

# CANCER JOURNAL

FALL 2018

## SURVIVORSHIP

## Thanks to Advanced Genomic Testing, Breast Cancer Survivor Skips Chemotherapy

Sonya Lira has a strong family history of multiple cancers, but when she was tested for genetic mutations that might be linked to her breast cancer, there were none.

“We did comprehensive genetic testing involving a complete gene sequencing of her DNA, testing for all known mutations,” says Anish Meerasahib, MD, a medical oncologist with Texas Oncology, who is affiliated with Memorial Hermann Southeast Hospital and Memorial Hermann Pearland Hospital. “None came back positive.”

Lira’s cancer experience began

when she got a call back after a 3-D tomosynthesis mammogram at the Memorial Hermann Outpatient Imaging Center in Pearland. Her biopsy showed early-stage invasive ductal carcinoma of the breast.

At the Memorial Hermann Cancer Center-Southeast, she met with Oncology Nurse Navigator Krystie Fenton, BSN, RN, OCN.

“I wouldn’t have made it through without Krystie,” Lira says. “She provided enormous support and also connected me with my amazing treatment team – Dr. Meerasahib, Dr. Garner and Dr. Yang.”

Glen Garner, MD, a general surgeon affiliated with Memorial Hermann Southeast Hospital, scheduled her for surgery in December 2017. “Given the small size of the tumor, we thought it would be an uncomplicated lumpectomy,” he says. “We removed six sentinel lymph nodes, and when our pathology team examined them, one of the nodes was positive. The tumor biopsy came back with three margins positive for microscopic ductal carcinoma in situ. This was unusual and unexpected in Mrs. Lira’s case, because none of the evidence we had pointed to it.”

**Breast Cancer Survivor** continues on page 3

## EXCELLENCE IN CANCER CARE

## Memorial Hermann Specialty Pharmacy Facilitates Financial Assistance for Cancer Patients

As the cost of cancer care has risen, more patients are facing bills with the potential for bankruptcy. Since its official

opening in December 2017, the Memorial Hermann Specialty Pharmacy has facilitated the provision of \$7.7 million

in financial assistance to cancer patients through charitable organizations, pharmaceutical companies and other sources.

“Most newly approved oncology medications average about \$10,000 per month and can exceed \$30,000 monthly,” says Jane Jacob, PharmD, Specialty Pharmacy pharmacist. “Many patients are required by their insurance plans to pay 20 to 30 percent out of

**Specialty Pharmacy** continues on page 2

### 32%

Percentage of cancer patients reporting cancer-related financial problems.

### 23%

Percentage of cancer patients reporting that they postponed recommended health care due to cost

### 2.65x

Times more likely cancer patients are to go bankrupt than people without cancer

Source: The Advisory Board Company

MEMORIAL  
HERMANN  
Cancer Centers

**Specialty Pharmacy** continued from page 1

pocket, which can add up to \$2,000 a month or more. Our goal as pharmacists is to connect with patients on a personal level and then work with them to help reduce their out-of-pocket costs. We streamline the process and are there 24/7 for patients so they don't have to fend for themselves. Cancer patients are especially appreciative."

According to the American Society of Clinical Oncology, 10 percent to 20 percent of cancer patients decide not to take the prescribed treatment or make compromises based on the cost of medications. Patients in Southeast Texas who fall into this category are those the Specialty Pharmacy strives to help.

"We understand the difficulty patients face and are here to help create a plan for them," says Brandon Vachirasudlekh, PharmD, clinical manager of the Specialty Pharmacy. "When we onboard new patients, we connect with their insurance companies, various assistance programs and other options for making their medications more affordable. We reach out to patients, get to know the voices of their dedicated care teams and do regular clinical follow-ups with patients and their providers to ensure compliance with the treatment plan."

Memorial Hermann Specialty Pharmacy staff members routinely check in with patients to talk about side effects and

**Financial Toxicity:** A term used to describe problems a patient has related to the cost of medical care. Not having health insurance or having a lot of costs for medical care not covered by health insurance can cause financial problems and may lead to debt and bankruptcy. Financial toxicity can also affect a patient's quality of life and access to medical care. Cancer patients are more likely to have financial toxicity than people without cancer. Some cancer survivors report spending more than 20 percent of their annual income on medical care.

Source: National Cancer Institute

issues they face, answer questions and arrange for refills. They work directly with each patient's treatment team, collaborating with physicians, helping to speed insurance coverage decisions and prevent delays, and making sure patients receive the right medication when they need it.

"We streamline the entire process," says Memorial Hermann Pharmacy Director Joseph Rogers, PharmD, MS. "If the insurance company won't cover the medication or if patients are uninsured, they may require help from the manufacturer. Savings may come in the form of free drugs or discounted drugs through co-pay cards from Pharmaceutical Manufacturer Patient Assistance Programs. It doesn't stop there. If patients don't feel good, many stop taking their medications. When we realize they aren't following up with refills, we contact them. Our goal as an integrated specialty pharmacy is to be high touch, provide regular patient follow-up to ensure continuity of care, and share

outcomes data with providers."

The increase in the cost of cancer medications is a national concern and linked to the high cost of bringing new drugs to market. "We're now in a world of precision medicine, and these new therapies are very expensive," says Sandra Miller, MHSM, RN, NE-BC, vice president of the oncology service line at Memorial Hermann Health System. "We've made tremendous advances in the treatment of cancer but affordability can limit patient access to cancer medications. One of the first things our staff does is help patients understand the cost of care and what their out-of-pocket costs will look like, and process them right away for all the assistance that will be available to them.

"Our pharmacists go above and beyond in searching for free drug replacements and assistance from pharmaceutical companies," Miller adds. "Our social workers and business office staff work with community partners to find additional sources of financial assistance. We also help patients maintain their insurance if they lose their employer insurance plan while in treatment by working with a COBRA assistance program."

The Memorial Hermann Specialty Pharmacy is headquartered in Katy, with clinics in seven locations. Prescriptions are filled and delivered by mail to the entire Southeast Texas area the day after they are ordered. To access the pharmacy's services, providers may send an e-prescription, phone or fax an order.

**E-Prescribe:** Memorial Hermann Pharmacy Services under 'Retail' Pharmacy Type

**Phone:** 1.833.234.MHSP (6477) toll free or 281.698.6100 local

**Fax:** 713.704.3841

**Email:** specialtypharmacy@memorialhermann.org

**Web:** specialtypharmacy.memorialhermann.org

**IN THIS ISSUE**

**SURVIVORSHIP 1-5**

Thanks to Advanced Genomic Testing, Sonya Lira Skips Chemotherapy

Chris Bayack: Five Stars Are Not Enough

**A NOTE FROM LEADERSHIP 4**

**EXCELLENCE IN CANCER CARE 1-2, 5-10**

Memorial Hermann Specialty Pharmacy Facilitates Financial Assistance for Cancer Patients

Memorial Hermann Supportive Medicine Improves Quality of Life for Cancer Patients and Lowers Healthcare Costs

Outsmarting Breast Cancer at the Bobetta Lindig Breast Care Center

November Is Lung Cancer Awareness Month: Requirements for Low-Dose Lung Cancer Screening

**RESEARCH 9-12**

The Advanced Cancer Inflammation Index (ALI): A Useful Prognostic Marker

UTHealth Study Shows Lack of Reliability of the mRNA Assay to Identify Women With Latent HPV Infections

New Research on Cognitive Disability in Adult Patients With Brain Tumors

**ADVANCES IN CANCER TREATMENT 13-15**

With HDR Brachytherapy and SpaceOAR® in Its Arsenal, Memorial Hermann Memorial City Advances Prostate Cancer Treatment

U.S. Preventive Services Task Force Issues a Draft Recommendation Statement for Cervical Cancer Screening

**MEMORIAL HERMANN WELCOMES 15**

**Breast Cancer Survivor** *continued from page 1*

“Dr. Garner said we could go back to surgery and try to get clear margins, but if we didn’t get them, I would have to go back to the OR again for a mastectomy,” Lira says. “I said, ‘What if we just go ahead and do a mastectomy?’”

Dr. Garner removed her right breast in January 2018. “I was dreading it because I don’t like to take pain pills,” she says. “But to my surprise I had no pain after surgery, which was wonderful.”

Her multidisciplinary treatment team recommended radiation to that area of the breast, and as soon as her scars had healed, Lira was scheduled for 33 radiation treatments with Ted Yang, MD, an affiliated radiation oncologist at the Memorial Hermann Cancer Center-Southeast.

