



Summer 2018

Cancer - The Formidable Opponent

Loma Linda University Health

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scope

OFFICIAL MAGAZINE OF LOMA LINDA UNIVERSITY HEALTH



Cancer

THE FORMIDABLE OPPONENT



LOMA LINDA
UNIVERSITY
HEALTH

BELIEVE WALK FOUNDERS, from left, Nancy Varner, Annie Sellas and Cathy Stockton, release doves during the cancer survivors photo at the Redlands Bowl in Redlands in October. The 10th annual Believe Walk, presented by Stater Bros. Charities and Inland Women Fighting Cancer, is a grassroots event that drew nearly 12,000 participants last year. Funds raised during the event were donated to support local cancer-fighting organizations and cancer centers, including Loma Linda University Cancer Center. Donors and sponsors have raised more than \$2.5 million in the fight against cancer since the annual event began in 2008.



/ Opening shot /



PHOTO BY JOHN VALENZUELA, COURTESY OF REDLANDS DAILY FACT/SCNG



Cancer

LOMA LINDA UNIVERSITY HEALTH IS COMMITTED
TO HELPING PATIENTS BATTLE THE FORMIDABLE
OPPONENT OF CANCER.

WHOLE PERSON CARE SUPPORTS
PATIENTS NAVIGATING OPTIONS FOR
WORLD-CLASS TREATMENT.

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Serving in the U.S.
and around
the world

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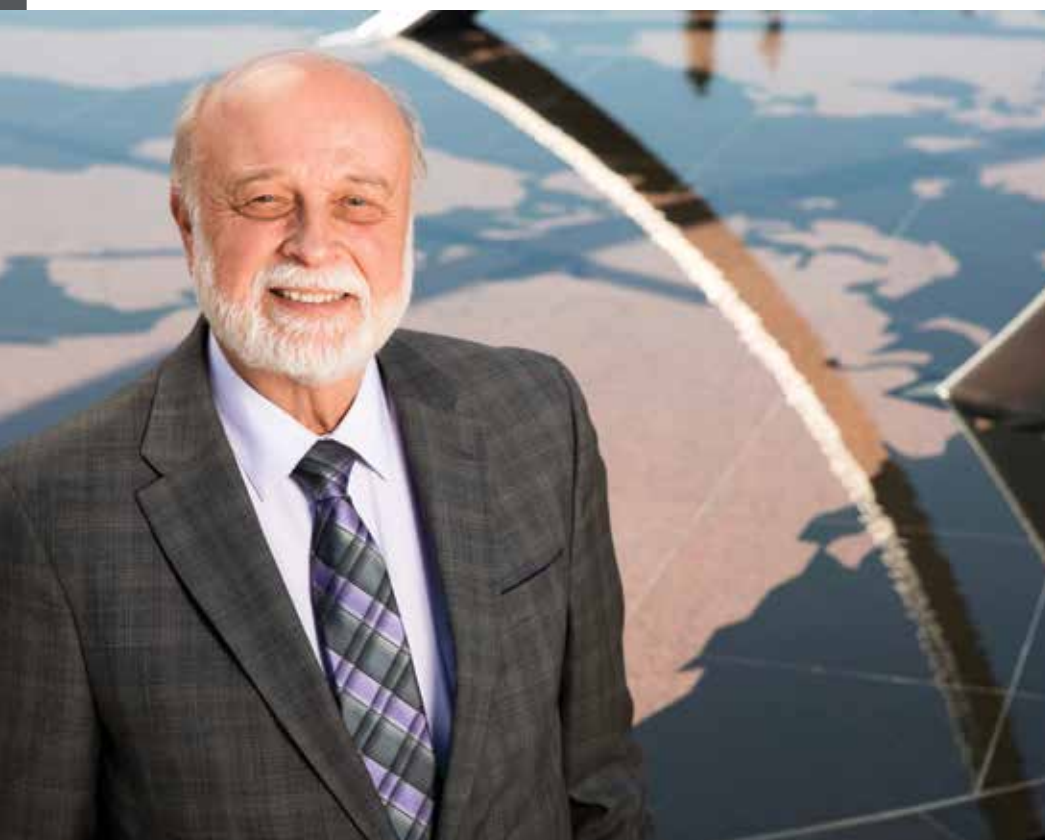
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**LOMA LINDA
UNIVERSITY
HEALTH**

ON THE COVER: Original illustration "Fighting The Battle With You" by Jon Krause.

