

Yale Cancer Center

centerpoint

MAGAZINE



Be Your Own Best Advocate

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In September, patients and caregivers celebrated the opening of the new Phase I Clinical Trial Infusion Center at Smilow Cancer Hospital. The dedicated infusion center gives patients with advanced cancer the support they need to participate in phase I clinical trials and enables Yale to provide more options to our patients.



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Mary Lynne Barber

Peter Baker **photographer**

yale cancer center

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I am pleased to announce that Yale Cancer Center and Smilow Cancer Hospital will soon benefit from the excellent reputation and leadership of Dr. Charles S. Fuchs, who has been named our next Director and Physician-in-Chief. Dr. Fuchs is an internationally known scientist and clinician with expertise in gastrointestinal cancers. He currently is a Professor of Medicine at Harvard Medical School and Chief of the gastrointestinal oncology division and the Robert T. and Judith B. Hale Chair in Pancreatic Cancer at Dana-Farber Cancer Institute.

I believe Dr. Fuchs' tenure here, beginning on January 1, will come at the perfect time as the cancer center and hospital focus on building the infrastructure and sustainability needed to support our recent rapid growth, and prepare us for our next stage of development.

As with any major decision here, our patients remain at the forefront of everything that we do at Yale Cancer Center and Smilow Cancer Hospital. From the daily patient care at Smilow Cancer Hospital and our Care Centers, to the individual research missions in each of our labs zeroing in on new genetic causes and novel treatments, patients are always top of mind. Ms. Barber's personal story of her ovarian cancer diagnosis in this issue of *Centerpoint Magazine* is a wonderful reminder of how every patient should remember to advocate for their needs, and to always trust their instincts.

Our new Phase I Infusion Center is dedicated to the care of patients on phase I clinical trials and features 12 infusion chairs and 4 exam rooms dedicated to clinical research and care. Phase I trials help to bring new therapies forward, like the story of atezolizumab for bladder cancer. This drug was available to our patients with advanced bladder cancer through phase I and II trials, and because of the remarkable results of our patients and many others, the drug is now FDA approved. The stories of Dr. Selig and Ms. Vece in our feature article show how valuable access to those clinical trials was to them.

I feel privileged to have had the opportunity to serve as interim Director of Yale Cancer Center and Physician-in-Chief of Smilow Cancer Hospital over the last 16 months. Our cancer center and hospital continue to gain momentum and share remarkable stories of research and clinical successes and will thrive under Dr. Fuchs' leadership. I look forward to welcoming him in the new year.

Sincerely,

Peter G. Schulam, MD, PhD
Director, Yale Cancer Center and
Physician-in-Chief, Smilow Cancer Hospital (Interim)

Yale Cancer Center
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MAGAZINE

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Mary Lynne Barber

be your own BEST ADVOCATE

Emily Fenton and Marion Morra writers Peter Baker photographer

Mary Lynne Barber is no stranger to ovarian cancer. Her mother was diagnosed with stage IV ovarian cancer in her seventies and died from the disease six months later. After her mother's death, Mary Lynne's gynecologist ordered a CA 125 test, a blood test that measures the amount of the protein CA 125, which is found in greater concentration in tumor cells, particularly ovarian cancer cells. A higher level can indicate the presence of cancer, but there can also be several other causes. Mary Lynne's CA 125 test was normal.

Unfortunately, two-thirds of women with ovarian cancer are diagnosed with advanced disease, meaning the cancer has spread beyond their ovaries. With over 20,000 women diagnosed in the U.S. every year, it is no surprise that ovarian cancer is the fifth leading cause of cancer death.

Ten years following the loss of her mother, Mary Lynne, now approaching middle-age, visited a health fair and was drawn to a display on ovarian cancer. "I stopped to look at the literature," Mary Lynne recalled. "I was surprised when the representative told me that, due to my being at high-risk for the disease, I should be monitored every year. I had been going to the same medical practice for 15 years and except for my first CA 125 test, I had had no further monitoring. The woman at the booth looked at me with her big blue eyes and said: 'Please go to your doctor and have the tests done.' Little did I know how that advice would change my life."

Upon Mary Lynne's insistence, her doctor ordered a transvaginal ultrasound, which revealed a mass in her abdomen. A follow-up CA 125 test was also done, but this time the results were not normal; her levels were well outside the normal range. She felt a dark cloud of fear overshadow her and was immediately scheduled for a biopsy of her ovaries. The short procedure evolved into a full hysterectomy and after a 9-hour operation, she was told they had found cancer and decided to remove it immediately.

"At that point, I decided to take things into my own hands," Mary Lynne said. "I was determined to change doctors. But this time, I did not let fear push me into making a hasty decision.

