CANCERcare®

CONNECT® BOOKLET SERIES

HIGHLIGHTS FROM ASCO 2011

Your Guide to the Latest Cancer Research and Treatments

Highlights from the 2011 Annual Meeting of the American Society of Clinical Oncology

WWW.CANCERCARE.ORG

Cancer*Care* helps individuals and families better cope with and manage the emotional and practical challenges arising from cancer. Our services—for patients, survivors, loved ones, caregivers, and the bereaved—include counseling and support groups, educational publications and workshops, and financial assistance. All of our services are provided by professional oncology social workers and are offered completely free of charge. Cancer*Care* is a national nonprofit organization founded in 1944.

Cancer*Care* relies on the generosity of supporters to provide our services completely free of charge to anyone facing a cancer diagnosis. If you have found this resource helpful and wish to donate, please do so online at www.cancercare.org/donate. You may also send a check payable to Cancer*Care*; mail it to: Cancer*Care*, 275 Seventh Avenue, New York, NY 10001, Attn: Donations. Thank you.

CANCER*care*®

Contacting Cancer*Care*

National Office
Cancer*Care*
275 Seventh Avenue
New York, NY 10001

info@cancercare.org
800-813-HOPE (4673)
www.cancercare.org

If you are a health care professional interested in ordering free copies of this booklet for your patients, please use the online order form on our website, *www.cancercare.org*.

Your Guide to the Latest Cancer Research and Treatments

Highlights from the 2011 Annual Meeting of the American Society of Clinical Oncology

Presented by: Cancer*Care*

Edited by:

Al B. Benson III, MD
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Ann M. Berger, PhD, APRN, AOCNS, FAAN
University of Nebraska Medical Center

Steven S. Brem, MD
Hospital of the University of Pennsylvania

E. David Crawford, MD
University of Colorado Denver

Keith T. Flaherty, MD
Massachusetts General Hospital Cancer Center

Sergio A. Giralt, MD
Memorial Sloan-Kettering Cancer Center

Eric Jonasch, MD
UT MD Anderson Cancer Center

Robert J. Morgan, MD
City of Hope

Edith A. Perez, MD
Mayo Clinic

Susan Slovin, MD, PhD
Memorial Sloan-Kettering Cancer Center

Mark A. Socinski, MD
UPMC Cancer Pavilion

Margaret von Mehren, MD
Fox Chase Cancer Center

This Cancer*Care* Connect® booklet was made possible by the following companies:

Amgen

Bristol-Myers Squibb

Genentech BioOncology

Eli Lilly and Company

Novartis Oncology

Millennium: The Takeda Oncology Company

Table of Contents

About This Guide

The American Society of Clinical Oncology (ASCO) is the world's leading professional organization representing doctors who treat people with cancer. Each year, more than 30,000 cancer researchers and oncologists from around the world gather in the United States for ASCO's Annual Meeting. The 2011 Annual Meeting of ASCO took place in Chicago, Illinois, June 4-8.

The ASCO Annual Meeting is an international conference in which presentations are given on the most cutting-edge findings in cancer treatment and care. At the meeting, cancer care professionals have the opportunity to listen to, learn from, and discuss scientific papers that point the way to improved treatment.

This guide, produced by Cancer*Care*, covers key research findings presented on 12 different cancer types. It also includes a chapter on advances in improving the health and quality of life of people with cancer. Each chapter was edited by an expert in the field, who ensured accuracy of the information presented. Their names and titles are listed on pages 6 to 8.

We hope you find this guide helpful in your search for the latest cancer information. For more information on other Cancer*Care* publications, or to learn how our oncology social workers can help you cope with cancer, visit us at **www.cancercare.org** or call **800-813-HOPE (4673)**.

How Clinical Trials Contribute to Treatment Options

This Cancer*Care* Connect® booklet focuses on recent advances in the treatment of various cancer types—advances made possible only through the process of clinical trials. Clinical trials are studies that proceed in phases and test new drugs, treatments, or other interventions with the goal of improving the survival and quality of life of people with cancer.

Phase I trials test, for the first time, the safety of a new drug or dosage in a relatively small group of people. Phase II trials test the treatment in a larger group of people to see whether it is, in fact, effective. In Phase III trials, the new treatment is given to a larger group of patients and compared head-to-head with the current standard of care. If it is found to be more effective, it may change the way patients with that diagnosis are treated in the future.

There are many reasons to consider joining a clinical trial. For example, in later-stage trials, the treatments being tested have already shown promise of being just as effective or possibly better than the current standard of care. On the other hand, earlier-stage trials may offer additional treatment options for individuals who have already tried the standard of care or various other treatments.

If you are interested in joining a clinical trial, speak with your oncologist. He or she is most familiar with your case and can tell you whether any of the trials discussed in this booklet, or others in progress, may be right for you. You can also find listings of clinical trials through the Web resources listed on page 88 of this booklet.

About the Editors

Cancer*Care*® is a national nonprofit organization that provides free professional support to anyone affected by cancer. Our services are provided by oncology social workers and include individual counseling, support groups, education, financial assistance, and referrals to resources.

Each year, the Cancer*Care* Connect® booklet series publishes a special edition that presents research highlights from the Annual Meeting of the American Society of Clinical Oncology (ASCO). For this 2011 report, we are indebted to the following medical experts, who ensured the accuracy of the information discussed in this publication.

Al B. Benson III, MD
Professor of Medicine
Associate Director for Clinical Investigations
Robert H. Lurie Comprehensive Cancer Center
of Northwestern University
Chicago, Illinois

Ann M. Berger, PhD, APRN, AOCNS, FAAN
Professor and Dorothy Hodges Olson
Endowed Chair in Nursing
Clinical Nurse Specialist-Oncology
Director, PhD Program, College of Nursing
University of Nebraska Medical Center
Omaha, Nebraska

Steven S. Brem, MD
Professor and Co-Director, Penn Brain Tumor Center
Chief, Neurosurgical Oncology
Department of Neurosurgery
Hospital of the University of Pennsylvania
Philadelphia, Pennsylvania

E. David Crawford, MD
Professor of Surgery, Urology,
and Radiation Oncology
Head, Urologic Surgery
University of Colorado Denver
Aurora, Colorado

Keith T. Flaherty, MD
Director, Developmental Therapeutics
Massachusetts General Hospital Cancer Center
Boston, Massachusetts

Sergio A. Giralt, MD
Chief, Adult Bone Marrow Transplant Service
Memorial Sloan-Kettering Cancer Center
Professor of Medicine
Weill Cornell College of Medicine
New York, New York

Eric Jonasch, MD
Associate Professor of Medicine
Department of Genitourinary Medical Oncology
UT MD Anderson Cancer Center
Houston, Texas

Robert J. Morgan, MD
Co-Director: Gynecologic and Peritoneal
Malignancies Program
Director, Continuing Medical Education
City of Hope
Duarte, California

Edith A. Perez, MD

Deputy Director, Mayo Clinic Cancer Center
Group Vice-Chair, Alliance for Clinical Trials in Oncology
Serene M. and Frances C. Durling Professor of Medicine, College of Medicine
Mayo Clinic
Jacksonville, Florida

Susan Slovin, MD, PhD

Associate Attending Physician
Genitourinary Oncology Service
Sidney Kimmel Center for Prostate and Urologic Diseases
Memorial Sloan-Kettering Cancer Center
Associate Professor of Medicine
Department of Medicine
Weill College of Cornell University

Mark A. Socinski, MD

Visiting Professor of Medicine and Thoracic Surgery
Director, Lung Cancer Section,
Division of Hematology/Oncology
Co-Director, UPMC Lung Cancer Center of Excellence
Co-Director, Lung and Thoracic Malignancies Program
UPMC Cancer Pavilion
Pittsburgh, Pennsylvania

Margaret von Mehren, MD

Professor of Medical Oncology
Director of Sarcoma Oncology
Director of Clinical Trials Operations
Fox Chase Cancer Center
Philadelphia, Pennsylvania

Brain Cancer

At the 2011 ASCO Annual Meeting, researchers presented results on a number of clinical trials in glioblastoma and high-grade gliomas (malignant tumors that occur in the brain). One of the most promising types of treatment discussed was a new class of medications called anti-angiogenesis drugs. Anti-angiogenesis drugs prevent cancer cells from establishing a blood supply, thereby starving the tumor. Drugs in this class have been approved to treat many types of cancer. One of these drugs, bevacizumab (Avastin), has been approved to treat glioblastomas that have come back after standard treatment. Researchers are studying whether bevacizumab may also be an option for patients whose cancer is newly diagnosed. As this research and the other studies highlighted in this chapter show, researchers are working hard to find new and more effective treatments for brain cancer.

Steven S. Brem, MD
Hospital of the University of Pennsylvania

Bevacizumab in Newly Diagnosed Brain Cancer

The standard treatment for patients newly diagnosed with glioblastoma is a combination of the chemotherapy temozolomide (Temodar) and radiation. Two recent clinical trials looked at adding the drug bevacizumab to this standard treatment. Both trials showed some promising results.

In the first trial, bevacizumab alone was added to shortened treatment cycles of radiation and temozolomide. This

combination was found to be safe and more convenient than the standard treatment. Patients who received the combination were able to undergo radiation for a shorter period of time and experienced fewer problems with concentration, memory, and other cognitive skills throughout the treatment and beyond. Additionally, their cancer was better controlled: The researchers found that the number of patients whose cancer did not progress or who survived at least one year after their diagnosis was higher than expected.

In the second trial of newly diagnosed patients with glioblastoma following surgery, bevacizumab was added to either temozolomide or the drug irinotecan, along with radiation. (Irinotecan is a drug currently used to treat colon cancer.) Patients received one of the combinations at different points in their treatment. Some patients received the drug combination before, during, and after radiation. Others received it during radiation. Patients who received bevacizumab plus temozolomide responded better than those who received bevacizumab plus irinotecan. Based on these results and the results of the first study, further research is likely.

WHAT PATIENTS NEED TO KNOW

Bevacizumab has shown promise in treating patients with newly diagnosed glioblastoma. However, both of the trials discussed here were small, with fewer than 75 patients in each, and therefore preliminary. In the second study, side effects such as anemia were common with the combination of bevacizumab plus temozolomide. In looking for new treatments, researchers always look at potential side effects as well as whether the treatment is as effective or more effective than current therapies. The goal is to find the most effective treatment with the least amount of side effects. Two larger studies of bevacizumab in patients with newly diagnosed glioblastoma are currently underway. The hope is that these larger studies may provide additional data on this treatment.

When Glioblastoma Returns Following Bevacizumab Treatment

While bevacizumab does help most patients with glioblastoma that has returned or spread, there are few

treatment options available if the cancer comes back again or continues to grow after bevacizumab treatment. Researchers reviewed five clinical trials to see how patients receiving bevacizumab did on treatment after their brain cancer had returned or continued to grow. Prior to this treatment, some of the patients had received treatment with bevacizumab, and others had received a different treatment that did not include bevacizumab. Patients who continued to take bevacizumab after their cancer spread lived longer (6.1 months) when compared with patients who received non-bevacizumab treatments (4.5 months).

WHAT PATIENTS NEED TO KNOW

Once glioblastoma returns, doctors are limited in their treatment options. According to the results of this study, continuing therapy with bevacizumab may be an available option to help patients live slightly longer. However, the results of this study highlight the need for more research and additional treatment options for glioblastoma that has returned or spread.

Temozolomide During and After Radiation in High-grade Gliomas

Gliomas are a type of primary brain tumor that forms from glial cells. (Glial cells surround and protect the nerve cells and make up a majority of the cells in the central nervous system.) Gliomas are classified as either "low-grade" (generally slow growing and easier to treat) or "high-grade" (faster growing and difficult to treat). Some studies have shown that use of the drug temozolomide along with radiation, and then again following radiation, increases survival rates in patients with high-grade gliomas. To validate these earlier studies, researchers in Colombia, South America, conducted the

largest trial of this treatment, known as the RedLANO registry. Participants in this trial survived for an average of 15.8 months, and the time until their cancer started to spread averaged 9.5 months. Also, 69% of patients were still alive one year later, and 31% were alive two years later.

WHAT PATIENTS NEED TO KNOW

Certain types of brain cancers, such as high-grade gliomas, can grow quickly. The standard treatments for this form of brain cancer are surgery, radiation, and chemotherapy. This large study reported the effects of using temozolomide during and after radiation. RedLANO registry data were taken from actual clinical practices, making these results directly applicable to patients. At the same time, the results are also similar to survival data from previous clinical trials.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Breast Cancer

The 2011 ASCO Annual Meeting featured several interesting presentations, some of which may be very promising for people with breast cancer. One presentation, in particular, showcased very positive evidence on the benefits of using radiation therapy on regional lymph nodes in women with early-stage node-positive breast cancer. Another presentation showed effects of iniparib in triple-negative breast cancer that has spread to other areas of the body and whether a protein called PTEN impacts the efficacy of the well-established targeted anti-cancer drug, trastuzumab (Herceptin), in women with human epidermal growth factor receptor 2 (HER2)-positive breast cancer. Results of these recent breast cancer trials continue to show encouraging progress in managing breast cancer.