Touched by cancer, **LIVING FOR A CURE**



Richard H. Hart, MD, DrPH
PRESIDENT,
LOMA LINDA UNIVERSITY HEALTH

THERE ARE FEW DIAGNOSES THAT STRIKE FEAR INTO A PATIENT AND THEIR FAMILY'S HEARTS LIKE CANCER. Despite great strides in the last few decades, there is still great uncertainty that rides with this single word. Few families have totally escaped the impact of having a loved one touched by cancer.

It has touched our family three times. First when Linda, my sister-in-law, was diagnosed with what turned out to be fallopian tube cancer, a diagnosis that could now probably be cured. Watching her, and us, gradually move from hopeful watching to grudging reality, was a sobering transition.

Even though she died 25 years ago, her passing still reminds our family that none of us are immune.

Probably the most emotional was our infant granddaughter Emily, born prematurely along with her twin sister Abigail. Emily was diagnosed with hepatoblastoma, a cancer of the liver associated with prematurity. She was just six months old. Watching her go through chemotherapy for months, followed by surgical removal of part of her liver and then more chemotherapy, took a toll on all of us. It is always a joy to hear from Emily now, finishing 10th grade and doing well.

And then my own encounter with prostate cancer over a decade ago brought the disease back home again. Despite living, eating and checking in all the right ways, my genetics caught up with me. I am grateful to the skillful doctors with whom I trusted my life and future. I still look back on that period as a wake-up call to appreciate what one has, here and now, and use each moment to make a difference.

This issue of Scope is committed to this topic — what is true, what is not, and how

LOMA LINDA UNIVERSITY CANCER CENTER

by the numbers

700+

HIGHLY SPECIALIZED DOCTORS,
RESEARCHERS AND CAREGIVERS

11

EXPERT TEAMS SPECIALIZING IN
EACH CANCER TYPE

150+

ONGOING CANCER CLINICAL TRIALS

3,000+

NEWLY DIAGNOSED PATIENTS
TREATED EVERY YEAR

1st

HOSPITAL-BASED PROTON TREATMENT CENTER

35

YEARS AS AN ACCREDITED ACADEMIC
COMPREHENSIVE CANCER CENTER

47

LOOK GOOD FEEL BETTER EVENTS IN 2017

67

WIG FITTINGS IN 2017

142

ATTENDANCE FOR CANCER-FIGHTING FOODS
COOKING DEMONSTRATIONS

250

WOMEN ATTENDING SEMIMONTHLY CANCER
SUPPORT GROUP IN 2017

Loma Linda University Health is pushing these boundaries. We have a group of young investigators exploring many new avenues of detection and treatment. Some may never work, while others could be major breakthroughs. But what is exciting is for Loma Linda University Health to be a haven for cancer research, a place where both basic and translational research can make a difference in the lives of thousands.

Our goal is to become a Comprehensive Cancer Center, a designation by the National Cancer Institute that signifies the best of the best. This is a multi-year journey, requiring both an internal commitment and the support of donors. We are grateful for the leadership of Mark Reeves, MD, PhD, in this endeavor, and are committed to taking each necessary step. Our plan is to have our new research building provide major laboratories to develop new cancer prevention and treatment modalities. We will also expand even further our clinical trials where patients can have the opportunity to be enrolled in the latest cancer treatments.

Together we can beat this opponent for good.

STUDY SAYS MEAT PROTEIN IS UNHEALTHY, BUT PROTEIN FROM NUTS AND SEEDS IS HEART SMART



PHOTO BY ISTOCKPHOTO

RESEARCHERS AT LOMA LINDA UNIVERSITY and a university in France have found that meat protein is associated with a sharp increased risk of heart disease, while protein from nuts and seeds is beneficial for the human heart.

Their study — published online in April by the International Journal of Epidemiology — found that people who consumed large amounts of meat protein experienced a 60 percent increase in cardiovascular disease (CVD), while people who consumed large amounts of protein from nuts and seeds experienced a 40 percent reduction in CVD.