I started my own investigation and did my homework. I contacted two doctors I knew at church. Both came up with the same referral. I decided to follow their recommendation and made an appointment to see Dr. Alessandro Santin, a gynecologic oncologist at Smilow Cancer Hospital."

Alessandro Santin, MD, Professor of Obstetrics, Gynecology, & Reproductive Sciences and co-chief of the section of Gynecologic Oncology, specializes in the care of women with gynecologic malignancies and has done extensive research into ovarian cancer. He explained that in general, most women are diagnosed with ovarian cancer after complaining of persistent abdominal pain, but there are no clear warning signs for a patient or doctor to indicate something serious is wrong. Usually a CT scan is ordered and if a mass is found, surgery is scheduled to determine a specific diagnosis.

"Mary Lynne is very fortunate. Despite difficult odds, she is doing well with no evidence of disease. We now have the knowledge we need to continue monitoring her and hopefully prevent any further recurrences," said Dr. Santin.

Dr. Santin believes Mary Lynne's success is due in part to the individualized treatment plan she received. She was identified as a candidate for Intraperitoneal (IP) Chemotherapy and received chemotherapy in two ways; intravenously and also through a port placed directly into her abdomen. Dr. Santin commented that this method has been shown to improve survival for women with minimal disease left at the site of origin and that do not have distant metastases.

"There is evidence that if the same chemotherapy is delivered two ways, one close to where the tumor was diagnosed, there is a significant survival advantage compared to those who receive it only intravenously," said Dr. Santin. "Thankfully Mary Lynne was able to receive IP chemotherapy and it's amazing to see how well she is doing today. She is truly a fighter."

Soon after her treatment, Mary Lynne did have a



Mary Lynne is very fortunate. Despite difficult odds, she is doing well.

recurrence in her lymph nodes, but the nodes have since been removed and she continues to be closely monitored. “Dr. Santin is a world-class doctor,” said Mary Lynne. “He is very meticulous, very careful about his surgery and treatments. And in addition to being a skilled doctor, he knows how to interact with and care for his patients. For instance, he is supportive of my changing my diet and looking at other remedies, such as supplements, that complement his medical protocols.”

Dr. Santin explained that women like Mary Lynne who are at high-risk due to a family history of disease or the discovery of a gene such as

BRCA, should be followed very closely. Due to the extensive genetic testing that is being done today, it’s known that 10-15% of ovarian cancers are genetically predisposed. Mary Lynne still wonders why she developed cancer in her fifties. “Both my grandmothers lived to be over 100 and my mother was in her seventies when her cancer was discovered,” she said. “I had three traumatic experiences before my diagnosis, my dear father died, I lost my job, and my husband and I divorced. I think all that trauma, and how I dealt with it, cost me my health.”

Today, Mary Lynne is enjoying living her life to the fullest with her

three adult children, her beautiful grandchildren, and her career, using her information technology background and experience to work as a technical high school trade instructor. She has also gone back to college to obtain her teacher certification.

Her most important advice to other cancer patients: “Be your own best advocate. Listen to that little voice inside you. Especially when you know you have choices. Ask questions. Do your own investigation. Let your faith not fear guide your decision making. Stand your ground. And don’t allow yourself to be rushed into making a decision.” ☺

A BREAKTHROUGH THERAPY

Steve Kemper writer Peter Baker photographer



Phyllis Vece

For decades, patients with the most common type of bladder cancer, urothelial carcinoma, had few treatment options. The standard chemotherapy for the disease contains platinum and is so toxic that many patients either refuse it or can't tolerate the side effects. While two-thirds of patients see initial tumor response from chemotherapy, long-term benefit remains low at only 5 percent. The disease often spreads to other organs, bones, and lymph nodes. The National Cancer Institute estimates that 16,000 people will die from bladder cancer this year, with 77,000 new cases diagnosed.

But a new immunotherapy, tested in phase I and II trials at Smilow Cancer Hospital and other top cancer centers, has shown tremendous promise, significantly reducing tumors in some patients and completely eradicating them in others. The responses were not only dramatic but also prolonged. The results were so striking that in May the FDA approved the drug atezolizumab for patients with metastatic urothelial carcinoma that has not responded to platinum-based chemotherapy.

"The significance of these findings is that for the first time we're really seeing a major improvement in tumor shrinkage," said Daniel Petrylak, MD, Professor of Medicine and Urology and one of the lead investigators of the Yale trials. "About a quarter of the patients respond to atezolizumab, and when they respond, they usually respond for a long period of time. So it's a major breakthrough."