Edith A. Perez, MD
Mayo Clinic

Localized Radiation in Node-positive Breast Cancer Shows Promise

Results from a large clinical trial of women with early-stage breast cancer that had spread or was likely to spread to the lymph nodes (node-positive breast cancer) showed that radiation to the regional lymph nodes decreased the chance that the cancer would return. Regional lymph nodes are those located near where the tumor started; in breast cancer, these are called the axillary lymph nodes and are located in the armpit on the same side of the body where the cancer began. Most women with node-positive breast cancer currently

undergo breast-conserving surgery—where the breast tumor and axillary lymph nodes are removed—followed by radiation of the whole breast and either chemotherapy or hormone therapy. This trial was designed to determine if adding radiation therapy targeted to the regional lymph nodes would be beneficial. After around five years, about 3% of the women who received localized radiation in addition to their other therapy had cancer come back near where the tumor started and about 8% had cancer return in other parts of the body. In women who received breast-only radiation, 6% of the women who received localized radiation in addition to their other treatment had cancer come back near where the tumor started and about 13% had cancer return in other parts of the body. Additionally, women who received both types of radiation also had a trend for living longer; however, the percentage was small and may have been due to chance alone and not the treatment.

WHAT PATIENTS NEED TO KNOW

Researchers believe that these positive results will encourage doctors to offer all women with node-positive breast cancer the option of receiving radiation to the regional lymph nodes, given the encouraging combination of progression-free survival, lowered risk of the cancer returning, manageable side effects, and the possibility that the treatment may even help patients live longer.

Trastuzumab in Early-stage HER2-positive Breast Cancer Based on PTEN Protein Expression

As opposed to what many doctors originally thought, recent data showed that loss of the tumor-suppressing protein called PTEN does not reduce the efficacy of the targeted anti-cancer

drug, trastuzumab, in the adjuvant setting (after breast cancer surgery). This large study looked at tumors from women with early-stage HER2-positive breast cancer who were enrolled in a clinical trial. Patients with tumors that had either a loss of PTEN function or normal PTEN activity did equally well when trastuzumab was added to chemotherapy to prevent breast cancer from coming back.

WHAT PATIENTS NEED TO KNOW

Trastuzumab is a targeted anti-cancer drug that binds to HER2 and kills HER2-positive cancer cells. It is approved to treat HER2-positive breast cancer that has spread after treatment with other drugs and also to be used with other anti-cancer drugs to treat HER2-positive breast cancer after surgery. PTEN is a type of tumor suppressor protein that helps control many cell functions, including cell division and cell death. Changes in the gene that makes PTEN are found in many types of cancer. Earlier laboratory (and limited clinical) studies suggested that tumors with loss of PTEN would not benefit from trastuzumab, whereas other studies had not supported this theory. This prompted further study to see whether PTEN loss would mean the disease was resistant to trastuzumab. Researchers are quite pleased with the clear answer from this trial, that is, that there is no connection between a patient's PTEN status as tested and benefits with adjuvant trastuzumab.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Colorectal Cancer

New drug therapies can improve the lives of cancer patients. But there are also other ways, researchers are finding, to increase the effectiveness of current standards of care for people facing colorectal cancer. Researchers are also looking carefully at patients who will likely benefit the most from certain treatments compared with those who might not be helped at all. Among the topics covered at the 2011 ASCO Annual Meeting were adding targeted anti-cancer drugs to chemotherapy as well as the importance of genetic testing in colorectal cancer patients. The studies highlighted here demonstrate that researchers are committed to continually advancing the treatment and quality of care of patients with colorectal cancer.

Al B. Benson III, MD
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Locally Advanced Rectal Cancer: Challenging the Standard Treatment

The standard pre-surgery treatment for locally advanced rectal cancer is 5-fluorouracil, an IV fluoropyrimidine, known by the abbreviation 5-FU, used in combination with radiation. In this study, researchers wanted to see if another chemotherapy drug—capecitabine (Xeloda), an oral fluoropyrimidine—also used with radiation, would produce similar or better results. While patients who received capecitabine were more likely to develop a reaction called hand-foot syndrome, these same patients also had fewer cancer recurrences three years later

than patients who received 5-FU. In addition, the survival rate for the capecitabine patients after five years was similar to the survival rate for patients who received 5-FU. Overall, both treatments were shown to be safe.

Hand-foot syndrome is a condition marked by pain, swelling, numbness, tingling, or redness of the hands or feet. It sometimes occurs as a side effect of certain anti-cancer drugs. Other side effects included fatigue and rectal inflammation for the capecitabine-containing regimen, and a low white blood cell count, which could potentially reduce immunity, in the 5-FU regimen.

WHAT PATIENTS NEED TO KNOW

Given the favorable survival data and safety profile, capecitabine is an appropriate alternative to 5-FU in a pre-surgical treatment of locally advanced rectal cancer. The high incidence of hand-foot syndrome as a side effect of the capecitabine/radiation regimen may actually predict those patients who would benefit most from this combination.

Genetic Profile of Tumors Can Affect Treatment Response in Metastatic Colorectal Cancer

The genetic makeup of certain types of cancer can help predict how well particular drugs will work. The KRAS gene in colorectal cancer patients—and whether the gene is "wild-type" or "mutant-type"—is an important indicator of a patient's response to treatment. In a recent study, patients whose colorectal cancer had spread received a three-drug regimen of chemotherapy drugs (known as FOLFOX4) either alone or with panitumumab (Vectibix). The patients with wild-type KRAS who received the combination therapy

lived longer than patients who received FOLFOX4 alone. In addition, their tumor growth was better controlled. On the other hand, patients with the mutant-type KRAS gene did worse when panitumumab was added to their FOLFOX4 chemotherapy.

WHAT PATIENTS NEED TO KNOW

FOLFOX4 is a common chemotherapy drug combination used to treat colorectal cancer that has advanced or returned. Panitumumab, a targeted anti-cancer drug known as a monoclonal antibody, is used to treat metastatic colon cancer either during or after certain chemotherapy treatments. The results of this clinical trial show the importance of performing gene testing before treatment with panitumumab to identify patients who are most likely to benefit from its use.

Patients' Health Status Can Affect Certain Colorectal Treatment Regimens

In another clinical trial of FOLFOX4, researchers looked at whether a patient's performance status affected how well the treatment worked. Performance status is a measure of how well a patient is able to perform ordinary tasks and carry out daily activities. This analysis included patients with the wild-type

KRAS gene only. Patients were given FOLFOX4 with or without panitumumab. Patients with a better performance status who received panitumumab plus FOLFOX4 lived longer and their colorectal cancer grew or spread more slowly. Among patients with the higher performance status, the colorectal cancer did not grow or spread for an average of 10.4 months when they received panitumumab plus FOLFOX4 as compared with eight months in patients who received FOLFOX4 alone. In the small number of patients with a lower performance status, however, the time without cancer growth or spread and survival was shortened. Strong side effects were more common in patients receiving panitumumab plus FOLFOX4.

WHAT PATIENTS NEED TO KNOW

As researchers learn more about how cancer grows, targeted anti-cancer drugs, such as panitumumab, are being tested. However, these drugs may not be suitable for every patient whose cancer has spread. The results from this trial suggest that healthier patients who have wild-type KRAS genes may do better with the combination of panitumumab plus FOLFOX4 than patients who are not as healthy.

Chemotherapy After Surgery in Stage-2 and Stage-3 Rectal Cancer

Despite the recommendations of expert guidelines, a significant number of patients with stage-2 or stage-3 rectal cancer who received chemotherapy *before* surgery do not continue with chemotherapy *after* surgery. Researchers studied patient records from a database of colorectal cancer patients treated at eight specialty cancer centers between 2005 and 2010. They found that during the five years, 20% of patients who had rectal cancer surgery did not receive chemotherapy after surgery. The most common

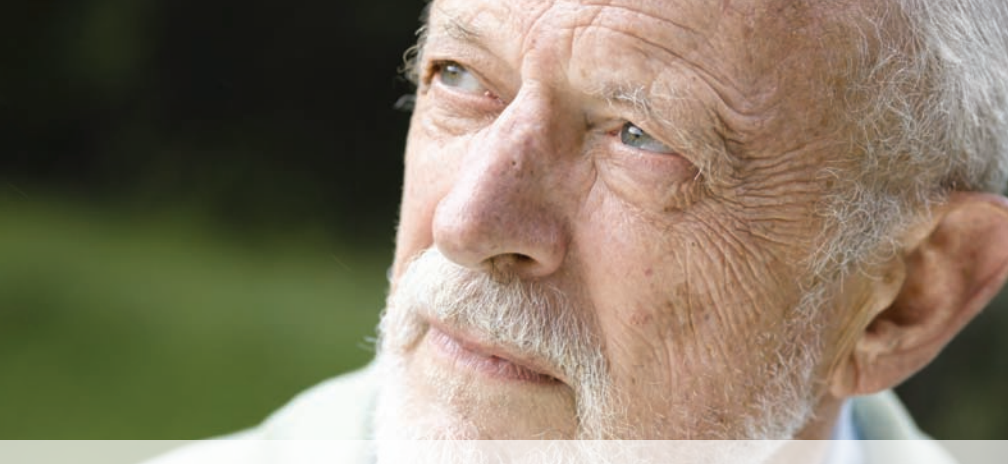
reason chemotherapy was not recommended to patients was because they had a concurrent medical condition that complicated care (54%). But, among the patients to whom post-surgery chemotherapy *was* recommended but not administered, the most common reason (73%) for this was that patients simply refused treatment. Patients who were less likely to receive chemotherapy after surgery were older than 75, needed further surgery or had an infected wound, were in poor health, or were indigent or on Medicaid.

WHAT PATIENTS NEED TO KNOW

This study highlights the need to improve compliance with treatment in patients with rectal cancer and the importance of continuing chemotherapy after surgery when recommended.

Maintenance Treatment After Chemotherapy in Metastatic Colorectal Cancer

Researchers tested a combination of two targeted anti-cancer drugs—bevacizumab (Avastin) and erlotinib (Tarceva)—in



patients who had already completed chemotherapy. Patients were first treated with one of four different chemotherapy regimens (FOLFOX, FOLFIRI, XELOX, or XELIRI) and bevacizumab. Upon completing chemotherapy, patients received bevacizumab alone or bevacizumab plus erlotinib. The patients who received bevacizumab plus erlotinib had no growth in their cancer and had a longer time until their cancer spread than patients taking bevacizumab alone. Patients taking bevacizumab plus erlotinib had more side effects than patients taking only bevacizumab, but overall, the symptoms were manageable.

WHAT PATIENTS NEED TO KNOW

Researchers are always looking for ways to improve survival and maintain quality of life for patients whose colorectal cancer has spread. Maintenance treatment is intended to help prevent cancer from returning or spreading after the primary treatment has been completed. Bevacizumab is used as a maintenance treatment in ovarian cancer. The results of this study suggest that this drug in combination with erlotinib may be an effective treatment option for colorectal cancer patients as well. More studies are planned to better identify those patients who would benefit from this drug combination.

Adding Oxaliplatin to the Standard Treatment of Locally Advanced Rectal Cancer

In a large German trial, a combination of pre-surgical chemotherapy and radiation, followed by surgery and then additional chemotherapy with 5-FU, was considered the standard treatment for locally advanced rectal cancer. Researchers explored the benefits of adding oxaliplatin (Eloxatin) to this regimen. Before and after surgery, patients received either 5-FU alone or 5-FU plus oxaliplatin. Early results showed that tumor growth was better controlled in patients who received oxaliplatin as part of their treatment. Side effects were manageable in this group as well. Researchers also found that most patients who received the oxaliplatin-based treatment were more likely to keep taking their medication.

WHAT PATIENTS NEED TO KNOW

The standard treatment of locally advanced rectal cancer has a cancer-return rate in the rectal region of less than 10%. When this treatment fails, however, the cancer usually returns to a different area in the body. To address this outcome, researchers are studying ways to include oxaliplatin in treatment both before and after surgery. These early results are encouraging for patients with locally advanced rectal cancer. More studies are needed to assess patients over a longer period of time to see if lives are extended using this treatment approach.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Kidney Cancer

In the past few years, clinical trials have helped determine the best way to use targeted anti-cancer drugs in the treatment of kidney cancer. For recently diagnosed patients receiving their first cancer treatments, these newer drugs have largely replaced older immunotherapy drugs. Problems persist, however, should the cancer return or spread. To address this issue, researchers are testing new anti-cancer drugs to use as treatment after the patient does not respond to initial treatment. Highlighted here are results of clinical trials presented at ASCO's 2011 Annual Meeting that show important progress in this area.

Eric Jonasch, MD
UT MD Anderson Cancer Center

Axitinib Treatment Used After Patient Does Not Respond to Initial Treatment in Metastatic Kidney Cancer

Two clinical trials looked at the anti-cancer drug axitinib as a treatment after patients did not respond to initial treatment for renal cell carcinoma, or kidney cancer, that has spread.

