



COLLABORATION

2010 Rush University Cancer Center
Annual Report

Including the 2009 Cancer Registry Report



RUSH UNIVERSITY
MEDICAL CENTER

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*William Leslie, MD, medical oncologist (left),
and Ross Abrams, MD, radiation oncologist*

*On the cover:
Norman Wool, MD, surgeon,
and Ruta Rao, MD, medical oncologist*



CHAIR'S REPORT



I am pleased to present the *2010 Rush University Cancer Center Annual Report*. This has been an exceptionally busy year for the cancer team at Rush, not only in our hospital, clinics and research laboratories but behind the scenes where staff have worked together to make and implement plans that have enhanced — and will continue to enhance — the quality of cancer care at Rush.

While always an integral component of Rush's approach to health care, teamwork played an especially vital role in Rush's achievements in 2010. That's why in this year's report we feature some of these accomplishments with respect to collaboration in research and clinical care at Rush: our comprehensive cancer clinics for lung, breast and neurological cancers, and work related to gastrointestinal and gynecological cancers as well as lymphomas.

In a Q&A on p. 2, Howard Kaufman, MD, director of the Rush University Cancer Center, shares his thoughts on multidisciplinary care and how it benefits patients. He also discusses melanoma research and the new outpatient center, which opened Jan. 24, 2011. The efforts behind the creation of this center truly illustrate collaboration in action — with patients, caregivers, health care professionals, architects and others coming together to envision, and realize, a state-of-the-art facility. This spirit of collaboration infuses work done throughout the Rush University Cancer Center. For example, our tumor registry staff partners with employees throughout the Medical Center to gather and analyze

valuable data. In 2009, the cancer registry abstracted 3,040 cases, 2,674 of which were analytic (see p. 14). This marks an increase over 2008. Group efforts like this lie at the heart of every initiative at Rush, including the following:

- **The addition of a breast health nurse navigator to the cancer team.** In 2010, Rush hired a breast health nurse navigator. This addition was based on the recommendations of the Metropolitan Chicago Breast Cancer Task Force, a group whose leadership includes David Ansell, MD, chief medical officer at Rush. The purpose of the nurse navigator: to help bridge the large disparity in mortality rates between black and white women in Chicago. With the nurse navigator, Rush hopes to help overcome barriers to mammography such as health literacy, logistics (including transportation) and fear. These factors have been identified by the task force as reasons why black women are less likely to get mammograms than white women.
- **Expanding collaborations with Gilda's Club.** Rush enjoys collaborative relationships with many organizations dedicated to helping those affected by cancer (see p. 8). This includes Gilda's Club, which is dedicated to providing emotional and social support for people with cancer and their families and friends. Rush's Cancer Integrative Medicine Program partners with Gilda's Club Chicago to bring yoga classes, networking opportunities, relaxation strategies and more to Rush's cancer patients.
- **Quality improvements.** Several quality improvement projects were undertaken this past year, including some related to bone marrow transplant patients. While length of stay was found to be short among this inpatient population, readmission rates were relatively high. A chart review found variability in discharge criteria, so a task force that included both physicians and nurses developed uniform criteria. In addition, the task force determined that central line infections often resulted in readmissions, so nursing created a validation tool that incorporates detailed patient education into the plan of

care to reduce central line infections and help patients become more self-sufficient.

This commitment to quality at The Coleman Foundation Blood and Bone Marrow Transplant Clinic at Rush is evidenced by its accreditation from the Foundation for the Accreditation of Cellular Therapy (FACT). FACT accreditation is a voluntary process whereby transplant programs adhere to compliance with standards for the provision of quality medical and laboratory practice in hematopoietic cell transplantation. Rush's transplant program is fully accredited for allogeneic and autologous marrow and peripheral blood progenitor cell transplantation, including cell collection and laboratory processing.

- **Magnet recognition from the American Nurses Credentialing Center.** Rush received Magnet status from the American Nurses Credentialing Center for the third time in 2010, the highest recognition given for nursing excellence. Hospitals that receive Magnet status are noteworthy for their excellence and innovation in nursing, and evidence suggests that organizations with these characteristics deliver better patient outcomes than non-Magnet organizations. This achievement reflects an enormous effort on the part of Rush's nursing staff and pays tribute to Rush's model for nursing, which is based on collaboration between clinical practice and academic education.

I would like to thank everyone at Rush, including medical and nursing staff, cancer committee and cancer center members, and the cancer registry staff, for supporting these efforts and for everything they do on behalf of patients with cancer. By lending their expertise as well as by developing valuable relationships with outside agencies, these individuals make significant strides in improving the lives of those affected by cancer.

Michael Liptay, MD
Professor of Surgery
Chief, Division of Thoracic Surgery
Chair, Cancer Committee at Rush

Q&A: A CONVERSATION WITH HOWARD KAUFMAN, MD

Howard Kaufman, MD, director of the Rush University Cancer Center, discusses the value of multidisciplinary care, its role in Rush's new outpatient center and his views on advances in cancer treatment.

Q: How has Rush's approach to cancer care shifted over the past year?

A: Rather than having a small group of collaborators come together to address certain cancers, we now bring together multiple groups and multiple programs to focus on specific disease sites. We are organizing ourselves along disease-specific lines. Our goal is to take care of any kind of cancer that might occur and to do it in a multidisciplinary fashion. At Rush, this kind of approach has been applied for some time at The Coleman Foundation comprehensive clinics for breast cancer, lung cancer and gastrointestinal cancers (see p. 4). There's a longstanding tradition of multidisciplinary care here, and we're building on that. In 2010, we saw our list of comprehensive clinics grow, with the introduction of The Coleman Foundation's melanoma and pigmented lesion, and brain and spine tumor clinics (see p. 5). And this past winter, we opened a new state-of-the-art outpatient center, which brings together specialists and programs in the same location.

We are also making significant strides in better aligning the research, clinical and education missions as they pertain to cancer across all cancer disease sites. In cancer, it's very difficult to separate clinical care from the research. They are completely integrated. If you have a cancer that's not currently curable, then the evolving standard now is to get into a research program. We have more drugs available today than we've ever had before. We now understand cancer on an individual patient basis. These advances highlight the importance of having the research infrastructure to take care of an individual patient with the disease.

Q: What are the benefits of multidisciplinary care?

A: We know now that the odds of surviving cancer go up significantly when you get multiple specialists involved in the care of that patient together, and by together I mean in the same place at the same time. This includes the medical oncologist, the surgical oncologist, the radiation oncologist, the pathologist, the radiologist and the research scientist. The kind of creative ideas, the kind of treatment planning and the kind of approach that come out of this comprehensive, multidisciplinary way of taking care of patients clearly lead to longer survival for patients.

Q: In January, Rush opened a new outpatient center. How will this new space affect patient care?

A: The new center offers a unique opportunity to come together in a truly multidisciplinary way. We now have the space to bring to patients services such as integrative medicine, psychosocial oncology and patient education in one location and be able to do that in a state-of-the-art facility. This allows us to provide a more personalized approach to the patient who has cancer so that we can deal not just with the disease but all of the things that accompany the disease: the psychological aspects, the nutritional aspects, the alternative medicine approaches — all of which really do help us take care of the patient. This will really expedite the care for patients and will also lead to new opportunities and education and training.

At the outpatient center, we'll also be addressing survivorship: a whole new area of patient care when it comes to cancer. Right now there's close to 12 million Americans walking around who've actually beaten cancer and have special needs that are not necessarily being addressed. At Rush, we will be incorporating tools into our management of patients to meet these unique needs.

Q: In your opinion, what have been the most significant changes in cancer treatment in the last decade? The past year?

A: Ten years ago we thought of breast cancer as one disease, and today we understand that breast cancer is different in different patients so we have to tailor our approach for those different patients. And so the therapeutic regimens we put together, the way we diagnose patients — not just for breast cancer but for other cancers as well — may have to take an individualized approach, and that's the importance of really having all of the physicians together in one place.

As for more recent changes, there have been some remarkable breakthroughs with vaccines this past year. Cancer researchers have been interested in vaccines for years, but success has been elusive. Now, we have the first-ever approved prostate cancer vaccine, and there are very promising results going on with melanoma vaccines right now. In fact, we're studying one of those melanoma vaccines at Rush in a phase III



study. This is a particularly interesting vaccine because it's a live virus that kills melanoma cells and also induces an immune response, which we think can protect the patient from a future recurrence of melanoma, so we're actively enrolling patients.

Q: What direction is Rush headed in terms of research?

A: One of the things we've learned in cancer is that we can cure mice really well, but we don't do as well in humans. And so, in terms of cancer research, there has been a refocus on the patient, and that translational research approach — transforming discoveries from the lab, clinic or population into clinical applications — is something that Rush does really well because we have access to a large number of patients.