Atezolizumab is among a new class of immunotherapy drugs called "checkpoint inhibitors." They block signals that cancer cells send to disable the immune system, which allow tumors to grow. Atezolizumab targets



Dr. Gad J. Selig

“About a quarter of bladder cancer patients respond to atezolizumab, and when they respond, they usually respond for a long period of time. It’s a major breakthrough.”
- Dr. Daniel Petrylak

a protein called PD-L1 (programmed death ligand 1) expressed by some bladder cancers. PD-L1 binds to the surface of bladder cancer cells and sends out chemical signals that switch off the immune system, opening the way for cancer cells to proliferate. When atezolizumab prevents PD-L1 from binding to its receptors, the immune system turns back on, detects the cancer cells, and attacks them.

The phase I trial at Yale was limited to a small number of patients whose bladder cancer had not responded to platinum-based chemotherapy. The phase II trial included patients both positive and negative for PD-L1. Though the presence of PD-L1 didn’t guarantee

a patient’s response, it greatly increased their likelihood of responding – about 27 percent of such patients responded strongly to atezolizumab. On the other hand, the absence of the biomarker didn’t completely exclude the possibility of a response – the drug also shrank tumors in 9.5 percent of patients who were negative for PD-L1.

The trials demonstrated beyond a doubt that for bladder cancer patients with the PD-L1 biomarker, atezolizumab was a potent new option, an option long overdue. That’s why the FDA moved the drug through the process so rapidly, approving it just four years after the first trials began.

“It’s not for all patients,” said Joseph W. Kim, MD, Assistant Professor of Medicine and one of the trial investigators at Yale. “It’s clear within the first two or three months if patients will benefit from the treatment or not. But for the patients who do well, their quality of life is remarkably better.”

One such patient is Dr. Gad J. Selig, 77, a dean in the University of Bridgeport’s School of Engineering. He was diagnosed with bladder cancer in 2008. It spread, necessitating the removal of his urethra and a kidney in 2012. Several types of chemotherapy didn’t help. “And some made me quite sick,” he said, “so I didn’t want to continue that route. Then I heard about immune therapies and the trial at Yale.” Though the treatment was experimental, he didn’t hesitate. “What other options did I have? You want to live, because you have kids and grandkids, and you do what you can.”

After testing positive for PD-L1, he joined the phase I trial in the summer of 2014 and started receiving treatments every three weeks. His tumors not only shrank, they disappeared, and his CT scans remain clean. He has felt only minor side effects, some arthritis that bothers him a bit when he plays racquetball and soccer. “Some people are less fortunate,” he said. “The treatment doesn’t work and the cancer

comes back.”

“That’s why it’s critically important that Smilow has access to these sorts of trials,” explained Dr. Kim, “so that we can offer promising novel therapies to our patients. Because in reality, if we didn’t have access to this drug, our patients would have no options.”

Yale was chosen for the trials for many reasons, said Dr. Selig’s physician, Joseph Paul Eder, MD, Professor of Medicine and another investigator on the trial. “First, we had the basic science investigators who have worked on this pathway since before its recognition in cancer. Second, we had clinical investigators with long experience dealing with immune therapies and the toxicities that occur with them. The drugmaker, Genentech, realized that Yale investigators and scientists know the science and know how to manage patients, so we were ready for this trial.”

The phase II trials also included patients who for various reasons weren’t eligible for platinum-based chemotherapy. Their survival rate was comparable to that of the overall group, a finding that will be tested more broadly in a phase III trial at Yale. If the results are confirmed, explained Dr. Petrylak, atezolizumab could become a first-line treatment for some people with bladder cancer, eliminating the terrible side effects of platinum-based chemotherapy.

The FDA approved atezolizumab only for patients who have failed at platinum-based chemotherapy and are PD-L1 positive, because the trials showed that the drug has a much higher chance of succeeding within that group. But what about patients without the biomarker who think their last chance is atezolizumab?

“We don’t say, ‘Sorry, there’s nothing for you,’” said Dr. Eder. “We say, ‘We have other immune therapy trials looking at other ways of trying to enhance the immune response. You should go on those, and maybe we can improve your odds.’”

The PD-L1 pathway is only one of many, he added, and researchers have

started to find others, such as B7-H2 and B7-H3. They are also studying proteins such as OX40 that activate and boost the immune response rather than inactivate it. “We’re also looking at targeted monoclonals that are showing really spectacular activity,” said Dr. Petrylak. “In patients who either regressed or failed at atezolizumab, we’re seeing a 30 percent response rate.”