“A few years ago we automatically gave patients like Mrs. Lira chemotherapy, hoping that the cancer wouldn’t return, but new data has given us a different perspective on treatment, which has evolved remarkably in the last few years,” Dr. Meerasahib says. “We did the Oncotype DX® test on the tumor sample, which calculates a breast recurrence score that quantifies the risk of recurrence and shows the potential benefit of chemotherapy. Her score was low, which means she would not derive any significant benefit from chemotherapy. She was fortunate. If we had not ordered that test, reflexively we would have given her chemotherapy.”

Testing showed that her tumor was positive for estrogen and progesterone but negative for HER2/Neu. “When there are microscopic cells, they could evolve into cancer in the future. We started her on Letrozole®, an aromatase inhibitor and anti-estrogen medicine used in the treatment of hormonally responsive breast cancer. Her chance of cure is in the range of the high 90th percentile. My plan is to keep her on Letrozole for at least



“I’m really pleased with all my doctors. I couldn’t have gotten through my breast cancer diagnosis and treatment without them and without surrounding myself with supportive, positive family and friends – and most of all my husband, Jack, of almost 40 years.”

- Sonya Lira,  
Breast Cancer Survivor

five years, and we may extend it longer depending on her how well she does.

“Mrs. Lira’s case was unusual in that she presented with a small breast tumor that involved the lymph glands,” he adds. “Generally when there is involvement of the lymph glands, the tumor is aggressive, but in her case it wasn’t, as confirmed by further testing that told us more about her very favorable tumor biology. These newer tests help us choose personally tailored treatments that are more effective.”

Lira says she knew she had cancer even before the biopsy. “I knew it from the time I got the call back from the Outpatient Imaging Center. But I was always positive about the outcome,” she says. “I’m really pleased with all my doctors. I couldn’t have gotten through my breast cancer diagnosis and treatment without them and without surrounding myself with supportive, positive family and friends – and most of all my husband, Jack, of almost 40 years.”

During the course of her treatment, Dr. Meerasahib ordered a bone density scan that revealed mild osteopenia. He prescribed a new medication delivered by injection every six months to prevent the disorder from progressing to osteoporosis.

Lira, who is 58 and a former smoker, also had a low-dose CT scan for lung cancer. She met the criteria: ages 55 to 77 years, asymptomatic of lung cancer, tobacco smoking history of at least 30



**KRYSTIE FENTON, BSN, RN, OCN**  
Oncology Nurse Navigator  
Memorial Hermann Southeast Hospital

pack-years and a current smoker or one who has quit within the last 15 years. The scan revealed a few spots that are too small for a PET scan or biopsy.

“It’s extremely unlikely that the spots are related to breast cancer, and most of the time lung nodules are benign,” Dr. Meerasahib says. Lira is seeing pulmonologist Mohammad F. Siddiqui, MD, also affiliated with the Memorial Hermann Cancer Center-Southeast, who will have the nodules rescanned at three months.

“Mrs. Lira has a comprehensive idea of her disease process and is always willing to take the extra step to improve her health,” Dr. Meerasahib adds. “She’s a joy to work with.”



**GLEN GARNER, MD**  
General Surgeon affiliated with Memorial  
Hermann Southeast Hospital



**ANISH MEERASAHIB, MD**  
Medical Oncologist affiliated with Memorial  
Hermann Southeast Hospital

# Chris Bayack: Five Stars Are Not Enough

During a routine colonoscopy, Chris Bayack's gastroenterologist discovered a large polyp that he was unable to remove during the procedure. When he told his patient that the polyp would have to be surgically removed, Bayack scoured the Internet for colon and rectal surgeons in the Houston area, reading rating after rating posted by patients on physician review sites.

He was impressed with the outstanding reviews of Scott McKnight, MD, a colon and rectal surgeon affiliated with Memorial Hermann Memorial City Medical Center and Memorial Hermann Katy Hospital. Bayack, 59, made an appointment to see Dr. McKnight in his Katy office, where they discussed robotic colectomy.



**SCOTT MCKNIGHT, MD**  
Colon and Rectal Surgeon affiliated with  
Memorial Hermann Memorial City Medical  
Center and Memorial Hermann Katy Hospital

"When I asked him if there's anything I should be concerned about, he said, 'I've already done three colectomies this week with good results,'" Bayack says. "We'll treat it the same way we'd treat a cancerous polyp because if the biopsy does show cancer, we don't want to have to go back in again."

Dr. McKnight trained for robotics in 2015 and has been doing robotic-assisted colectomies for more than three years. "We're seeing a shift toward minimally invasive surgery, and robotic-assisted surgery is the most fine-tuned of the minimally invasive approaches to abdominal surgery."

Bayack, blessed with good health and no experience with hospitals, was understandably nervous. "This was my first surgery, and although I knew that for Dr. McKnight this was a walk  
*Chris Bayack continues on page 5*

## A NOTE FROM LEADERSHIP



It seems certain that at some point in our life we will be affected by cancer. Maybe it will be our own battle or that of a family member or friend. It is during these times

that our strength, resilience and faith are all tested in ways we never imagined possible. Our aim is that a cancer patient will have a comprehensive cancer care team available to treat and support them, while leaning into the love and support of family and friends. We plan for family members who take on additional roles and responsibilities to ensure their loved one gets the best possible care. We understand that husbands, wives, daughters and sons now have to keep track of appointments and tests, surgeries and chemotherapy treatments, while ensuring the day-to-day responsibilities of life aren't neglected.

At Memorial Hermann, we under-

stand that a cancer diagnosis brings with it a lot of uncertainty and anxiety. We strive to ensure patients and their caregivers feel supported, and do all we can to anticipate and prepare for their needs while in our care. In addition to support groups and ongoing programs at our system's two survivorship centers, our Oncology Nurse Navigators and dedicated oncology social workers can assist in finding resources best suited for each situation. I encourage you to reach out to them to see how we can make this time easier for you and our loved ones. Caring for the whole person and their family is another way we demonstrate that at Memorial Hermann you will never face cancer alone.

We are committed to serving you – our friends, neighbors, family members and colleagues – in the event you must face this difficult disease. We are here to walk the journey with you, and we are honored you entrust your care to us.

**Sandra Miller, MHSM, RN, NE-BC**  
*Vice President*  
*Memorial Hermann Oncology Service Line*



At Memorial Hermann, you will never fight cancer alone. This is the cornerstone of our mission, which we strive to live up to each and every day. Each of our patients

is fighting a different battle, and we understand the anxiety, fears and concerns they may have along the way. Our duty as physicians is to ensure each one knows they are at the center of what we do; that we are working together to give each of them the best chance of beating this disease.

Patients not only benefit from our multidisciplinary team approach to cancer care, but can access this care

close to home, as our services reach from The Woodlands to the southwest corridor and beyond. We have committed to bring the same level of care and dedication to the Greater Houston community, as we do every day in the Texas Medical Center.

Perfect examples of this commitment are on pages 5 and 8, where we profile two of our system's breast care centers and the breadth of services provided. From prevention, education and screening, to diagnosis, treatment, and into survivorship, we are here every step of the way. We hope this brings peace of mind to all who choose Memorial Hermann, including you.

**Ron J. Karni, MD**  
*Chair, Oncology CPC Subcommittee*  
*Memorial Hermann Physician Network*

Chris Bayack continued from page 4

in the park, I had your typical jitters,” he says. “In addition to doing extensive research to find the best doctor, my wife and I prayed. Overall I felt very comfortable going into the OR.”

The surgery, performed at Memorial Hermann Memorial City, was as uneventful as doctor and patient could have hoped. Bayack was up walking the evening after surgery and left the hospital a day and a half later with five small scars on his abdomen.

“I didn’t have excessive pain and took medication for only a day,” he says.

Bayack’s polyp was precancerous. “Had it been left there, it would eventually have become malignant,” Dr. McKnight says. “Mr. Bayack was very engaged in his care and did fantastic postoperatively. With robotic surgery, there’s less strain on the abdominal wall, less bleeding and patients seem to tolerate return to their normal diet faster. The robot calculates a remote center, like a fulcrum, so that the instruments put less strain on the abdominal wall. Laparoscopic surgery is also minimally invasive, but because the instruments are being directly controlled by a human, it’s impossible to replicate the precision of the robot.”

Bayack advises anyone who has been putting off colonoscopy to schedule it right away. “Today’s colonoscopy is one of the most uneventful procedures you can have,” he says. “It could save your life. Get the thing done.”