The study, titled “Patterns of plant and animal protein intake are strongly associated with cardiovascular mortality: The Adventist Health Study-2 cohort,” was led by co-principal investigators Gary Fraser, MB ChB, PhD, from

Loma Linda University, and François Mariotti, PhD, from AgroParisTech and the Institut National de la Recherche Agronomique, Paris, France, along with a team of researchers from both organizations.

The study included data from more than 81,000 participants and represents one of the few times detailed sources of animal protein have been examined jointly with animal fat in a major investigation.

“While dietary fats are part of the story in affecting risk of cardiovascular disease, proteins may also have important, and largely overlooked, independent effects on risk,” Fraser said. Fraser and his colleagues have long suspected that including nuts and seeds in the diet protects against heart and vascular disease, while red meats increase risk.

Nutritionists have traditionally looked toward what Fraser terms “bad fats” in meats and “helpful fats” in nuts and seeds as causal agents. “This new evidence suggests that the full picture probably also involves the biological effects of proteins in these foods,” he said.

Fraser said the team’s research differed in another significant way from previous investigations. While prior studies have examined differences between animal and plant proteins, this study did not stop at just two categories, but chose to specify meat protein and proteins from nuts and seeds along with other major dietary sources. “This research is suggesting there is more heterogeneity than just the binary categorization of plant protein or animal protein,” Fraser said.



PHOTO BY ANSEL OLIVER

OVER \$2 MILLION RAISED FOR LOMA LINDA UNIVERSITY CHILDREN'S HOSPITAL AT 25TH ANNIVERSARY GALA

THE 25TH ANNIVERSARY CHILDREN'S HOSPITAL FOUNDATION GALA, presented by Walter's Automotive Group, was an evening to remember, raising an unprecedented \$2.36 million at the March event. The theme, "Reflection," celebrated the first 25 years of Loma Linda University Children's Hospital and highlighted its bold plans for the future.

Scott Perryman, MBA, senior vice president/administrator of Children's Hospital, told guests at the Riverside Convention Center the future is not possible without their support.

"Celebrating 25 years of giving is a major milestone, and it would not have been possible without your tireless effort on our behalf," Perryman told the more than 1,000 attendees. "In that time, you have raised nearly \$20 million! Every single one of those dollars has been part of giving world-class care to the children in your community."

Funds raised will benefit Vision 2020 – The Campaign for a Whole Tomorrow, which supports construction of the new Children's Hospital tower and Loma Linda University Children's Health – Indio, which opened in that community in March.

Richard H. Hart, MD, DrPH, president of Loma Linda University Health, dedicated the evening to Leonard Bailey, MD, pioneer of infant heart transplantation; Lyn Behrens, MBBS, president emerita of Loma Linda University Health; and John Mace, MD, chair of pediatrics when Loma Linda University Children's Hospital (LLUCH) first opened its doors, for their vision of a hospital just for kids. "They set the standard for excellence that has guided the hospital to be what it is today," Hart said.

Physicians were not the only individuals recognized. Four awards were presented to individuals and groups who have made significant contributions to the lives of children.

- The Big Hearts for Little Hearts Guilds received the Shirley N. Pettis Award.
- Tim and Carol Rochford received the Discover Lifetime Achievement Award.
- Helen Staples-Evans, DNP, MS, RN, was recognized with the Outstanding Clinician Award.
- Alicia Lopez was given the Hometown Hero Award. Lopez was the living donor who donated one of her kidneys to 3-year-old Matthew Castleberry. Castleberry, who has a twin sister, began receiving treatment at LLU Children's Hospital while in utero due to kidney complications. On dialysis since birth, Castleberry received the life-saving kidney he needed from Lopez.

After hearing the inspiring story, guests were encouraged to donate to support the Children's Hospital in its mission to provide quality, whole child care to every patient. It was during this time that an anonymous donor gave \$1 million toward the Loma Linda University Children's Health – Indio clinic.

LOMA LINDA UNIVERSITY CHILDREN'S HEALTH – INDIO CELEBRATES GRAND OPENING WITH RIBBON-CUTTING CEREMONY AND KIDS HEALTH EXPO

THE COACHELLA VALLEY COMMUNITY

is officially home to Loma Linda University Children's Health – Indio, the largest pediatric clinic in the area. The grand opening was celebrated with a ribbon-cutting ceremony and the All About Kids Health Expo on March 11.