Trials that test combinations of drugs are also underway, such as atezolizumab with OX40, or atezolizumab with chemotherapy, or atezolizumab combined with other checkpoint inhibitors such as indoleamine-2,3 dioxygenase inhibitor. Dr. Kim mentions an upcoming trial that will combine immunotherapy with a personalized cancer vaccine, made from patients’ own tumor cells.

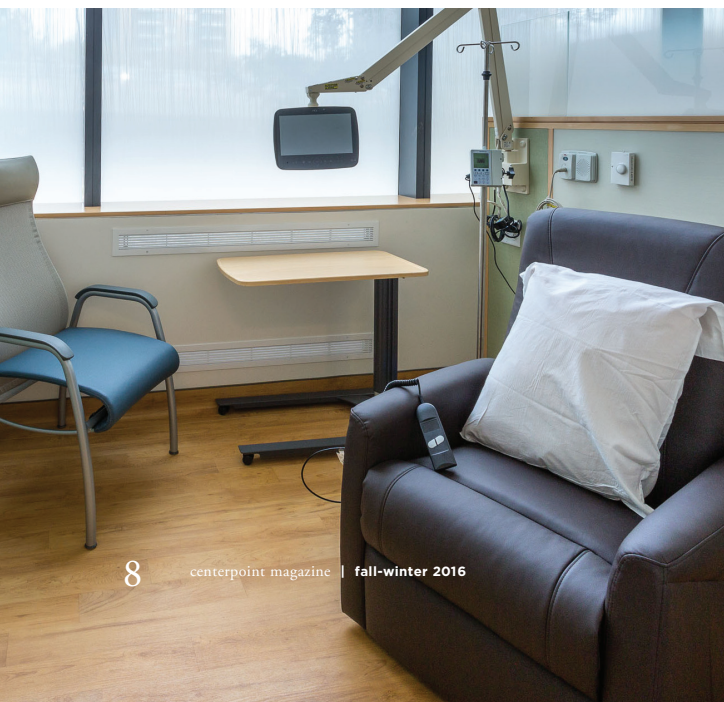
“There’s no shortage of cutting-edge ideas about ways to enhance the immune response of patients who aren’t likely to do well on atezolizumab,” said Dr. Eder.

Researchers and clinicians at Yale never stop searching for new solutions to cancer. Clinical trials are crucial to this process. They also provide hope to patients such as Phyllis Vece. After being diagnosed with bladder cancer, Ms. Vece, now 85, had surgery on her ureter and bladder. Then the cancer moved into her lung. Dr. Kim said radiation and chemotherapy were inadvisable because of kidney problems, but he also told her about the atezolizumab trial. She joined in September 2014. The drug began shrinking her lung tumors. On her most recent CT scan, they were gone. She hasn’t noticed any side effects.

“I actually feel so good, it’s hard to imagine that I have cancer,” she said. “You know, just because you’re older doesn’t mean you want your life to end. It’s wonderful that I was able to see another great grandchild born, and to go to my son’s 40th wedding anniversary party. I’m hoping that from what they learned from this trial, they can help more people.”



Dedicated
Space for
**PHASE I
CLINICAL
TRIALS**



In keeping with its mission to provide cancer patients with the most innovative treatments available, Yale Cancer Center has greatly increased the number of phase I clinical trials that investigate novel therapies. In September, this expansion led to the opening of a new Phase I Clinical Trial Infusion Center at Smilow Cancer Hospital. It is the only such center in Connecticut.

Many patients participate in phase I trials because their cancer has not responded to standard treatment and they are looking for something that might work. The new therapies tested in clinical trials offer these patients another option as well as hope.

Phase I trials have unique requirements that are hard to

Steve Kemper writer Carl Kaufman photographer

neuroendocrine cancers. “We’re doing a lot of sophisticated trials on both rare and common solid tumors,” said Dr. LoRusso.

She adds that having a space dedicated to phase I infusions is advantageous both to clinicians and to patients. Physicians at an academic center such as Yale not only want to treat patients, but to develop novel therapies and bring new science into the clinic. The new infusion center helps encourage that, Dr. LoRusso explained. Physicians also feel reassured that this space reserved for cutting-edge treatments is supported by specially-trained staff.

The advantages for patients are also significant. Many patients join phase I trials because their cancer has progressed beyond conventional treatment. They may already be on narcotics



“There’s more complexity to phase I trials, and the monitoring is much more exact and intensive. As a result, it’s best if phase I trials take place in a dedicated infusion center with its own trained and skilled staff.”



satisfy in a typical infusion center, says Patricia LoRusso, DO, Professor of Medicine (Medical Oncology) and Associate Director of Innovative Medicine at Yale Cancer Center. In an infusion center that provides conventional chemotherapy, a nurse typically takes vital signs, hooks up the patient to a hanging bag filled with a well-known chemical agent, monitors the infusion, then disconnects the IV so that the patient can go home.