In his review of Dr. McKnight on HealthGrades.com, he wrote: “The most significant medical experience of my life turned out to be among the most successful due in no small measure to the sheer excellence of Dr. Scott McKnight. I had to have a polyp removed, and he used state-of-the-art robotics, which produced minimal incisions. I was walking that night and out of the hospital in two days. It is virtually impossible to imagine how the surgery and recovery could have gone better. Thank you, Dr. McKnight! Five stars are not enough. Your search for a doctor ends here.”

## About the Memorial Hermann Imaging and Breast Care Center-Southeast

Memorial Hermann Breast Care Centers offer a coordinated approach to breast health with services for preventive care, early detection, accurate diagnosis, treatment and ongoing emotional support during survivorship – on one campus. For women in the southeast Houston area, the Memorial Hermann Imaging & Breast Care Center-Southeast offers advanced screening and diagnostic services close to home.

Board-certified breast radiologists read all mammograms. Advanced onsite technology to aid in early detection of breast conditions includes:

- Tomosynthesis (3-D mammogram)
- Diagnostic mammography
- Digital screening mammogram
- Breast ultrasound
- Breast MRI
- Breast biopsy
  - o Fine-needle aspiration
  - o Ultrasound-guided needle biopsy
  - o Upright stereotactic biopsy
  - o MRI biopsy
- Breast ductogram
- Digital bone densitometry
- Needle localization by a radiologist immediately before breast surgery

The Breast Care Center also has a breast nurse navigator who provides patient education to ensure the patient understands the diagnosis and treatment plan, serves as a patient advocate and removes any barriers to care, facilitates effective communication between the patient and the interdisciplinary team, addresses patient concerns and assists with scheduling to ensure patients receive timely treatment and testing. The breast nurse navigator also provides ongoing support to the patient and family and coordinates referrals to support groups and fittings for breast

prostheses, and encourages participation in the Look Good Feel Better program, which provides patients with cosmetics, wigs and advice on self-care during cancer treatment.



**BELYNDER OUKO-KENDRICK, MSN, RN**  
Breast Nurse Navigator, Memorial Hermann Southeast and Pearland Hospitals

“We truly work as a team to treat our patients as we ourselves would like to be treated,” says Belynder Ouko-Kendrick, MSN, RN, breast nurse navigator for the Memorial Hermann Imaging & Breast Care Center and the surrounding Memorial Hermann Outpatient Imaging Centers in the Memorial Hermann southeast region. “We hold weekly multidisciplinary Breast Cancer Conferences attended by a breast radiologist, medical oncologist, radiation oncologist, pathologist and surgical oncologists to discuss patient cases. Our program is comprehensive from screening, diagnosis through treatment and survivorship. If a screening mammogram shows anything suspicious, we schedule a diagnostic biopsy before a woman leaves her screening appointment.”

The Memorial Hermann Imaging & Breast Center-Southeast is certified by the Mammography Quality Standards Act (MQSA), which was enacted by the FDA to ensure that all women have access to quality mammography for the detection of breast cancer in its earliest, most treatable stages. The Center also is accredited by the American College of Radiology for mammography, which ensures that rigorous quality standards are met

*Breast Care Center continues on page 6*

and staff members are well qualified through education and certification to perform advanced procedures.

The Memorial Hermann Imaging & Breast Center-Southeast offers

valet parking, same-day appointments and extended hours. Screening mammograms, which do not require a doctor's order, may be scheduled on weekdays and every other week on Saturday. During National Breast

Cancer Awareness Month in October, screening mammograms will be offered every Saturday. To schedule an appointment, call 281.929.6485.

## Memorial Hermann Supportive Medicine Improves Quality of Life for Cancer Patients and Lowers Healthcare Costs



**SANDRA GOMEZ, MD, FAAHPM**  
System Director of Supportive Medicine and Palliative Care, Memorial Hermann Physician Network

While physicians and nurses who specialize in the care of cancer patients have a good understanding of symptom management, many patients experience multiple symptoms that can benefit from a specialized interdisciplinary approach. Memorial Hermann's Supportive Medicine team focuses on improving quality of life for patients and their families by reducing the physical and emotional burdens of living with serious illness. Supportive Medicine consult volumes have grown steadily across the Memorial Hermann Health System for the past three years. In calendar year 2018, the team is projected to consult over 5,500 unique patients.

"Studies have shown that palliative care is most effective early after diagnosis of a life-threatening disease," says Sandra Gomez, MD, FAAHPM, system director of supportive medicine and palliative care at MHMD, Memorial Hermann's clinically integrated physician network. "Our overall aim is to improve quality of life for our patients and keep them out of the hospital through active surveillance and symptom management. The team identifies problems and resolves them before they become major issues that may prolong a hospital stay. We refer

back and forth to physicians seamlessly to provide a strong continuum of care."

A 24/7 service accessible by phone, Memorial Hermann Supportive Medicine offers an extra layer of support for primary care physicians and oncologists. Consults are appropriate for patients with advanced cardiac or pulmonary disease, end-stage dementia or failure to thrive, end-stage liver disease, uncontrolled symptoms, multiple hospitalizations or uncertainty regarding goals of care.

"Supportive Medicine is Memorial Hermann's brand of palliative care," Dr. Gomez says. "We observed as a health system that the term 'palliative care' can be deterrent to many physicians, who are the gatekeepers of the care we provide. The term is also confusing for patients because many physicians use palliative care interchangeably with hospice. When we present our program to hospital administrators, they say, 'That makes sense. I like it.'"

The program is a unique partnership between the health system and MHMD's physician group. "Through that collaboration, we provide the four pillars of palliative care: expert symptom management, care coordination, advance care planning and family support through an interdisciplinary team approach," Dr. Gomez says. "That's the balance of care recommended by the Center to Advance Palliative Care to deliver comprehensive patient-

centered palliative care."

Memorial Hermann Supportive Medicine's mobile team includes nurse practitioners, nurses and physicians experienced in this specialized area of medicine, and through research, they are pioneering new approaches to effective treatment. They also help patients and family members with medical decision-making and understanding the process of various treatments. By working closely with the patient's care team, the Supportive Medicine team can often stabilize difficult symptoms and allow a patient to continue with his or her current treatment plan.

Social workers assess patients, provide counseling and education on coping, and connect them with community resources. Chaplains offer spiritual care and emotional support for patients and families, including assistance with advance care planning and end-of-life conversations.

The Supportive Medicine program provides cost benefits for patients and their families, as well as the health system. "The earlier we intervene, the greater the potential impact on hospital length of stay," Dr. Gomez says. "Once we're consulted and develop an effective plan, it dictates less aggressive end-of-life care. The sooner a physician includes supportive medicine as part of patient care, the more effective we can be in helping the patient and also in improving hospital quality

*Quality of Life* continues on page 7

**Quality of Life** continued from page 6

metrics. Ultimately, continued active care is better for the patient, and it also reduces hospital utilization and overall healthcare costs by helping patients avoid the revolving door of the emergency room and hospital. If we

can relieve the symptom burden, it's a win-win-win for clinicians, patients and families.”

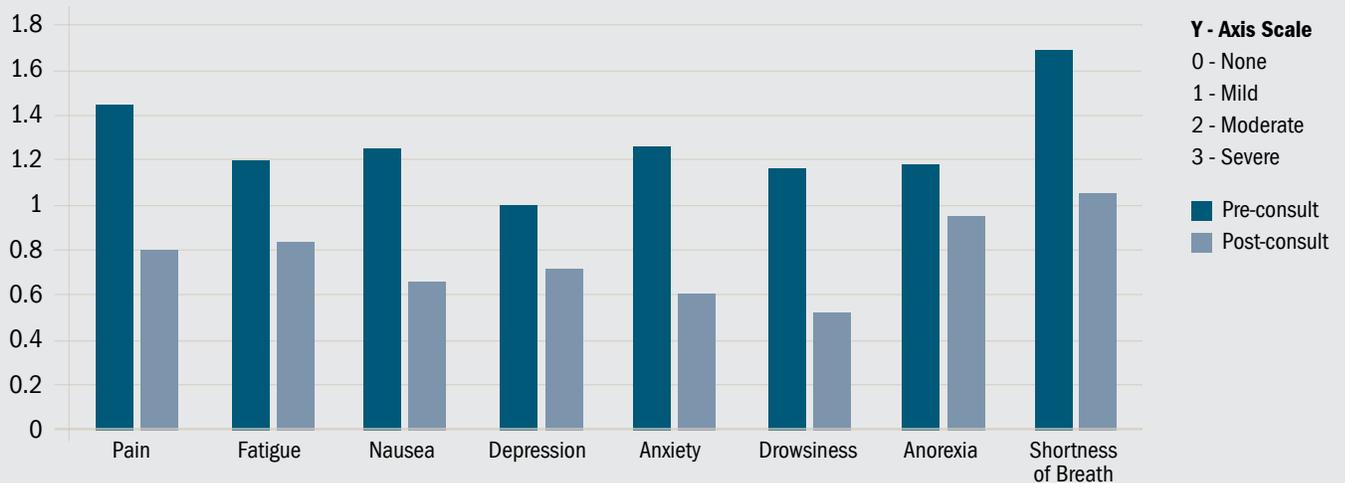
It's also the voice of the consumer. The Supportive Medicine Program was granted special permission by the Centers for Medicare and Medic-

aid to conduct phone surveys rather than mail surveys. Recent data shows patient satisfaction at well over 90 percent.