The first of these trials, called "AXIS," was a large study of 723 patients which compared axitinib with sorafenib (Nexavar), another anti-cancer drug that is already approved to treat kidney and liver cancer. It took about two months longer for cancer to grow or spread in patients treated with axitinib compared with patients who took sorafenib. Patients in this study had previously received treatment that included

sunitinib (Sutent), bevacizumab (Avastin), temsirolimus (Torisel), or a cytokine. For the most part, axitinib was safe for patients. Some side effects were more common with axitinib treatment, such as high blood pressure and low thyroid activity (hypothyroidism). The second trial of this new drug had 52 patients but followed them for a longer period of time after treatment. Of the patients who received axitinib, 20% lived for five years after starting the drug. Certain factors had some influence on how long a patient lived, such as the patient's overall response to the treatment and the amount of axitinib in the blood.

WHAT PATIENTS NEED TO KNOW

Currently, everolimus (Afinitor), an mTOR inhibitor, is on the market because it was shown in a large study of patients to lengthen the time it takes for tumors to grow if patients had already had tumor growth while taking one or more of the newer targeted agents. Currently, there is no other standard therapy to treat kidney cancer once the cancer stops responding to the first treatment or if the cancer returns. Axitinib is a type of

drug called a VEGFR inhibitor, and it works in part by blocking the formation of new blood vessels needed to support tumor growth. This is the first large, randomized study showing the effectiveness of using a VEGFR inhibitor after the patient's cancer continues to grow on initial VEGFR inhibitor therapy. With the completion of additional clinical studies, axitinib and similar drugs under development could potentially be considered as a standard treatment after a patient does not respond to initial treatment in kidney cancer.

Blood-borne Factors Used as Markers of Tumor Behavior and Therapy Response in a Kidney Cancer Study

Researchers looked at blood-borne (carried or transmitted by the blood) factors that may be associated with tumor behavior to better understand whether these factors can predict to extend the lives of patients and their response to cancer therapy. Blood samples from 344 patients who were treated with pazopanib (Votrient), a VEGFR inhibitor, were

analyzed for special proteins. Researchers found that several proteins were associated with the amount of cancer in the body, and other proteins were specifically associated with better response to pazopanib.

WHAT PATIENTS NEED TO KNOW

The goal of this research was to find some easily measurable factors in the blood of patients with kidney cancer to predict how the cancer is responding to treatment. These results are important as they may help doctors find out which patients are likely to have shrinkage of their tumors after treatment with pazopanib, or other drugs. Looking at these blood-borne markers can also help researchers come up with new cancer treatment strategies.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Leukemia

The 2011 ASCO Annual Meeting included much focus on improving the treatment of patients with blood cancers, particularly acute myelogenous leukemia, chronic myeloid leukemia, and multiple myeloma. Promising new data involving different types of patients at various stages of their diagnoses, along with new types of targeted anti-cancer drugs, stem cell transplantation, and bisphosphonate drugs are covered in this chapter.

Sergio A. Giralt, MD
Memorial Sloan-Kettering Cancer Center

Combination Chemotherapy Tested in Older Patients with Acute Myelogenous Leukemia

Cytarabine is a chemotherapy drug that has been used for more than 40 years to treat blood cancers. Researchers wanted to see if adding another chemotherapy drug, clofarabine (Clolar), would improve response and overall survival when compared with the use of cytarabine alone in acute myelogenous leukemia (AML). The combination led more patients into remission and reduced the number of cancer-related effects such as bone pain or fractures or the spreading of the cancer. However, this combination did not extend the lives of patients versus those who received cytarabine alone. The clinical trial was called CLASSIC I and included patients 55 years of age or older with AML whose cancer had returned or did not respond to treatment. Among those who received the combination treatment, control of tumor growth or spread was doubled and time without cancer-related events was significantly prolonged.

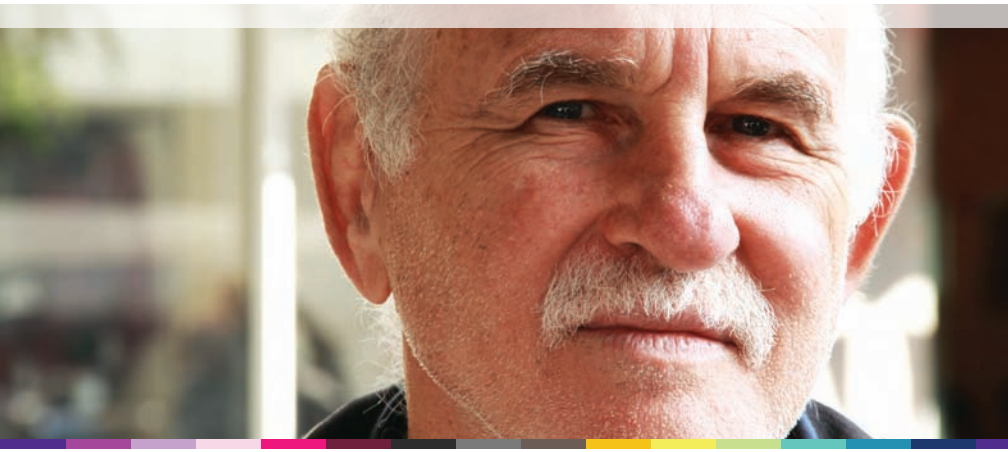
These effects were greatest in patients whose first complete remission lasted six months or longer.

WHAT PATIENTS NEED TO KNOW

AML is a fast-growing cancer in which too many myeloblasts (young white blood cells) are found in the bone marrow and in the blood. It is particularly hard to treat if it returns or the patient had not responded well to the initial treatment. Clofarabine, which is approved to treat another type of blood cancer called acute lymphoblastic leukemia, is a type of drug called a purine analog. It works by interfering with the normal division and functions of cells and prevents cancer cells from making genetic material (DNA and RNA), which stops the growth of cancer cells. Results from CLASSIC I are encouraging and researchers will continue to study for long-term effects of clofarabine and cytarabine.

Testing New Treatment Options for Older Patients with Newly Diagnosed Acute Myelogenous Leukemia

Historically, there have been limited treatment choices for older patients with AML. But the latest results from the largest clinical



trial to date in patients 65 years of age or older with newly diagnosed AML suggest that the lives of patients who received decitabine (Dacogen) were extended slightly over patients who received standard treatments, such as low-dose cytarabine or supportive care intended to improve the patient's quality of life.

Patients who were included in the trial had not received any previous treatment and had to have adequate heart, kidney, and liver function to participate. Patients receiving decitabine lived 2.7 months longer than those who received the standard treatments. While this increase in overall survival was not greater than what might happen by chance alone, the decitabine group who saw their AML go into complete remission was more than double (17.8%) that seen in the cytarabine (8.4%) group and nearly five times that of patients who received supportive care (3.6%). Both decitabine and low-dose cytarabine were similar in terms of safety and side effects. Common side effects of either drug were anemia (low red blood cell count) and a lower-than-normal number of platelets in the blood (thrombocytopenia).

WHAT PATIENTS NEED TO KNOW

Decitabine is a type of drug called a hypomethylating agent. It is currently approved to treat myelodysplastic syndrome (a pre-cancerous condition). Decitabine works by helping the bone marrow produce normal blood cells and by killing abnormal cells in the bone marrow.

The encouraging data from the entire span of this clinical trial led the makers of decitabine to submit an application to the Food and Drug Administration (FDA) for approval to treat AML, with hopes that older AML patients may soon have another treatment option.

New Targeted Drug Bosutinib Promising Against Newly Diagnosed Chronic-phase Chronic Myeloid Leukemia

Updated data from the clinical trial known as BELA confirmed positive remission results in patients with newly diagnosed chronic-phase chronic myeloid leukemia (CP-CML) who received bosutinib compared with those receiving imatinib (Gleevec). After 18 months, 55% of patients in the bosutinib group had fewer cancer genes compared with 45% of those receiving imatinib. Both drugs were equally effective at treating AML: blood tests showed nearly 80% of patients in each group had completely normal cells. However, bosutinib worked faster than imatinib in reducing the number of cancer genes and killing cancer cells. The most common side effects of bosutinib were diarrhea, vomiting, and nausea, which were addressed by changing the dose. The most common side effects of imatinib were swelling and muscle and bone pain.

WHAT PATIENTS NEED TO KNOW

CML is a slow-growing type of blood cancer in which the body makes an uncontrolled number of abnormal white blood cells. About 90% percent of people with CML are in the chronic phase when diagnosed. Bosutinib is a new targeted anti-cancer drug that has shown promise in patients whose cancer is resistant to other drugs in the same class because it acts against multiple enzymes to stop cancer cells from growing. Imatinib is currently FDA-approved for the treatment of CP-CML and other cancers. It works by targeting and turning off certain proteins in cancer cells that cause the cells to grow and spread.

This trial highlights several positive findings. In addition to working faster than imatinib, bosutinib also caused earlier remission in more patients than imatinib. This is important because it translates to a reduced risk of cancer progression. Researchers believe that bosutinib will become a new option for newly diagnosed CML patients.

Long-term Use of Dasatinib Better than Imatinib in Newly Diagnosed Chronic-phase Chronic Myeloid Leukemia

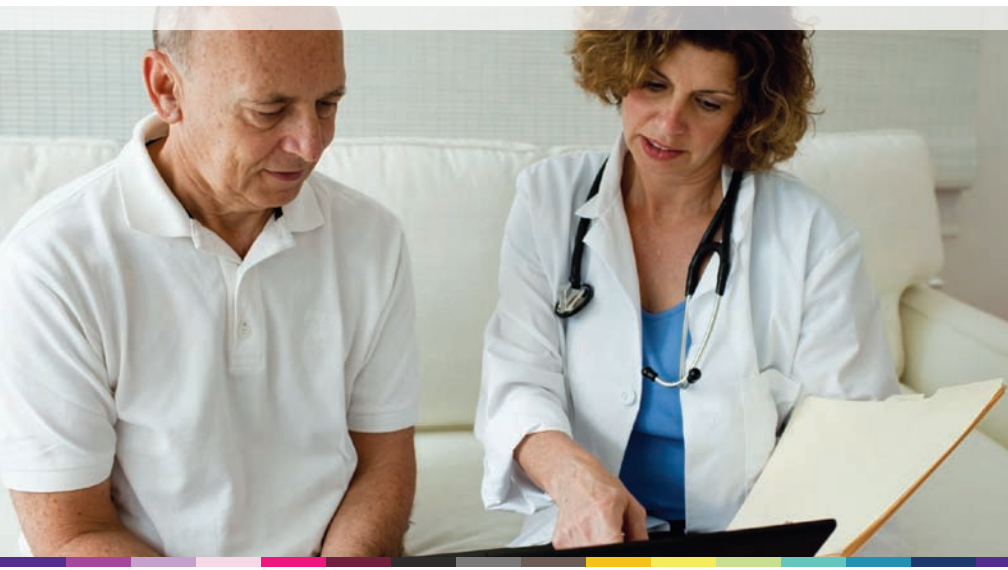
In a follow-up to the clinical trial DASISION, researchers at the two-year point confirmed earlier (one year) findings that cancer remission occurred earlier and faster with dasatinib (Sprycel) compared with imatinib (Gleevec) in patients newly diagnosed with CP-CML. With dasatinib, cancer was completely gone from the blood in 80% of patients compared with only 74% of patients who received imatinib. The likelihood that complete remission occurred at any time was 1.5-times higher with dasatinib than with imatinib. In addition, fewer patients in the dasatinib-treated group had cancer that progressed or stopped treatment because of side effects.

WHAT PATIENTS NEED TO KNOW

Dasatinib is a targeted anti-cancer drug that is approved for use in patients newly diagnosed with CML whose treatment, such as imatinib, is no longer working or is causing side effects. One of the key goals in patients newly diagnosed with CML is to completely remove the cancer from the patient's blood 18 months after starting treatment. Results from DASISION show that at 18 months, and as long as 24 months, dasatinib achieved this goal better than imatinib. Because of this, researchers suggest that dasatinib should be an initial treatment in newly diagnosed patients with CP-CML.

Long-term Nilotinib Superior to Imatinib in Newly Diagnosed Chronic-phase Chronic Myeloid Leukemia

In another two-year follow-up to a clinical trial, results showed that nilotinib (Tasigna) continues to perform better than imatinib (Gleevec) in bringing about complete cancer remission and preventing the progression of cancer



in patients newly diagnosed with CP-CML. At two years, between 23% and 27% more patients who received nilotinib had higher remission rates than those who were treated with imatinib. Two dosage strengths of nilotinib were used in the trial; both had similar positive results. What's more, higher cancer remission rates with nilotinib occurred no matter what the patient's cancer risk level was (that is, low, intermediate, or high). Nilotinib was also found to be well tolerated.