Our clinical services provide us opportunities to really learn about the disease and the people who will benefit from the future treatments that we'll be testing here. And I hope in the coming years to have more phase I studies at Rush. We've never had more new drugs in the history of cancer treatment than we do today, and getting these to the patients quickly is one of the main goals that we have here at Rush.

New Outpatient Center

A few of the center's new features:

- A larger chemotherapy area with 56 infusion stations, 20 of them private.
- Dedicated space for the Cancer Integrative Medicine Program's complementary therapies.
- State-of-the-art patient exam and procedure rooms equipped with technology that will allow physicians and patients to review electronic records and diagnostic tests together.
- An expanded resource library where patients can learn more about their illnesses and care, with computers and reference materials, and an art room for therapy.
- A clinical and educational conference room equipped with smart boards and imaging technology dedicated to the training of tomorrow's caregivers.



Tushar Patel, MD, pathology resident (far left); Palmi Shah, MD, radiologist; Paolo Gattuso, MD, pathologist; and Edward Hong, MD, surgeon



A MULTIDISCIPLINARY APPROACH

The Coleman Foundation Comprehensive Cancer Clinics at Rush

- Brain and spine tumor
- Breast cancer
- Gastrointestinal cancers
- Head and neck cancers
- Leukemia
- Lung cancer
- Lymphoma
- Melanoma and pigmented lesion
- Multiple myeloma
- Prostate cancer

For more information about cancer programs at Rush or to refer a patient, please call (312) 563-3800.



Mary Ellen Hand, RN, comprehensive clinic nurse coordinator

In 1985, a small group of physicians at Rush University Medical Center founded the first comprehensive breast cancer clinic in the Midwest, inaugurating a collaborative approach to cancer care that would serve as a model for other clinics within Rush and across the region.

A Model of Collaboration

Since then, Rush has created more specialized cancer clinics (see sidebar) centered on collaboration among experts with deep knowledge in a broad range of specialties. While this model remains on the leading edge of cancer care, the experienced team at the 26-year-old breast cancer clinic have been working collaboratively for so long that medical oncologist **Melody Cobleigh, MD**, calls it “the old-fashioned way” of treating patients.

At The Coleman Foundation Comprehensive Breast Cancer Clinic, each patient begins by seeing four specialists — a medical oncologist, a surgeon, a radiation therapist and a psychosocial oncologist — on the same day. Afterward, the team of doctors discusses the patient’s condition, pooling their knowledge to find the best options and present the patient with an individualized treatment plan.

While the collaborative process differs slightly from clinic to clinic, each of The Coleman Foundation comprehensive cancer clinics provides multidisciplinary assessments and detailed discussions of treatment, usually in a single visit. This approach embodies their concerted effort to be effective and accessible to patients and referring physicians.

Teamwork in Practice

“I’ve had patients say that they’ve gotten more information here in one hour than they’ve gotten in weeks of consulting with specialists on an individual basis,” says medical oncologist **Philip Bonomi, MD**.

And patients aren’t the only ones. **Krystyna Kiel, MD**, a radiation oncologist who participates in the lung cancer clinic, says its model of care helps physicians stay current by continually exposing them to different perspectives and the latest research from other fields. “Working closely with the same team allows you to learn about the concerns and issues of each specialty,” she says. Because cancer patients often need several specialized treatments, such cross-pollination is particularly important for those who treat them.

“It’s deepened my understanding of everything that goes into decisions about chemotherapy and radiation,” says **Richard Byrne, MD**, a neurosurgeon and member of the brain and spine tumor clinic team. “For example, I now have a better understanding of what tumor residue means from a chemotherapeutic or radiotherapeutic perspective. The comprehensive clinics give us the pieces of the puzzle we don’t already have.”

Fitting the pieces together can save lives. One patient, for instance, had been told before coming to Rush that his small cell lung cancer had metastasized to his bones and would be difficult to treat. By meeting with the patient and collaboratively reviewing all the available information, the lung cancer team determined that what looked like cancer was actually damage to his bones caused by a past car accident. They treated him for an earlier stage of lung cancer and, 12 years later, he’s still in remission.

The Past and Future of Collaboration

The ability to collaborate so fruitfully stems from an ethic that extends throughout Rush. Nurse coordinators, who manage care and serve as point people for patients and referring physicians at each of the comprehensive clinics, have long worked with departments across the Medical Center to make sure each patient gets individualized care as quickly as possible. “In the lung cancer clinic, if we identify a new finding in the brain, for example, we can schedule an appointment with a neurosurgeon, and that same day the patient sees a neurosurgeon,” says Mary Ellen Hand, RN, a nurse coordinator for the lung cancer, head and neck cancer, and pigmented lesion clinics.

“At Rush there’s always been a tradition of respect for other disciplines rather than a competition for patients,” adds Cobleigh. “We’ve understood all along that you just can’t know everything. You need good people in all kinds of disciplines.”

In January, that understanding took physical shape in the form of a new outpatient center. The center, which houses all of the comprehensive cancer clinics, puts the many facets of Rush’s expanding cancer programs in the same location. “Cancer care is not very straightforward, and with this model we can more effectively address the nuances of care,” Kiel says.

Addressing those nuances pays off: As cancer center director **Howard Kaufman, MD**, points out on p. 2 the odds of surviving cancer increase significantly when multiple specialists care for patients together.



Aidhag Z. Diaz, MD, radiation oncologist (left); Richard
Byrne, MD, neurosurgeon (middle); Robert Aiken, MD,
neuro-oncologist

Introducing the Brain and Spine Tumor Clinic

The Coleman Foundation Comprehensive Brain and Spine Tumor Clinic brings together a variety of specialists in the treatment of noncancerous and cancerous tumors. Clinic director **Robert Aiken, MD**, a neuro-oncologist, says such tumors demand intensive collaboration. "The brain is where you live," he says. "So there are many other dimensions of sickness besides the actual tumor itself. It's a matter that really impacts emotionality, memory, every aspect of life. So we need to have people involved who are able to address any issue that might arise." In addition to surgeons, neurologists, radiation oncologists and medical oncologists, that includes palliative care specialists, neuropsychologists and other care providers who can help families cope and assist patients with basics like taking their medication and executing daily activities.

It also, sometimes, includes people and institutions outside of Rush. Last year, the brain and spine tumor clinic joined the North Central Cancer treatment group, a consortium for clinical trials led by the Mayo Clinic and the National Cancer Institute. Rush, the only Chicago-area medical center in the consortium, makes these trials of leading-edge treatments available on-site to patients who might benefit from them.

The end goal of all this collaboration? "We want to emphasize that there is reason to go through treatment," Aiken says. "There is reason to keep working together. There is reason to be hopeful."

TRANSLATIONAL RESEARCH

Clinical and basic cancer researchers at Rush University Medical Center have one common goal: improving patient care. And they often collaborate to develop strategies for alleviating the burden of treatment on their patients and detecting cancers earlier.

Taking a Magic Bullet Approach to Follicular Lymphoma

Finding therapies that are both effective and gentle for patients with follicular lymphoma, the most common indolent non-Hodgkin lymphoma, is a priority for hematologist/oncologist **Stephanie Gregory, MD**, and her colleagues at Rush, including hematologists, pathologists and researchers. The reason: patients can live up to 10 to 14 years with the disease, and chemotherapy can cause both harsh side effects and, over time, secondary cancers. “We’re trying to get away from a blanket approach where we’re destroying normal cells along with the cancer cells,” says Gregory. “Now we’re looking at targeted therapies, which are easier on patients and have the potential to boost response rates.”

Providing a Power Boost

One targeted approach being explored by the team at Rush — led by Gregory and researcher **Kent Christopherson, PhD** — involves cell-specific surface molecules. Over the past decade Rush has played a key role in identifying and developing therapies based on these molecules. “The more molecules we can target on cancer cell surfaces, the more effective treatment may be and the easier it will be to individualize care,” says Christopherson.

Compared to chemotherapy, naked monoclonal antibodies are, in general, well tolerated. On their own, however, they rarely produce a complete response; they are most effective when paired with chemotherapy or other targeted therapies.

Seeking efficacy without the toxicity, Gregory and Christopherson are investigating inotuzumab ozogamicin — the anti-CD22 monoclonal antibody inotuzumab covalently linked to the potent cytotoxin calicheamicin — in a phase II trial. When the inotuzumab binds to the CD22 molecule, it releases the toxin, which travels directly to the cell nucleus, attaches to the DNA and causes double-strand breaks that result in apoptosis.

Fewer Doses, Fewer Side Effects

Given just once a month, the treatment’s main side effect is platelet count drops. “For heavily treated patients,” Gregory says, “this therapy can offer an excellent response and is well tolerated, so it can continue for many months.”

