THE QUESTIONS BEHIND THE PROGRESS at FOX CHASE CANCER CENTER
The annual report is produced by the communications department of Fox Chase Cancer Center.

Contact us at editor@fccc.edu or 215-728-4788.
Behind the work of each dedicated Fox Chase staff member, there lies a question:

How can I be there for patients?
In what ways do our emotions affect our health?
How can advances in technology help treat younger patients?

This report highlights some of the key questions that drive progress in cancer research and treatment at Fox Chase. You’ll meet members of the Fox Chase community—from clinicians and scientists to Center leaders and supporters—and read the past year’s top news, from an historic affiliation agreement to groundbreaking research on the cause of mesothelioma.
HOW CAN ADVANCES IN TECHNOLOGY HELP TREAT YOUNGER PATIENTS?
From Research to Results

Before radiation oncologist Joshua Meyer joined the Fox Chase staff in August 2010, he worked in a clinical practice where he and his colleagues noticed something odd: Despite the fact that rectal cancer was supposedly rare among young people, the clinic was seeing more and more patients in their 30s and 40s. “We looked through the clinical database at the hospital and found an increasing number of these patients,” Meyer says. “But that just tells you that more patients are coming to us, not that more people are being diagnosed. There could be a variety of explanations, including referral patterns.”

So Meyer did a study of the National Cancer Institute’s Surveillance Epidemiology and End Results, or SEER, database, which includes a representative sample of cancer patients throughout the country. What he found was surprising: The rate of rectal cancer in the under-40 population had more than doubled from 1973 to 2005. Even more surprising? Rates of colon cancer—a separate but related disease—had stayed flat for the same population. “Essentially, all of the etiologic factors for rectal cancer are also true for colon cancer,” Meyer says—meaning the two diseases appear to stem from the same causes.

Meyer doesn’t yet know why the rate of rectal cancer is rising among the young—further research will be necessary—but the trend has real implications for his clinical practice. Younger patients present certain treatment challenges: Radiating the pelvic area, for example, is tricky for female patients of childbearing age who want to preserve their fertility.

The good news is that advancements in technology make it possible to deliver a highly focused course of radiation that minimizes trauma to normal tissues surrounding the cancer. “Radiation oncology has undergone two dramatic changes over the last 15 years or so,” Meyer says. “First, we’ve substantially advanced our ability to shape the dose we’re delivering, and second, we can confirm we’re delivering it exactly to the spots we’re interested in treating.”

In fact, Fox Chase radiation oncologists were instrumental in developing some of the techniques that make this possible, including image-guided radiation therapy and ultrasound-guided targeting. These and other cutting-edge technologies allow greater doses to be given with fewer side effects. “And that,” Meyer says, “gives us the opportunity to cure more patients.”

RARE, BUT BEWARE

Joshua Meyer’s research shows that rectal cancer is still relatively rare among the young— affecting fewer than 1 in 100,000 patients under 40—but not as rare as commonly believed. He suggests that the misconception may contribute to a delay in diagnosis.

“Doctors shouldn’t write off symptoms that could be related to rectal cancer just because a patient is young,” the radiation oncologist says. “Patients who have rectal bleeding, an unexplained change in bowel habits, or other signs of rectal cancer that don’t resolve on their own should be evaluated with an endoscopy by a gastroenterologist.”
CAN EXPERIENCING CANCER HELP YOU CARE FOR PATIENTS?

Caroline McIntyre

THE QUESTIONS BEHIND THE PROGRESS AT FOX CHASE CANCER CENTER
From Both Sides of the Bedrail

Nurse Caroline McIntyre was always a whiz at math and science. She started her career as an engineer, not as a nurse. But a close brush with cancer changed her life—twice, to be precise.

When McIntyre was 27, her brother was diagnosed with a rare Stage IV gastric cancer. “I helped take care of him,” she says. “I would wash his hair, bring him something good to eat. And when he was getting his treatments, I was watching the nurses and thinking to myself, I could do that.” Her brother died a year later at 31, with McIntyre at his side.