WHAT PATIENTS NEED TO KNOW

Nilotinib is a targeted anti-cancer drug that works by blocking certain proteins that help cancer cells grow. Nilotinib is already approved for use in patients newly diagnosed with CP-CML, as well as in those with rapidly progressing CP-CML or who are intolerant to imatinib. The results from this clinical trial confirm that nilotinib is superior to imatinib for treating CP-CML.

Stem Cell Transplantation in Older Patients with Acute Myelogenous Leukemia

Although complete remission of AML in older adults, 60 years of age or older, is possible with chemotherapy, AML often comes back after treatment. Researchers wanted to see if stem cell transplantation (SCT) would both extend the lives of patients and extend the time patients would be leukemia-free. Patients in the trial either received chemotherapy (cytarabine plus daunorubicin or cytarabine plus mitoxantrone) or SCT following treatment with fludarabine and low-dose radiation. Patients in the SCT group lived longer without AML and had less risk of their AML returning than patients who received the combined chemotherapy. These benefits were even greater in patients who had a high-risk form of AML. Regarding SCT, as long as there was a match for the patient's stem cell type, it did not matter whether

or not donors were direct family members. At three years, researchers found that more patients lived longer with SCT (49%) than with chemotherapy (35%).

WHAT PATIENTS NEED TO KNOW

SCT is a way of replacing immature blood-forming cells in the bone marrow that have been destroyed by cancer treatments or by cancer itself. Stem cells are injected into the patient to make healthy blood cells. SCT may use a patient's own stem cells that were saved before treatment, cells from a matched family member, or those of a matched person who is not related to the patient.

The success of SCT depends upon many factors, such as the type and stage of blood cancer and the patient's age and general health. Important advances have been made in recent years, and continue to be made, improving the success of all types of SCT. While chemotherapy has been the standard treatment for AML, these results are encouraging and point

to SCT as a choice for older patients, particularly those with a high-risk form of AML. More clinical trials are underway to confirm the benefits of SCT over chemotherapy.

Promising Results from Novel Conditioning and Transplantation Regimen in High-risk Blood Cancers

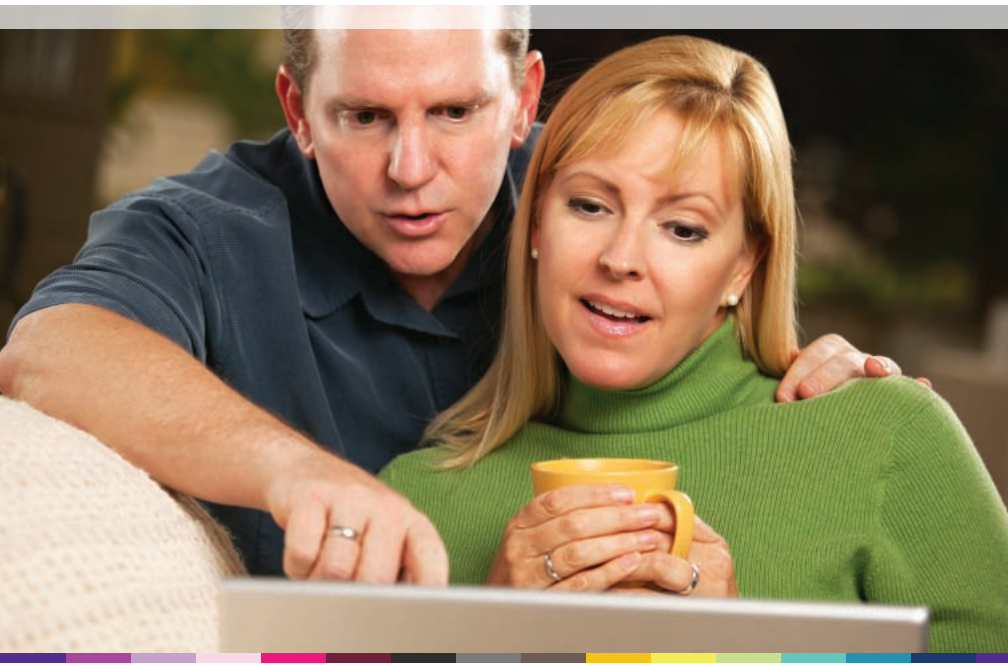
Prior to stem cell transplantation, patients undergo conditioning, which may include chemotherapy, targeted anti-cancer drugs, and/or radiation. Conditioning helps prepare the patient's bone marrow for new blood stem cells to grow, prevents the patient's body from rejecting transplanted cells, and helps kill any cancer cells that are in the body. Reduced-intensity conditioning uses lower doses of chemotherapy or radiation. A clinical trial that combined reduced-intensity conditioning with transplantation of umbilical cord blood from non-relatives plus donated bone marrow with a 50% match to the patient's (called haploidentical-related bone marrow) saw low rejection rates and provided excellent long-term control of high-risk blood

cancers. Long-term survival and cancer-free survival were seen in up to 40% of patients with advanced blood cancer. What's more, long-term survival was seen in up to 70% of patients who received the regimen while in remission.

WHAT PATIENTS NEED TO KNOW

Reduced-intensity conditioning is used to maintain the positive effects of standard high-dose drugs while reducing the risk of death that's seen at higher doses. This approach is being used more often today and in different types of patients with blood and lymph cancers.

Options for patients needing stem cells include umbilical cord blood; donated blood or marrow from family members who are a 50% match (such as a parent); or donated blood or marrow from unrelated persons who are a match. But in cases where a suitable unrelated donor cannot be found, many



patients' cancer may progress while waiting for a donor. Data from this clinical trial show many benefits with this novel transplantation approach. In fact, transplants using unrelated umbilical-cord blood and half-matched bone marrow may be a possible alternate option when patients do not have a suitable donor.

Bosutinib as a Treatment Option for Chronic-phase Chronic Myeloid Leukemia

An early clinical trial showed that the new targeted anti-cancer drug bosutinib, showed positive results as a treatment option after patients with CP-CML did not respond to imatinib and were resistant or intolerant to dasatinib or nilotinib. Researchers gauged outcomes one and two years after treatment with bosutinib. The number of patients experiencing no cancer growth or spread was predicted to be 77% percent at one year and 73% at two years. Survival at one year was estimated to be 91% percent and 83% at two years. Diarrhea, nausea, and vomiting were the most common side effects of bosutinib.

WHAT PATIENTS NEED TO KNOW

Patients need a different drug to use when their cancer does not respond to the three approved targeted treatments—imatinib, dasatinib, and nilotinib—or when they have side effects with other drugs. Bosutinib may be a viable next choice. However, further study in a larger number of patients is needed to confirm the drug's effects on remission and survival.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Lung Cancer

Tailoring drugs to each patient's individual lung cancer and gene mutations (changes) was top of mind at the 2011 ASCO Annual Meeting. Three clinical trials confirmed that the targeted anti-cancer drug erlotinib (Tarceva) led to better outcomes than standard chemotherapy among patients with advanced lung cancer who had epidermal growth factor receptor mutations. This is an important step forward in our goals to give patients more personalized treatment options earlier on.

Mark A. Socinski, MD
UPMC Cancer Pavilion

Treating Lung Cancer That Has Spread to the Brain

Cancer that spreads to the brain from a primary cancer in another part of the body is called brain metastasis. Non–small cell lung cancer (NSCLC) is one cancer that has a strong tendency to spread to the brain. Some patients with NSCLC have mutations in a growth factor (called epidermal growth factor receptor or EGFR) on the cell's surface that cause the cells to grow too rapidly. Because radiation has inhibited this growth factor in other types of cancer, researchers studied its benefit in patients with lung cancer and brain metastasis. They used a form of radiation called whole-brain radiation therapy in combination with the drug erlotinib, which is approved to treat NSCLC. In this study, patients first received erlotinib alone and then received erlotinib plus radiation. After erlotinib plus radiation treatment, patients received erlotinib

alone until the cancer grew or spread. Patients treated with this combination lived for an average of 10.9 months, an improvement over previously seen results of 3.9 months. These early findings suggest that the combination of erlotinib and whole-brain radiation therapy may prolong survival in patients with NSCLC and brain metastasis.

WHAT PATIENTS NEED TO KNOW

Certain gene changes—specifically EGFR mutations—appear to increase a patient's risk for cancer spreading to the brain. In this study, 50% of the patients had these mutations and of that number 77% were women. Knowing that these mutations exist in this group of patients may help doctors identify the patients at greatest risk of brain metastasis and those who may benefit from a specific type of treatment, such as the combination of the drug and radiation described above.

Erlotinib Improves Progression-free Survival in Advanced Non-small Cell Lung Cancer with EGFR Mutations

Initial treatment with the targeted anti-cancer drug erlotinib nearly doubled the time patients with advanced NSCLC

lived without their cancer progressing compared with platinum-based chemotherapy. In the EURTAC trial, patients whose tumors had certain EGFR gene changes or mutations were free from their cancer growing or spreading for about 4.5 months longer than those who received chemotherapy. Treatment with erlotinib also markedly reduced the risk of cancer progressing by 63% over standard chemotherapy.

WHAT PATIENTS NEED TO KNOW

The EGFR mutation is involved in the growth and development of cancers, and it is present in 10% to 26% of NSCLC tumors. Erlotinib has been shown to block EGFR and improve survival without the cancer progressing or causing side effects from chemotherapy, such as hair loss and stomach problems. Erlotinib is already used successfully following chemotherapy in patients regardless of whether or not they have EGFR mutations.

Erlotinib Shows Promise as Initial Treatment for Advanced Non-small Cell Lung Cancer with EGFR Mutations

In the OPTIMAL trial, patients whose NSCLC had an EGFR mutation and were treated with erlotinib saw an 84% improvement in controlling their cancer compared with standard chemotherapy. Patients in this trial received treatment with either gemcitabine (Gemzar) plus carboplatin (Paraplatin), or erlotinib. Patients in the erlotinib-treated group also experienced improved quality of life. The benefits of erlotinib treatment were seen regardless of the patient's age, gender, ability to perform daily activities, the stage of the cancer, tumor characteristics, and whether or not the patient smoked. Patients who received erlotinib were free from

cancer growth or spread for about 8.5 months longer than those who received chemotherapy.

WHAT PATIENTS NEED TO KNOW

Chemotherapy is currently the standard of care for newly diagnosed patients with advanced NSCLC. Targeted anti-cancer drugs such as erlotinib are used once the cancer returns. But the results from this trial and others suggest that patients with EGFR gene mutations do better with erlotinib as an initial treatment of advanced NSCLC and may influence a change in standard treatment.

Amrubicin Versus Topotecan After Not Responding to Initial Treatment of Small Cell Lung Cancer

The number of patients with small cell lung cancer (SCLC) who showed a clinical response with the anti-cancer drug amrubicin, a recommended treatment used after the cancer does not respond to the initial treatment, was nearly double that of patients receiving topotecan (Hycamtin) (31% versus 17%, respectively). However, this did not significantly extend the lives of patients overall. Patients in this trial were given

either amrubicin or topotecan in a cycle repeated every three weeks. Patients who received amrubicin lived about 7.5 months whereas patients who received topotecan lived about 7.8 months. Although patients did not live longer with amrubicin, this drug was shown to control the cancer and lessen its symptoms over topotecan.

WHAT PATIENTS NEED TO KNOW

SCLC is a fast-growing cancer that forms in lung tissues and can spread to other parts of the body. It is often controlled with chemotherapy, but this cancer often returns and is difficult to treat. This is why it is important to explore new methods to treat and control this cancer. Judging by the results of this trial, amrubicin may be of some benefit in controlling SCLC and its symptoms, particularly in certain patients, such as those whose cancer is resistant to other drugs.

Pemetrexed and Best Supportive Care for Patients with Non-small Cell Lung Cancer

Maintenance therapy with the anti-cancer drug pemetrexed (Alimta) significantly lengthened the time it took for advanced

nonsquamous NSCLC to progress in the PARAMOUNT clinical trial. Maintenance therapy is the use of ongoing chemotherapy after the initial treatment. In this study, patients who had previously received pemetrexed and cisplatin (Platinol) and whose cancer had not progressed were then given either maintenance therapy with pemetrexed or maintenance therapy with a placebo (an inactive drug) along with supportive care. Supportive care can improve a cancer patient's quality of life. Researchers found that almost 72% of patients who received pemetrexed maintenance therapy had their tumor shrink or stop growing, compared with nearly 60% who received the placebo.

WHAT PATIENTS NEED TO KNOW

Patients can benefit from continuation of maintenance therapy with a drug following its initial use. Maintenance therapy may be a good option for when treatment is working and the patient is not experiencing major side effects. Many factors go into a treatment decision, however, and researchers note that each patient should know the risks and benefits of all treatment options.

Experts Pinpoint Certain Gene Changes That Drive Lung Cancer Growth

A large study of 1,000 patients from different hospitals across the United States found at least one of ten known gene changes that drive cancer growth (driver mutations) in nearly two-thirds of patients with advanced lung cancer. In the first 830 patients of the study, a driver mutation was detected in 54% of all patients. Researchers shared these results with doctors so that they could tailor treatment based on patients' tumor mutations and enroll patients in the correct clinical trials. Currently, the treatment guidelines for advanced lung cancer with these mutations suggest treatment with erlotinib.