Richard H. Hart, MD, DrPH, president of Loma Linda University Health, shared his excitement as Loma Linda University Health expanded its service into the Coachella Valley to provide healthcare that is accessible and available to those who need it most.

"We are committed to this valley. We are committed to you," Hart said. "We are committed to your children and the leaders they will become for this region."

Nearly 400 individuals attended the ribbon-cutting ceremony, including Michael

Wilson, mayor of Indio, and Congressman Raul Ruiz, MD.

"Families will now have access to critical pediatric services right here in the east valley, strengthening the health of our entire community," Ruiz said. "Today is an important milestone to realizing our shared vision for a future where everyone has access to the affordable care they need, when they need it."

The clinic's Jill and Barry Golden Pavilion was named in recognition of the generous gift from the Jill and Barry Golden, who were on hand for the opening celebration.

Following the ribbon-cutting was the inaugural All About Kids Health Expo, attended by over 1,000 community members who enjoyed free, healthy and fun activities.

Loma Linda University Children's Health – Indio officially opened its doors to the

community the following day, offering pediatric primary care services. During the remainder of 2018, the clinic will roll out services such as urgent care, telemedicine, dentistry and other specialties. The nearly 13,000-square-foot building houses 20 patient exam rooms, three dental chairs and an X-ray room.

The clinic is also home to a bottomless bookshelf, courtesy of Scooter Golden, to encourage reading and literacy. Any child who receives care at Loma Linda University Children's Health – Indio will be able to take a book home.

For more information about Loma Linda University Children's Health – Indio, visit its website at lomalindakids.org/indio.



PHOTO BY CHET WILLIAMS



PHOTO BY MICHELLE MORGAN

INTERNATIONAL VEGETARIAN CONGRESS HIGHLIGHTS PLANT-BASED NUTRITION

For updates regarding the next congress scheduled for 2023, visit vegetariancongress.org.

LOMA LINDA UNIVERSITY HEALTH hosted the 7th International Congress on Vegetarian Nutrition Feb. 26-28, a three-day event exploring the theme of plant-based foods for the health of people, populations and the planet.

More than 700 attended, including researchers, physicians, nutritionists and scientists, who examined the latest findings on lifestyle practices and vegetarian nutrition that can be used effectively in the treatment and prevention of chronic diseases.

Scientific presentations and panel discussions centered around recent advancements in basic science, epidemiology and clinical trials in vegetarian nutrition from around the world.

Richard H. Hart, MD, DrPH, president of Loma Linda University Health, welcomed the international group of attendees on opening

day. "Giving nutritional advice is as old as the Bible itself, but as new as the latest pill." According to Hart, the study of optimum nutrition isn't novel. "Seventh-day Adventists have been doing it for more than 150 years, and Loma Linda University Health has been studying the connections between food and health since the 1950s."

The conference, held every five years, offers an opportunity for health professionals to learn from each other. Over the past 30 years, the congress has become the premier scientific conference on the health benefits of plant-based diets.

"This scientific conference is not just about nutrition and dietetics," said Joan Sabaté, MD, DrPH, director of the Center for Nutrition, Lifestyle and Disease Prevention at Loma Linda University School of Public Health and chair of

the event. "Among other sciences, it integrates epidemiology, environmental sciences and education."

In addition to the presentations, the conference offered various interactive social activities. These included morning runs with university faculty and leadership; culinary demonstrations led by Chef Cory Gheen, MS, RDN; Nasira Burholder-Cooley, DrPH, RDN; and Wendy Bazilian, DrPH, MA, RDN; an opening night reception; and a banquet hosted by Loma Linda University School of Public Health.

On Sunday, Feb. 25, the conference hosted a special community event — Plant Your Future — at Loma Linda University Health — San Bernardino. The pre-conference event featured a free cooking demonstration, health talks, a gardening demo and free blood pressure screenings.



PHOTO BY ISTOCKPHOTO

LOMA LINDA UNIVERSITY SCHOOL OF PUBLIC HEALTH TO OFFER PHD IN NUTRITION

LOMA LINDA UNIVERSITY SCHOOL OF PUBLIC HEALTH will offer a PhD degree in nutrition with an advanced research focus on plant-based nutrition, making it the only doctoral program in nutrition in Southern California. The new degree program, which will feature a research-based curriculum, will start in fall 2018.