Given the promise of this approach, the team at Rush is already looking for ways to improve upon it. Rush recently began phase I trials for a small modular immunopharmaceutical, or SMIP, a single-chain polypeptide that targets the previously uncharted CD37 molecule. At one-third to one-half the size of monoclonal antibodies, SMIPs are designed for better tissue penetration and biodistribution to offer even better outcomes for patients.

“We’re starting to look at even smaller molecules to target cancer cells,” Gregory says. “This level of customization and specificity is where lymphoma treatment is heading.”

For more information about cancer programs at Rush or to refer a patient, please call (312) 563-3800.



Judith Luborsky, PhD, researcher (left) and Lydia Usha, MD, medical oncologist

Improving the Odds of Early Detection for Ovarian Cancer

Developing an effective screening method for ovarian cancer will be a crucial step toward detecting and treating the disease at an early, localized stage and improving survival rates. Researchers and clinicians at Rush are collaborating to improve screening capabilities on multiple fronts: studying the use of nanotechnology to boost the effectiveness of CA-125 testing (see p. 8) and developing a new screening procedure based on a novel marker: circulating antibodies.

Production of autoantibodies is the earliest immune response to very low levels of tumor-shed proteins, and the team at Rush has discovered circulating autoantibodies to well-known tumor antigens in women with prematurely reduced ovarian function. Reduced ovarian function is known to carry an increased risk of ovarian cancer, but this is the first demonstration of a tumor marker in these patients.

To translate that marker into an effective screening procedure, principal investigator **Judith Luborsky, PhD**, will team up with medical oncologist **Lydia Usha, MD**, who heads the Rush Inherited Susceptibility to Cancer Center, as well as pathologist **Pincas Bitterman, MD**, gynecologic oncologist **Alfred Guirguis, MD**, and other institutions worldwide.

“These findings may not only lead to a screening procedure,” says Luborsky, “they may also help us understand the underlying process that leads to ovarian cancer.”



Victor Levenson, MD, PhD, researcher (left), and
Joshua Melson, MD, MPH, gastroenterologist

Putting the Brakes on Colorectal Cancers

Gastroenterologists and basic scientists at Rush have teamed up to develop a blood-based screening test that will improve early detection of and reduce mortality from colorectal cancers. They are searching for biomarkers — specifically, methylated genes — that will help identify patients with precancerous polyps who might benefit from colonoscopy or additional testing.

In human DNA, tumor suppressor genes act as brakes on cancer cell replication. “Like a switch, methylation turns off a tumor suppressor gene’s ability to serve as a brake,” says **Joshua Melson, MD, MPH**, a gastroenterologist at Rush.

High levels of DNA methylation have been found in cancer patients. The team at Rush, led by Melson and researcher **Victor Levenson, MD, PhD**, is looking at thousands of tumor suppressor genes to determine which genes become methylated in colon cancer patients. Gastroenterologists at Rush provide blood samples from clinic patients; the samples are then studied in the lab using state-of-the-art microarray technology.

“If we can identify the early changes that lead to polyps becoming cancerous and develop a blood test based on these markers that could be given routinely in clinic,” Melson says, “it would ultimately mean far fewer colorectal cancers.”

STRATEGIC COLLABORATIONS

At Rush, collaboration among physicians helps provide the best possible cancer care for patients. Collaboration between institutions, meanwhile, can elevate the quality — and broaden the scope — of patient care.

Teaming Up With Argonne

Jacob Rotmensch, MD, a gynecologic oncologist at Rush, and **Liaohai Chen, PhD**, a researcher with Argonne National Laboratories and Rush, have worked together for nearly 20 years to identify improved screening and therapeutic approaches to gynecologic malignancies. “By combining the problem-solving skills of a biomedical engineering researcher with the clinical expertise of a physician researcher, we believe we can improve health care,” Chen says. “You need engineering know-how and Argonne helps with this capability.”

Size Matters

Rush and Argonne currently collaborate on several studies looking into how nanotechnology and advanced spectroscopy can improve cancer diagnosis and treatment. “Nanotechnology could revolutionize cancer care,” says Chen. In one study, Chen and Rotmensch use fluorescence correlation spectroscopy (FCS) to observe CA-125 molecules in serum samples from Rush patients. This strategy could have future applications as a screening protocol. A closer look at CA-125, the standard biomarker employed in diagnosing ovarian and endometrial cancer, could hold the key to more accurately diagnosing the disease.

Currently, cancer specialists evaluate CA-125 counts, which are measured with an immunoassay in the lab. Numbers above normal levels generally indicate the presence of ovarian cancer. The testing of quantity alone, however, limits the accuracy of current diagnostic tools. Some patients with advanced ovarian cancer have been found to have low

levels of CA-125, and premenopausal women may have high levels of CA-125 for reasons that have no link to cancer. Past studies have shown the significance of biomarker size for diagnosing cancer, but finding the appropriate tool to determine size has been challenging. Hypothesizing that FCS could do the job, Chen, along with Rotmensch, is applying FCS to assess the size of CA-125 particles as well as quantities.

Applying Leading-Edge Technology

In the study, researchers use FCS to evaluate the serum through a nano-sized oval created by a laser. Measuring the time it takes for CA-125 molecules to pass through the oval allows researchers to determine their size. The smaller CA-125 complexes, which are taken from patients with benign tumors, take roughly .2 milliseconds to get through the opening. The larger particles, which indicate a cancerous presence, take 3 to 10 milliseconds. “This could help increase the specificity and sensitivity of diagnostic tests,” says Chen, who believes the technology can be easily transferable to biomarkers for other cancers.

Additional Projects With Argonne

Rotmensch isn’t the only cancer specialist at Rush working with Argonne. Radiation oncologist **Katherine Griem, MD**, has teamed up with Argonne to investigate ways to predict skin reaction during radiation therapy with 3-D thermal tomography, an imaging technique used by NASA that has been honed for the purpose of clinical research by engineers at Argonne.

For more information about cancer programs at Rush or to refer a patient, please call (312) 563-3800.



Mary Jo Fidler, MD, medical oncologist (left), and Erin Schneider, LCSW, patient navigator, American Cancer Society

A Resource for Cancer Patients

Five years ago, Rush University Medical Center and the American Cancer Society (ACS) joined forces to bring a full-time patient navigator to Rush to help cancer patients gain access to much-needed resources. Erin Schneider, LCSW, an ACS employee, filled that role, and she continues to embody the same spirit of teamwork that initially helped create her position.

Schneider, in collaboration with hospital staff (including social workers, nurses and physicians), helps patients by removing barriers that may interfere with care. For example, if patients worry about transportation or finances, they may not be able to focus fully on making sure they’re following through with treatment. So, what does Schneider do about that? Over the past year, Schneider interacted with approximately 800 patients needing assistance.

“We build a bridge for patients who otherwise would have been left out on an island by themselves,” she says. “At ACS, we have so many programs for patients, but we need effective ways to reach them. Being embedded in a hospital like Rush makes it so much easier to help — and it’s more immediate, which is so very important to patients and families facing cancer.”

Jacob Rotmensch, MD, gynecologic oncologist (left), and Liaohai Chen, PhD, researcher, Argonne National Laboratories and Rush



Rush Bands Together With Stroger Hospital to Provide GI Care

As neighbors on Chicago's West Side, Rush and John H. Stroger, Jr. Hospital of Cook County have enjoyed a long-term working relationship, which includes promoting access to colonoscopies.

Fewer than 40 percent of colon cancers nationwide are detected early. This is partially due to limited access; many low income and uninsured individuals can't afford screening colonoscopies. Stroger Hospital, however, offers colonoscopies regardless of ability to pay. The downside: long waiting periods. "Lengthy delays increase the risk of undetected cancers advancing to the point where treatment would no longer be beneficial," says **John Losurdo, MD**, a gastroenterologist at Rush. To cut that wait time, Rush and Stroger Hospital offered colonoscopies to these patients at Rush a couple of years ago, with all attending gastroenterologists at Rush conducting screenings. This effort shortened wait times and enabled faster treatment when tumors or polyps were detected.

The initiative's success has inspired additional joint ventures between Rush and Stroger Hospital. Currently, Rush and Stroger Hospital perform screening colonoscopies for HIV patients at the Ruth M. Rothstein CORE Center, which was established as a partnership between the Cook County Health and Hospitals System and Rush. "Patients have been in good hands all around," says **Ali Keshavarzian, MD**, also a gastroenterologist at Rush.



John Losurdo, MD, gastroenterologist (left); Ali Keshavarzian, MD, gastroenterologist; Patricia DeMarais, MD, infectious disease specialist, John H. Stroger, Jr. Hospital of Cook County

REPRESENTATIVE PUBLICATIONS

Representative cancer publications from 2010

Amato RJ, Hawkins RE, Kaufman HL, Thompson JA, Tomczak P, Szczylik C, McDonald M, Eastty S, Shingler WH, de Belin J, Goonewardena M, Naylor S, Harrop R. Vaccination of metastatic renal cancer patients with MVA-5T4: a randomized, double-blind, placebo-controlled phase III study. *Clin Cancer Res*. 2010;16(22):5539-5547.