WHAT PATIENTS NEED TO KNOW

Being able to test for genetic mutations and tailor treatment accordingly has revolutionized the treatment of lung cancer. Based on these promising results, researchers advise doctors to test their patients for mutations so they can implement targeted therapy. With these encouraging results, researchers plan to continue this program past its initial end date.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Lymphomas

This is a time of unprecedented progress in the treatment of lymphomas, cancers that start in cells of the immune system. There are two main types of lymphomas. One is Hodgkin's lymphoma, which is marked by the presence of a type of cell called the Reed-Sternberg cell. The other type is a large group of diverse cancers of immune system cells called non-Hodgkin's lymphomas. Non-Hodgkin's lymphomas can be slow-growing (indolent) cancers or aggressive and fast-growing. These subtypes behave and respond to treatment differently. A new targeted drug called brentuximab vedotin (Adcetris) has been approved by the Food and Drug Administration (FDA) to treat certain patients with aggressive types of Hodgkin's lymphoma, as well as another type of lymphoma called anaplastic large-cell lymphoma. The trial results that set these drugs on the fast-track to FDA approval are reviewed in this section.

Sergio A. Giralt, MD
Memorial Sloan-Kettering Cancer Center

Conventional Chemoimmunotherapy Has Excellent Results in Young, High-risk Patients with Aggressive B-cell Lymphoma

In a study that had the best results ever for young (under 61 years of age), high-risk patients with aggressive B-cell lymphoma, researchers found that conventional chemoimmunotherapy was superior to high-dose therapy followed by repeated autologous stem cell transplants (transplantation of the patient's own blood stem cells). In

the conventional therapy patient group, 73.7% saw their cancer stop growing or spreading and 84.6% lived longer when compared to the high-dose treatment group, who had 69.8% with no cancer growth or spread and a 77% overall survival rate. Patients in the trial either received eight cycles of CHOEP-14 (conventional) or four cycles of MegaCHOEP (high-dose) chemotherapy. Both groups also received six infusions of a drug called rituximab (Rituxan)—which, in earlier trials, had not previously been combined with either of these drug regimens. Those in the MegaCHOEP regimen also underwent repeated autologous stem cell transplants. The regimens included the drugs cyclophosphamide, doxorubicin (Adriamycin), vincristine (Vincasar PFS), etoposide (Toposar), and prednisone. The doses of cyclophosphamide, doxorubicin, and etoposide used in the high-dose regimen were larger and given for a shorter time than the doses given to patients who received the conventional regimen.

WHAT PATIENTS NEED TO KNOW

Non-Hodgkin's lymphoma is a form of cancer that begins in the cells of the lymph system. B-cell lymphoma, the focus of this trial, is a form of non-Hodgkin's lymphoma that forms in the B-cells, which make antibodies. The results from this trial are very positive. Researchers suggest that high-dose therapy should no longer be an initial therapy for patients with B-cell lymphoma. In fact, they suggest high-dose therapy should be limited to patients with aggressive B-cell non-Hodgkin's lymphoma who relapse after conventional treatment.

New Drug Approved to Treat Patients with Relapsed or Refractory Hodgkin's Lymphoma

Patients with Hodgkin's lymphoma whose cancer has returned or is unresponsive to prior treatment—including autologous stem cell transplants (transplantation of the patient's own blood stem cells)—have another treatment option. A clinical trial of brentuximab vedotin caused a positive response in 75% of patients with recurrent or refractive Hodgkin's lymphoma.

What's more, brentuximab vedotin led to complete remission (no signs of cancer in the body) in 34% of these patients, and remission lasted for about 20.5 months. One of the most common side effects of this drug was a nerve problem known as peripheral neuropathy, which causes pain, numbness, and tingling in the hands and feet. This was mostly resolved with a lower dose or a delayed dosing of the drug.

WHAT PATIENTS NEED TO KNOW

Patients with Hodgkin's lymphoma often see their cancer return or not respond with standard anti-cancer drugs. Based in part on the positive results from this clinical trial, brentuximab vedotin—a targeted, injectable anti-cancer drug—received fast-track Food and Drug Administration (FDA) approval in summer 2011 to treat Hodgkin's lymphoma patients who did not respond to autologous stem cell transplants, or whose cancer was unresponsive after two previous multidrug chemotherapy regimens and were not able to undergo autologous stem cell transplants.

Brentuximab Vedotin Approved to Treat Relapsed or Refractory Systemic Anaplastic Large-cell Lymphoma

In another clinical trial of brentuximab vedotin, 86% of patients with anaplastic large-cell lymphoma that was highly resistant to other treatments had a positive response to the targeted anti-cancer drug. More than half of these patients had complete remission, which lasted for more than one year (13.2 months). The most common side effects were peripheral neuropathy, nausea, and tiredness, which can be managed with help from a patient's health care team.

WHAT PATIENTS NEED TO KNOW

In as many as 65% of patients with anaplastic large-cell lymphoma, the cancer returns after initial treatment with more than one anti-cancer drug. The FDA's approval of brentuximab vedotin included its use to treat anaplastic large-cell lymphoma, an aggressive type of non-Hodgkin's lymphoma that usually starts in the T-cells of the body's immune system. This type of cancer may appear in the lymph nodes, skin, bones, soft tissues, lungs, or liver. When it comes to treatment of anaplastic large-cell lymphoma, especially in patients whose cancer is highly resistant to other treatments, this new treatment option is very welcome. Results from this clinical trial helped support its approval as a treatment for lymphoma.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Melanoma

Melanoma when caught early enough is generally curable. However, melanoma can be an aggressive type of cancer that spreads quickly to other parts of the body. This makes the presentations at the 2011 ASCO Annual Meeting even more exciting, as they highlighted major progress in treating patients with advanced or metastatic melanoma. Until fairly recently, doctors had only a few treatment options to offer patients and there was little hope for long-term survival. The past few years have seen dramatic progress in immunotherapy and targeted anti-cancer drugs which have become the new melanoma treatment standards.

Keith T. Flaherty, MD
Massachusetts General Hospital Cancer Center

Newly Approved Drug to Treat Stage-3 Melanoma After Surgery Shows Long-term Cancer-free Survival Rates

In the largest clinical trial of adjuvant therapy (therapy that assists the primary treatment, in this case, surgery) in stage-3 melanoma, researchers assessed the effectiveness of long-term use of pegylated interferon alfa-2b (peginterferon alfa-2b; Sylatron) compared to a wait-and-watch approach. The use of peginterferon alfa-2b led to a large number of patients being free from a return of cancer for more than 7.5 years. This benefit was greatest in patients who had only microscopic cancer cells that spread from the primary tumor to nearby lymph nodes (called micro-metastases).

WHAT PATIENTS NEED TO KNOW

Peginterferon alfa-2b is an injected drug that works by boosting or restoring the ability of the immune system to fight cancer. Based on the very positive results from this clinical trial, the Food and Drug Administration (FDA) approved the drug this year to prevent melanoma from coming back after it has been removed by surgery. The drug should be started within 84 days of the surgery to remove the tumor and any lymph nodes containing cancer. This marks the first U.S.-approved drug for adjuvant treatment of melanoma in more than 15 years. High-dose interferon (non-pegylated interferon alfa-2b) had previously been considered the only therapy able to prevent recurrence of melanoma.

Safety of Ipilimumab Studied in Patients with Advanced Melanoma

The anti-cancer drug ipilimumab (Yervoy) was approved earlier this year to treat melanoma that cannot be surgically

removed or has spread to other parts of the body. Researchers wanted a better understanding of the side effects of ipilimumab and reviewed 14 clinical trials involving almost 1,500 patients with advanced melanoma. Nearly 65% of patients experienced inflammation-related side effects mostly affecting the skin and gastrointestinal tract which were manageable.

WHAT PATIENTS NEED TO KNOW

Instead of working directly on the cancer itself, ipilimumab helps the patient's immune system kill cancer cells. This drug can cause side effects, such as inflammation, which can be serious.

Careful monitoring of patients and anti-inflammatory drug therapy may be necessary to treat these side effects. Inflammation affecting the intestines is a particular concern, and treatment-related diarrhea should be reported to the treating physician immediately.

Combination of Ipilimumab and Dacarbazine More Effective Than Dacarbazine Alone in Metastatic Melanoma

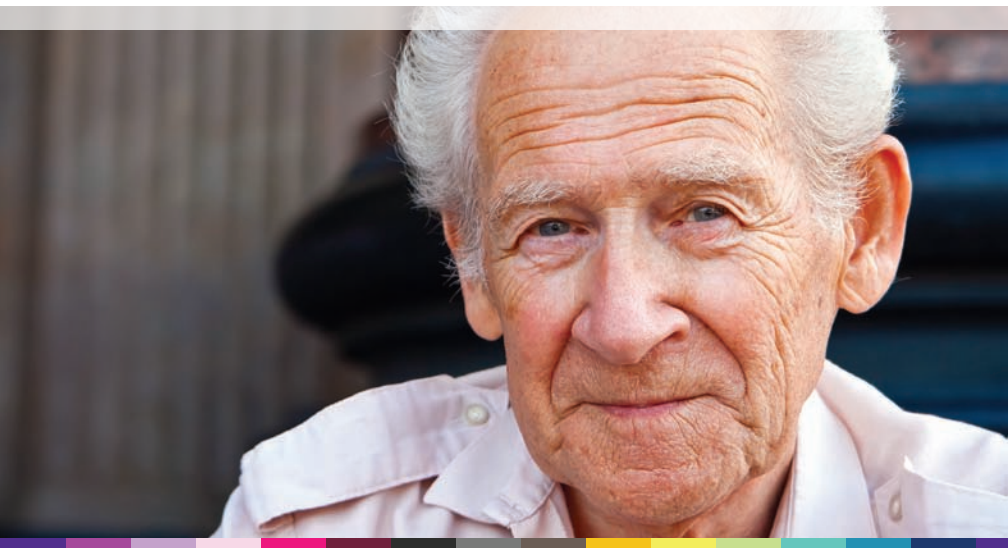
In patients with melanoma that had spread to other parts of the body, an initial combination treatment with ipilimumab and dacarbazine helped patients live longer than those who received dacarbazine alone. After three years, more than 20% of patients who received this drug combination were still alive, compared with about 12% of patients who did not receive ipilimumab and dacarbazine. This drug combination was found to be safe. Side effects seen with these drugs included higher levels of enzymes in the liver, diarrhea, and rash.

WHAT PATIENTS NEED TO KNOW

Ipilimumab is a newly approved drug to treat melanoma that has spread to other parts of the body or that cannot be removed by surgery. It is currently approved for use as a stand-alone therapy. It works by blocking a substance called CTLA-4, which is found on the surface of certain types of white blood cells. Ipilimumab works by helping the immune system kill cancer cells. The results of this trial are important because it is the very first time that the lives of patients with metastatic melanoma are extended as long as three years with treatment. Researchers believe that immunotherapy, such as with ipilimumab, has benefits over other drugs because the immune system is a "living drug" and is able to adapt itself to tumor changes that might otherwise lead to resistance to chemotherapy or targeted anti-cancer drugs. Researchers plan on studying the use of ipilimumab in combination with the targeted anti-cancer drug vemurafenib (Zelboraf) in patients with BRAF-mutated melanoma.

New Targeted Anti-cancer Drug Shows Promise in Melanoma with BRAF Mutation

Because nearly half of all melanomas have a certain gene mutation, researchers wanted to see if using a drug that inhibited that gene would be an effective way to treat patients with this form of melanoma, called ^{V600E}BRAF-mutated melanoma. Results from a large clinical trial called BRIM3 confirmed that these patients lived longer after they received the targeted anti-cancer drug vemurafenib compared with those who received another anti-cancer drug called dacarbazine (DTIC; DOME). Patients in the trial had inoperable stage-3 or stage-4 advanced melanoma with the BRAF mutation. Compared with those receiving dacarbazine, patients in the vemurafenib group had a 63% lower risk of death from melanoma and a 74% lower risk of the cancer progressing. Tumor shrinkage with vemurafenib was nearly nine times higher than in the dacarbazine-treated patients. Fewer than 10% of patients who received vemurafenib had serious side effects with treatment. Skin rashes, sensitivity to the sun, and joint pain were among the most common side



effects seen with this drug. About 20% to 30% of patients developed a low-grade form of skin cancer called squamous cell carcinoma which can be removed when identified and treated early. In these cases, this cancer was removed and treatment continued.

WHAT PATIENTS NEED TO KNOW

These very positive trial results highlight a move toward personalized care in cancer. That is, doctors will be able to tailor treatment for patients who carry specific gene mutations in their tumors. Vemurafenib was approved by the FDA in the summer of 2011 and could become the new standard treatment for patients with melanoma who have this type of gene mutation. Future studies will be aimed at testing the use of vemurafenib with other targeted anti-cancer drugs in patients with advanced melanoma.