McIntyre felt she’d stumbled onto a way to combine her love of science with a meaningful dose of human compassion. Spurred by the thought of helping oncology patients like her brother, she eventually began taking community college courses in nursing. Ultimately, she became a registered nurse and began work in Fox Chase’s ICU.

And then cancer touched her life a second time at 45.

A routine mammogram, provided free to employees by Fox Chase, sounded the alarm. Two of 15 surgically removed lymph nodes tested positive for cancer, so McIntyre had a bilateral mastectomy, 16 weeks of chemotherapy, and a course of radiation.

Incapacitated for a few months, she’s back on her feet now and caring for patients. “I’m now 48 with no evidence of disease,” McIntyre says, “and I much prefer this side of the bedrail.”

Today, McIntyre works in the post-anesthesia care unit, where she keeps watch over patients recovering from surgery. Despite ongoing complications stemming from the removal of her lymph nodes, she doesn’t spend much time complaining about her own health. Rather, she finds comfort in caring for patients who have needs more dire than her own. “It’s all about the patient here at Fox Chase—they’re the ones lying in the bed,” McIntyre says.

“I don’t usually share my story with patients because it’s about them, not me,” she adds. “But once in a while, I will. Someone might be having trouble letting us access her chest-wall port, and I might show her my scar and say, let me try, I know what it feels like and I’m really good at it. And she’ll say, wow, okay, you understand.”

“Patients can intuitively tell when a person comes from a genuine place,” McIntyre says. “It comes through, no matter what.”

A ‘MAGNET’ FOR TOP-QUALITY NURSING

Fox Chase boasts some of the top nursing specialists in the country and has earned the American Nurses Association’s top honor to prove it. The Center has been designated a Magnet® facility three consecutive times, an honor based on rigorous review that must be reapplied for every four years.

The Magnet designation means a facility has demonstrated a commitment to nursing and delivering excellent patient-centered care. A recent study published in The Journal of Nursing Administration shows that Magnet hospitals have lower patient-to-nurse ratios, and nurses who are better educated and more satisfied with their jobs, compared to non-Magnet facilities.
IN WHAT WAYS DO OUR EMOTIONS AFFECT OUR HEALTH?
Taking Aim at Stress

Biobehavioral researcher Carolyn Fang admits that when she gets busy and stressed out, she eats at her desk. “I’m wolfing down my lunch so I can move on to the next thing,” she says with a laugh. “But you’re not paying attention to your body when you eat that way. You aren’t even really aware whether you’re full or you’re hungry.” That type of behavior can be linked to obesity and other adverse health outcomes, as Fang is well aware.

But it’s precisely those kinds of behaviors that spark her interest in her work as co-leader of Fox Chase’s Cancer Prevention and Control Program. A major focus of her research is how stress can contribute to behavioral or biological changes that may increase cancer risk. For example, in a pilot study of women at increased risk for cervical cancer, Fang and her colleagues found that those who reported feeling more stressed had a poorer immune response to human papilloma virus, or HPV, the virus that causes the Cancer.

What can people do to safeguard themselves if they are experiencing high stress levels? Programs such as mindfulness-based stress reduction, or MBSR, may have benefits for one’s health. MBSR is an eight-week curriculum that teaches participants to recognize and counteract the body’s automatic responses to stress—the hurried eating Fang describes, or hunching your shoulders and clenching your fists when you’re stuck in traffic. “MBSR is a standardized program that is broadly available in the community,” Fang says. “And research suggests the effects are robust as far as reducing stress and enhancing quality of life.”

In a study involving a heterogeneous sample of men and women, Fang and her colleagues measured participants’ immune responses before and after receiving training in MBSR. “What was really interesting is that simply completing MBSR did not necessarily yield a benefit in immune functioning,” Fang says, “but those who reported improvement in their psychological functioning after going through the program showed improvement in their immune markers as well.”