When asked if they would have preferred an earlier intervention from Supportive Medicine, 74 percent of patients responded yes. Ninety-seven percent of patients indicated that they would recommend these services to another patient with a serious or life-threatening illness.

**Quality of Life** continues on page 8

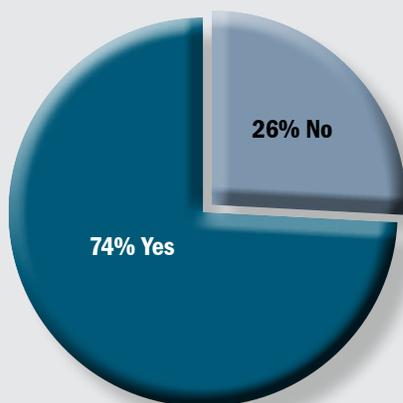
## Symptom Control



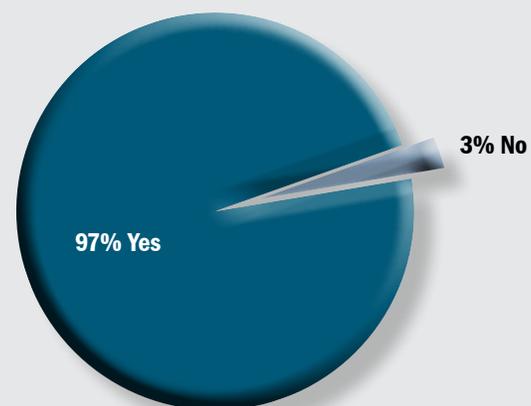
Symptom data collected on consulted patients shows a significant improvement in symptom control after the Supportive Medicine team becomes involved in their care.

## Patient Satisfaction Results

Would you have preferred an earlier intervention from Supportive Medicine?



Would you recommend Supportive Medicine Services to a patient with a chronic illness?



Patient satisfaction surveys were distributed to gauge the effectiveness of Supportive Medicine consultation. When asked if they would have preferred an earlier intervention from supportive medicine, 74 percent of a sample of 351 patients responded yes. Ninety-seven percent of patients indicated that they would recommend these services to another patient with a serious or life-threatening illness.

Source: Memorial Hermann Supportive Medicine

supportive medicine, 74 percent of a sample of 351 patients responded yes. Ninety-seven percent of patients indicated that they would recommend these services to another patient with a serious or life-threatening illness.

Dr. Gomez and her colleagues are spearheading the introduction of Respecting Choices to the Memorial Hermann Health System. The Respecting Choices model addresses potential fragmentation by creating care plans that are person-centered, communicating care plans from one healthcare setting to the next, updating care plans over time as age

and illness progress, and fostering choices that include both treatment and comfort at the same time.

“Advance care planning is a process of communication for the planning of future medical decisions,” Dr. Gomez says. “To honor an individual’s desires, the process must include a reflection on goals, values and beliefs; understanding of possible future situations and decisions; and discussion of these reflections and decisions with those who might need to carry out the plan. It helps avoid healthcare fragmentation by keeping the focus on the individual. The aims are better patient care, better population health and lower

per capita cost. Respecting Choices is comprehensive and systematic, person-centered, family-oriented and evidence-based.

There are groups of providers doing this across the system. We want to be the glue that ties these efforts together in an organized system.”

A physician order is required to access Supportive Medicine services. Physicians affiliated with Memorial Hermann can access the order form in Care4, Memorial Hermann’s electronic medical record, under Consults. Physicians may write an order for a hospital or home visit. Oncologists may also refer directly from their clinics by calling 832.644.6498.

## Outsmarting Breast Cancer at the Bobetta Lindig Breast Care Center

Women who choose the Bobetta Lindig Breast Care Center at Memorial Hermann Memorial City Medical Center for their screening or diagnostic mammograms benefit from advanced technology in a spa-like environment and a staff that goes the extra mile to ease anxiety.

“Everyone who comes in for a mammogram is uneasy,” says Marie Gallway, ARRT(R)(M), who has been guiding women through their mammograms since 1993. “If they’re coming in with a lump, they’re afraid it’s cancer. I treat every woman who comes in for a mammogram as a family member. I explain the entire process – how they will be positioned for the exam, how the images will be read and why compression of breast tissue is necessary. You have to have empathy and compassion to do such an intimate exam. It’s over quickly but the results can be life changing. I’m always aware of what women are going through.”

If a woman has a suspicious finding, the team at the Breast Care Center follows her every result, from

biopsy to the operating room, radiation therapy and chemotherapy, if necessary. Team members include an Oncology Nurse Navigator; surgical, medical and radiation oncologists; a radiologist; pathologist; and social worker, all of whom participate in weekly breast cancer conferences.

“What really sets us apart is the integration of our breast cancer services,” says Michelina Cairo, MD, a medical oncologist who practices at Memorial Hermann Memorial City Medical Center. “The weekly Breast Cancer Conferences are a time for physicians to review patient data, to share information from oncology conferences we’ve attended and share information about our new clinical trials,” Dr. Cairo says.

All providers who take care of breast cancer patients are located on the Memorial City campus, a benefit for the patient.

“At Memorial City we have an amazingly supportive network through our outstanding Oncology Nurse Navigators and our network of engaged cancer survivors,” she adds.

“We consider every breast cancer patient a survivor immediately upon diagnosis. We have a new survivorship support group and other supportive services, including nutrition counseling and groups for yoga, knitting and crochet, meditation and art therapy. There are many ways to approach finding that peace and calm inside yourself that’s so important for healing.”

A new technology being used at the Bobetta Lindig Breast Care Center is a radar localization system, which uses radar for a zero-radiation and wire-free aide to help surgeons locate targeted tissue during lumpectomies. Instead of placing a wire prior to surgery, a small reflector is placed into the breast up to 30 days before surgery. Using this technology in the OR, surgeons can precisely target the affected tissue within a millimeter.



**MICHELINA CAIRO, MD**  
Medical Oncologist affiliated with Memorial Hermann Memorial City Medical Center

# November Is Lung Cancer Awareness Month: Requirements for Low-Dose Lung Cancer Screening

Lung cancer is the No. 1 cancer killer of men and women in the United States. According to the National Cancer Institute, the five-year survival rate for lung cancer when found in late-stage is 4.7 percent. For cases detected when the disease is still localized, the five-year survival rate jumps to 56.3 percent, underscoring the importance of screening high-risk patients.

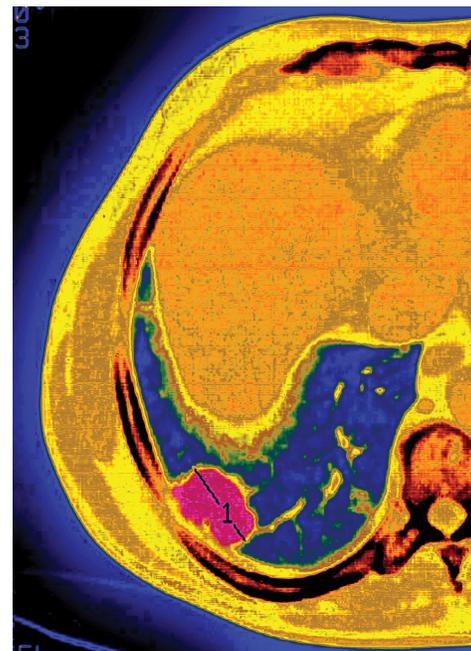
## Who Is Eligible for Low-dose CT Lung Cancer Screening?

Most insurance companies will cover the cost of annual screening for lung

cancer if the following criteria are met:

- Ages 55 to 77 years
- Asymptomatic of lung cancer
- Tobacco smoking history of at least 30 pack-years (one pack-year equals one pack per day for one year)
- Current smoker or one who has quit smoking within the last 15 years
- A written order from a physician or an advanced practice provider

It is also recommended for the patient



to have a shared decision-making conversation with his or her provider prior to being screened.