Preliminary Positive Results for Two New Targeted Anti-cancer Drugs for Melanoma

An early study including melanoma patients showed that combining two types of targeted anti-cancer drugs, GSK112212 (also known as trametinib) and GSK211436 (also

known as dabrafenib), was safe and shrank tumor size in the vast majority of melanoma patients treated. In the first part of the study, 43 patients received low doses of these drugs to make sure their combined use was safe. In the second part, patients received the drugs in doses that increased in steps until full doses of both drugs were administered. To date, tumors have shrunk in 81% of patients and stopped growing in additional patients. Also, the combination of these drugs did not cause more side effects. In fact, patients who received both drugs had fewer rashes and non-melanoma skin cancers than those who received the drugs separately.

WHAT PATIENTS NEED TO KNOW

GSK112212 and GSK211436 are still in clinical trials and not yet approved by the FDA. GSK112212 targets (changes) a molecule activated by BRAF called MEK, whereas GSK436 targets mutations to the gene called BRAF. Both of the MEK and BRAF genes contribute to the growth of melanoma, and both drugs have been shown to help treat melanoma when used alone. Researchers believe that by more completely targeting the molecules activated by BRAF mutation with these drugs, they can make sure patients get the treatment that works best for them. They continue to explore these drugs at different doses in patients whose melanoma has spread to other areas in the body to determine whether the duration of controlling the melanoma can be lengthened with the combination compared to BRAF inhibition alone.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

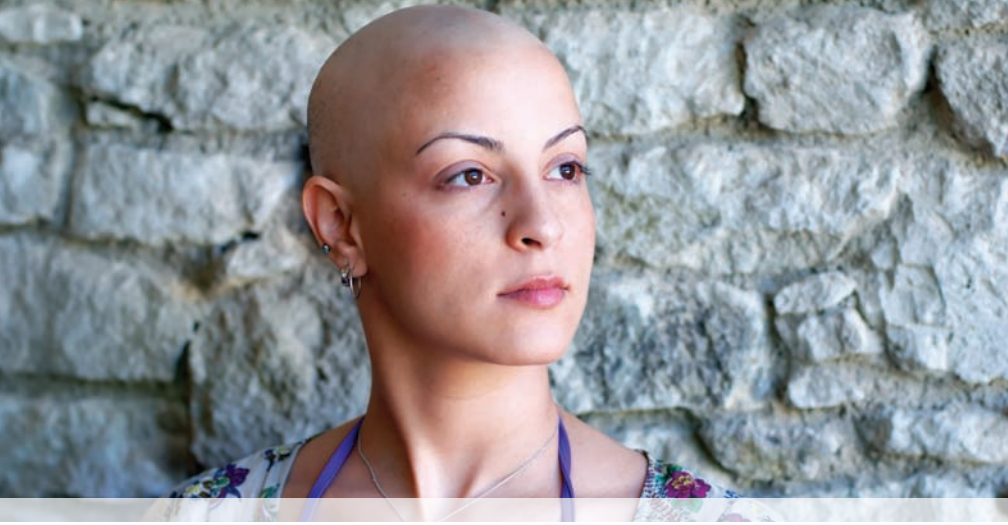
Ovarian Cancer

The standard treatment for ovarian cancer is surgery followed by chemotherapy. In some women, the cancer may not respond to chemotherapy or may come back after treatment. Some of the results reported at the 2011 ASCO Annual Meeting were very encouraging. They show the promise of new and emerging targeted treatments used alone or in combination with other anti-cancer drugs. In the coming years, treatment options for ovarian cancer are expected to increase, improving survival rates and overall quality of life for women with this diagnosis.

Robert J. Morgan, MD
City of Hope

Olaparib for Relapsed Platinum-sensitive Ovarian Cancer

Ovarian cancer that has returned within six months after treatment with a platinum-containing chemotherapy is called platinum-sensitive ovarian cancer. A clinical trial studied the drug olaparib, a new targeted treatment called a "PARP" (poly [ADP-ribose] polymerase) inhibitor. Olaparib significantly increased the time before platinum-sensitive ovarian cancer grew or spread. Women who received olaparib saw their cancer growth controlled for 8.4 months, as compared with 4.8 months in women who received a placebo (a "look-alike" drug that contains no medicine). Olaparib was also shown to be safe. The most common side effects seen with olaparib were nausea, vomiting, and fatigue.



WHAT PATIENTS NEED TO KNOW

Olaparib belongs to a promising new class of drugs called PARP inhibitors, which block a cancer cell's ability to repair itself when damaged by radiation or chemotherapy. Results from this clinical trial are important as this was the first time researchers showed that olaparib prevents cancer growth or spread over an extended amount of time. However, olaparib needs further study to pinpoint its exact role in women with recurrent ovarian cancer.

Adding Iniparib to Chemotherapy in Recurrent Platinum-sensitive Ovarian Cancer

In another study, a different PARP inhibitor, iniparib, was combined with the standard treatment for platinum-sensitive ovarian cancer: the chemotherapies gemcitabine (Gemzar) and carboplatin (Paraplatin). This three-drug combination has shown promise in patients with triple-negative breast cancer, so researchers wanted to see if there would be similar results in ovarian cancer. In this study, 65% of the women responded to the treatment combination and saw their tumors shrink. This was more than what is typically seen in women who

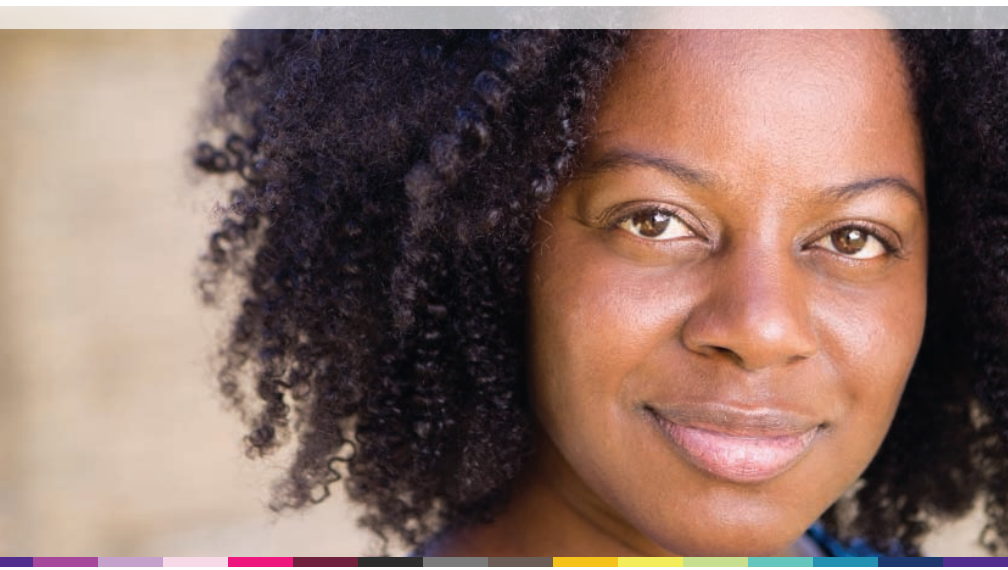
receive only chemotherapy. Low blood platelet counts and low white blood cells were the most common side effects. These side effects can be managed with help from a patient's health care team.

WHAT PATIENTS NEED TO KNOW

The results from this clinical trial suggest that the targeted treatment iniparib added to standard chemotherapy has potential as an effective therapy in platinum-sensitive ovarian cancer. This study involved only a small number of patients, so larger clinical trials are needed to see if this combination is safe and effective compared with other treatment combinations that contain targeted anti-cancer drugs.

Cabozantinib: New Treatment Tested Against Advanced Ovarian Cancer

Cabozantinib is a new targeted treatment that was tested in a small clinical study of women with advanced ovarian cancer. At the end of a 12-week cycle, tumors had shrunk or stopped



growing in more than half of the women. This positive result was seen regardless of whether the patient's cancer had responded to chemotherapy. There were no major side effects in the blood after treatment. Overall, the drug's side effects were mild.

WHAT PATIENTS NEED TO KNOW

MET is a gene that signals cancer cells to grow. Over-expression of MET and another gene, VEGFR2, has been observed in advanced ovarian cancer. Cabozantinib is an inhibitor of both of these genes and has been shown to kill tumor cells, prevent the spread of cancer, and block the formation of new blood vessels needed to support tumor growth. This is early-stage research, but the drug's ability to shrink cancer in this study was better than expected. Because it also caused minimal side effects, cabozantinib is an excellent drug to examine further in clinical trials.

Bevacizumab Shows Promise When Added to Standard Chemotherapy in Newly Diagnosed Ovarian Cancer

Early results from a clinical trial called ICON7 suggest that adding the targeted treatment bevacizumab (Avastin) to the chemotherapies carboplatin and paclitaxel (Taxol) may work better than chemotherapy alone in preventing ovarian cancer growth or spread, particularly in women who are at high risk of ovarian cancer coming back. The patients in this study received either six cycles of chemotherapy alone or the same chemotherapy combined with bevacizumab, followed by bevacizumab alone for an additional 12 months. Women who were treated with bevacizumab lived up to six months longer than those treated with chemotherapy alone.

WHAT PATIENTS NEED TO KNOW

These interim results are encouraging for women with high-risk ovarian cancer. It is not known whether bevacizumab is effective only as a maintenance drug (a drug used to lower the risk of the cancer coming back after the first treatment) or whether it would also be effective at the start of chemotherapy. The final results from this clinical study are about two years away.

Bevacizumab Significantly Improves Survival When Added to Chemotherapy in Recurrent Ovarian Cancer

In a clinical trial called OCEANS, women with platinum-sensitive recurrent ovarian cancer who received bevacizumab in combination with and following chemotherapy lived longer without their cancer progressing. One group of patients received bevacizumab along with gemcitabine and carboplatin and then bevacizumab alone; the other group received the gemcitabine and carboplatin plus a placebo. The women were followed for about two years. Patients in the study saw a 52% reduction in their risk of cancer returning, and 79% of women treated with bevacizumab saw their

tumors shrink significantly (compared with 57% of women who received chemotherapy alone). Additionally, the women who had bevacizumab added to their treatment plan did not need to resume chemotherapy. The side effects of the three-drug combination were similar to those already known to occur with bevacizumab.

WHAT PATIENTS NEED TO KNOW

Results showed that bevacizumab should help women with ovarian cancer live longer and with a better quality of life. Researchers now want to see how effective bevacizumab is against platinum-resistant ovarian cancer, as well as how it works in combination with other new emerging therapies, such as PARP inhibitors.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Pancreatic Cancer

This has been a remarkable year for pancreatic neuroendocrine cancer research. Two drugs have recently been approved to treat pancreatic neuroendocrine tumors: sunitinib (Sutent) and everolimus (Afinitor). Findings from the clinical trials that led to the approval of these drugs were presented at the 2011 ASCO Annual Meeting. And, as you will read in this section, there were also recent reports further discussing the role of gemcitabine (Gemzar) to treat adenocarcinoma of the pancreas, the most common type of pancreatic cancer. This drug is being studied alone as well as in combination with other anti-cancer drugs and radiation. The management of pancreatic cancer is evolving at a rapid pace. Patients and doctors have many reasons to remain hopeful that current treatment methods will improve in the coming years.

Al B. Benson III, MD
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Sunitinib is Highly Effective Against Advanced Pancreatic Tumors

Treatment with the anti-cancer drug sunitinib more than doubled the time that patients with advanced pancreatic neuroendocrine tumors (NETs) experienced no spread or growth in their cancer compared with patients who received a placebo (an inactive drug). Additionally, patients who received sunitinib lived six months longer than those in the placebo group. These findings were updated results

of a clinical trial and confirmed earlier positive results. Patients who received a placebo in the study were offered the opportunity to receive sunitinib once the study was completed. The most common side effects in patients who took sunitinib were fewer white blood cells, high blood pressure, and hand-foot syndrome. Hand-foot syndrome is a condition marked by pain, swelling, numbness, tingling, or redness of the hands or feet.

WHAT PATIENTS NEED TO KNOW

Earlier this year, the Food and Drug Administration (FDA) approved sunitinib to treat patients with progressive pancreatic NETs that cannot be removed by surgery or that have spread to other parts of the body. This type of cancer is rare, and has few treatment options. Sunitinib is a type of targeted anti-cancer drug called a multikinase inhibitor, which blocks a protein that signals cancer cells to grow. Overall, the results of this trial are very positive and important. These data confirm the benefits of sunitinib and its ability to control cancer. Doctors now have another viable option to offer their patients with advanced pancreatic NETs.

Everolimus Newly Approved for Advanced Pancreatic Neuroendocrine Tumors

A large clinical trial showed that the targeted anti-cancer drug everolimus lengthened the time patients with advanced pancreatic NETs were free from cancer growth or spread. The trial, called RADIANT-3, was instrumental in the drug receiving FDA approval to treat this type of cancer—the first such approval in nearly 30 years. Researchers also wanted to see what impact, if any, the use of a somatostatin analog would have in this patient group. Somatostatin analogs can inhibit the growth of cells, including cancer cells, and have been used for some time in the treatment of pancreatic cancer. Some patients in this trial received either a somatostatin analog at the same time as everolimus or at some point earlier in their treatment. In patients who received a somatostatin analog plus everolimus, their tumors did not grow or spread for 11.4 months (versus 3.9 months for those receiving a somatostatin analog and a placebo). Patients who did not receive a somatostatin analog and received everolimus alone were free from tumor growth or spread for 10.8 months (versus 4.6 months for patients not receiving a somatostatin analog and receiving a placebo).