Fang is now working on a new study evaluating the effects of MBSR on immune response to HPV in a larger, clinically relevant sample. Making definitive clinical recommendations is still a long way off, she says, but the good news is that stress reduction is readily available without a prescription. “MBSR or other approaches such as yoga can be helpful in enhancing your quality of life,” she says, “and they may have a biological benefit as well.”

THE HPV LINK

Researcher Carolyn Fang’s interest in the effects of stress on the body’s ability to fight human papilloma virus may bear fruit in another area: efforts to improve outcomes among patients with head and neck cancer. Although most head and neck cancers develop from behavioral or environmental factors such as tobacco or alcohol use, a subset has been linked to HPV.

Fang is a member of Fox Chase’s Keystone Program for Head and Neck Cancer, a collaboration of scientists and clinicians. Besides investigating the biobehavioral mechanisms that affect outcomes for HPV-related cancers, her lab is also developing an informational web-based program to help improve quality of life among head and neck cancer survivors.
HOW CAN I BE THERE FOR PATIENTS?

THE QUESTIONS BEHIND THE PROGRESS AT FOX CHASE CANCER CENTER

Victor Burroughs
Letting His Light Shine

Victor Burroughs’ official title is transport orderly, but he has earned the unofficial moniker of “mayor of Fox Chase.” Watching him make his way down the hall of the Fox Chase hospital, it’s easy to see why: He doesn’t get far without a patient or coworker calling out, “Hey, Victor!” The warm grin and greeting he shoots back offer a clue to his popularity.

“I’m a people person,” Burroughs says. “I always have been.” Burroughs was working in housekeeping back in 2009 when he heard about an opening for a transport orderly in the endoscopy department. He had always wanted to work in the medical field, more closely with patients. He went straight to the hiring manager.

The job was all he’d hoped. Burroughs is responsible for transporting patients, by wheelchair or stretcher, to their hospital rooms or vehicles following procedures. But he strives to do much more.

“I try to keep their spirits lifted,” he says. “I try to make sure they’re warm, comfortable, and relaxed until they leave.” Sometimes that means just sitting and talking to a patient. Recently, Burroughs began delivering birthday cards and singing to patients whose birthdays fall during their time in the department. The reaction? “Oh, my gosh,” he says. “They just rejoice. ... You never know what can change a person’s life.”

Because his duties include making runs to various parts of the Center for medications, lab work, and blood for transfusions, Burroughs logs a lot of miles. Nonetheless, he says that at the end of the day, “I feel so energized.”

The work has fed Burroughs’ hunger for knowledge. He has learned to take patients’ blood pressure, and he observes surgical procedures, asking questions along the way. “The docs explain to me what they’re doing,” he says.

His focus, however, remains on his interaction with patients. “If I can just be there for them and make them feel good,” he says, “it makes me feel good.”

He recalls one patient who had been very nervous upon his first visit to Fox Chase. The man later told Burroughs that when he walked through the door, the orderly was the first person he saw. “For some reason, he looked at my face and he felt so much better,” Burroughs says. “He called me an angel.” To what does Burroughs attribute this effect? “I just let my light shine wherever I go.”

FROM THE PATIENT’S PERSPECTIVE

Victor Burroughs dedicates himself to the well-being of Fox Chase patients, not only while he’s on duty as a transport orderly, but also by serving on the Patient Advocate Committee. The group is made up of staff members and volunteers whose sole purpose is to improve the patient experience.

Among the committee’s accomplishments: Installing signs to help patients and visitors find areas they had trouble locating; putting benches in parking garages for those who tire while walking to their vehicles; and providing CD players so patients can listen to music.

As Burroughs says, “We ask patients: What would you like?”
HOW CAN I AFFECT A DISEASE THAT HAS HAD A PROFOUND IMPACT ON MY FAMILY?
A Personal Investment

With 18 years on Fox Chase’s board of directors—the last three as its chairman—David Marshall has helped to oversee a transformative phase at Fox Chase, including the construction of new facilities, the recruitment of a president, and an historic affiliation with Temple University Health System.