Clinicians who are part of Memorial Hermann Medical Group (MHMG), a collaborative group of primary care physicians, specialists and advanced practice providers who serve patients in more than 60 locations throughout the Greater Houston area, can access the order form for low-dose CT scans through Memorial Hermann's electronic medical record, Care4. The information providers input interfaces with clinicians across the entire Memorial Hermann Health System seamlessly.

## How to Talk With Patients About Lung Cancer Screening: Resources for Physicians

### Talking with your patients about screening for lung cancer:

<https://www.uspreventiveservicestaskforce.org/Home/GetFileByID/796>

### Understanding lung cancer risk and screening:

<https://lungcanceralliance.org/risk-early-detection/about-screenings>

### Tobacco Cessation at Memorial Hermann:

<https://cancer.memorialhermann.org/patients-caregivers/tobacco-cessation/>

## RESEARCH

# The Advanced Lung Cancer Inflammation Index (ALI): A Useful Prognostic Marker

Chronic inflammation has long been known to promote tumor growth, resulting in aggressive metastasis. In 2013, Syed Jafri, MD, and his team published the results of research that included the development of the advanced cancer inflammation index (ALI) as a prognostic marker in patients with metastatic non-small cell lung cancer (NSCLC).<sup>1</sup> His team's original work, as well as the work of other researchers who have



**SYED JAFRI, MD**

Medical Oncologist affiliated with Memorial Hermann-Texas Medical Center

tested ALI in other types of cancer, was reviewed last April in the American Society of Clinical Oncology (ASCO) Reading Room *MedPage Today*.<sup>2</sup>

"In our 2013 study we started by eval-

uating whether the degree of systemic inflammation at the time of diagnosis of non-small cell lung cancer could be used as a prognostic marker for patient outcomes," says Dr. Jafri, a medical oncologist affiliated with Memorial Hermann-Texas Medical Center and an assistant professor of internal medicine at McGovern Medical School at UTHealth. "Most lung cancer patients

*Inflammation Index* continues on page 10

have metastatic disease by the time they're diagnosed. We devised a simple formula for calculating inflammation based on the observation that both weight loss and a low serum albumin indicate chronic systemic inflammation. We chose the neutrophil-lymphocyte (NLR) ratio because it's also a predictor of poor outcomes."

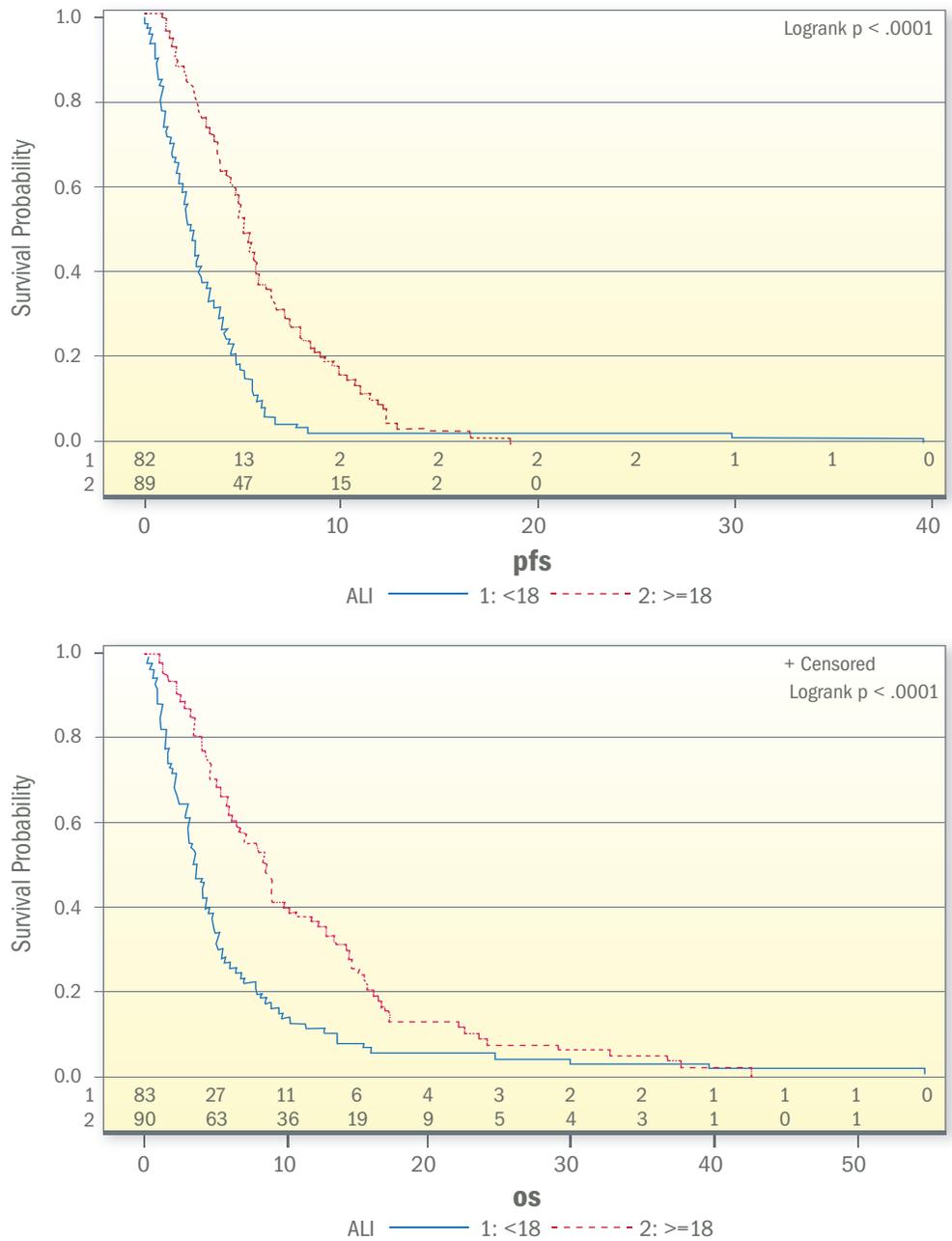
The formula is simple: ALI equals body mass index times serum albumin (Alb)/NLR. Using it, Dr. Jafri's research team performed a retrospective analysis of 173 patients diagnosed with stage IV NSCLC between January 2000 and June 2011. The patients were 67 percent male with a median age of 57. Half were African-American.

"The ALI index allows us to compute where a patient is in the natural progression of cancer," Dr. Jafri says. "It helps us determine the physiological state of patients and better gauge whether they can withstand surgery, radiation therapy or chemotherapy. With early-stage cancer, patients tend to have low systemic inflammation. In later stages they have high systemic inflammation. In our 2013 paper, we calculated the response to chemotherapy of NSCLC patients with low ALI and high ALI and predicted that if the ALI score is low, the response to chemotherapy will also be low. We expect weakness and wasting of the body in metastatic cancer patients, and ALI documents those changes."

Since his original paper, Dr. Jafri has found nine other studies testing ALI with other types of cancer, demonstrating the same results. *MedPage Today* became interested after a Japanese research group looked at ALI in terms of potential patient response to immunotherapy, the newest treatment for cancer. They found that a patient with low ALI is less likely to respond to immunotherapy than patients with high ALI.

Medical oncologist Hazem El-Osta, MD, an assistant professor of internal medicine at McGovern Medical School, conducted a meta-analysis using the data from six ALI studies conducted at

**Product-Limit Survival Estimates** with number of subjects at risk



**Figure 1** Kaplan-Meier survival curve for (PFS) progression free survival and (OS) overall survival between patients with advanced lung cancer inflammation index of (< 18, high inflammation) and (>18, low inflammation). (Time in months).

other institutions. They presented their results at the International Association for the Study of Lung Cancer 19th World Conference on Lung Cancer, held in Toronto, Canada, in late September.

"The meta-analysis showed that ALI can be used in clinical practice as a useful marker to help predict how well a patient will do during the course of treatment," Dr Jafri says. "Although it's not used widely in the clinic, we pay

attention to it with our patients. Our hope is that more oncologists will find it a useful tool."

<sup>1</sup> Jafri SH, Shi R, Mills G. Advanced lung cancer inflammation index (ALI) at diagnosis is a prognostic marker in patients with metastatic non-small cell lung cancer (NSCLC): a retrospective review. *BMC Cancer*. 2013 Mar 27;13:158. doi: 10.1186/1471-2407-13-158.