Ansenberger K, Richards C, Zhuge Y, Barua A, Bahr JM, Luborsky JL, Hales DB. Decreased severity of ovarian cancer and increased survival in hens fed a flaxseed-enriched diet for 1 year. *Gynecol Oncol*. 2010;117(2):341-347.

Arvanitis LD, Pitelka LA, Gattuso P. Adrenocortical carcinoma presenting with a peritoneal effusion. *Diagn Cytopathol*. 2010;38(7):514-516.

Bakshi R, Hassan MQ, Pratap J, Lian JB, Montecino MA, van Wijnen AJ, Stein JL, Imbalzano AN, Stein GS. The human SWI/SNF complex associates with RUNX1 to control transcription of hematopoietic target genes. *J Cell Physiol*. 2010;225(2):569-576.

Barua A, Bitterman P, Bahr JM, Bradaric MJ, Hales DB, Luborsky JL, Abramowicz JS. Detection of tumor-associated neoangiogenesis by Doppler ultrasonography during early-stage ovarian cancer in laying hens: a preclinical model of human spontaneous ovarian cancer. *J Ultrasound Med*. 2010;29(2):173-182.

Batus M, Fidler MJ, Bonomi PD. Primary and secondary therapeutic strategies for EGF receptor pathway inhibition in non-small-cell lung cancer. *Expert Rev Anticancer Ther*. 2010;10(10):1589-1599.

Boco T, Jobe KW, O'Leary ST, Byrne RW, Whisler WW. The history of neurological surgery at Rush University Medical Center. *Neurosurgery*. 2010;67(4):1036-1043.

Bonomi P. Epidermal growth factor receptor pathway. *J Thorac Oncol*. 2010;5(12)(suppl 6):S470-S471.

Bonomi PD. Implications of key trials in advanced nonsmall cell lung cancer. *Cancer*. 2010;116(5):1155-1164.

Buckingham L, Faber PL, Kim A, Liptay M, Barger C, Basu S, Fidler M, Walters K, Bonomi P, Coon J. PTEN, RASSF1 and DAPK site-specific hypermethylation and outcome in surgically treated stage I and II nonsmall cell lung cancer patients. *Int J Cancer*. 2010;126(7):1630-1639.

Cantley RL, Cimbalk D, Reddy V, Iacuso C, Gattuso P. Fine-needle aspiration diagnosis

of a metastatic adult sclerosing rhabdomyosarcoma in a lymph node. *Diagn Cytopathol*. 2010;38(10):761-764.

Cela I, Shah NB, Bradly D, Loew J, Leslie W. An Epstein-Barr virus-associated smooth muscle tumor successfully treated with surgical resection: a case report and literature review. *Clin Adv Hematol Oncol*. 2010;8(6):423-426.

Chaitankar V, Ghosh P, Perkins EJ, Gong P, Deng Y, Zhang C. A novel gene network inference algorithm using predictive minimum description length approach. *BMC Syst Biol*. 2010;4(suppl 1):S7.

Chow G, Tauler J, Mulshine JL. Cytokines and growth factors stimulate hyaluronan production: role of hyaluronan in epithelial to mesenchymal-like transition in non-small cell lung cancer. *J Biomed Biotechnol*. 2010;2010:485468.

Coon AB, Dickler A, Kirk MC, Liao Y, Shah AP, Strauss JB, Chen S, Turian J, Griem KL. Tomotherapy and multifield intensity-modulated radiotherapy planning reduce cardiac doses in left-sided breast cancer patients with unfavorable cardiac anatomy. *Int J Radiat Oncol Biol Phys*. 2010;78(1):104-110.

Czuczman MS, Gregory SA. The future of CD20 monoclonal antibody therapy in B-cell malignancies. *Leuk Lymphoma*. 2010;51(6):983-994.

Dohrmann GJ, Byrne RW. What's new in neurosurgery: advances in neurovascular and spine surgery, epilepsy surgery, surgery for movement disorders and intraoperative imaging. *Med Princ Pract*. 2010;19(5):328-329.

Dowlatschahi K, Wadhvani S, Alvarado R, Valadez C, Dieschbourg J. Interstitial laser therapy of breast fibroadenomas with 6 and 8 year follow-up. *Breast J*. 2010;16(1):73-76.

Edassery SL, Shatavi SV, Kunkel JP, Hauer C, Brucker C, Penumatsa K, Yu Y, Dias JA, Luborsky JL. Autoantigens in ovarian autoimmunity associated with unexplained infertility and premature ovarian failure. *Fertil Steril*. 2010;94(7):2636-2641.

Evens AM, David KA, Helenowski I, Nelson B, Kaufman D, Kircher SM, Gimelfarb A, Hattersley E, Mauro LA, Jovanovic B, Chadburn A, Stiff P, Winter JN, Mehta J, Van Besien K, Gregory S, Gordon LI, Shammo JM, Smith SE, Smith SM. Multicenter analysis of 80 solid organ transplantation recipients with post-transplantation lymphoproliferative disease: outcomes and prognostic factors in the modern era. *J Clin Oncol*. 2010;28(6):1038-1046.

Fan X, Lobenhofer EK, Chen M, Shi W, Huang J, Luo J, Zhang J, Walker SJ, Chu TM, Li L, Wolfinger R, Bao W, Paules RS, Bushel PR, Li J, Shi T, Nikolskaya T, Nikolsky Y, Hong H, Deng Y, Cheng Y, Fang H, Shi L, Tong W. Consistency of predictive signature genes and classifiers generated using different microarray platforms. *Pharmacogenomics J*. 2010;10(4):247-257.

Gallegos M, Bradly DP, Jakate SM. Polycystic liver disease leading to liver failure and transplantation. *Clin Gastroenterol Hepatol*. 2010;8(4):A24.

Gould VE, Schmitt M, Vinokurova S, Reddy VB, Bitterman P, Alonso A, Gattuso P. Human papillomavirus and p16 expression in inverted papillomas of the urinary bladder. *Cancer Lett*. 2010;292(2):171-175.

Farlow EC, Patel K, Basu S, Lee BS, Kim AW, Coon JS, Faber LP, Bonomi P, Liptay MJ, Borgia JA. Development of a multiplexed tumor-associated autoantibody-based blood test for the detection of non-small cell lung cancer. *Clin Cancer Res*. 2010;16(13):3452-3462.

Frenkel S, Gaitonde SS, Azar N, Wood MG, Schmidt ML. Conjunctival marginal zone B-cell lymphoma in a 13-year-old child. *J Pediatr Ophthalmol Strabismus*. 2010;47:e1-4.

Friedberg JW, Sharman J, Sweetenham J, Johnston PB, Vose JM, Lacasce A, Schaefer-Cuttillo J, De Vos S, Sinha R, Leonard JP, Cripe LD, Gregory SA, Sterba MP, Lowe AM, Levy R, Shipp MA. Inhibition of Syk with fostamatinib disodium has significant clinical activity in non-Hodgkin lymphoma and chronic lymphocytic leukemia. *Blood*. 2010;115(13):2578-2585.

Goldsmith RE, Jandorf L, Valdimarsdottir H, Amend KL, Stoudt BG, Rini C, Hershman D, Neugut A, Reilly JJ, Tartter PI, Feldman SM, Ambrosone CB, Bovbjerg DH. Traumatic stress symptoms and breast cancer: the role of childhood abuse. *Child Abuse Negl*. 2010;34(6):465-470.

Grunzke M, Hayes K, Bourland W, Garrington T. Diffuse cavitory lung lesions. *Pediatr Radiol*. 2010;40(2):215-218.

Hollings DD, Higgins RS, Faber LP, Warren WH, Liptay MJ, Basu S, Kim AW. Age is a strong risk factor for atrial fibrillation after pulmonary lobectomy. *Am J Surg*. 2010;199(4):558-561.