In the same period, global advances in genomics and molecular biology have revolutionized cancer research, and improvements in screening and treatment have contributed to a decline in U.S. cancer mortality rates.

“Quite a bit has been accomplished at Fox Chase in recent years,” Marshall says. “I like to think that as board members, we have played a small part in it.”

Marshall and his wife, Sandy, have been donors and advocates for the Center for more than two decades. The impetus for Marshall’s advocacy is personal. “Cancer has had a profound effect on my family,” he says. “My mother and all five of her sisters died of cancer. When your life is affected by a disease like that, it’s impossible not to feel an obligation to do something about it.”

When he is not helping to guide Fox Chase, Marshall is busy as chairman and CEO of Amerimar Realty Co., a real estate development firm that he founded in 1987. With commercial and residential holdings throughout the country, the company is especially well known for its development of the Rittenhouse Hotel in Philadelphia.

Last year, Marshall stepped out of the boardroom and into the laboratory when board members partnered with Fox Chase scientists for some hands-on experience. Marshall teamed up with immunologist Glenn Rall, who studies how viruses interact with human cells to cause disease. Rall also coordinates the postdoctoral research program. Marshall met with the scientist several times over the course of the year to share perspectives and get an inside look at Fox Chase research.

“It was great,” he says. “Glenn is full of love for teaching and learning. We hit it off.”

As for whether he learned anything about science, Marshall says: “I’ve always had tremendous respect for scientists—and the emphasis on connecting science with medicine is one of the things that makes Fox Chase special. This experience helped reinforce what I already knew: We have very dedicated people. They know what needs to be done and they just go out and do it.”

As he completes his term as board chairman, Marshall offers this advice to future leaders: “Explore everything, and keep your mind open. We have a responsibility to do no less than that.”

The Gift That Keeps Giving

With federal funding of scientific research shrinking, Fox Chase depends more than ever on the generosity of individuals and organizations determined to support its mission of prevailing over cancer. Philanthropic support helps Fox Chase to fund fledgling scientists, improve patient care, and develop more effective treatments. (For information on supporting Fox Chase, visit www.foxchase.org/helpingFoxChase.)

Donor and board chairman David Marshall says such gifts produce rich dividends: “Few investments yield a return as deeply satisfying as extending, improving, and saving lives.”

For more profiles, visit annualreport.foxchase.org.
**Fox Chase to Join Temple University Health System**

Fox Chase marked a major milestone in December when it entered into an agreement to affiliate with Temple University Health System, which is part of Temple University, a public education and research institution.

As part of TUHS, Fox Chase will retain its identity and mission while enhancing its ability to expand patient care and recruit researchers.

“Fox Chase is proud to be home to some of the most talented and compassionate scientists and doctors working on the cancer problem in the world,” says Michael V. Seiden, Fox Chase president and CEO (shown at left with TUHS president Larry Kaiser). “But we’re always working to strengthen our ability to pursue our mission to prevail over cancer, and we believe this affiliation will do just that.”

The health system will invest in cancer research at Fox Chase, providing resources to recruit additional scientists who will further advance knowledge about the prevention and treatment of cancer and cancer-related conditions. The affiliation also will enable Fox Chase to significantly expand its outpatient and surgical-care services, both within its existing facilities and through the use of space in adjacent Jeanes Hospital, also a TUHS affiliate.

A closing slated for July will finalize the affiliation.

**Center Leads Charge to Release Clinical Outcomes**

More and more cancer patients are turning to the Internet to find out where to seek cancer care, but even the savviest web surfer may have trouble figuring out which facilities provide the best chance for success. In January, Fox Chase became one of the first cancer centers in the country to release its clinical outcomes data, or patient survival statistics, to the public.