<sup>2</sup> Pal S. ALI: A Magic Marker for Advanced NSCLC Prognosis? *MedPage Today*. 2018 Apr; <https://www.medpagetoday.com/reading-room/asco/lung-cancer/72451>.

# UTHealth Study Shows Lack of Reliability of the mRNA Assay to Identify Women With Latent HPV Infections



**JUDITH A. SMITH, PHARM.D, BCOP, CPHQ, FCCP, FISOPP**

Director, Women's Health Integrative Medical Research Program at McGovern Medical School at UTHealth

Researchers at The University of Texas Health Science Center at Houston (UTHealth) had just started enrolling women in a study of human papillomavirus (HPV) when they noticed that women previously diagnosed with chronic high-risk HPV were now testing negative.

“These women had tested positive for HPV for three or more years, and most of them for more than 10 years. To enroll them in the study, we had to confirm that they were still HPV positive,” says Judith A. Smith, PharmD, BCOP, CPHQ, FCCP, FISOPP, an associate professor and director of the Women's Health Integrative Medical Research Program (WHIM) in the department of Obstetrics, Gynecology and Reproductive Sciences at McGovern Medical School. “When we saw the negative test results, at first we thought, ‘Good for you. Apparently your HPV is cleared.’ But by the time the third or fourth woman with documented chronic HPV tested negative, we started looking for an explanation.”

They learned that many pathology laboratories had shifted from using the HPV DNA assay to using the HPV mRNA assay as a primary screening tool for HPV. To compare results of the two assays, they launched a study assessing the consistency between HPV mRNA testing in women previously diagnosed by the HPV DNA assay and the potential effects on follow-up HPV screening. The results of their study and its significance were published in the April 2018 issue of *Obstetrics & Gynecology*.<sup>1</sup>

According to the National Cancer Institute, nearly all cases of cervical cancer are caused by infection with oncogenic, or high-risk, types of HPV. Although

HPV infection is very common, most infections are suppressed by the immune system within one to two years without causing cancer. If a cervical infection with a high-risk HPV type persists, cellular changes can eventually develop into more severe precancerous lesions. If precancerous lesions go untreated, they can progress to cancer over time. If a woman tests negative for HPV with normal cytology, the recommendation for follow-up screening changes from every year to every five years, allowing time for cellular changes to occur undetected.

For their retrospective quality improvement study, the researchers identified 425 charts of female patients from the UTHealth Department of Pathology software database. The women were 30 years or older with one or more prior high-risk HPV infections detected by DNA assay.

“We found a 69.3 percent difference in HPV mRNA results compared with the previous HPV DNA-positive results, which meant a potential change in follow-up for more than 70 percent of patients with one prior high-risk HPV-positive result and for 60 percent of patients with two or more prior high-risk HPV-positive results,” Dr. Smith says. “Gynecologists were unaware that many labs had shifted assays and the potential effects on patient follow-up. We felt it was important to share our results with

the gynecology community.”

Publication of the results of the study received much attention in the medical media, including many letters to the editor from the pathology and gynecology communities. It also started conversations between gynecologists and pathologists about HPV testing.

“The biggest takeaway is that the clinical team should be aware of which assay is being used to test patients with HPV and the limitations of both assays. While the mRNA is very sensitive in detecting and differentiating the degree of cell damage, it will not detect latent or dormant HPV infections. The FDA-approval labeling of the Aptima mRNA assay states that it is not intended to be used for HPV testing in women with normal cytology,” says Dr. Smith, whose overarching research goal is to eradicate HPV. “It's also important for patients to be aware of which assay their practitioners are using. Since women with HPV can go from latent to active and back again, if we're not screening them regularly we could miss changes in potential cell damage and precancerous lesions.”

<sup>1</sup> Cotton S, Brown RE, Nugent EK, Robazetti SC, Berens PD, Smith JA. Quality Improvement to Demonstrate the Lack of Reliability of the Human Papillomavirus mRNA Assay to Identify Women With Latent Human Papillomavirus Infections. *Obstetrics & Gynecology*. 2018 Apr;131(4):681-687.

## ACCOLADES

### HPV Research Receives World Recognition

In July 2018, the International Conference on Nutrition and Integrative Medicine in Sapporo, Japan, bestowed the Best Research Award to Judith A. Smith, PharmD, BCOP, CPHQ, FCCP, FISOPP, for her study the “Evaluation of AHCC for the eradication of HPV Infections in women with HPV positive Pap smears.” The research demonstrated the ability of mushroom extract AHCC to clear persistent human papillomavirus (HPV) infections in women, which Dr. Smith says can potentially change the way HPV infections are managed in the future, hopefully preventing many HPV-related cancers. For more information on the Phase II study, visit [clinicaltrials.gov](http://clinicaltrials.gov) and search for ID NCT02405533.



# New Research on Cognitive Disability in Adult Patients With Brain Tumors

“Cognitive dysfunction is common among patients who have brain tumors,” says Carolina Gutiérrez, MD, a cancer rehabilitation specialist and assistant professor of physical medicine and rehabilitation at McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth). “In fact, we’re discovering that a large percentage of patients with intracranial tumors have cognitive and functional deficits that should be addressed.”

In an article published in *Cancer Treatment Review* in April 2018,<sup>1</sup> Dr. Gutiérrez and her colleagues wrote that most cognitive deficits “are subtle, lack specificity, may mimic depression or other neurological disorders, and may be recognized in retrospect by the physician. In certain cases, distinguishing between tumor recurrence and cognitive deficits that arise as a consequence of the treatment becomes challenging.”

After raising practitioner awareness of the likelihood of cognitive dysfunction among patients with brain tumors, the next important step is neuropsychological testing to determine which functions are disrupted – for example, attention, memory, reasoning, problem solving or cognitive flexibility. “The information we gather from neuropsychological testing can be used to monitor cognitive changes, guide future therapies and guide the rehabilitation plan of care,” Dr. Gutiérrez says. “Cognitive deficits, which have a negative impact on quality of life and function, can be caused by radiation therapy, chemotherapy, surgery or the tumor itself. Patients with brain tumors can benefit from early evaluation by a cancer rehabilitation specialist.”

The cancer rehabilitation assessment can guide the need for speech therapy, physical therapy or occupational



“Exercise has been shown to improve quality of life for cancer patients and may have a positive effect on maintaining and improving cognition. We have growing evidence supporting the benefits of exercise on cognition and physical and psychological wellbeing in patients with brain tumors.”

- CAROLINA GUTIERREZ, MD

therapy. Medication can be added to therapy when appropriate.

For most patients, the rehabilitation plan of care includes assessment and management of cognitive and physical impairments through education and reinforcement. “We encourage patients to maintain an active lifestyle with physical activity and exercise tailored especially for their needs,” Dr. Gutiérrez says. “Exercise has been shown to improve quality of life for cancer patients and may have a positive effect on maintaining and improving cognition. We have growing evidence supporting the benefits of exercise on cognition and physical and psychological wellbeing in patients with brain tumors.”

In the article, the researchers observed that resistance exercise has a positive effect on cognition in the

elderly in areas of executive function, with improvements in attention, memory and immediate recall, as well as improvement in general health, vitality, anxiety and depression. In her cancer rehabilitation clinic, Dr. Gutiérrez provides dual comprehensive evaluations for quality of life and function. “We guide patients through medical treatment based on their plan of care and help with symptoms related to changes in function caused by the brain tumor,” she says. “We want clinicians to know that they have a cancer rehabilitation physician to refer patients to who can work with their patients to improve quality of life, function and independence.”

To schedule an appointment with Dr. Gutiérrez, call 713.797.5929.

<sup>1</sup> Ali FS, Hussain MR, Gutiérrez C, Demireva P, Ballester LY, Zhu JJ, Blanco A, Esquenazi Y. Cognitive disability in adult patients with brain tumors. *Cancer Treat Rev.* 2018 Apr;65:33-40. Epub 2018 Mar 2.



**CAROLINA GUTIERREZ, MD**

Assistant Professor of Physical Medicine and Rehabilitation, McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth).

# With HDR Brachytherapy and SpaceOAR® in Its Arsenal, Memorial Hermann Memorial City Advances Prostate Cancer Treatment



**SHARIQ KHWAJA, MD, PHD**

Radiation Oncologist affiliated with Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center and Memorial Hermann Memorial City Medical Center

A unique collaboration between radiation oncology and urology at Memorial Hermann Memorial City Medical Center has raised the standard of care for prostate cancer patients, increased patient satisfaction and increased treatment volumes. Affiliated radiation oncologist Shariq Khwaja, MD, PhD, leads the only center in Houston offering high-dose rate brachytherapy for prostate cancer.

