.4 The Nurses’ Health Study, which included nearly 3,000 women with early-stage breast cancer, found that those who walked three to five hours per week were 50% less likely to die from breast cancer than those who exercised less than one hour per week.5

- **Aromatase Inhibitors May Be Better Than Tamoxifen for Reducing Recurrence** – Two large clinical trials suggest that aromatase inhibitors may reduce the risk of breast cancer recurrence more effectively than tamoxifen alone in postmenopausal women. The data from these trials are early, and further evaluation will be needed over the long-term. Aromatase inhibitors may fight breast cancer by preventing the formation of estrogen, which fuels breast cancer growth.6,7

- **Digital Mammography Is More Accurate Than Standard Mammography in Younger Women** – A study of more than 42,000 women found digital mammography to be more sensitive than traditional film mammography in younger women and in women with dense breasts. Compared with traditional mammography, digital mammography was more accurate in detecting breast cancer among women under age 50 (78% vs. 51% sensitivity), premenopausal and perimenopausal women (72% vs. 51%), and women with dense breasts (70% vs. 55%). When analyzing the group as a whole, both tests had similar levels of accuracy.8

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CENTRAL NERVOUS SYSTEM TUMORS

Primary brain cancers represent a unique clinical challenge. The most common malignant brain tumor in adults, glioblastoma, is highly aggressive, and patients with the disease generally have a poor prognosis despite surgery and radiation therapy.

While clinical trials over the last 25 years have evaluated a variety of drugs and delivery systems, the prognosis for primary brain tumors has remained largely unchanged. However, several clinical trials in 2005 reported progress in the treatment of malignant brain tumors, showing that certain novel chemotherapy regimens may help patients live longer.

MAJOR ADVANCES

Temozolomide (Temodar) with Radiation Therapy Helps Some Patients with Glioblastoma

Two studies showed for the first time that a combination of therapies using the drug temozolomide can help some patients with glioblastoma, and that evaluation of genetic markers may help doctors better identify those patients most likely to benefit from these treatments.

Temozolomide, an oral drug approved for treating brain cancer in adults, works by hindering a cancer cell’s ability to multiply and spread.

The first study showed that patients with previously untreated glioblastoma who received temozolomide with radiation therapy lived longer (14.6 months) than patients who received radiation therapy alone (12.1 months). After two years, more than twice as many patients in the temozolomide group were alive, compared with the radiation group.

A separate study of these patients found that those who benefited from temozolomide were more likely to have a particular genetic marker in their tumor cells. Patients with this marker (an alteration of the MGMT gene) who received temozolomide plus radiation lived 21.7 months, compared with 15.3 months among those who received radiation alone.1,2

OTHER NOTABLE RESEARCH

• Radiation Therapy May Not Be Necessary in Young Children with Medulloblastoma – A study by researchers in Germany found that a combination of chemotherapy drugs following surgery may be appropriate treatment – and that radiation therapy may not be needed – for children under age three with a malignant brain cancer called medulloblastoma. Up to 35% of medulloblastomas, the most common brain cancer in children, occur in patients younger than age three.

Forty-three children who had this combination treatment had a median five-year survival rate of 66%. After treatment, the mean IQ among patients was lower (IQ about 95) compared with a control group of healthy children (IQ 105), but higher than that of children in a separate trial who received radiation therapy (IQ about 80). Despite treatment with surgery, chemotherapy, and radiation therapy, survival rates for medulloblastoma have not improved, and radiation therapy results in a significant decline in mental function in those who survive. This study demonstrates that patients can live longer with chemotherapy following surgery, while avoiding the decline in mental function associated with radiation.3

REFERENCES

GASTROINTESTINAL CANCERS

Gastrointestinal cancers include those of the esophagus, stomach, liver, pancreas, biliary tract, colon, rectum, and anus. The ability to effectively treat these cancers varies significantly. For example, while many colorectal cancers can be diagnosed in their early, more curable stages using colonoscopy, no such screening tests exist for less common cancers of the digestive tract – such as those of the pancreas – which are often diagnosed when they are too advanced to treat effectively.

Several major studies in the past year identified chemotherapy regimens that can improve survival for patients with colorectal and stomach cancers, while others confirmed the superiority of colonoscopy to detect colorectal cancer.