“We are committed to helping the public become more informed when making decisions about their health care,” says Michael V. Seiden, president and CEO of Fox Chase. “While individual outcomes cannot be predicted, we hope this data will enable patients to make choices that are right for them, ensuring that they receive the best care possible.”

Five-year survival statistics for the four most common cancers in the United States—breast, colorectal, lung, and prostate—at all four stages are available on the Fox Chase website at foxchase.org/outcomes. Results for Fox Chase patients are compared to those treated at large and small community hospitals. In nearly all categories, Fox Chase patients survive longer.

**The Eyes Have It**

*Mural Pays Tribute to Esteemed Scientist*

Marion McCloud has heard many compliments on “Pathways,” the new mural created in the Fox Chase cafeteria by Meg Saligman and Emilie Ledieu of Philadelphia’s Mural Arts Program. Cafeteria-goers particularly admire its luminous stained-glass panels, the cashier says. But many are curious about the depictions of human eyes scattered throughout the colorful mosaic.

With a background palette of muted sea, sky, and forest hues surrounding 16 backlit panels, the mural soothes and stimulates. The eyes, in varying sizes and colors, peer from throughout the wall-length installment.

If only Baruch S. Blumberg were here to explain. His philosophies helped to inspire the eyes and “a host of thematic ideas” included in the mural, Saligman said at the project’s unveiling in January 2012. The Nobelist was not there to see it; he died in April 2011 at 85.

Blumberg, whose storied career at Fox Chase spanned 47 years, received the Nobel prize in medicine in 1976 for his identification of the hepatitis B virus. He went on to create a vaccine against the disease that is believed to have saved hundreds of millions of lives.
Geneticist Honored for Pioneering Research

In March, Fox Chase geneticist Beatrice Mintz received the sixth annual Szent-Györgyi Prize for Progress in Cancer Research. The prestigious award from the National Foundation for Cancer Research recognized Mintz for pioneering the creation of chimeric mice, in which genetically different cells coexist in the same animal, and transgenic mice, into which a foreign gene has been transferred.

Mintz’s work has enabled her and many other scientists to identify links between development and cancer and to explore the biology of cancer over the lifetime of an animal. In addition, her research has provided important insights into the relationship between cancer cells and neighboring cells and molecules.

“Dr. Beatrice Mintz’s ground-breaking research has changed the way scientists are able to investigate the progression and metastasis of cancers and shed light on this disease,” noted Peter K. Vogt, who chaired the award committee. “Her contributions to the field of cancer research are remarkable.”

Mintz used her techniques to produce the first transgenic mouse model of malignant melanoma—a genetically engineered mouse whose cancer resembles the disease found in humans.

Collaboration to Enable Genetic Analysis

Fox Chase strengthened its identity as a leader in personalized cancer care when it established a collaboration with the biotechnology company Life Technologies in June. The agreement is a step toward launching the Cancer Genome Institute, a program that will provide individualized genomic analysis with the help of the firm’s sequencing instruments.

Beginning in late 2012, the institute will use the leading-edge technology to compare the genetic profiles of individual patient tumors against a panel of 46 known cancer-related genes. Patients with advanced cancers can elect to be examined for those genetic abnormalities, with the potential of being matched to established and experimental therapies.

The Cancer Genome Institute will make Fox Chase one of the first centers to offer individualized genomic analysis to cancer patients.

For more news, visit annualreport.foxchase.org.

Saligman, who talked to Fox Chase faculty and staff members before starting the project, said speaking with Blumberg was especially inspiring and his perspective formed the backbone for the mural’s “pathways” theme. Whether physician, scientist, or patient, he told her, “we are all on a journey” as we find the way through illness to healing.

The artist had asked him, “What does it take to make a big discovery?”

A hundred thousand man-hours?

A hundred questions?

“You just have to look,” he’d said.

Saligman had thought, That’s what a good artist does. She hit upon the idea of the eyes. For models, she used Fox Chase doctors, scientists, and staff members, as well as patients and their families.