By contrast, a phase I trial contains a lot more unknowns, starting with the drug being infused. “Maybe the drug has never been given before,” Dr. LoRusso explained, “or maybe it’s only been given a few times to a few people. You don’t know if the patient will have a reaction, because it’s all new.”

For that reason, the medical staff must do special labs and tests before, during, and after the infusion, as well as check vital signs at specific points throughout. “The level of skilled nursing and skilled care is different,” said Dr. LoRusso. “There’s more complexity, and the monitoring is much more exact and intensive.” As a result, she adds, it’s best if phase I trials take place in a dedicated infusion center with its own trained and skilled staff.

At the moment, the specially-trained staff at the center includes nurses and medical assistants as well as the four clinicians running the trials, which currently number almost 40. The trials encompass targeted drugs, monoclonal antibodies, and immunotherapies. Investigators at Yale initiated some trials; pharmaceutical companies sponsor others. All are aimed at solid tumor cancers, including breast, colon, ovarian, pancreatic, and

or other drugs to deal with the effects of their disease.

“So it can be confusing and complicated to them if they don’t know where they’re going for each visit, or if the environment changes,” Dr. LoRusso said. “When they know they’re going to the same place every time, it’s much easier for them. They become familiar with the staff and feel much more comfortable and safe because everything is contained.”

The new unit is already handling about 650 patient visits per month, which includes appointments for lab work and meetings with physicians as well as infusion treatments. The number of visits is expected to grow rapidly as more phase I trials are available.

The unit has been carefully designed for efficiency and comfort. Eleven walled infusion stalls are built around an open nursing station, allowing the staff to see all the patients while also giving each patient a private space. There is also a clinic where physicians examine patients, and an area where patients or their families can get snacks and relax. “The unit is beautiful,” Dr. LoRusso said.

All of this—the innovative therapies, the dedicated space and staff, the thoughtful design—is aimed at providing relief and hope to patients, many of whom are in advanced stages of cancer. “Having an infusion center devoted to phase I trials gives them additional treatment options, which they would not otherwise have,” said Dr. LoRusso, “so I think it offers them hope.”

As more clinical trials open at the center, there will be more hope for more patients. ↻



Sexual Healing

Noa Benjamini was upbeat when facing uterine cancer. But the day after she was released from the hospital, she had her first hot flash. That's when she cried. At 45, Noa thought she'd been propelled into old age. Intercourse became painful. Her doctor sent her to Dr. Elena Ratner and Dr. Mary Jane Minkin at Smilow Cancer Hospital who put her on conventional medicines, herbal remedies, and a strong program of exercise, as Noa says, "Drs. Ratner and Minkin gave me my youth back."

She's living proof that you do not have to surrender your sex life to be a survivor. For men and women, sexual dysfunction after cancer is common. The newly formed Smilow Cancer Hospital Sexuality and Intimacy Program, the only clinic of its kind in the country, is designed to help them.

Both doctors and patients tend to dismiss sexual side effects – because, after all, defeating the cancer is the main focus. But there is no need to suffer silently, clinic

doctors said, especially with such a treatable problem.

Survivors with sexual dysfunction would come to Dr. Elena Ratner, a surgical oncologist and co-director of the program, and say: "My cancer was years ago, and I never addressed this because I was told by my provider that nothing could be done." Dr. Ratner refuses to accept that. "Nothing can never be an option," she said.

Dr. Stanton Honig, a urologist, director of Men's Health, and co-director of the program, said that the same holds true for male patients. "There's pretty much a solution for everybody, and it really depends on how bad the problem is and how aggressive they want to be with treatment," he said, adding that even when medication does not work, relatively simple treatments can still help the vast majority of men.

New collaboration between physicians treating men and women is allowing the practice to help couples as well as individuals, with an emphasis on the relationship. Collaboration will also make research and teaching easier in a field in dire need of expansion.

Sex and intimacy after cancer is largely unstudied. Dr. Ratner is in the midst of a research project to learn how treatment for sexual function affects quality of life for patients and their partners – and even to explore whether it improves survival.

Dr. Ratner started the original clinic (SIMS) focused on dealing with sexuality, intimacy and menopause for women along with Dr. Mary Jane Minkin, a gynecologist who specializes in menopause. They are now partnering

with Dr. Honig to form the newly combined program, serving both women and men.

Psychologist Dwain Fehon was a key team member in the SIMS clinic and will play the same role in the new Sexuality and Intimacy Program. In fact, the program will have more mental health clinicians, a recognition that care must be interdisciplinary.

fertility options and begin treatment for menopausal symptoms promptly. Estrogen, commonly prescribed as a remedy for menopausal discomfort, is sometimes presumed to be off-limits for cancer survivors. For many survivors, however, it is safe, said Dr. Ratner.