WHAT PATIENTS NEED TO KNOW

Everolimus is a targeted anti-cancer drug called an mTOR inhibitor, which blocks the signaling pathway that is active in certain tumors. It stops cancer cells from dividing and may also prevent the growth of blood vessels that tumors need to survive. The results of this trial indicate that everolimus is effective whether or not patients had previously received a somatostatin analog. And if they did, when they received it (either before or during treatment with everolimus) made no

difference. Patients will now have access to a treatment that has been proven to delay tumor growth and reduce the risk of cancer spread.

Promising Early Results for Treating Inoperable Pancreatic Cancer

The standard treatment for advanced adenocarcinoma of the pancreas is gemcitabine. In a recent trial, gemcitabine combined with an anti-cancer drug treatment called S-1, was better at controlling tumor growth and spread than gemcitabine alone in patients whose pancreatic cancer could not be surgically removed. S-1 is an experimental combination of the drugs tegafur, gimeracil, and oteracil not yet available in the U.S. (this study was performed in Japan). The combined S-1/gemcitabine treatment shrank tumors in nearly 30% of patients—more than three times better than gemcitabine alone, which controlled tumors in just fewer than 7% of patients. Additionally, patients who took the S-1/gemcitabine combination lived about five months longer than those who took gemcitabine alone. The drugs were well tolerated by the study participants. In another trial, of the same S-1/gemcitabine combination, patients lived almost

five months longer when they received the combination compared to gemcitabine alone. After one year, 22% more patients were alive in the group that received the S-1/gemcitabine combination than in the group who received only gemcitabine. Even though the number of patients in this trial was very small, the positive results hold promise that the combination will become another standard approach for inoperable pancreatic cancer if it becomes available here.

WHAT PATIENTS NEED TO KNOW

Gemcitabine is a chemotherapy drug called an antimetabolite, which stops cells from growing and causes cancer cells to die. Gemcitabine is currently used to treat pancreatic, breast, ovarian, and lung cancers. Past studies showed that the addition of other anti-cancer drugs to gemcitabine did not help patients live significantly longer. However, the results of these two trials suggest the opposite. Researchers believe that this combination therapy may become an initial standard treatment for inoperable pancreatic cancer.

Experimental Regimen After Surgery in Pancreatic Cancer

More than 60% of patients with pancreatic cancer who received an experimental drug sequence were cancer-free after one year. The clinical trial included patients who already had undergone surgery. They then received chemotherapy with gemcitabine and cisplatin. Next, patients whose cancer did not grow or spread received chemotherapy and radiation with gemcitabine. Finally, patients received weekly gemcitabine as a maintenance treatment—meaning it was used long-term to prevent cancer from coming back. Among all patients the median time of survival was 33.6 months. The

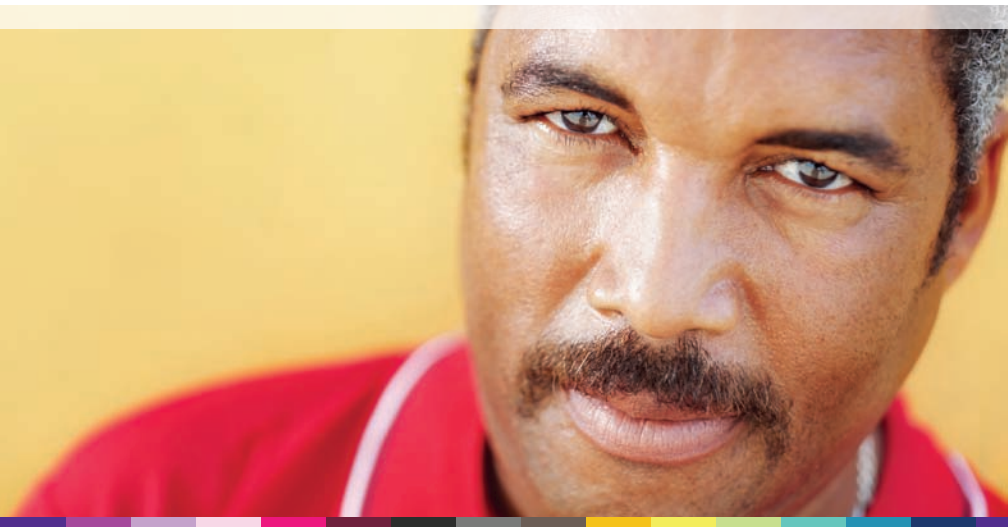
side effects from this treatment approach were manageable, and the more serious side effects were blood related.

WHAT PATIENTS NEED TO KNOW

Even after surgery, fewer than 20% of patients with pancreatic cancer are still alive after five years. The cancer may return to its original site or spread to other areas in the body. Experts believe an approach that combines more than one method of post-surgery adjuvant treatment is needed in pancreatic cancer patients. Adjuvant means additional cancer treatment given after the first treatment to lower the risk that the cancer will return. Although this clinical trial studied only a few patients, the encouraging results support an adjuvant treatment approach in pancreatic cancer.

Chemotherapy After Surgery in Ampullary Cancer

A large clinical trial studied patients with a specific type of cancer called ampullary cancer—a rare cancer similar to pancreatic and bile duct cancers. Data from this trial showed



a benefit to using additional chemotherapy in patients with clean surgical margins, which are the edges or borders of the tissue removed in cancer surgery. The margin is called "clean" when no cancer cells are found at the edge of the tissue. This suggests that all of the cancer has been removed. After surgery, ampullary cancer patients received either an anti-cancer treatment called 5-FU/FA (a combination of 5-fluorouracil and folinic acid), gemcitabine, or no treatment. They were then monitored by doctors. Patients who received chemotherapy and had their tumor completely removed did better than those who received no treatment.

WHAT PATIENTS NEED TO KNOW

Ampullary cancer is the second most common cancer in patients with tumors in the pancreas that can be surgically removed. However, only about one-half of all patients who undergo surgery for this type of cancer are alive five years later, and no standard adjuvant treatment exists. Researchers are looking for better treatments for patients with this type of cancer. In this study, there was no difference in survival between patients who received 5-FU/FA and those who took gemcitabine. However, these results are nevertheless encouraging. The results suggest that adjuvant chemotherapy is helpful in certain patients. The results also give researchers more information to offer prognoses for their patients in the future. The role of adjuvant therapy in ampullary cancer remains unclear, and more research is planned to study treatments in patients with this type of cancer.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Prostate Cancer

The 2011 ASCO Annual Meeting included many clinical trials concerning prostate cancer. The five clinical trials reviewed in this section address different treatment options, including chemotherapy, hormone therapy, and symptom management. Different stages of prostate cancer were also highlighted including early-stage high-risk cancer as well as cancer that has spread to the bone. There were promising results across all of the trials noted here, although more research is needed to further validate the findings.

Susan Slovin, MD, PhD
Memorial Sloan-Kettering Cancer Center

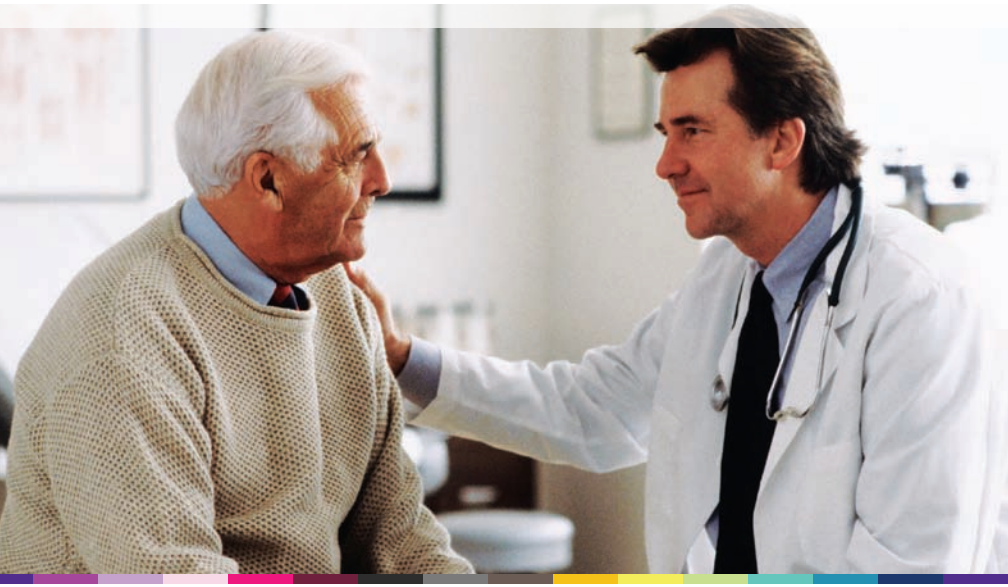
Adding Prednisone to Abiraterone Eases Bone Pain and Symptoms in Metastatic Prostate Cancer

Addressing pain and other treatment-related side effects in men with prostate cancer that has spread and continues to grow even after hormone treatment or surgery is an important unmet need. Patients with this cancer, known as metastatic castration-resistant prostate cancer, were enrolled in a clinical trial of a new hormone treatment, abiraterone (Zytiga), an oral drug, combined with prednisone. This drug combination relieved pain and prevented pain and bone symptoms in men with metastatic castration-resistant prostate cancer who had already been treated with the chemotherapy drug docetaxel. They were given prednisone plus abiraterone or prednisone plus placebo (a "look-alike" pill that contains no medicine). While being treated, the patients completed a

survey about their pain level and quality of life. Men treated with abiraterone and prednisone had less pain and fewer bone symptoms at six, 12, and 18 months.

WHAT PATIENTS NEED TO KNOW

This study showed that abiraterone, an oral drug, helps to prevent the body from making testosterone, which in turn can prevent the cancer from spreading. Other clinical trials have shown that abiraterone helps patients live longer. For these reasons, abiraterone combined with prednisone was approved by the Food and Drug Administration (FDA) earlier this year for the treatment of metastatic castration-resistant prostate cancer, specifically in patients who received prior chemotherapy containing docetaxel. Cancer that spreads to the bone may cause pain and increase the risk of fractures. The results of this study support the use of abiraterone to relieve pain and prevent pain and bone symptoms in men with prostate cancer that has spread. This offers a significant benefit to men living with metastatic castration-resistant prostate cancer.



Docetaxel and Hormone Treatment in High-risk Prostate Cancer

In this study of men who were considered to be at high risk for prostate cancer to return after having their prostate surgically removed and/or undergoing radiotherapy, adding the chemotherapy drug docetaxel (Taxotere) to hormone therapy early in their treatment lowered the risk of the cancer returning. The risk was decreased by as much as 26%. The combination treatment also lowered the level of a cancer protein in the blood called prostate-specific antigen (PSA). The higher the PSA level in the blood, the more likely a man is to have prostate cancer. Elevated PSA test results should be discussed with a doctor to determine if further treatment is needed.

WHAT PATIENTS NEED TO KNOW

Prostate cancer, when found early, is usually treated with surgery, radiation, hormone treatment, or a combination of these. However, the cancer can return or spread. The male sex hormone testosterone can help the cancer grow. Hormone treatment slows the cancer growth by interfering with the body's ability to make testosterone. It can also block the testosterone's action in prostate cancer cells. Results from this trial seem to support that idea. The patients in this trial are being monitored to determine if this treatment helps patients live longer.

Denosumab and Bone Health in Metastatic Prostate Cancer

When castration-resistant prostate cancer spreads to the bones, patients frequently experience fractures, pain, and other skeletal-related events. Researchers wanted to see if the bone-strengthening drug denosumab (Xgeva) was superior

to zoledronic acid (Zometa), another bone-strengthening drug, in delaying or preventing these events when given to patients before they experienced bone pain or symptoms. (An earlier trial had shown denosumab worked better in patients who were already experiencing these symptoms.) Patients also received calcium and vitamin D supplements. Researchers divided the men into two groups: 1) men with or without prior bone symptoms; and 2) men with or without prior bone pain. The men were then asked to complete a survey about bone pain and symptoms. The responses of the men were compared based on which group they were in. Compared with zoledronic acid, denosumab was significantly better in preventing or delaying bone symptoms in men with castration-resistant prostate cancer.

WHAT PATIENTS NEED TO KNOW

Denosumab is a type of drug called a monoclonal antibody that was originally approved to treat osteoporosis and works by targeting a protein and preventing the creation of osteoclasts—essentially cells that break down bone. Denosumab was approved by the FDA in late 2010 to prevent skeletal-related symptoms in people with cancer that had spread to the bone. The results from this trial showed that administering denosumab earlier in the course of castration-resistant prostate cancer was effective, regardless of the presence or level of pain and whether or not the patient had bone symptoms.