Huhn GD, Badri S, Vibhakkar S, Tverdek F, Crank C, Lubelchek R, Max B, Simon D, Sha B, Adeyemi O, Herrera P, Tenorio A, Kessler H, Barker D. Early development of non-Hodgkin lymphoma following initiation of newer class antiretroviral therapy among HIV-infected

- patients—implications for immune reconstitution. *AIDS Res Ther*. 2010;7:44.
- Jensen SM, Maston LD, Gough MJ, **Ruby CE**, Redmond WL, Crittenden M, Li Y, Puri S, Poehlein CH, Morris N, Kovacovics-Bankowski M, Moudgil T, Twitty C, Walker EB, Hu HM, Urba WJ, Weinberg AD, Curti B, Fox BA. Signaling through OX40 enhances antitumor immunity. *Semin Oncol*. 2010;37(5):524-532.
- Jin Q, Duggan R, Dasa SS, Li F, **Chen L**. Random mitotic activities across human embryonic stem cell colonies. *Stem Cells Dev*. 2010;19(8):1241-1248.
- Kantarjian H, Fenaux P, Sekeres MA, Becker PS, Boruchov A, Bowen D, Hellstrom-Lindberg E, Larson RA, Lyons RM, Muus P, **Shammo J**, Siegel R, Hu K, Franklin J, Berger DP. Safety and efficacy of romiplostim in patients with lower-risk myelodysplastic syndrome and thrombocytopenia. *J Clin Oncol*. 2010;28(3):437-444.
- Kasamon YL, Jones RJ, Brodsky RA, Fuchs EJ, Matsui W, Luznik L, Powell JD, Blackford AL, Goodrich A, Gocke CD, **Abrams RA**, Ambinder RF, Flinn IW. Immunologic recovery following autologous stem-cell transplantation with pre- and posttransplantation rituximab for low-grade or mantle cell lymphoma. *Ann Oncol*. 2010;21(6):1203-1210.
- Katz DA, Miller IJ, **Gregory SA**. Intravascular B-cell lymphoma following nodal diffuse large B-cell lymphoma. *Clin Adv Hematol Oncol*. 2010;8(9):637-642.
- Kaufman HL**, **Bines SD**. OPTIM trial: a phase III trial of an oncolytic herpes virus encoding GM-CSF for unresectable stage III or IV melanoma. *Future Oncol*. 2010;6(6):941-949.
- Kaufman HL**, **Kim DW**, DeRaffele G, Mitcham J, Coffin RS, Kim-Schulze S. Local and distant immunity induced by intralesional vaccination with an oncolytic herpes virus encoding GM-CSF in patients with stage IIIc and IV melanoma. *Ann Surg Oncol*. 2010;17(3):718-730.
- Kim AW, Faber LP, **Warren WH**, Shah ND, **Basu S**, **Liptay MJ**. Bilobectomy for non-small cell lung cancer: a search for clinical factors that may affect perioperative morbidity and long-term survival. *J Thorac Cardiovasc Surg*. 2010;139(3):606-611.
- Kim DW**, Krishnamurthy V, **Bines SD**, **Kaufman HL**. TroVax, a recombinant modified vaccinia Ankara virus encoding 5T4: lessons learned and future development. *Hum Vaccin*. 2010;6(10):784-791.
- Kinonen C, **Gattuso P**, **Reddy VB**. Lupus mastitis: an uncommon complication of systemic or discoid lupus. *Am J Surg Pathol*. 2010;34(6):901-906.
- Kozower BD, Sheng S, O'Brien SM, **Liptay MJ**, Lau CL, Jones DR, Shahian DM, Wright CD. STS database risk models: predictors of mortality and major morbidity for lung cancer resection. *Ann Thorac Surg*. 2010;90(3):875-881.
- Leong DT, Lim J, Goh X, **Pratap J**, Pereira BP, Kwok HS, **Nathan SS**, Dobson JR, Lian JB, Ito Y, Voorhoeve PM, Stein GS, Salto-Tellez M, Cool SM, van Wijnen AJ. Cancer-related ectopic expression of the bone-related transcription factor RUNX2 in non-osseous metastatic tumor cells is linked to cell proliferation and motility. *Breast Cancer Res*. 2010;12(5):R89.
- Levenson VV**. DNA methylation as a universal biomarker. *Expert Rev Mol Diagn*. 2010;10(4):481-488.
- Levine J, **Canada A**, Stern CJ. Fertility preservation in adolescents and young adults with cancer. *J Clin Oncol*. 2010;28(32):4831-4841.
- Liggett T, Melnikov A, Yi QL, Replogle C, Brand R, Kaul K, Talamonti M, **Abrams RA**, **Levenson V**. Differential methylation of cell-free circulating DNA among patients with pancreatic cancer versus chronic pancreatitis. *Cancer*. 2010;116(7):1674-1680.
- Luo J, Schumacher M, Scherer A, Sanoudou D, Megherbi D, Davison T, Shi T, Tong W, Shi L, Hong H, Zhao C, Elloumi F, Shi W, Thomas R, Lin S, Tillinghast G, Liu G, Zhou Y, Herman D, Li Y, **Deng Y**, Fang H, Bushel P, Woods M, Zhang J. A comparison of batch effect removal methods for enhancement of prediction performance using MAQC-II microarray gene expression data. *Pharmacogenomics J*. 2010;10(4):278-291.
- Mahon BM, Placido JB, **Gattuso P**. Fine-needle aspiration of classic biphasic pulmonary blastoma: a case report. *Diagn Cytopathol*. 2010;38(6):427-429.
- Maki CG**. Decision-making by p53 and mTOR. *Ageing (Albany NY)*. 2010;2(6):324-326.
- Mallory MJ, Law MJ, **Buckingham LE**, Strich R. The Sin3p PAH domains provide separate functions repressing meiotic gene transcription in *Saccharomyces cerevisiae*. *Eukaryot Cell*. 2010;9(12):1835-1844.
- Marsh JC, **Garg S**, Wendt JA, Giolda BT, Turian JV, **Herskovic AM**. Intracranial metastatic disease rarely involves the pituitary: retrospective analysis of 935 metastases in 155 patients and review of the literature. *Pituitary*. 2010;13(3):260-265.
- Marsh JC, Giolda BT, **Herskovic AM**, **Abrams RA**. Cognitive sparing during the administration of whole brain radiotherapy and prophylactic cranial irradiation: current concepts and approaches. *J Oncol*. 2010;2010:198208.
- Marsh JC, Godbole RH, **Herskovic AM**, Giolda BT, Turian JV. Sparing of the neural stem cell compartment during whole-brain radiation therapy: a dosimetric study using helical tomotherapy. *Int J Radiat Oncol Biol Phys*. 2010;78(3):946-954.
- Marsh JC, **Herskovic AM**, Giolda BT, Hughes FF, Hoepfner T, Turian J, **Abrams RA**. Intracranial metastatic disease spares the limbic circuit: a review of 697 metastatic lesions in 107 patients. *Int J Radiat Oncol Biol Phys*. 2010;76(2):504-512.
- Marzo AL**, **Sowell RT**, Scott B. The role of precursor frequency in the differentiation of memory T cells: memory by numbers. *Adv Exp Med Biol*. 2010;684:69-78
- Mehta VK, Algan O, **Griem KL**, Dickler A, Haile K, Wazer DE, Stevens RE, Chadha M, Kurtzman S, Modin SD, **Dowlatshahi K**, Elliott KW, Rusch TW. Experience with an electronic brachytherapy technique for intracavitary accelerated partial breast irradiation. *Am J Clin Oncol*. 2010;33(4):327-335.
- Melson JE**, Giusto D, Kwasny M, Eichenseer P, **Jakate S**, **Keshavarzian A**. Histopathology predictors of medically refractory ulcerative colitis. *Dis Colon Rectum*. 2010;53(9):1280-1286.
- Miller IJ, Blank A, Yin SM, McNickle A, Gray R, **Gitelis S**. A case of recurrent giant cell tumor of bone with malignant transformation and benign pulmonary metastases. *Diagn Pathol*. 2010;5:62.
- Moran DM, **Maki CG**. Nutlin-3a induces cytoskeletal rearrangement and inhibits the migration and invasion capacity of p53 wild-type cancer cells. *Mol Cancer Ther*. 2010;9(4):895-905.
- Murphy PE, **Canada AL**, **Fitchett G**, Stein K, Portier K, Crammer C, Peterman AH. An examination of the 3-factor model and structural invariance across racial/ethnic groups for the FACIT-Sp: a report from the American Cancer Society's Study of Cancer Survivors-II (SCS-II). *Psychooncology*. 2010;19(3):264-272.
- Murphy PE, **Fitchett G**. Introducing chaplains to research: "this could help me". *J Health Care Chaplain*. 2010;16(3-4):79-94.
- Nelson KK, **Gattuso P**, **Xu X**, Prinz RA. Expression of the sonic hedgehog pathway molecules in synchronous follicular adenoma and papillary carcinoma of the thyroid gland in predicting malignancy. *Surgery*. 2010;148(4):654-660.

TUMOR CONFERENCES

O'Mahony S, Goulet JL, Payne R. Psychosocial distress in patients treated for cancer pain: a prospective observational study. *J Opioid Manag.* 2010;6(3):211-222.

O'Mahony S, McHenry J, Blank AE, Snow D, Eti Karakas S, Santoro G, Selwyn P, Kvetan V. Preliminary report of the integration of a palliative care team into an intensive care unit. *Palliat Med.* 2010;24(2):154-165.