In men, prostate and bladder cancer treatment are most likely to affect sexuality. But Dr. Honig said that many

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Later, patients are so grateful their concerns were addressed early on.
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Fertility is also an issue for cancer survivors. But egg or sperm banking can allow survivors to have biological children. "Even if a patient is really sick, it's something that we can act on very quickly," said Dr. Honig. "Later, patients are so grateful their concerns were addressed early on."

There are an estimated 14.5 million cancer survivors in the United States. The need for programs such as this is even greater than that number implies, because of a growing number of "previvors," healthy young women who have their breasts or ovaries removed because of their genetic risk of developing cancer.

"It completely destroyed my life," women have told Dr. Ratner. Still in their thirties, oophorectomy had plunged them into menopause overnight. The goal is to intervene with women before surgery, discuss

other cancer treatments can interfere with intimacy and sexuality. It is critical that physicians throughout Smilow ask their patients about sexuality and refer them to the clinic if they need help. "We need to try to address these issues sooner rather than later," he said. He added that steps taken during cancer treatment can preserve function. For example, some prostate removal procedures can affect the nerves to the penis, he explained. But encouraging men to remain sexually active during recovery can maintain blood flow to the penis and help restore intimacy.

Helping patients reclaim their sex lives can have broad implications for relationships disrupted by cancer. "There's a certain level of depression that sets in, and it separates couples," said Dr. Honig. "This is a way to bring intimacy back at a time when it is needed the most."

Elena Ratner, MD and Stanton Honig, MD



A Training Program for Cancer Biologists

Yale Cancer Center is distinguished by its commitment to translational medicine—that is, to turn promising laboratory breakthroughs into new cancer therapies. To that end, Yale’s scientists and clinicians work closely together on Disease Aligned Research Teams, or DARTs, each devoted to specific cancer types. DARTs meet to discuss new research, clinical results, and possible new investigations, with the goal of accelerating the delivery of innovative therapies to cancer patients.

Yale University is a leading center for education of PhD biologists who are destined to become leaders in diverse areas of the biological and biomedical sciences. Yet, until recently, Yale offered no predoctoral or postdoctoral training programs in basic science that focused specifically on cancer research. The new Yale Cancer Biology Training Program fills that gap and initiates young basic scientists into the practicalities of translational medicine. The goals are to complement traditional PhD training, to educate

Qin Yan, PhD, David Stern, PhD, program director, and Katerina Politi, PhD (front, left-right) with their students.

predoctoral and postdoctoral trainees about real-world clinical issues in oncology, and to prepare them to lead translational teams comprised of basic scientists and clinicians.

“This kind of training is not typical for PhD students or postdoctoral fellows,” said the program’s director, David F. Stern, PhD, Professor of Pathology, Associate Director of Shared Resources at YCC, and Co-Leader of the Signal Transduction Research Program. “We’ve been training bench scientists the same way since I was a grad student—classroom training, lab experience, and then the development of an independent research project. But, we finally understand enough about the biology of cancer processes that scientific investigators can now work closely with clinicians in developing the best ways of controlling disease. So there’s a real need here for this training.”

The need was created by the swiftly changing landscape of cancer science. In the past, basic scientists and clinicians worked on separate tracks, without much contact. But new insights into the biology of cancer have created an explosion of therapies that harness the immune system or direct drugs at specific genetic and molecular targets. Researchers, clinicians, pharmaceutical companies and patients all want to speed up the process of turning these insights into effective remedies. For that to happen, research scientists and clinicians must work in tandem and create a bench to bedside to bench circuit in which lab breakthroughs can be tested in the clinic, analyzed and improved.

“We tried to figure out what PhD students and postdoctoral fellows are

missing with standard biomedical PhD training,” said Dr. Stern, “and that has a lot to do with understanding the clinical world, the whole disease side, and also the practical limits on what clinicians can and can’t do because of drug toxicities and working with patients—limiting factors in the real world. They can learn these things by training with and working with clinicians and clinician-scientists.”

to the existing course on cancer biology offered to all graduate students by diving into specialized research topics. For the second course, clinicians who specialize in various cancers describe the most critical problems within their areas of expertise. “Those critical problems can be the best ones for trainees to focus on in their research,” Dr. Stern explained. Trainees also do a clinical analysis of

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**Many PhD trainees will eventually run their own labs.
 We want to train generational leaders in cancer research.**
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The program has several key components. Graduate students and postdoctoral fellows already have scientific mentors, but every trainee in the new program also will have a clinical mentor, a guide into the hurly-burly of real-world medicine. The trainee will shadow the clinician during appointments and rounds, and will attend tumor boards where treatment recommendations are made for challenging diagnoses.