MAJOR ADVANCES

Oxaliplatin-containing Chemotherapy Becomes Part of Standard Care for Colorectal Cancer

Several important studies over the past year demonstrated the value of a chemotherapy regimen called FOLFOX – which combines the anticancer drugs oxaliplatin (Eloxatin), 5-fluorouracil (5FU), and leucovorin (LV) – in reducing the risk of colorectal cancer recurrence. Coupled with similar data from previous studies, these findings have changed the treatment approach for patients with early-stage colorectal cancer who need chemotherapy after surgery.

One large study – the MOSAIC trial – found that adding oxaliplatin to standard chemotherapy after surgery for early-stage colorectal cancer reduced the risk of recurrence by 24%. A separate study by researchers from the National Surgical Adjuvant Breast and Bowel Project (NSABP) showed that adding oxaliplatin to standard chemotherapy reduced the risk of recurrence by 21% in early-stage colorectal cancer patients.1,2

An additional study in patients with advanced colorectal cancer demonstrated that adding bevacizumab (Avastin) to the FOLFOX regimen could increase survival. Researchers from the Eastern Cooperative Oncology Group (ECOG) reported that the regimen improved overall survival by 17% among patients with advanced colorectal cancer who had received previous chemotherapy for metastatic disease. Bevacizumab is currently approved for the initial treatment of advanced colorectal cancer when given in combination with standard chemotherapy.3

Chemotherapy Improves Survival for Patients with Stomach Cancer

Stomach cancer (also called gastric cancer) can be difficult to treat, often becoming resistant to chemotherapy and radiation or growing too large to be removed by surgery. In 2003, the results of the MAGIC Trial, conducted in the United Kingdom, provided one of the first significant advances in this disease in many years, showing that giving chemotherapy before surgery (“neoadjuvant therapy”) may shrink tumors so that they are small enough to be removed surgically.

The updated results of the MAGIC Trial showed that 36% of patients who received chemotherapy with the drugs epirubicin, cisplatin, and 5-Fluorouracil were still alive five years after diagnosis, compared with 23% of those who received surgery alone. These findings are changing the way gastric cancer is treated in the United States, as well as in other countries where the disease is more common, such as many Asian nations.4

OTHER NOTABLE RESEARCH

• Studies Support Continued Use of Colonoscopy for Colorectal Cancer Screening – While studies in the last year have examined screening techniques that could serve as less invasive alternatives to colonoscopy, none of these has proven as effective as colonoscopy in detecting polyps and colorectal cancer.

One study showed that conventional colonoscopy remains much more sensitive than other screening tests for colorectal cancer, finding 98% to 99% of tumors – about twice as many as virtual colonoscopy (the use of computed tomography scanning to provide a three-dimensional image of the colon) or barium enema.5

Another study examined a technique known as fecal DNA testing. It found that testing for 21 genetic mutations in stool samples detected significantly more invasive colorectal cancers than the standard fecal occult blood test. However, fecal DNA testing found only half of colon cancers, making it far inferior to standard colonoscopy, which identifies nearly all colon cancers.6
• **Sunitinib/SU11248 (Sutent) is Effective Against Imatinib-Resistant GIST** – A phase III trial reported that the multitargeted therapy SU11248 can benefit patients with gastrointestinal stromal tumors (GIST) that have become resistant to the drug imatinib (Gleevec). In a controlled, international, multicenter study of 312 patients, significant improvements were noted in progression-free survival (6.3 months vs. 1.5 months) and overall survival (50% lower relative risk of death) in patients who received SU11248 compared with those given a placebo.

SU11248 inhibits several enzymes in cancer cells called kinases that play a direct role in promoting the growth of cancers as well as the development of blood vessels that feed them. Although SU11248 is not likely to replace imatinib in the treatment of patients with advanced GIST, it appears to be a reasonable treatment option for GIST patients following failure of imatinib due to the development of resistance or intolerable side effects.  

• **Erlotinib (Tarceva) plus Gemcitabine (Gemzar) Improves Survival in Pancreatic Cancer** – Gemcitabine has been the standard chemotherapy drug used to treat pancreatic cancer. New research has found that adding erlotinib to this regimen may help patients with inoperable advanced pancreatic cancer live longer. Researchers analyzed patients who received gemcitabine alone or in combination with erlotinib, finding that patients in the erlotinib group survived an average of 6.4 months, compared with 5.9 months among those who received gemcitabine alone. After one year, 24% of the erlotinib group was still alive, compared with 17% of those who received gemcitabine alone. Pancreatic cancer cells have abnormally high epidermal growth factor receptor (EGFR) levels; erlotinib works by blocking an EGFR enzyme.