Palicka GA, Rhodes AR. Acral melanocytic nevi: prevalence and distribution of gross morphologic features in white and black adults. *Arch Dermatol.* 2010;146(10):1085-1094.

Patel AJ, Gattuso P, Reddy VB. Diagnosis of blastomycosis in surgical pathology and cytopathology: correlation with microbiologic culture. *Am J Surg Pathol.* 2010;34(2):256-261.

Peterson SJ, Chen Y, Sullivan CA, Kinnare KF, Tupesis NC, Patel GP, Sowa DC, Lateef O, Sheean PM. Assessing the influence of registered dietitian order-writing privileges on parenteral nutrition use. *J Am Diet Assoc.* 2010;110(11):1703-1711.

Pratap J, Akech J, Wixted JJ, Szabo G, Hussain S, McGee-Lawrence ME, Li X, Bedard K, Dhillon RJ, van Wijnen AJ, Stein JL, Stein GS, Westendorf JJ, Lian JB. The histone deacetylase inhibitor, vorinostat, reduces tumor growth at the metastatic bone site and associated osteolysis, but promotes normal bone loss. *Mol Cancer Ther.* 2010;9(12):3210-3220.

Rao G, Liu D, Xing M, Tauler J, Prinz RA, Xu X. Induction of heparanase-1 expression by mutant b-raf kinase: role of GA binding protein in heparanase-1 promoter activation. *Neoplasia.* 2010;12(11):946-956.

Rawat A, Gust KA, Deng Y, Garcia-Reyero N, Quinn MJ Jr, Johnson MS, Indest KJ, Elasri MO, Perkins EJ. From raw materials to validated system: the construction of a genomic library and microarray to interpret systemic perturbations in Northern bobwhite. *Physiol Genomics.* 2010;42(2):219-235.

Rocereto TF, Brady WE, Shahin MS, Hoffman JS, Small L, Rotmensch J, Mannel RS. A phase II evaluation of mifepristone in the treatment of recurrent or persistent epithelial ovarian, fallopian or primary peritoneal cancer: a gynecologic oncology group study [published correction appears in *Gynecol Oncol.* 2010;118(2):208]. *Gynecol Oncol.* 2010;116(3):332-334.

Shah AP, Strauss JB, Abrams RA. Review and commentary on the role of radiation therapy in the adjuvant management of pancreatic cancer. *Am J Clin Oncol.* 2010;33(1):101-106.

Shen H, Maki CG. p53 and p21(Waf1) are recruited to distinct PML-containing nuclear foci in irradiated and Nutlin-3a-treated U2OS cells. *J Cell Biochem.* 2010;111(5):1280-1290.

Shen H, Maki CG. Persistent p21 expression after Nutlin-3a removal is associated with senescence-like arrest in 4N cells. *J Biol Chem.* 2010;285(30):23105-23114.

Shi W, Bessarabova M, Dosymbekov D, Dezso Z, Nikolskaya T, Dudoladova M, Serebryiskaya T, Bugrim A, Guryanov A, Brennan RJ, Shah R, Dopazo J, Chen M, Deng Y, Shi T, Jurman G, Furlanello C, Thomas RS, Corton JC, Tong W, Shi L, Nikolsky Y. Functional analysis of multiple genomic signatures demonstrates that classification algorithms choose phenotype-related genes. *Pharmacogenomics J.* 2010;10(4):310-323.

Sivendran S, Pan M, Kaufman HL, Saenger Y. Herpes simplex virus oncolytic vaccine therapy in melanoma. *Expert Opin Biol Ther.* 2010;10(7):1145-1153.

Strauss JB, Giolda BT, Chen SS, Shah AP, Abrams RA, Griem KL. Variation in post-surgical lumpectomy cavity volume with delay in initiation of breast irradiation because of chemotherapy. *Int J Radiat Oncol Biol Phys.* 2010;77(3):831-835.

Tauler J, Zudaire E, Liu H, Shih J, Mulshine JL. hnRNP A2/B1 modulates epithelial-mesenchymal transition in lung cancer cell lines. *Cancer Res.* 2010;70(18):7137-7147.

Wolford JL, Chishti Y, Jin Q, Ward J, Chen L, Vogt S, Finney L. Loss of pluripotency in human embryonic stem cells directly correlates with an increase in nuclear zinc. *PLoS One.* 2010;5(8):e12308.

Zhang X, Wang T, Luo H, Yang JY, Deng Y, Tang J, Yang MQ. 3D protein structure prediction with genetic tabu search algorithm. *BMC Syst Biol.* 2010;4(suppl 1):S6.

Brain Tumor Conference

Tuesdays, 11 a.m. to noon
Neurosurgery conference room
1115 Professional Building

Breast Conference

Mondays (except the first Monday of the month), 4 to 5 p.m.
Pathology conference room
562 Jelke Building
*CME accredited

Gastrointestinal Oncology Conference

Tuesdays, 12:30 to 1:30 p.m.
Conference room
809 Professional Building
*CME accredited

Genitourinary Tumor Conference

Third Tuesday of the month, 7 to 8 a.m.
Neurosurgery conference room
1115 Professional Building

Gynecologic Oncology Conference

Fridays, 7 to 8 a.m.
Pathology conference room
562 Jelke Building

Head and Neck Cancer Conference

First and third Wednesdays of the month
3 to 5 p.m.
Otolaryngology conference room
Fifth floor Orthopedic Building
*CME accredited

Lymphoma Conference

Mondays, noon to 1 p.m.
Pathology conference room
573 Jelke Building

Melanoma and Soft Tissue Conference

Wednesdays, 11:30 a.m. to 12:30 p.m.
Conference room
10th floor Professional Building

Sarcoma Conference

Every other Wednesday, 9 to 10 a.m.
Pathology conference room
562 Jelke Building

Thoracic Oncology Conference

Thursdays, 10 to 11 a.m.
Conference room
10th floor Professional Building
*CME accredited

REPRESENTATIVE CLINICAL TRIALS

Physicians at Rush actively investigate novel therapies in trials, both as partners with the pharmaceutical industry and in cooperative group trials supported by the National Cancer Institute. Some of these trials are highlighted here:

Brain Cancer

10072204: A Randomized, Phase II, Double-Blind, Placebo-Controlled Trial of Conventional Chemoradiation and Adjuvant Temozolomide Plus Cediranib Versus Conventional Chemoradiation and Adjuvant Temozolomide Plus Placebo in Patients With Newly Diagnosed Glioblastoma

Breast Cancer

NSABP B-43: A Phase III Clinical Trial Comparing Trastuzumab Given Concurrently With Radiation Therapy and Radiation Therapy Alone for Women With Her2-Positive Ductal Carcinoma in Situ Resected by Lumpectomy

TDM4370g: A Randomized, Multicenter, Phase III Open-Label Study of the Efficacy and Safety of Trastuzumab-MCC-TDM1 Versus Capecitabine + Lapatinib in Patients With HER2-Positive Locally Advanced or Metastatic Breast Cancer Who Have Received Prior Trastuzumab-Based Therapy

Gastrointestinal Cancers

ACOSOG Z6051: A Phase III Prospective Randomized Trial Comparing Laparoscopic-Assisted Resection Versus Open Resection for Rectal Cancer

ROG 0848: A Phase III Trial Evaluating Both Erlotinib and Chemoradiation as Adjuvant Treatment for Patients With Resected Head of Pancreas Adenocarcinoma

Gynecologic Cancers

10080402: A Phase III Randomized Study of Concurrent Chemotherapy and Pelvic Radiation Therapy With or Without Adjuvant Chemotherapy in High-Risk Patients With Early-Stage Cervical Carcinoma Following Radical Hysterectomy

GOG 0252: A Phase III Clinical Trial of Bevacizumab With Intravenous Versus Intraperitoneal Chemotherapy in Optimal/Stage II, III and IV Ovarian, Fallopian Tube and Primary Peritoneal Carcinoma

Head and Neck Cancers

006 09: A Phase III Randomized Trial of Concurrent Cisplatin and Radiotherapy With or Without ONCOVEXGM-CSF in Previously Untreated Patients With Locally Advanced Squamous Cell Carcinoma of the Head and Neck

Leukemias

AC220 002: A Phase II Open-Label, AC220 Monotherapy Efficacy (ACE) Study in Patients With Acute Myeloid Leukemia (AML) With FLT3-ITD Activating Mutations

CYC682-06: A Randomized, Phase II Study of Oral Sapacitabine in Elderly Patients With Acute Myeloid Leukemia Previously Untreated or in First Relapse, or Previously Treated Myelodysplastic Syndrome

Lung Cancer

0822 GCC: A Randomized, Double-Blind, Placebo-Controlled Multicenter Phase II Study of the Efficacy and Safety of Apricoxib in Combination With Either Docetaxel or Pemetrexed in Non-Small Cell Lung Cancer Patients