“By collaboration, I mean that the radiation oncologist and urologist are both involved in the multidisciplinary evaluation of the patient, and are pres-

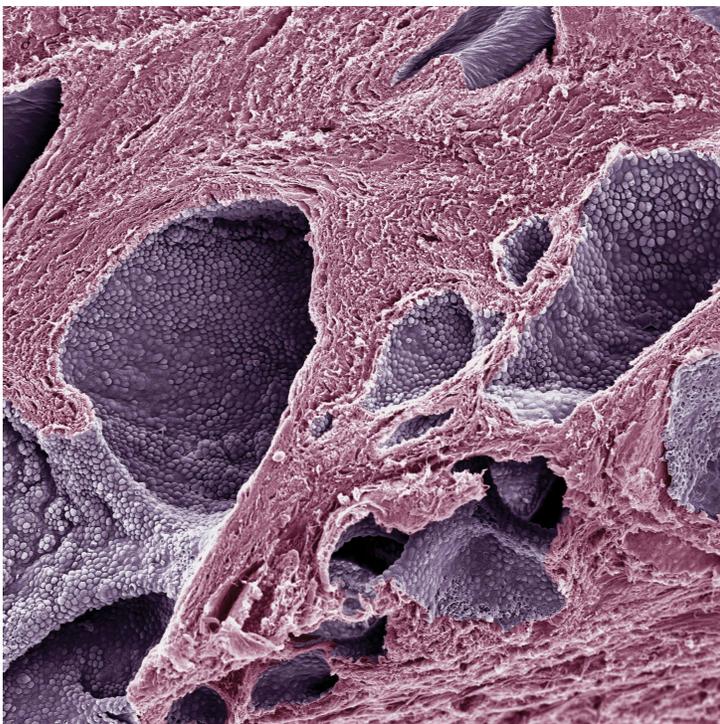
ent in the OR at the same time during the brachytherapy procedure,” says Dr. Khwaja, who practices primarily at Memorial Hermann Memorial City. “Over the last year our prostate cancer volumes have grown significantly. We started with one patient in December 2016. We’re not quite two years old and are now treating 30 patients a day.”

Dr. Khwaja collaborates with Memorial Hermann Medical Group urologists Andrew Selzman, MD; Paul Smith, MD; and Ramesh Krishnan, MD. Prostate cancer patients who have low risk or favorable intermediate risk are offered HDR brachytherapy as an alternative monotherapy to surgery. The brachytherapy procedure can also be offered in combination with external beam radiotherapy to reduce the number of external treatments the

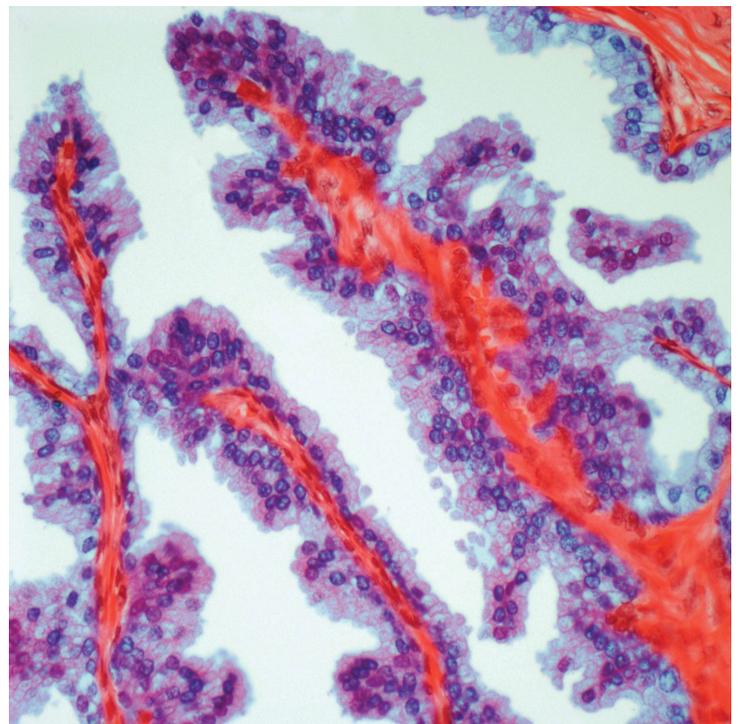
patient needs. The team performed its 50th brachytherapy procedure less than a year and a half after bringing the treatment to Houston.

“HDR brachytherapy treats prostate tumors with very high doses of localized radiation that greatly reduce the dose to surrounding healthy tissues,” he says. “Using ultrasound guidance, we place long, hollow catheters in the prostate and then insert a radioactive wire into each of the catheters. When delivered as monotherapy, the treatment is accomplished in two implants spaced two weeks apart versus the usual eight-to-nine weeks of daily treatment with external beam radiation therapy. When combined with external beam radiotherapy, one implant followed by an abbreviated course of five

**Prostate Cancer** continues on page 14



Prostate cancer, scanning electron microscope



weeks of external beam radiation therapy is prescribed. HDR brachytherapy is a good option for patients who are not candidates for a radical prostatectomy or who may not be able to drive in for eight weeks of radiation therapy. Offering it has allowed us to attract patients from greater distances.”

In an internal study under way, Dr. Khwaja and his colleagues are investigating different treatment- and patient-related factors that correlate with increased PSA control and patient quality of life. “We continue to look at ways to reduce side effects even further,” he says.

Dr. Khwaja also uses SpaceOAR® hydrogel as an alternative to inserting a temporary balloon to protect the rectum during external beam radiation therapy and in certain cases of HDR brachytherapy. Placed between the prostate and rectum, the one-time temporary implant pushes the rectum out of the region of high-dose radiation. The hydrogel spacer is injected during a minimally invasive procedure. It remains in place for three to six months during radiation treatment and then is absorbed by the body. Dr. Khwaja, who is now getting referrals from other radiation oncologists in the area, is one of only four radiation oncologists in Houston certified by Augmenix to use SpaceOAR, an acronym for Spacing Organs at Risk.

“Healthy cells in the rectum can be damaged during radiation therapy. SpaceOAR has been proven to minimize the rectal side effects of external beam radiation and improve quality of life for prostate cancer patients undergoing radiation therapy,” Dr. Khwaja says.

“As radiation oncologists we use extremely high-energy X-rays to treat cancer, and this must be done in a precise and accurate manner,” he adds. “From a patient satisfaction standpoint, we’re intimately involved with care, assessing any side effects on a daily-to-weekly basis, depending on the patient and the treatment.”

## U.S. Preventive Services Task Force Issues a Draft Recommendation Statement for Cervical Cancer Screening



**CONCEPCION DIAS-ARRASTIA, MD**  
Gynecologic Oncologist affiliated with  
Memorial Hermann Greater Heights Hospital

Based on solid evidence, regular and appropriate screening of women for cervical cancer with the Pap test reduces mortality from cervical cancer. Screening with the human papillomavirus (HPV) genetic test detects the presence of the virus responsible for high-grade cervical dysplasia, a precursor lesion for cervical cancer.

In 2012, the U.S. Preventive Services Task Force (USPSTF) issued new guidelines for cervical cancer screening of women aged 30 to 64 years, stating that HPV co-testing was the preferred method. The recommendations for screening were endorsed by the American Cancer Society, American Society for Colposcopy and Cervical Pathology, and the American Society for Clinical Pathology.