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GENITOURINARY CANCERS

Genitourinary cancers include cancers of the prostate, kidney, testicles, and bladder/urethra. While research findings in 2005 will not change the standard of care, a number of studies demonstrate that novel treatments may improve the care of patients with prostate and kidney cancers, while another study sheds light on which patients with prostate cancer need the most aggressive therapy.

NOTABLE RESEARCH

• “Watchful Waiting” vs. Treatment for Prostate Cancer – While many more patients are being diagnosed with early prostate cancer due to widespread PSA testing, there is no clear understanding about which patients require aggressive treatment. This is especially true for older men who may be more likely to die from other causes first. A study by Scandinavian researchers showed that after 10 years, the risk of prostate cancer death among men with early-stage disease who had their prostates removed was 44% lower than among men who did not have surgery (the “watchful waiting” group). When analyzed by age, the benefits of surgery were greatest among younger men: among men under age 65, 19.2% in the watchful waiting group had died after 10 years compared with 8.5% of those who had surgery, while among men age 65 and older, 11.5% in the watchful waiting group died versus 8.5% of those in the surgery group. Based on these data, men under age 65 who have early-stage prostate cancer should undergo surgery to remove the prostate, while older men may choose watchful waiting.1

• Targeted Therapies Show Effectiveness Against Kidney Cancer in Early Studies – A number of early-phase clinical trials in the last year showed promising results for angiogenesis inhibitors for metastatic renal cell carcinoma – the most aggressive form of kidney cancer, which has been notoriously resistant to most previous anticancer therapies. Angiogenesis inhibitors interfere with the formation of blood vessels that tumors need to grow and spread. Kidney cancer makes especially high levels of the vascular endothelial growth factor (VEGF) protein, making it particularly sensitive to inhibition by these agents. While more research is needed, these studies give hope to kidney cancer patients, who have few available treatment options. Just 15% of patients respond to the current standard treatments – the immune therapies interleukin-2 and interferon-alpha.

• AG-013736. Among 52 patients with metastatic kidney cancer that had continued to grow despite treatment with immunotherapy, 40% of patients had at least some tumor shrinkage after receiving AG-013736.2

• Sunitinib/SU11248 (Sutent). Among 63 patients with kidney cancer that persisted despite prior therapy who received SU11248, 40% had some tumor shrinkage, while the cancer stopped growing in 33% of patients.3

• Sorafenib/BAY 43-9006 (Nexavar). Two studies showed that the time it took for cancer to grow or spread was two to four times longer among patients with kidney cancer who received BAY 43-9006 compared with those who did not.4,5

• Bevacizumab (Avastin) and Erlotinib (Tarceva). Among 59 patients who received bevacizumab and erlotinib together, 25% responded to the treatment, and the cancer stopped growing in 61%.6

• Prostate Cancer Vaccine Increases Survival – Men with advanced prostate cancer are often treated with hormonal therapies that block the cancer-fueling effects of testosterone, but many develop resistance to such therapies, underscoring the need for other effective treatments. In one of the first randomized clinical trials of a therapeutic cancer “vaccine” (APC8015, or Provenge) – designed to stimulate the patient’s own immune system to attack prostate cancer cells – researchers reported a 17% increase in overall survival for patients receiving the vaccine compared with a placebo (25.9 months, compared with 22 months). Three years later, more than three times as many patients who received the vaccine were still alive, compared with the placebo group. Some investigators were surprised at the activity seen in patients with advanced disease, and felt that further studies would be required to confirm this level of activity.7
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GYNECOLOGIC CANCERS

Gynecologic cancers include cancers of the cervix, uterus, ovaries, fallopian tubes, and vagina. Ovarian and cervical cancers are two of the most common gynecological cancers in the United States. Cervical cancer is even more common in developing countries, where screening with the Pap test is not widely available.

MAJOR ADVANCES

Vaccines Effective in Preventing HPV Infection

The most significant advance in gynecologic oncology over the last year was the development of vaccines to prevent infection with the human papillomavirus (HPV), which is found in virtually all cervical cancers. Three studies showed that two different HPV vaccines were highly effective in preventing infection with the virus. More follow-up will be necessary to determine the vaccines’ impact on cervical cancer rates; if proven effective, such a vaccine could profoundly reduce the global burden of cervical cancer.