H8Z-MC-JACW: A Randomized, Phase II Study of LY2181308 (Survivin ASO) in Combination With Docetaxel Versus Docetaxel in Patients With Locally Advanced or Metastatic Non-Small Cell Lung Cancer Who Were Previously Treated

Lymphomas

10012702: An Open-Label, Multicenter, Randomized, Phase III Study to Investigate the Efficacy and Safety of Bendamustine Compared With Bendamustine + RO5072759 (GA101) in Patients With IMAB-Refractory, Indolent Non-Hodgkin Lymphoma

09022001: A Phase II, Multicenter, Randomized, Double-Blind, Parallel Group Study of the Safety and Efficacy of Different Lenalidomide (REVLIMID) Dose Regimens in Subjects With Relapsed or Refractory B-Cell Chronic Lymphocytic Leukemia

Melanoma

10061502: A Phase III, Multicenter, Randomized Trial of Sentinel Lymphadenectomy and Complete Lymph Node Dissection Versus Sentinel Lymphadenectomy Alone in Cutaneous Melanoma Patients With Molecular or Histopathological Evidence of Metastases in the Sentinel Node

10051002: A Randomized, Phase III, Open-Label, Multicenter, Two-Arm Study to Compare the Efficacy of Tasigna Versus Dacarbazine (DTIC) in the Treatment of Patients With Metastatic and/or Inoperable Melanoma Harboring a c-Kit Mutation

Prostate Cancer

TV2 001 09: A Randomized Phase II Study to Assess the Activity of MVA-5T4 (TroVax) Plus Docetaxel Versus Docetaxel Alone Versus TroVax Alone in Subjects With Progressive Hormone Refractory Prostate Cancer

212082-PRC-2005: A Multicenter, Open-Label, Single-Arm, Phase II Study of Abiraterone Acetate Plus Prednisone in Patients With Advanced Prostate Cancer Without Radiographic Evidence of Metastatic Disease

For a current list of open clinical trials, visit www.rush.edu/cancerclinicaltrials. If you are interested in enrolling a patient in a trial, call (312) 942-1296.

CANCER REGISTRY NUMBERS

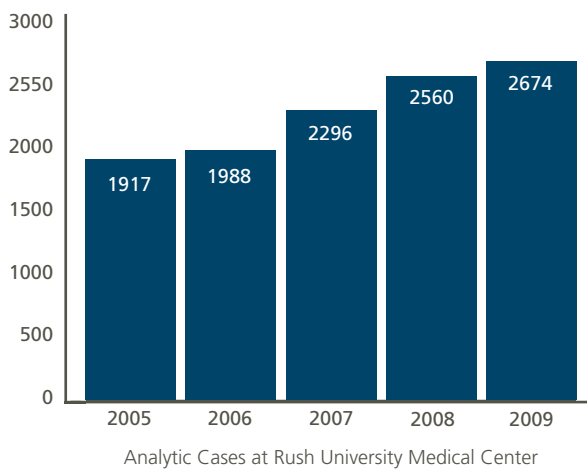
Primary Site Table 2009

Primary Site	Total	Analytic	Nonanalytic	Male	Female
Oral Cavity & Pharynx	153	146	7	103	50
Lip	4	4	0	2	2
Tongue	56	54	2	36	20
Salivary Glands	13	11	2	11	2
Floor of Mouth	10	10	0	7	3
Gum & Other Mouth	34	33	1	18	16
Nasopharynx	3	3	0	1	2
Tonsil	17	16	1	15	2
Oropharynx	7	7	0	4	3
Hypopharynx	9	8	1	9	0
Digestive System	449	406	43	241	208
Esophagus	37	32	5	28	9
Stomach	44	40	4	19	25
Small Intestine	12	12	0	8	4
Colon	129	113	16	55	74
Rectosigmoid Junction	14	14	0	12	2
Rectum	69	65	4	41	28
Anus, Anal Canal & Anorectum	14	12	2	8	6
Liver & Intrahepatic Bile Duct	47	43	4	30	17
Gallbladder & Other Biliary Tract	11	10	1	4	7
Pancreas	59	53	6	33	26
Retroperitoneum & Peritoneum, Omentum, Mesentery & Other	13	12	1	3	10
Respiratory System	455	413	42	211	244
Nasal Cavity, Middle Ear & Accessory Sinuses	10	8	2	5	5
Larynx	31	23	8	21	10
Lung & Bronchus	412	380	32	184	228
Trachea, Mediastinum & Other Respiratory Organs	2	2	0	1	1
Bones & Joints	21	19	2	10	11
Soft Tissue	61	55	6	34	27
Skin (excludes basal & squamous cell carcinomas)	50	41	9	28	22
Breast	508	456	52	1	507
Female Genital System	367	325	42	0	367
Cervix Uteri (excludes carcinoma in situ)	66	59	7	0	66
Corpus & Uterus, NOS	167	157	10	0	167
Ovary	80	67	13	0	80
Vagina	10	8	2	0	10
Vulva	39	29	10	0	39
Other Female Genital Organs	5	5	0	0	5
Male Genital System	182	146	36	182	0
Prostate	164	131	33	164	0
Testis	18	15	3	18	0
Urinary System	118	108	10	74	44
Urinary Bladder	47	46	1	27	20
Kidney & Renal Pelvis	69	60	9	46	23
Ureter & Other Urinary Organs	2	2	0	1	1
Eye & Orbit	19	18	1	9	10
Brain & Other Nervous System	146	139	7	73	73
Endocrine System	110	96	14	43	67
Thyroid	68	57	11	22	46
Other Endocrine (includes thymus)	42	39	3	21	21
Lymphomas	173	127	46	93	80
Hodgkin Lymphoma	19	12	7	15	4
Non-Hodgkin Lymphoma	154	115	39	78	76
Multiple Myeloma	50	35	15	25	25
Leukemias	132	104	28	67	65
Mesothelioma	4	3	1	3	1
Unknown Primary	36	32	4	13	23
Ill-Defined & Unspecified	1	1	0	1	0
Other & Unspecified	5	4	1	3	2
Total	3,040	2,674	366	1,214	1,826

Analytic: Cases diagnosed and/or received all or part of first course of care at Rush University Medical Center.

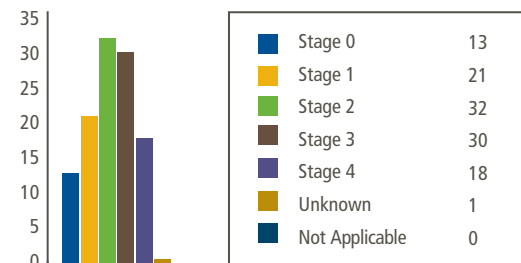
Nonanalytic: Cases diagnosed and all first course treatment completed elsewhere.

New Cancer Incidence by First Contact Year, 2005 - 2009

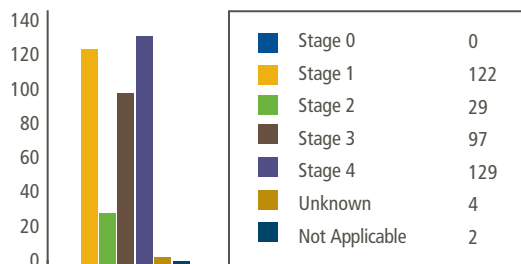


Top 5 Primary Sites Distribution by Collaborative Staging and American Joint Commission on Cancer Stage Group, 2009