Sujatha Rajaram, PhD, associate professor and program director, said the school hosts the largest research cohort of healthy vegetarians in the world: the Adventist Health Studies. The studies date back to the 1960s and contain information on more than 96,000 subjects from the United States and Canada.

"There are plenty of research opportunities," Rajaram said, adding that multiple human intervention studies (clinical trials) on plant foods and health

outcomes are underway at the school at any given time.

The school is recognized as an international leader in establishing and disseminating the benefits of plant-based nutrition — not only for the individual, but also for the health of populations and the planet. The school has hosted the International Congress on Vegetarian Nutrition for the last 30 years.

The PhD degree will supplant the DrPH in nutrition the school has offered in the past.

The school will continue to offer DrPH degrees in health education, preventive care, and health policy and leadership, as well as a PhD in epidemiology. All the programs have been revamped to meet the 2016 competency requirements of the Council on Education for Public Health.

"The refocused curriculum and degree offering are part of the school's new strategic direction," Rajaram said.

Rajaram noted that one major difference between the new PhD degree and the previous DrPH in nutrition is the number of units required for completion. Under the new PhD degree program, students will complete 72 units, while the DrPH required 99. The culminating activity for the PhD program will be a research dissertation. Students will also be required to submit their research papers for peer-reviewed journal publication.

Additional information about the PhD in nutrition is available by contacting Rajaram at srajaram@llu.edu.

IN OREGON'S ADVENTIST SCHOOLS, RESULTS SPROUT FROM LOMA LINDA UNIVERSITY'S STEM PROGRAM

EDUCATIONAL LEADERS FROM THE OREGON CONFERENCE OF SEVENTH-DAY ADVENTISTS

visited Loma Linda University in January to thank executives for a group training program for school teachers designed to enhance the delivery of science, technology, engineering and math (STEM) instruction, an initiative that local church leaders say has helped stabilize enrollment in denominational schools and boosted instructional enthusiasm.

Nearly 800 K-12 teachers across North America have been trained over the past seven years through the Loma Linda University program, called Excellence in STEM Experiential Education (EXSEED). EXSEED enhances integrated science, technology, engineering and math education in Adventist K-12 schools by bringing together teachers for one-week training sessions during the summer.

Gale Crosby, MS, vice president of education for the Oregon Conference, has worked closely with Loma Linda University to challenge teachers in the Adventist school system to help prepare their students for careers in the medical, science and technology fields. The impact is already visible, even after just two years of participation, Crosby said.

"Following our conference's participation in EXSEED, enrollment has stabilized in our schools, and our churches are showing signs of growth," Crosby told a group of Loma Linda University executives, deans and faculty.

Richard H. Hart, MD, DrPH, president of Loma Linda University Health, said EXSEED is a way to integrate the education resources of the Adventist Church that can benefit a range of schools, such as the two-room school he attended in Northern Idaho as a child.

"There are still a lot of schools like that, and they are still just as much a part of the Adventist educational system as everyone else," Hart said. "We're wanting to empower teachers to teach STEM who may not have that strong of a background in those subjects."

The EXSEED program received significant philanthropic support from Tom and Vi Zapara, said Rachelle Bussell, MA, CFRE, Loma Linda University Health senior vice president for advancement. Tom Zapara was in attendance at the January meeting. Zapara, a life-long learner, encouraged the Oregon leadership group and EXSEED planning group to continue innovation and stay faithful to the mission of Adventist education.

For more information about EXSEED, visit home.llu.edu/exseed or email exseed@llu.edu.



PHOTO BY ANSEL OLIVER

5 QUESTIONS WITH ROBERT HANDYSIDES

NEW SCHOOL OF DENTISTRY DEAN HAS YEARS OF LEADERSHIP EXPERIENCE AND A HERITAGE OF SERVICE

BY GENESIS GONZALEZ

When most freshmen were settling into college life, Robert Handysides, DDS, found himself adjusting to the culture shock of returning to the United States after spending much of his childhood in Africa.

His first three months at Andrews University in Michigan required adjustments as he learned to navigate the college system and acclimate to colder temperatures. The Michigan snow took some getting used to, even for the Canadian native.