One study of a vaccine (Cervarix) to prevent HPV 16 and HPV 18 – the viral types most commonly associated with cervical cancer – found that the vaccine prevented 91.6% of “incident” HPV infections (exposure to the virus) and 100% of persistent infections (ongoing infection likely to lead to cervical cancer).1

A second study of a vaccine (Gardasil) targeting four types of HPV showed that the incidence of infection with HPV 6, 11, 16, or 18 was 90% lower in women who received the vaccine compared with women who received a placebo.2 A second study reported that Gardasil prevented 100% of cervical precancers and noninvasive cervical cancers among more than 12,000 women in several countries who were followed for an average of 17 months following vaccination, compared with 21 cases detected in women who received a placebo.3

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HEAD AND NECK CANCERS

Head and neck cancers – those affecting the nose, mouth, tongue, throat, and larynx – are usually treated with a combination of surgery, chemotherapy, and/or radiation therapy. However, because treatment of these cancers can be disfiguring and disabling, the challenge is to determine the most effective combination of treatments that also preserve as much of a patient’s appearance and function as possible. Several studies in the past year evaluated new drugs and drug combinations for head and neck cancers that may slow disease progression, while allowing preservation of critical organs, such as the larynx (voice box).

NOTABLE RESEARCH

• Treatment with Cetuximab (Erbitux) for Head and Neck Cancers May Prolong Life – In 2004, data demonstrated that adding the targeted therapy cetuximab to standard chemotherapy for head and neck cancers increased survival. A new analysis combining data from four clinical trials confirmed and extended those findings by showing that cetuximab also may prolong life when added to chemotherapy in patients whose cancer returned or spread following initial treatment. The analysis found that patients who received cetuximab survived 5.9 months compared with 3.4 months for patients who did not receive the drug.1

Cetuximab may also help preserve the larynx. Researchers showed that patients with locally advanced hypopharyngeal or laryngeal cancer who received cetuximab with radiation therapy were more likely to have their larynxes preserved compared with patients who received radiation therapy alone.2

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LUNG CANCER

Lung cancer incidence and mortality have begun declining in recent years, due in large part to a decrease in smoking rates over the last several decades, particularly among men. However, the disease remains the leading cancer killer in the United States, with an estimated 163,510 deaths expected in 2005.

Because no reliable screening techniques exist for lung cancer, the disease is most often found at an advanced, incurable stage. Even lung cancer detected in its earliest stages has been difficult to treat, with just half of early-stage patients surviving five years after diagnosis.

However, two important studies published in 2005 have changed the outlook for lung cancer patients, showing that treatment with chemotherapy and newer, more targeted therapies can significantly extend survival for patients who have had – until now – a very poor prognosis.

MAJOR ADVANCES

Definitive Study Demonstrates Effectiveness of Adjuvant Chemotherapy for Early-Stage Lung Cancer

Until now, questions have persisted about the benefit of adjuvant chemotherapy in the treatment of non-small cell lung cancer (NSCLC). The detailed results of a large randomized trial showed that giving chemotherapy after surgery to patients with early-stage NSCLC significantly extends survival. The study resolves a long-standing debate about the benefit of adjuvant chemotherapy, definitively demonstrating that such treatment has a beneficial role in the care of patients with operable NSCLC.

Researchers with the National Cancer Institute of Canada Clinical Trials Group and the U.S. National Cancer Institute Intergroup Trial found that overall survival among patients with early-stage NSCLC who received the anticancer drugs vinorelbine and cisplatin after surgery was 94 months, compared with 73 months for patients who did not receive such adjuvant chemotherapy. Five-year survival was also higher in the chemotherapy group (69% vs. 54%), and the risk of recurrence was 40% lower in the chemotherapy group.¹

These findings, along with those reported recently by the Adjuvant Navelbine International Trialist Association (ANITA) and the Cancer and Leukemia Group B (CALGB), confirm that adjuvant chemotherapy has a significant role in the treatment of patients with operable NSCLC who are in otherwise good health.²,³

Bevacizumab (Avastin) Improves Survival in Advanced Lung Cancer

A large trial demonstrated that the angiogenesis inhibitor bevacizumab in combination with chemotherapy can significantly extend survival in patients with advanced lung cancer. It is the first time a study has shown that adding a targeted agent to standard chemotherapy increases survival for patients with advanced NSCLC, and is particularly important because nearly two-thirds of patients with metastatic NSCLC are eligible for this regimen.

Researchers from several U.S. cancer centers found that adding bevacizumab to standard combination chemotherapy (paclitaxel and carboplatin) increased survival – patients receiving bevacizumab survived 12.5 months compared with 10.2 months for patients who received standard therapy alone.⁴

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PEDIATRIC CANCERS

Over the last several decades, progress in successfully treating childhood cancers has been remarkable, with 75% of children alive five years after diagnosis. However, many survivors experience significant health problems resulting from the cancer or its treatment as they get older. In 2005, a major study of adult childhood cancer survivors documents for the first time the extent and severity of the long-term health problems that can arise in the decades after treatment.