The second part of the clinical training will use specialized coursework to introduce participants to the practical challenges of creating clinical trials from research ideas. Basic scientists need to understand this complex process so that trials can be designed for maximum efficiency and value to scientists, clinicians, and patients.

The program also adds two extra classes to the standard curriculum. The first is, “Advanced Topics in Cancer Biology,” led by Dr. Qin Yan, that adds

patient tumor samples to gain experience in analyzing and interpreting genetic tumor information.

The two-year program is funded by a new grant from the National Cancer Institute of about \$232,000 per year for five years, with additional financial support from Yale Cancer Center and Yale School of Medicine. The funding provides each trainee with a stipend plus tuition. Interest has been strong, with six PhD students already enrolled and four postdocs expected to enter the program by the end of 2016. Eventually the program will include 16 trainees, split equally between PhD students and postdoctoral fellows.

Because of the extra work required on top of their regular programs, trainees must be highly motivated to specialize in cancer research. “Many PhD trainees will eventually run their own labs,” said Dr. Stern. “We want to train generational leaders in cancer research.”



PETER BAKER

Getting Into the Screening Habit

It is Jose DeJesus' job to get people to participate in cancer screenings. It is also his mission. A community health educator for the Smilow Screening & Prevention Program, DeJesus lost three uncles to prostate cancer.

"They didn't go to the doctor until the symptoms were overwhelming," he recalled. "They were at stage four when they were diagnosed."

Today DeJesus is preparing for a free prostate cancer screening event at Yale New Haven Hospital's St. Raphael Campus. He is spreading the word about the event all over greater New Haven -- and especially to his own cousins. "We are the poster children for risk," he told them.

"We're looking to detect cancers earlier, when they are more treatable," said Beth Jones, PhD, MPH, director of the program. The Smilow Screening & Prevention Program recently began with support from a National Cancer Institute grant. One of its initial goals was to have a large, community outreach event every month. But Dr. Jones noted that there have been five screening outreach events in the past 30 days.

The program also maintains a website with recommendations about screening as well as diet, smoking cessation, and other prevention strategies.

The program is designed to reach out to the whole region served by Yale Cancer Center, which includes all of Connecticut. Many screenings and educational events, however, target the areas "right outside our backdoor," Dr. Jones said, historically low-income, underserved neighborhoods.

DeJesus, born and raised in New Haven's Hill section, goes to community management team meetings--gatherings of neighborhood leaders--to provide information about the benefits of screening and to get the word out on the next event. The response has been "incredibly positive," he said.

Finances should not be a barrier to screening, says

DeJesus, as most of these tests are covered by insurance and hospital staff will even help uninsured people to find coverage. Even the parking is free at screening events. The task is really to convince people that screening is a good investment of time and energy.

"When you're struggling to put food on the table every day, those things kind of take the priority," DeJesus explained. "It's changing that mentality."

Events are designed to get people in the door, but they are not the end goal. "We want to create a community of habitual screeners," Dr. Jones explained. "Screening should take place in the context

of a primary care visit." Dr. Jones added that the electronic health record used throughout the Yale system offers prompts to let clinicians know when their patients are due for screenings. Smilow's current screening recommendations are also on the program's website: <https://yalecancercenter.org/screening/>

Recommendations about screening age and frequency can change, causing

follow-up after screenings than white women were. She is now exploring adherence to guidelines and follow-up among Latinas.

Screening and prevention often work hand in hand. The program is encouraging older smokers to be evaluated for lung cancer screening with a low dose CT scan. This form of screening has been shown to reduce deaths from lung cancer by

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We are looking to detect cancers earlier, when they are more treatable.

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confusion and sometimes controversy, said Dr. Jones. In fact, the program is hosting a symposium this fall for community physicians to discuss guidelines and reach consensus on some solid, evidence-based standards that apply to the patients they serve. But she acknowledges that there will always be variations based on individual risk factors -- and this underscores how important it is to do screenings through a primary care clinician who knows a patient's history.

A number of cancers are more common and particularly aggressive among racial and ethnic minorities -- making regular screening even more essential in these communities. Dr. Jones' research focuses on racial and ethnic disparities. She did a major study showing that African-American women were less likely to get appropriate

20 percent, according to Dr. Jones. By running the program in conjunction with the Smilow Tobacco Treatment Program, smokers who participate will also have the option of getting help with smoking cessation. Research shows that even longtime smokers -- including those already diagnosed with lung cancer -- can improve their health by quitting smoking.