The son of missionaries was introduced to mission service at age 11 when he moved, along with his father, mother and sister, first to Malawi and then to Zimbabwe, where his father served as a mission medical director. The young man was surrounded by a different culture, opportunities for adventure and adults devoted to helping others.

"There's a purpose in life when you're serving others that feeds your soul and gives meaning," Handysides says.

The sixth dean to lead Loma Linda University School of Dentistry, Handysides stepped into his new role in January. He has spent much of his life serving in new roles and environments. "Every step of the way has been a learning curve," he says. In this new role, the excitement and challenge are just what he's looking for.

WHAT HAS YOUR EXPERIENCE AT LOMA LINDA UNIVERSITY TAUGHT YOU AS YOU CONTINUE TO ACCEPT NEW CHALLENGES?

My personality is one that seeks out challenging environments. At Loma Linda University, solutions come from a unified team, not one individual. When you take on a different role or wear a new hat, the support of the team is all around you. When I moved into administration, I felt the support of the dean, Dr. Dailey, as well as other members of the team. Now that I've been asked to serve as dean, I still feel the team's support.

WHY DID YOU PURSUE A ZOOLOGY DEGREE IN COLLEGE?

As a kid, I was really passionate about animals. I wasn't a big chemistry or physics person. I've always been interested in healthcare, but zoology tended to deal with the life of animals and systems that fit my niche of understanding biology.

WHAT INSPIRED THE MOVE FROM STUDYING ANIMALS TO WORKING WITH TEETH?

When we were kids, my sister wanted to be a dentist and I wanted to be a physician. We changed somewhere along life's journey. In college, I ended up choosing dentistry, and she chose medicine. Having a father





PHOTO BY CHET WILLIAMS

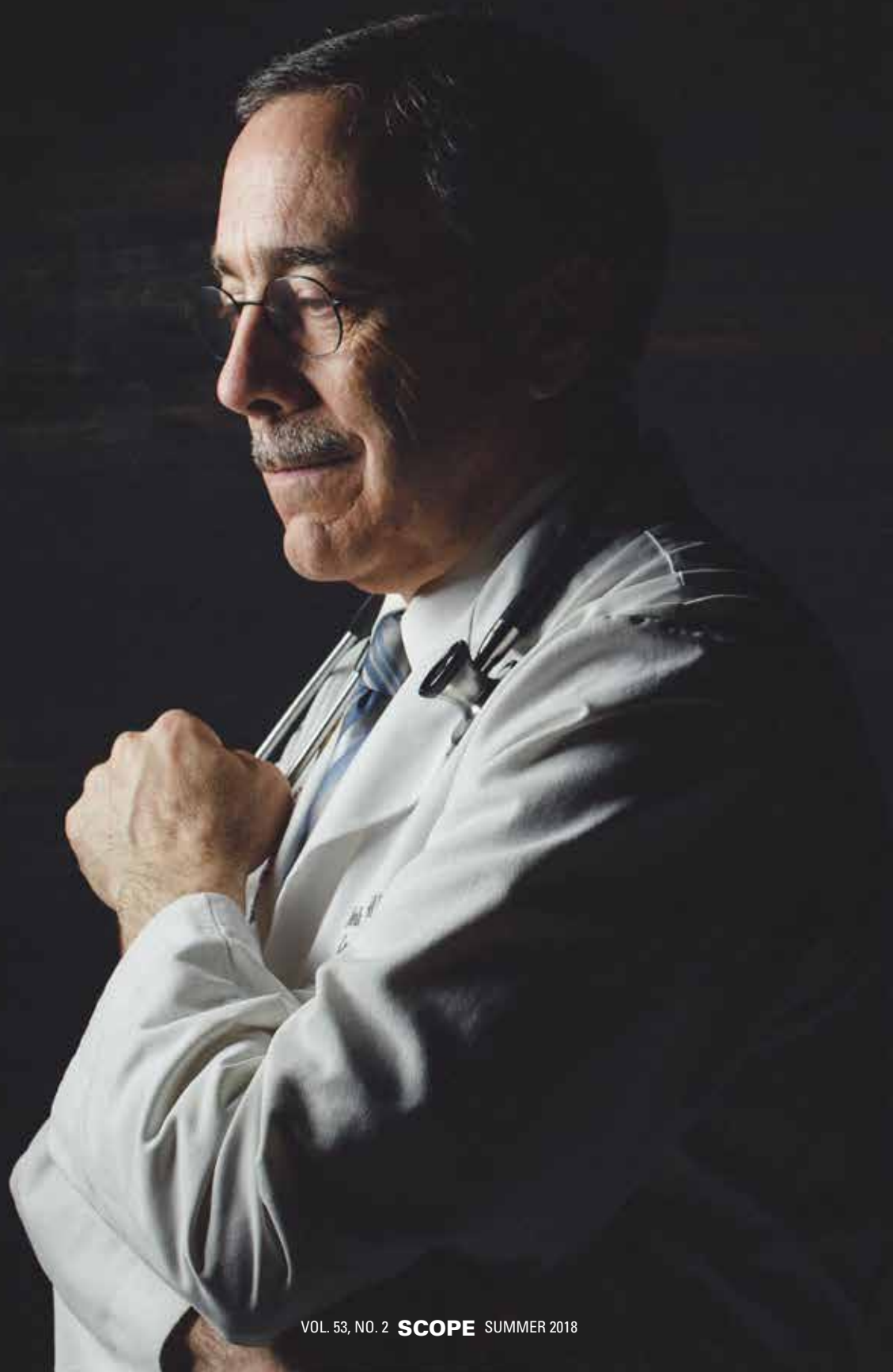
who was a physician and a mom who was a nurse while growing up in the mission field, the culture of service and healing defined our family. This was the stimulus driving me toward healthcare.