MAJOR RESEARCH

Many Childhood Cancer Survivors Have Significant Health Problems as Adults

The Childhood Cancer Survivor Study surveyed more than 10,000 adult survivors of childhood cancers treated in the 1970s and 1980s, finding that the risk of having a moderate to severe health problem was five times greater for survivors, compared with their healthy siblings. The study provides the first estimate of the frequency of health problems in childhood cancer survivors as they become adults, and supports the need for greatly enhanced, long-term follow-up medical care for these individuals. It also highlights the need for additional research to develop less toxic treatment approaches that do not sacrifice efficacy.

Researchers measured the incidence of moderate and severe chronic health problems, finding that by age 45, 57.1% of the survivors and 18.2% of the siblings reported a moderate health problem; 37% of survivors and 4.6% of the siblings reported severe health problems. Examples of health problems included second cancers, heart disease, and scarring of the lungs.1

NOTES

SKIN CANCER

More than one million cases of skin cancer are diagnosed in the United States every year. The vast majority are basal cell and squamous cell skin cancers, which are relatively easy to treat. Though less common, melanoma is significantly more invasive, can spread quickly, and is more likely to be life-threatening than other types of skin cancers. Most skin cancers are caused by overexposure to ultraviolet radiation from the sun.

Studies over the past year reported that skin cancers of all types are becoming more common, especially in younger people, signaling the need for renewed vigilance to prevent skin cancers and to develop more effective therapies to treat them.

MAJOR RESEARCH

Incidence of Skin Cancer Is Increasing in People Under 40

Several studies showed that the incidence of all types of skin cancer is increasing in children and young adults. The increasing incidence of both melanoma and nonmelanoma skin cancers in these age groups underscores the importance of sun protection very early in life. Additional research will be necessary to determine if factors other than sun exposure may explain the increase in skin cancer cases, including the possible role of genetics.

- According to an analysis of the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) database, the incidence of melanoma in people under age 20 increased 2.9% per year from 1973 to 2001.1

- Such increases are also being seen for nonmelanoma skin cancers: Mayo Clinic researchers reported that the incidence of these cancers among people under age 40 increased significantly in Olmsted County, Minnesota between 1976 and 2003. The incidence of basal cell carcinoma increased from 18.2 cases to 29.1 cases per 100,000 people, while the incidence of squamous cell carcinoma increased from 0.9 cases to 4.1 cases per 100,000 people. Further research is needed to determine whether these data are reflective of larger trends in skin cancer incidence in other parts of the country as well.2

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CANCER PREVENTION

Cancer prevention research involves studies of lifestyle changes to reduce the risk of cancer, such as smoking cessation, exercising, or following a balanced diet and maintaining a healthy weight, as well as studies of certain medicines and supplements that may lower the risk of developing cancer.

In the last year, a number of studies examined the effect of certain agents – such as anti-inflammatory drugs, vitamins, and statins – on reducing the risk of cancer. While the studies point to promising areas of research, they are not definitive, and will need to be confirmed with larger, longer-term trials before they can be recommended for widespread use.

NOTABLE RESEARCH

• **Anti-inflammatory Drugs May Reduce Risk of Certain Cancers** – Three large studies found that anti-inflammatory compounds such as non-steroidal anti-inflammatory drugs (NSAIDs) and aspirin may be useful in the prevention of certain cancers.
  ◦ **NSAIDs.** A study conducted in Norway found that smokers who used NSAIDs over long periods of time had a 65% lower risk of oral cancer than smokers who did not, and the protective effect increased the longer NSAIDs were used.
  ◦ **Aspirin.** Findings from the Women’s Health Study involving nearly 40,000 women showed that low-dose aspirin did not prevent cancer. However, research from the Nurse’s Health Study involving more than 80,000 women showed that taking high doses of NSAIDs or aspirin regularly for a prolonged period of time cut the risk of colon cancer in half, and that higher doses were linked to higher levels of protection.

• **Some Vitamins Fail to Show a Benefit in Cancer Prevention** – While nutritional supplements have been touted in recent years as potential chemoprevention agents, four large studies in 2005 found that vitamin E supplements did not reduce the risk of cancer or cardiovascular disease, and in some cases, may raise the risk of heart disease. These findings, along with other studies showing an increased cancer risk from nutritional supplements in certain populations – like beta-carotene in smokers – reinforce the need to carefully assess nutritional supplements in large, randomized trials before using them for cancer prevention.