Eventually, the program plans to add more community educators like DeJesus, because the opportunities are endless to help more people get timely screenings and adopt healthier lifestyles. But for today, DeJesus is satisfied with what he has accomplished. The prostate screening is all set for tomorrow, and three of his cousins have promised to be there after no small amount of convincing from him. "I'm relentless," he said with a smile. ☺

Jose DeJesus, Outreach Coordinator, and Beth Jones, PhD, MPH, Director, Smilow Screening & Prevention Program.



Renee Moyne, APRN and Dr. Neal Fischbach

PETER BAKER

Smilow Cancer Hospital Care Center - Fairfield

Newly renovated in 2016, the practice location has doubled in size. The Care Center now includes 11 infusion chairs and an on-site pharmacy.

PRACTICE AT A GLANCE

- 450 patient visits per month
- 250 chemotherapy treatments per month
- 15 staff members
- Social work, nutrition, patient navigators, psychologists, integrative medicine, and support groups are all offered on-site.

SMILOW CANCER HOSPITAL CARE CENTER AT FAIRFIELD

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“The Fairfield Care Center gives us the opportunity to offer our patients access to Smilow Cancer Hospital’s resources and clinical trials in our community where our patients are most comfortable receiving their treatment. Our practice is like a close-knit family, and our newly renovated center helps us create an environment that immediately relaxes our patients and encourages healing.”

— Dr. Neal Fischbach



PETER BAKER

Q+A

meet the physician

Barbara Ann Burtness, MD

Professor of Medicine (Medical Oncology)
Disease Aligned Research Team Leader, Head and Neck
Cancers Program
Co-Director, Developmental Therapeutics Research Program

Your clinical focus is on the care of patients with head and neck cancers. What new therapies and trials do you have to offer your patients?

Many of our patients who are treated with chemotherapy and radiation have complete resolution of their tumor. In unusual cases where the cancer persists at the end of radiation, surgery is often considered. We have a new trial available to give these patients immunotherapy before their surgery, in the hopes that setting off a good immune response to the cancer will reduce the chances of a later recurrence, as well as shrink the existing tumor before surgery.

My research has focused on a growth factor receptor called EGFR, which has been linked to head and neck cancer. Our findings show when an EGFR moves to the nucleus of the cell, the outcome from treating the cancer is worse. As a result, a new trial is studying the combination of the standard EGFR therapy, cetuximab, which cannot affect EGFR in the nucleus of the cancer cell, with afatinib, which reduces the amount of EGFR that can travel to the nucleus as well as inhibits EGFR when it is in the nucleus.

In addition, for patients with disease that has spread outside the area of the head and neck, or that has recurred after initial treatment, we have a number of trials that use combinations of immunotherapy with vaccines, chemotherapies, or other immunotherapies to improve the results we can achieve with immunotherapy.

The options for treatment of head and neck cancers are exploding, as new therapies are available through clinical trials. How are your patients matched with the best options available for them?

We look at whether or not the tumor is caused by human papillomavirus (HPV), and we can do this either by directly measuring HPV virus in the cells, or by a very sensitive test called p16. We also determine suitability for immunotherapy by staining the tumor for a protein called PD-L1. For rare types of head and neck cancers, and in the setting of recurrent cancer, we determine the gene sequence for a large number of cancer genes, and this can help establish whether a patient is eligible for trials with certain new therapies.

How do you align your clinical care with our research efforts at Yale Cancer Center?

Our head and neck team members meet every week to discuss new patients and patients who have new findings on their scans. We always seek to find the best treatment for each patient, while also looking for the treatment that will minimize side effects and loss of function. In many cases, clinical trials offer new approaches that can best balance those two goals. Many of the head and neck physicians at Yale are also cancer researchers who study how to prevent or treat head and neck cancers in their laboratories, who lead clinical trials, or who use information from national databases to compare the effectiveness of different treatment approaches. All of us share a common goal of curing head and neck cancer with treatments which do not interfere with function and quality of life.



YALE CANCER
ANSWERS

Yale Cancer Answers is celebrating 10 years! The weekly program provides listeners with information on the range of options for cancer treatment, prevention, screening, and supportive care. Hosted by cancer specialists from Smilow Cancer Hospital and Yale Cancer Center, each show features a cancer expert to discuss myths, facts, and advances in cancer diagnosis and treatment.

Yale Cancer Answers is consistently ranked in the top three rated podcasts on cancer on iTunes. To listen, visit iTunes or listen live on Sunday evenings on WNPR beginning on January 1, 2017.

yalecancercenter.org/patient/answers