An eternally curious scientist and humanist, Blumberg spent his life looking—intently. Following his death, Fox Chase scientist Thomas London, Blumberg’s longtime friend and colleague, defined the essence of Blumberg’s scientific approach as “‘the belief that you best understand nature by observing it directly and as closely and critically as you can.”

As new generations of Fox Case doctors and scientists look for their own pathways, the eyes watching them will serve as a reminder of what one sharp observer would have said:

You just have to look.
Genetic Link to Mesothelioma Discovered

Mutation may underlie multiple cancer types

Scientists at Fox Chase have discovered genetic changes that appear to increase the risk of developing cancers including mesothelioma, a deadly form associated with exposure to asbestos.

An aggressive cancer, mesothelioma usually attacks the lining of the chest and abdomen. Fox Chase researchers collaborating with scientists at the University of Hawaii found that, among two families with an unusually high incidence of mesothelioma, each member who developed the disease exhibited inherited mutations in a gene called BAP1.

The results, published in August in Nature Genetics, suggest that people who carry the mutations are at markedly increased risk of developing cancer if exposed to asbestos and therefore should undergo regular screening, says geneticist Joseph R. Testa.

“This is the first study that shows genetics can influence susceptibility to asbestos-related cancer,” Testa says. “People exposed to asbestos and similar minerals, and those with a strong family history of mesothelioma, should be screened for BAP1 mutations—and, if the mutations are found, should undergo additional, regular screening to catch any cancer in its earliest stages.”

Some of those carrying the mutations also developed tumors of the eye known as uveal melanomas, as well as skin, breast, ovarian, pancreatic, and renal cancers, suggesting the gene may underlie multiple cancer types.

Mesothelioma kills about 3,000 Americans each year, and new cases are on the rise in parts of the world including Europe, India, and China. It is one of the deadliest forms of cancer, with half of patients dying within a year of diagnosis.

The research was funded by the National Cancer Institute, part of the National Institutes of Health.

Study Yields Clues to Gene Silencing, Tumor Suppression

To prevent the development of cancer, the body relies on tools including the ability to “turn on” silenced genes that, once activated, can suppress tumors. Scientists have discovered a mechanism behind this ability that suggests the possibility of therapies that would activate these genes when the body’s normal process fails.

Researchers led by geneticist Alfonso Bellacosa investigated a process called methylation, in which a cell chemically “tags” specific genes to turn them off. The cell silences the genes by adding a chemical compound known as a methyl group to their DNA.

Methylation is a key part of normal gene regulation—but when it goes awry and silences genes that normally suppress tumors, cancer results. Indeed, some cancer drugs work by demethylating, and thereby reactivating, silenced genes. But those drugs demethylate multiple genes, not just those involved with cancer, which causes side effects.

In a study published in June in the journal Cell, Bellacosa and his team presented new clues to how demethylation works. The researchers discovered that a protein called thymine DNA glycosylase, or TDG—known to help repair DNA—also removes methyl groups from DNA. They found that in mice that lacked TDG activity, methylation was amiss: Genes that normally would be demethylated were not and instead remained silenced.

“Since we now know there are proteins that actively affect demethylation, we can imagine a new type of cancer therapy that would demethylate only specific genes and not any others,” Bellacosa says. “We would have a more precise, more targeted type of therapy.

“We may be several years away from taking full advantage of this new knowledge,” he adds. “But we will get there.”

The study was supported by grants from the National Institutes of Health.
Therapy Offers New Option for Ovarian Cancer Patients

Research led by a Fox Chase clinician has suggested a new treatment option for patients with advanced ovarian cancer. Gynecologic oncologist Robert A. Burger led an international Phase III clinical trial that showed that the targeted therapy bevacizumab (known by the trade name Avastin®) effectively delayed the progression of advanced ovarian cancer. Targeted drugs block or disrupt particular molecules involved in the growth of tumors.