• **Statins Show Promise for Reducing Risk of Certain Cancers** – Four retrospective studies found that statins – drugs widely used to lower cholesterol levels – may reduce the risk of breast, lung, colon, and prostate cancers by up to 50%. Statins work by inhibiting an enzyme called HMG-CoA reductase, which regulates a cell signaling pathway that may play an important role in the development of cancer (other mechanisms may also be important). They also may trigger “apoptosis” in cancer cells, the natural process of cell death. While these findings are promising, it is too soon to recommend that people begin taking statins to reduce their risk of cancer.

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ACCESS TO HIGH-QUALITY CANCER CARE

Although important strides have been made in the prevention, early detection, and treatment of cancer, not everyone is benefiting from these advances. Disparities in access to high-quality cancer care in the United States still exist based on race, geography, and socioeconomic status, and may be attributed to a variety of factors:

• **Lack of Health Insurance.** People in low-income, minority, and immigrant populations more frequently lack health insurance and are consequently less likely to participate in cancer screening programs, more likely to be diagnosed at an advanced stage, and less likely to seek or receive high-quality care.

• **Geographic Obstacles.** Patients in rural areas often live far away from hospitals, making access to treatment difficult. Academic medical centers, which offer access to clinical trials and have extensive experience treating certain types of cancer, are often even further away. Other patients may lack regular transportation, which can prevent them from adhering to their treatment regimens.

• **Cultural and Language Barriers.** Language difficulties or cultural barriers may prohibit optimal communication between patients and their health care providers.

• **Usage of Guidelines.** Variations in following cancer care guidelines have been documented for different geographic regions, and variations also exist among oncologists within the same geographic area.

NOTABLE RESEARCH

Several studies over the last year highlighted notable progress and challenges in ensuring access to high-quality cancer care in the United States.

• **Timing of Medicaid Enrollment Affects Patient Outcome** – Patients who enroll in Medicaid after a cancer diagnosis do not fare as well as those who have Medicaid insurance before being diagnosed. Analyzing data from the Michigan Tumor Registry, researchers found that patients who were enrolled in Medicaid after their diagnosis lived half as long as those who had Medicaid before diagnosis. This study highlights the need for uninsured people to participate in cancer screening programs. Currently, individuals are not eligible for Medicaid unless they are pregnant, caring for children, or have a long-term disabling condition and show evidence of low income.1

• **Majority of Patients Receive High-Quality Cancer Care** – Patients with breast and colorectal cancer in the United States receive higher quality care than previous research had indicated, according to ASCO's National Initiative on Cancer Care Quality (NICCQ). Researchers from Harvard and the Rand Corporation examined the quality of cancer care delivered to 1,765 patients in five cities who had breast or colorectal cancer, and found that the medical profession's overall adherence to quality measures was 86% when treating people with breast cancer and 78% when treating those with colorectal cancer.2

• **Managed Care Has Not Impaired Cancer Care** – Harvard Medical School researchers analyzed data from the Surveillance and Epidemiology End Results (SEER) Program for more than 89,000 Medicare beneficiaries diagnosed with breast or colorectal cancer in 202 U.S. counties between 1993 and 1999. They found that the growing presence of managed care in individual counties did not influence the quality of cancer care: patients received appropriate treatments and follow-up tests regardless of the degree to which managed care existed in their counties.3

• **Gastric Cancer Surgery and Staging Are Inadequate** – A study by researchers at the University of Toronto showed that the number of lymph nodes removed and assessed during gastric cancer surgery is inadequate throughout much of the United States; that care varies greatly by geographic region; and that inadequate removal of lymph nodes is associated with lower patient survival. Researchers found that only 27.6% of patients had the suggested number of lymph nodes removed. The findings show that gastric cancer surgery must improve throughout the United States.4

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CANCER SURVIVORSHIP

Since the passage of the National Cancer Act in 1971, important advances have been achieved in virtually every area of cancer research. With this progress, there are now nearly 10 million cancer survivors in the United States, a figure that is expected to increase substantially as the population ages and progress against cancer continues.

However, the end of cancer treatment is not the end of the cancer experience. Life after cancer treatment brings diverse and often unexpected challenges, which may be influenced by the survivor’s age at the time of diagnosis, the type and severity of both the cancer and its treatment, financial and geographic access to follow-up care, employment and educational needs, and language differences, among other factors.