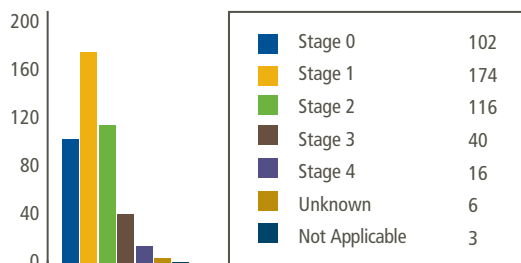
Colon



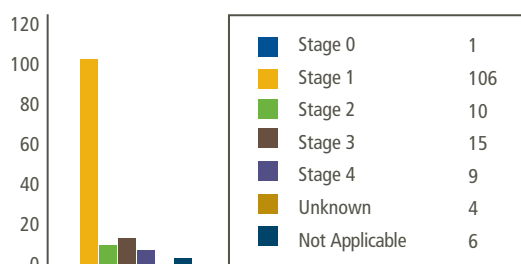
Lung



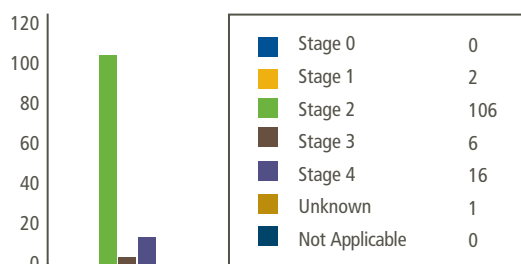
Breast



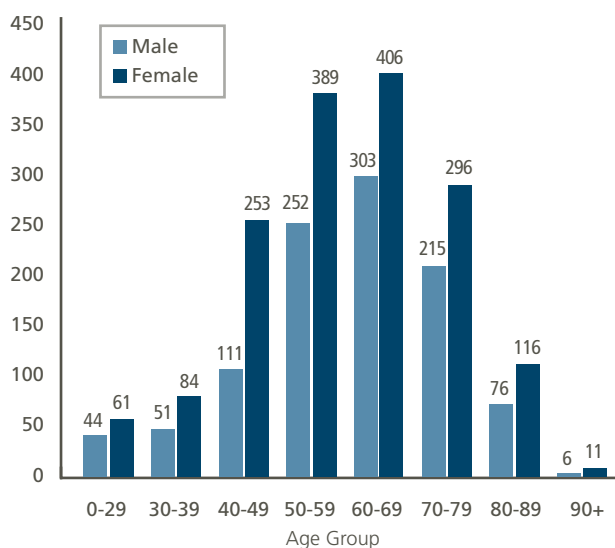
Corpus



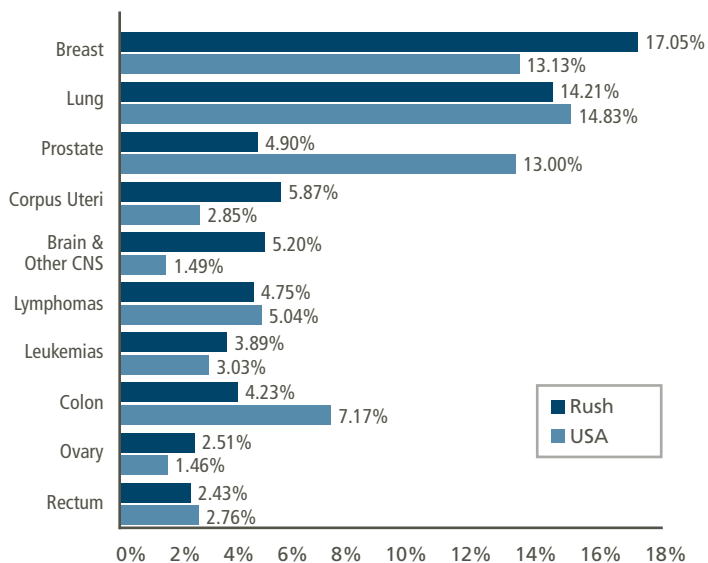
Prostate



Analytic Case Distribution by Gender and Age at Diagnosis, 2009

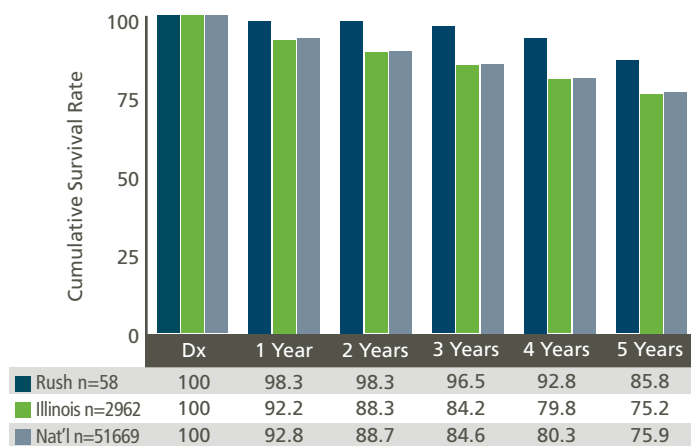


Top 10 Analytic Sites in Comparison to National, 2009

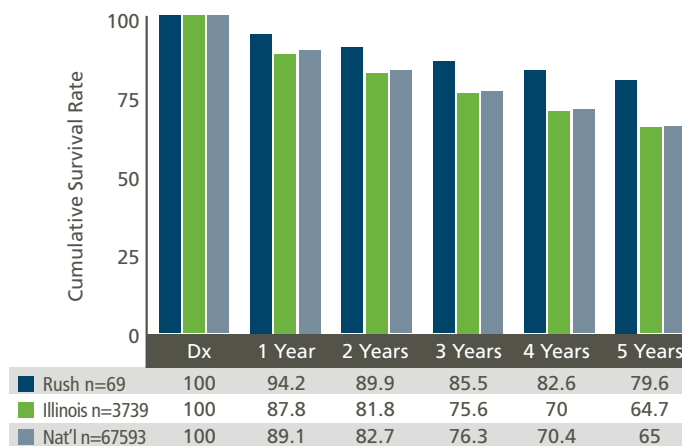


Observed Survival for Colon Cancer Cases Diagnosed in 1998 - 2002

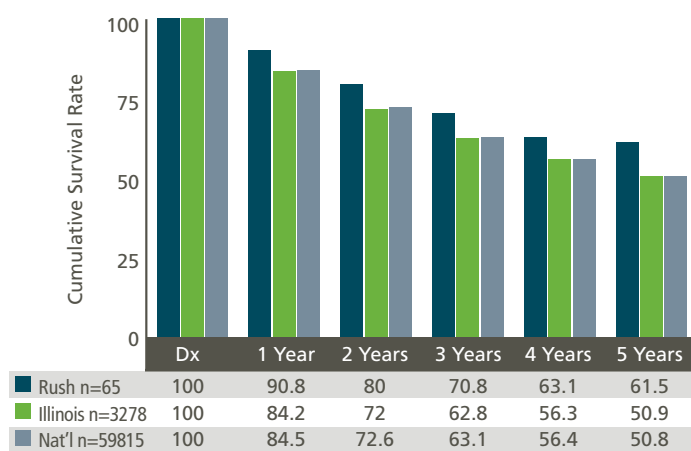
Stage 1



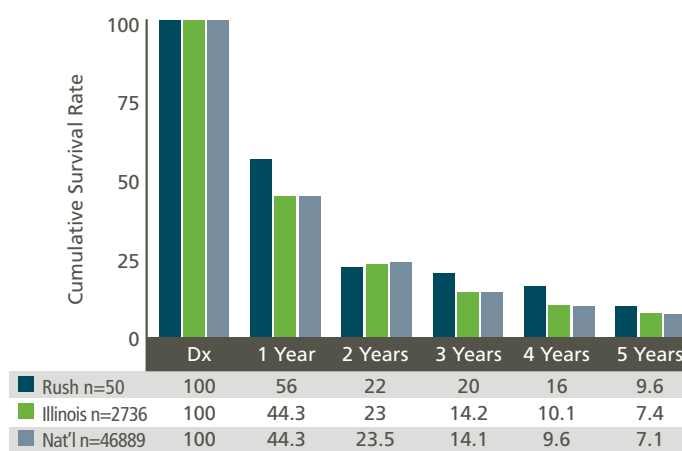
Stage 2



Stage 3



Stage 4



Cancer Mortality (Inpatient) at Rush, FY10*

	Actual mortality rate	Predicted mortality rate**	Mortality index	Compared with top cancer hospitals (U.S. News)***
Surgical oncology	1.70	3.46	0.49	2nd out of 16
Medical oncology	2.93	5.89	0.50	1st out of 16
Bone marrow transplant	4.30	4.65	0.93	12th out of 16

* Actual mortality = number of deaths per 100 discharges; predicted mortality = deaths expected based on how sick the patients are, per 100 discharges; mortality index = actual rate/predicted rate (index <1 means fewer patients died than predicted).

** Based on these results, there were 41 fewer deaths in FY10 than predicted.

*** Comparison is with hospitals ranked in the top 20 by *U.S. News & World Report*, which ranks hospitals based on a number of different measures including in-hospital mortality (Rush is not ranked in this list; of the top 20, five hospitals do not submit data to the University HealthSystem Consortium).

Source: University HealthSystem Consortium clinical database, FY 2010 data.



Cancer Survivors' Day

The Rush Cancer Integrative Medicine Program's Janine Gauthier, PhD (left), and breast cancer survivor (and apheresis donor recruiter at Rush) Malissa Lichtenwalter celebrate cancer survivors' day, which was held Sept. 12, 2010. More than 250 cancer survivors and loved ones attended this yearly event at Rush, which included inspiring speeches from staff and cancer survivors as well as cooking demonstrations, massage therapy and even line dancing.



Rush is a not-for-profit health care, education and research enterprise comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health.

PLEASE NOTE: All physicians featured in this publication are on the medical faculty of Rush University Medical Center. Some of the physicians are in private practice and, as independent practitioners, are not agents or employees of Rush University Medical Center.

Principal photography by Eric Herzog. Additional photography by Rush Photo Group and John Schneider, MD.