The results of the trial, first announced in June 2010 at the annual meeting of the American Society of Clinical Oncology, were published in the December 29 issue of New England Journal of Medicine. Typically, patients diagnosed with advanced ovarian cancer undergo surgery and chemotherapy. “The addition of bevacizumab can be looked upon as a third major component of treatment for ovarian cancer and related malignancies,” Burger says. “We've had the combination of surgical management and cytotoxic chemotherapy for many years, but we haven't really seen anything else in terms of a fundamental class of treatment.”

For patients who received bevacizumab with chemotherapy followed by bevacizumab for up to 10 more months, the median time until their cancer progressed was 14.1 months, compared to 10.3 months for patients who received chemotherapy alone. The net effect was a 28 percent reduction in the risk of disease progression over time. Patients who received bevacizumab with chemotherapy, but not afterward, had a median progression-free survival of 11.2 months.

Nearly 22,000 women were diagnosed with ovarian cancer in 2011, and more than 15,000 died of the disease.

Bevacizumab is already FDA-approved for use against some types of colon, lung, kidney, and brain cancers.

Database Aids Drug Development

Scientists at Fox Chase have cataloged the interactions between nearly 180 potential cancer drugs and hundreds of protein kinases—enzymes that regulate the biochemical signaling pathways cells use to communicate—including many critical to the development of cancer and other diseases. The free, online library of results represents an important tool for accelerating the development of targeted cancer drugs.

Kinases not only act as drivers for many cancers but also help carry out vital biological activities in the body. For those reasons, the candidate drugs, called kinase inhibitors, have the potential not only to act as powerful anti-cancer agents but also to interfere with normal processes, resulting in potentially serious side effects.

In a first-of-its-kind effort, cell biologist Jeffrey R. Peterson and his team used newly developed technology to catalog and cross-index the activity of 178 kinase inhibitors against 300 kinases and published the results in the November issue of Nature Biotechnology. Researchers can freely access the data set online at kir.fccc.edu to facilitate the development of drugs that block specific cancer-causing kinases without causing major side effects.

The study already has identified the first known inhibitors of some kinases believed to be involved in cancer, suggesting the inhibitors could be chemically optimized to target those kinases and avoid any unrelated to cancer.

“These results have pushed the field closer to finding truly specific inhibitors of the processes that drive cancer,” Peterson says. “We now have a collection of kinase inhibitors that are well-characterized and understood. The next step is to use this information to identify specific, effective therapies that stop cancer in its tracks without affecting healthy processes.”

For more science highlights, visit annualreport.foxchase.org.
### Financial Overview

**Operating Revenues (in millions)**

- **Patient-care revenue**: $266.7 (77%)
- **Research grants and commercial support**: $58.6 (17%)
- **Fundraising support**: $7.4 (2%)
- **Investments and other support**: $5.9 (2%)
- **Governmental appropriation**: $5.7 (2%)

**Total Operating Revenues**: $344.3

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### By the Numbers

- **2,500** full-time staff members
- **225** clinical trials under way
- **108** years of treating cancer patients
- **100** hospital beds

### Types of Cancer Treated

- **16% BREAST**
- **14% PROSTATE**
- **11% LUNG**
- **8% GYNECOLOGIC**
- **6%**
Operating Expenses (in millions)

- Patient care: $191.2 (56%)
- Research: $53.3 (16%)
- Administration and general: $47.2 (14%)
- Capital-related costs: $31.0 (9%)
- Maintenance and plant operations: $19.4 (6%)

Total Operating Expenses: $342.1

Patient Care (as of fiscal year 2011)

- 67 postdoctoral researchers
- 31 physicians listed as *Philadelphia* magazine “Top Doctors”

Outpatient visits: 88,497
Total patients: 37,757
New patients: 8,418

Disease Distribution:
- Kidney: 6%
- Colorectal: 6%
- Skin: 6%
- Bladder: 5%
- Lymphoma: 4%
- Head & Neck: 4%
- Pancreatic: 4%
- Other: 16%