MAJOR RESEARCH

Many Survivors Have Significant Long-Term Health Problems

An analysis by the Childhood Cancer Survivors Study found that adult survivors of childhood cancers were five times more likely to have a moderate to severe health problem than their healthy siblings (see p. 17 for additional details).¹

In addition, a major report by the Institute of Medicine builds on past IOM reports examining the long-term health problems faced by cancer survivors. The 2005 report on adult cancer survivorship recommended strategies for raising awareness of the long-term medical, functional, and psychosocial consequences of cancer and its treatment; defining quality health care for cancer survivors and identifying strategies to achieve it; and improving the quality of life of cancer survivors through policies to ensure their access to psychosocial services, fair employment practices, and health insurance.²

OTHER NOTABLE RESEARCH

- **Low-Fat Diet.** Researchers from the Women’s Intervention Nutrition Study examined the effect of a strict low-fat diet on postmenopausal women with early-stage breast cancer, finding that the risk of breast cancer recurrence was 24% lower for the women on the low-fat diet, with a potentially greater benefit for women with tumors that were not fueled by the hormone estrogen (see p. 8 for additional details).³

- **Aspirin Usage.** A prospective analysis of colon cancer patients found that regular doses of aspirin or other NSAIDs following surgery reduced the risk of recurrence and death by approximately 50% compared with those who did not take these drugs.⁴

- **Regular Exercise.** Two studies showed that regular exercise may significantly reduce the risk of cancer recurrence. One study showed that women with breast cancer who walked or did other types of moderate exercise for three to five hours per week were 50% less likely to die from the disease than sedentary women.⁵ A second study showed that patients with colon cancer who exercised regularly reduced their risk of the cancer returning by 42% to 49%.⁶

- **Quality of Life Varies Significantly Based on Treatment** – A study by researchers at the Dartmouth-Hitchcock Medical Center examining quality of life among survivors of lymphoma and breast cancer showed that quality of life varied significantly based on whether patients were treated with local or systemic chemotherapy. Patients who received systemic chemotherapy had a substantially lower overall quality of life.⁷
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ASCO INITIATIVES: CANCER SURVIVORSHIP, PREVENTION, AND HIGH-QUALITY CARE

As part of its mission to improve cancer care in the United States, ASCO has undertaken the following initiatives to address critical issues in cancer survivorship, cancer prevention, and high-quality cancer care:

Cancer Survivorship. In December 2004, ASCO announced the formation of a new Survivorship Task Force to undertake a range of initiatives to improve the care of cancer survivors. Some of these activities include:

- **Training Curriculum.** ASCO is reviewing its Core Curriculum Outline to ensure that cancer survivorship issues are fully incorporated throughout. The new curriculum, an educational tool for the training of oncologists, will address long-term follow-up care of survivors, prevention of second cancers, interventions for people with a genetic history of cancer, psychosocial issues, employment and insurance issues, information and education, and advocacy.

- **Survivorship Guidelines.** ASCO is developing Clinical Practice Guidelines for physicians on key survivorship issues, including the monitoring of late effects of cancer treatment, screening for secondary cancers, management of psychosocial issues, and ensuring high-quality post-treatment care for all adult cancer survivors.

- **Patient Information.** ASCO’s patient website, People Living with Cancer (www.PLWC.org), is partnering with the Lance Armstrong Foundation’s LIVESTRONG website (www.livestrong.org) to provide oncologist-approved information to patients and their families on survivorship issues.

- **Adult Cancer Survivorship.** In November 2005, ASCO co-sponsored a symposium with the Institute of Medicine (IOM) and the National Coalition of Cancer Survivorship (NCCS) to highlight the IOM’s recent report on adult cancer survivorship, *From Cancer Patient to Cancer Survivor: Lost in Transition*, and to develop action plans to implement the major recommendations of the report.

- **Childhood Cancer Survivorship.** As a member of the Alliance for Childhood Cancer, ASCO is working with partner organizations to address the specific needs of survivors of childhood cancers, focusing initially on insurance coverage.

- **Survivorship Research.** ASCO supports research on interventions to improve the long-term care of cancer survivors. In the past two years, the ASCO Foundation has awarded five grants to support research on issues related to survivorship.