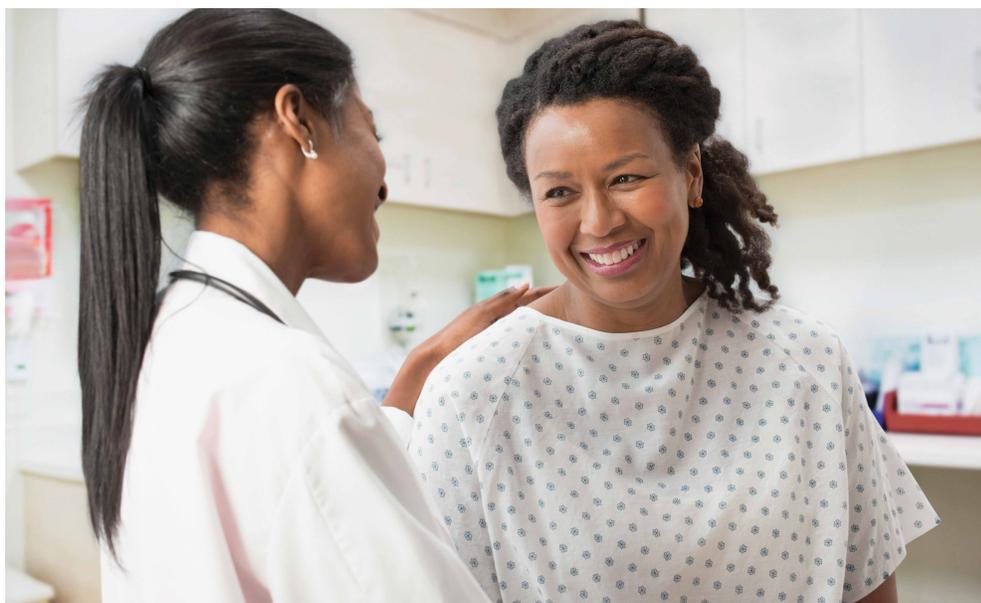
“There are many practitioners who are reluctant to follow these recommendations for various reasons,” says

Concepcion Diaz-Arrastia, MD, a gynecologic oncologist affiliated with Memorial Hermann Greater Heights Hospital. “The updated recommendations are a confirmation of the 2012 guidelines, which were not widely accepted by all physicians. With the new 2018 guidelines, the USPSTF is saying that we now have even more data in support of these guidelines, which physicians should use in screening their patients.”

Some physicians continue to use guidelines released in the early 2000s, which recommend that women have their first Pap test three years after the start of sexual intercourse. Waiting until age 21 is now recommended.

“Adolescents have a very low risk of cervical cancer and a high likelihood that cervical cell abnormalities will go away spontaneously,” says Dr. Diaz-Arrastia. “These teens are otherwise healthy but may have been exposed to HPV. What we understand of the natural history of HPV, especially in young women, is that even if they test positive, they are not at high risk of cervical cancer.”

**Cervical Cancer** continues on page 15



**Cervical Cancer** continued from page 14

Based on clinical evidence, over-screening with the Pap test leads to additional diagnostic procedures, including colposcopy and treatment for low-grade squamous intraepithelial lesions, with long-term consequences for fertility and pregnancy. “These harms are greatest for young women, who have a higher prevalence of lesions that regress without treatment and a higher rate of false-positive results,” Dr. Diaz-Arrastia says.

Among the 2018 recommendations is screening for cervical cancer every three years with cervical cytology alone in women ages 21 to 29 years. They recommend either screening every three years with cervical cytology (Pap) alone or every five years with co-testing with both cytology and high-risk HPV testing in women ages 30 to 65 years.

These recommendations apply to women who have a cervix regardless of their sexual history or HPV vaccination status. None of the recommendations apply to women who have been diagnosed with a high-grade precancerous cervical lesion or cervical cancer. They also do not apply to women with in utero exposure to diethylstilbestrol (DES) or women who have a compromised immune system, such as women living with HIV.

“As long as a woman has had adequate prior screenings and is not high risk due to a prior history of high-grade cervical dysplasia, HIV or exposure to DES in utero, the task force recommends against screening for cervical cancer in women older than age 65,” Dr. Diaz-Arrastia says. “They also recommend against screening in

women who have had a hysterectomy with removal of the cervix and do not have a history of high-grade precancerous lesions or cervical cancer. At the same time, practitioners are advised to individualize these decisions to the specific patient and situation.”

“In medical school I was taught that women with a lot of sexual partners are high risk,” she adds. “The epidemiological data shows that a woman’s number of partners has very little correlation with the risk of developing cancer. Today ‘high risk’ is defined as not having a history of cervical cancer screening with Pap smears and HPV tests, being HIV positive or being exposed to DES in utero. In 2012, many of the updated recommendations were controversial. Now they’re more accepted by the medical community.”

MEMORIAL HERMANN WELCOMES NEW RECRUITS

Two physicians have joined Memorial Hermann in recent months: radiation oncologist Mark Amsbaugh, MD, and medical oncologist Solly Chedid, MD.



**MARK AMSBAUGH, MD**  
Radiation Oncologist affiliated with Memorial Hermann

**Dr. Mark Amsbaugh** specializes in radiation oncology with an emphasis on tumors of the central nervous system, lung, head and neck, prostate and breast. He has experience in multiple radiotherapy delivery techniques including radiosurgery using the Leksell Gamma Knife®; stereotactic ablative body radiotherapy, image-guided and intensity-modulated radiotherapy; and high dose-rate brachytherapy. Dr. Amsbaugh earned his medical degree at McGovern Medical School at UTHealth and completed residency training in radiation oncology at the James Graham Brown Cancer Center at the University of Louisville, Kentucky, where he served as chief resident and president of the University of Louisville House Staff. He completed a clinical

fellowship in radiation oncology at The University of Texas MD Anderson Cancer Center in Houston.

Dr. Amsbaugh has authored numerous articles and has published in peer-reviewed journals including *Head and Neck*, *Journal of Neuro-Oncology* and *Cancer*. He is the author of several book chapters focusing on the treatment of brain tumors and radiosurgery. He has given invited national and international presentations on a variety of topics. In addition to numerous research awards, Dr. Amsbaugh has received multiple honors including the Emmet J. Conrad Award, the RSNA Roentgen Award, and the University of Louisville House Staff of the Year Award. He sees patients at Mischer Neuroscience Associates-Southwest and Mischer Neuroscience Associates-Texas Medical Center.



**SOLLY CHEDID, MD**  
Medical Oncologist affiliated with Memorial Hermann Southeast Hospital

**Dr. Solly Chedid** is board certified in internal medicine, medical oncology

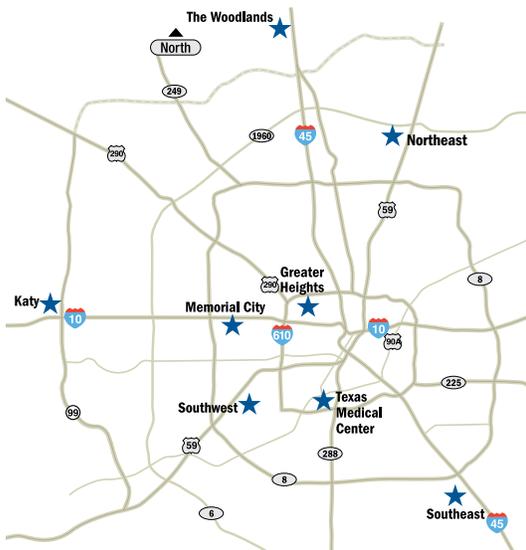
and hematology. He specializes in breast cancer, colorectal cancer, lung cancer and genitourinary malignancies.

Dr. Chedid received his medical degree at The University of Texas Health Science Center in San Antonio and completed residency training at the Rutgers New Jersey Internal Medicine Residency. He subsequently completed a fellowship in hematology and oncology at The University of Texas MD Anderson Cancer Center in Houston. Prior to joining Memorial Hermann, he held a faculty appointment as assistant professor of medical oncology at The University of Texas Medical Branch at Galveston.

Dr. Chedid is a member of the American Society of Clinical Oncology, American Society of Hematology, American Medical Association, and American College of Physicians. He has presented widely, and his research has been published in peer-reviewed journals, including the *Journal of Clinical Oncology*. He has served as principal investigator of numerous studies of chemotherapeutic agents. Dr. Chedid sees patients at Memorial Hermann Southeast Hospital and Memorial Hermann Pearland Hospital.

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## ABOUT MEMORIAL HERMANN CANCER CENTERS

Memorial Hermann offers the entire optimum of cancer care – education, prevention, screening, diagnosis, treatment, survivorship and rehabilitation. We do more than provide trusted medical care: we are helping patients navigate their entire cancer journey by caring for their physical, social, emotional and spiritual needs. Patients can take advantage of cancer services in their own neighborhood through our convenient network, which includes eight Cancer Centers, more than 20 breast care locations, 15 acute care hospitals and dozens of other affiliated programs.

Through partnerships and affiliations with community oncology providers, UTHealth, Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center, and TIRR Memorial Hermann, patients can be confident that oncology specialists are working together to ensure the best possible outcome

for their cancer treatment. At Memorial Hermann, we provide patients with the tools and resources needed to fight cancer close to home when home is where they want to be.

All Memorial Hermann Cancer Centers are accredited by the American College of Surgeons Commission on Cancer, and the Greater Heights Breast Cancer Center has been granted full, three-year accreditation by the National Accreditation Program for Breast Cancer.

To refer a patient or schedule an appointment, call the Memorial Hermann Cancer Center nearest you:

**Memorial City:** 866.338.1150

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