Slowing Bone Loss in Men Undergoing Treatment for Metastatic Prostate Cancer

As shown in a clinical trial, early use of a drug called zoledronic acid (Zometa) may help prevent a large amount of bone loss in men treated with androgen deprivation

therapy for metastatic prostate cancer. Researchers gave three different dose schedules of zoledronic acid to men with prostate cancer who were starting androgen deprivation therapy. They measured the effects of the drug on the spine and thigh bones every six months by x-ray. A single dose of zoledronic acid prior to starting androgen deprivation therapy prevented bone loss and increased bone mineral density at six months. Researchers also found that more frequent administration of zoledronic acid may lessen bone mineral density loss in men already begun on androgen deprivation therapy.

WHAT PATIENTS NEED TO KNOW

Although androgen deprivation therapy is the primary way to treat metastatic prostate cancer, it often causes bone loss. Zoledronic acid may reduce or delay bone fractures or pressure on the spinal cord that can result from bone damage due to advanced prostate cancer. It is approved by

the FDA for patients with prostate cancer that has spread to the bone. As these results show, the timing of zoledronic acid may be important in men starting androgen deprivation therapy. Early use of zoledronic acid may prevent bone loss that happens within a few months after starting androgen deprivation therapy.

Everolimus as Initial Treatment in Progressive Metastatic Castration-resistant Prostate Cancer

A clinical trial showed that when used alone, the targeted anti-cancer drug everolimus (Afinitor) increased the amount of time men were free from prostate cancer growth or spread. In fact, the drug controlled cancer activity in nearly 33% of men with metastatic prostate cancer. The side effects with everolimus included mouth sores and/or irritation, tiredness, and diarrhea.

WHAT PATIENTS NEED TO KNOW

This is the first clinical trial that tested the use of everolimus alone as an initial treatment in men with metastatic castration-resistant prostate cancer. Everolimus is a targeted anti-cancer drug called an mTOR inhibitor, which blocks the signaling pathway that is active in certain tumors. It stops cancer cells from dividing and may also prevent the growth of blood vessels that tumors need to survive. Based on their promising findings, researchers will continue to study everolimus against this type of cancer.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Sarcoma

The 2011 ASCO Annual Meeting highlighted promising research in the treatment of soft-tissue and bone sarcomas. One trial showed clear benefits with prolonged use of imatinib (Gleevec) in gastrointestinal stromal tumors (GIST). Based on the results of another trial, a new targeted drug, ridaforolimus, will be submitted for Food and Drug Administration (FDA) approval. Researchers also reported that patients with advanced soft-tissue sarcomas may benefit from the use of another targeted treatment, pazopanib (Votrient). The positive results of these newly reported studies are very welcome, as they represent important steps forward.

Margaret von Mehren, MD
Fox Chase Cancer Center

Ridaforolimus as Maintenance Treatment in Advanced Sarcoma

In a late-stage clinical study of patients with advanced bone or soft-tissue sarcomas (known as the SUCCEED trial), researchers found that the drug ridaforolimus used as maintenance therapy reduced the risk of sarcoma progression or death by more than 30% compared to a placebo (a look-alike pill with no medicine). This trial included patients with metastatic soft-tissue or bone sarcomas whose cancer had gone into remission or stopped growing while they were receiving first-, second-, or third-line therapy. First-line therapy is the initial treatment recommended for this cancer. Second-line therapy is the treatment recommended after the

initial (first-line) treatment stops working. Third-line therapy is the treatment recommended after the initial and second-line treatments stop working. The average time without tumor growth or spread was more than seven weeks longer in patients who received ridaforolimus than in those who were given the placebo.

WHAT PATIENTS NEED TO KNOW

Sarcomas, a group of cancers of the connective tissue of the body, can grow rapidly. Ridaforolimus is a type of targeted treatment called an mTOR inhibitor, which blocks a protein called mTOR that is involved in cancer growth. Results from this clinical trial are positive enough that the makers of ridaforolimus plan to submit an application to the U.S. FDA for approval of this drug. Maintenance therapy with ridaforolimus may provide a new option for patients with metastatic soft-tissue and bone sarcomas.

Imatinib Following Surgery in High-risk GIST

A late-stage clinical trial studied the targeted treatment imatinib in patients with GIST at high risk of returning. Patients who received imatinib for 36 months following surgery saw improved survival and fewer recurrences than patients who received the drug for 12 months. At five years after surgery, 66% of patients in the 36-month group had not had a recurrence, compared with 48% of the patients in the 12-month group. Additionally, 92% of the patients in the 36-month group were alive after five years, compared with 82% of those in the 12-month group.

WHAT PATIENTS NEED TO KNOW

GISTs are a type of soft-tissue sarcoma for which the current standard treatment is one year of imatinib treatment following surgery (for tumors that can be surgically removed). The results of this trial—particularly the five-year survival rate—may lead experts to consider a three-year course of

imatinib as the new standard of care for patients at high risk of their GIST returning after surgery. An ongoing trial is testing the effectiveness of taking imatinib for five years.

Pazopanib in Patients with Metastatic Soft-tissue Sarcoma

A late-stage clinical trial studied the drug pazopanib in patients with soft-tissue sarcomas who had received prior chemotherapy and whose tumors continued to grow. The sarcoma's progression was reduced by 69% in patients who were treated with pazopanib compared to patients who received the placebo. Sarcoma growth was also delayed by 3.1 months in patients who were treated with pazopanib over patients who received the placebo. The patients in this trial had soft-tissue sarcomas that were not GISTs or liposarcomas (cancers that arise in fat cells or in deep soft tissue). They also had to have previously received an anthracycline drug, a form of chemotherapy.

WHAT PATIENTS NEED TO KNOW

Pazopanib is a targeted treatment that prevents tumors from establishing a blood supply, thereby stopping the tumor's growth. It is currently approved to treat advanced kidney cancer. More studies are planned to examine the effects of this drug on overall survival when it is given earlier in the course of this type of cancer.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Supportive Care

Supportive care is an important part of cancer treatment for all patients. It refers to health care and other services that address the physical, mental, social, emotional, and spiritual needs of patients with cancer before, during, and after cancer treatment. As people with cancer live longer due to progress made in screening, detection, and treatment, there has been a greater effort in the oncology community to focus on improving quality of life for patients and survivors. For this reason, supportive care has become an active area of research. As the studies discussed in this section show, researchers are exploring new ways to improve the health and quality of life of people with cancer.

Ann M. Berger, PhD, APRN, AOCNS, FAAN
University of Nebraska Medical Center

Yoga Improves Activity and Sleep Rhythm Patterns, Anxiety, and Mood in Cancer Survivors

According to a recent clinical trial, participation in a yoga program can significantly reduce anxiety and improve mood among cancer survivors. Most of the participants in this clinical trial were women with a history of breast cancer that had not spread to other areas in the body. After undergoing surgery, radiation, or chemotherapy, patients were placed in a standard care program or a standard care program plus YOCAS (Yoga for Cancer Survivors). YOCAS is a program of 75 minutes of yoga two times a week for four weeks that focuses on breathing exercises, postures, and meditation.

Researchers monitored the participants' activity over a 24-hour period as well as their sleep rhythm patterns (also known as circadian rhythms, which are physical, mental, and behavioral changes that generally follow a 24-hour cycle in response to light and darkness). The participants then completed surveys about anxiety and mood. Patients enrolled in the YOCAS program showed reduced anxiety and improved sleep rhythm patterns and mood after the four-week program, compared to patients who received standard care alone without yoga.

WHAT PATIENTS NEED TO KNOW

Cancer treatment can disrupt activity and sleep rhythm patterns and increase anxiety and mood disorders, even after treatment has been completed. These disruptions can interfere with recovery and quality of life. Yoga, an ancient system of practices that balances the mind, body, and spirit through breathing exercises, movement, and meditation, may also reduce symptoms and improve quality of life. The results of this study suggest that yoga reduces anxiety and improves sleep rhythm patterns and mood in cancer survivors.

Palonosetron Effective for Nausea and Vomiting in Patients Over 50 Years of Age

Nausea and vomiting are common side effects of cancer treatment. Researchers saw good results when they added the drug palonosetron (Aloxi) to a primary anti-nausea medication. In this study, most patients had advanced colorectal cancer and were being treated with the anti-cancer drugs irinotecan (Camptosar) or oxaliplatin (Eloxatin). Patients were given palonosetron (Zofran) combined with dexamethasone. The addition of palonosetron reduced nausea and vomiting in patients regardless of which anti-cancer drug they were taking and regardless of their age or gender. Patients who were under the age of 50, however, did not respond as well as those over the age of 50, with over one-half of the people in the younger group failing to experience improvement.

WHAT PATIENTS NEED TO KNOW

Certain chemotherapies are more likely than others to cause nausea and vomiting. In most cases, these side effects can be controlled with drugs and other treatments. Palonosetron

blocks chemicals in the body that can cause nausea and vomiting. Based on the results of this study, researchers suggest that palonosetron should be a standard treatment for cancer patients over the age of 50 who are receiving chemotherapy combinations containing irinotecan or oxaliplatin. More research is needed to identify the best anti-nausea drug for younger patients.

Group Exercise and Education Program Beneficial for Patients with Cancer

Some cancer patients may experience depression and a reduced quality of life, especially during active treatment. Researchers sought to determine if a structured, group-based exercise and education program would significantly improve quality of life in a group of patients with cancer undergoing radiation or chemotherapy. Patients in this clinical trial included post-treatment breast cancer survivors. Each patient completed an eight-week exercise program

and met in groups two days each week. Physical function and endurance, flexibility, fatigue, and quality of life were measured at the start and at the end of the study. At the end of the program, patients showed significant improvements in overall function, endurance, and flexibility and experienced less fatigue. However, the patients participating in this group-based exercise program did not show a significant reduction in symptoms of depression.

WHAT PATIENTS NEED TO KNOW

Patients should always speak with their oncology clinicians before starting a new exercise routine. Based on the results of this study, a group exercise and education program offers a way for cancer patients to improve their physical function, endurance, flexibility, fatigue and quality of life.

Flaxseed Not Effective to Reduce Hot Flashes

Hot flashes are a common symptom of menopause and are also a side effect of hormone therapy used to treat breast and other cancers. Preliminary research had suggested that flaxseed's weak estrogen properties may make it effective against hot flashes. But a recent late-stage clinical trial showed that flaxseed did not reduce hot flashes in postmenopausal women. For six weeks, women were given either a flaxseed bar or a placebo bar (a "look-alike" bar that contains no medicine) to eat each day. The women recorded any hot flashes they experienced during that time in a daily diary. Both groups experienced a decline in the number and severity of hot flashes, but the results were similar in both groups—over a third of the women in each group reported a 50% reduction in their hot flashes during the study period. In addition, both groups of women reported more bloating, gas, diarrhea, and nausea. These symptoms were thought

to be related to the fiber contained in both the flaxseed and placebo bars.

WHAT PATIENTS NEED TO KNOW

Flaxseed comes from the flax plant. The seeds contain lignans, which have both plant estrogen and antioxidant qualities, and are used to treat a variety of conditions. However, results from this trial do not support the use of flaxseed to reduce hot flashes. Patients are advised to always speak with their oncologist before taking any dietary or herbal supplements and to discuss how to best manage hot flashes.

Please note: Although the treatments discussed in this booklet are showing promise, most are still in clinical trials—some in earlier phases of research—and may not be available yet to the general public. Your doctor can help guide you as to which new medications could be right for you and whether you are eligible to take part in the clinical trials of these new treatments.

Resources

Additional diagnostic-specific resources are available in the online version of this booklet, which can be viewed at **www.cancercare.org/asco2011**.

Cancer*Care*
800-813-HOPE (4673)
www.cancercare.org

American Cancer Society
800-227-2345
www.cancer.org

CancerCare Co-Payment Assistance Foundation
866-55-COPAY
www.cancercopay.org

Cancer.Net
Patient information from the American Society of Clinical Oncology
www.cancer.net

National Cancer Institute
800-422-6237
www.cancer.gov

National Comprehensive Cancer Network
The patient website of this nonprofit alliance provides free treatment summaries and guidelines for various diagnoses.
www.nccn.org

National Library of Medicine (MedlinePlus)
www.medlineplus.gov

To find out about clinical trials:

Coalition of Cancer Cooperative Groups
www.CancerTrialsHelp.org

National Cancer Institute
800-422-6237
www.cancer.gov/clinicaltrials

The information presented in this patient booklet is provided for your general information only. It is not intended as medical advice and should not be relied upon as a substitute for consultations with qualified health professionals who are aware of your specific situation. We encourage you to take information and questions back to your individual health care provider as a way of creating a dialogue and partnership about your cancer and your treatment.

All people depicted in the photographs in this booklet are models and are used for illustrative purposes only.

CANCERcare®

for Help and Hope, visit or call:

WWW.CANCERCARE.ORG

800-813-HOPE (4673)