Cancer Prevention. Cancer surveillance and prevention are becoming integral parts of cancer management. In 2002, ASCO established a Cancer Prevention Committee to disseminate evidence supporting prevention interventions and to encourage ASCO members to expand their care of patients and their families to include cancer prevention. In addition to educating ASCO’s more than 23,000 members about effective prevention strategies, current goals of the Cancer Prevention Committee include:

- Reduce and eventually eliminate use of tobacco products
- Integrate cancer prevention into physician training and evaluation
- Ensure routine insurance coverage of cancer prevention interventions
- Support the development of tools to assess individual cancer risk and identify environmental risk
- Assess existing cancer prevention guidelines

High-Quality Cancer Care. In 1999, ASCO established a Task Force on Quality of Cancer Care to conduct a major study to analyze the quality of care and treatment for people living with cancer in the United States. The results of that study – ASCO’s National Initiative on Cancer Care Quality (NICCQ), presented earlier this year – found that the large majority of patients with breast and colorectal cancer receive the recommended level of care necessary to treat their diseases. In areas where improvements are possible, ASCO is developing tools and resources to help ensure that patients are receiving the best possible care. In addition, ASCO continues to work with Congress to ensure people living with cancer have access to high-quality cancer care through adequate Medicare coverage and other measures.
NOTES
1. Incidence and mortality figures for all sites include cancers not listed in table, including nonepithelial skin cancers; other digestive, respiratory, oral, and endocrine cancers; other types of leukemia; and unspecified primary sites.

2. Childhood cancers include leukemia, brain and nervous system, neuroblastoma, Wilms tumor, Hodgkin lymphoma, rhabdomyosarcoma, retinoblastoma, osteosarcoma, and Ewing sarcoma for children ages 0-14.

3. Other skin cancers – including squamous cell and basal cell skin cancers – are diagnosed in more than 1 million people in the U.S. each year, and are not included in this table.

4. Oral cancers include those of the nose, mouth, tongue, throat, and pharynx.

CANCER MORTALITY TRENDS


*Age-adjusted to the 2000 US standard population.


*Age-adjusted to the 2000 US standard population.

Source: American Cancer Society: Cancer Facts and Figures 2005. Atlanta, GA; American Cancer Society: 2005
GLOSSARY OF TERMS

Adjuvant therapy: anti-cancer treatment (such as chemotherapy) that is given after surgery to reduce the risk of cancer recurrence and to improve survival.

Angiogenesis inhibitor: a drug that prevents the growth of blood vessels that tumors need to grow.

Aromatase inhibitors: drugs used in postmenopausal women with breast cancer to lower levels of the hormone estrogen by interfering with the aromatase enzyme; aromatase inhibitors include anastrozole, exemestane, and letrozole.

Cancer vaccine: a substance or group of substances designed to trigger the body's own immune system to recognize and destroy cancer cells.

Cognitive: having to do with the ability to think and reason, including the ability to concentrate, remember things, process information, learn, speak, and understand.

Digital mammography: a technique that uses a computer, rather than x-ray film, to record x-ray images of the breast.

Epidermal growth factor receptor (EGFR) inhibitors: drugs that interfere with cancer cell division and growth by targeting EGFR, a protein found in high levels on the surface of many types of cancer cells.

Fecal occult blood test: a screening test for colorectal cancer that looks for blood in the stool.

Gene therapy: treatment that alters a gene; in studies of gene therapy for cancer, researchers are trying to improve the body's natural ability to fight the disease or to make cancer cells more sensitive to other kinds of therapy.

Human papillomavirus (HPV): a sexually transmitted virus closely associated with genital warts and cervical cancer.

Interferon-alpha: an immunotherapy that interferes with the division of cancer cells and slows tumor growth; used to treat renal cell carcinoma.

Interleukin-2: a drug that stimulates the growth of certain disease-fighting blood cells in the immune system; used to treat renal cell carcinoma.

Metastasis: the spread of cancer from one part of the body to another.

Monoclonal antibodies: substances produced in the laboratory that can locate and bind to cancer cells wherever they are in the body. They can be used alone or to deliver drugs, toxins, or radioactive material directly to a tumor.

Neoadjuvant therapy: treatment (such as chemotherapy) that is given before surgery to shrink a tumor before it is removed.

Prognostic marker: a protein or other substance that may indicate how a cancer will behave or respond to treatment.

Prostate-specific antigen (PSA): a substance produced by the prostate that may be found in an increased amount in the blood of men who have prostate cancer, benign enlarged prostate, or infection or inflammation of the prostate.

Proteasome inhibitors: drugs that block the function of the proteasome, a group of enzymes that play an important role in regulating the function and growth of cells.

Tyrosine kinase inhibitor: a drug that interferes with cell communication and growth and may prevent tumor growth by blocking the enzyme tyrosine kinase.