WHAT IS YOUR FAVORITE PART ABOUT WORKING AS A DENTIST?

When a patient comes in with an extreme amount of pain and discomfort there is something extremely gratifying about being able to help them in a relatively short period of time. This is something I've always appreciated as an endodontist.

WHAT ARE SOME OF YOUR TOP AREAS OF FOCUS AS THE SCHOOL DEAN?

We have a significant population of extremely committed individuals who have been here for a long time, and a time of retirements and transitions are coming up. This is a challenge for the administrative team. Another is the changing education curriculum related to the National Dental Board Examinations. A third challenge faced by the clinical world is shifting paradigms in healthcare policy. There are both internal and external forces at play in this. We'll make sure we keep the clinics humming and provide the students with sufficient experiences to play in the sandbox — so to speak — of this changing world.



From Mark Reeves, MD, PhD

Director of the Loma Linda University Cancer Center

Cancer is a formidable opponent. Its diagnosis can be frightening.

One of the most emotionally challenging parts of my job — or for any physician — is having to inform a patient of such a diagnosis. It was hard the first time I had to do it, and it's still hard.

It's difficult because even when patients end up doing well, a physician knows this diagnosis will be a life-changing experience for the patient. They'll have to go to a doctor's office many times, get treatments — then, even after they go through curative treatment, they may need long-term follow-up. So when I tell a patient that they have cancer, I understand what it's going to mean. It's a very sobering thing for me.

But it's often also a very inspiring thing. Most patients who receive this diagnosis have to come face-to-face with their mortality. However, when a lot of people might be afraid

and not willing to face the problem, patients usually take the approach of: "Let's do what needs to be done." They also often take a very altruistic approach and ask things like, "What can I do to help the next person who has to go through this?" Many wish to volunteer to enroll in a clinical trial to help future patients do better. Their altruism and their practical approach to life-changing, sobering circumstances are very inspiring to me.

This is an exciting time for the Loma Linda University Cancer Center. We're training the next generation of cancer professionals, translating scientific discoveries into state-of-the-art cancer care and moving toward a national designation that would help us play a larger role in fighting cancer.

In upcoming pages, you'll learn about our all-encompassing support network, including prevention,

psychosocial support, treatment options, as well as how technology is involved in the battle now more than ever before.

Most important in the battle against cancer is research. There are more than 75 active clinical trials in the Cancer Center, and more than 1,000 patients are enrolled in these trials each year. In addition, the Cancer Center's approach to research and its translation into clinical care is being guided by a strategic pathway toward the National Cancer Institute designation as a Comprehensive Cancer Center, which you'll learn more about at the end of this section.

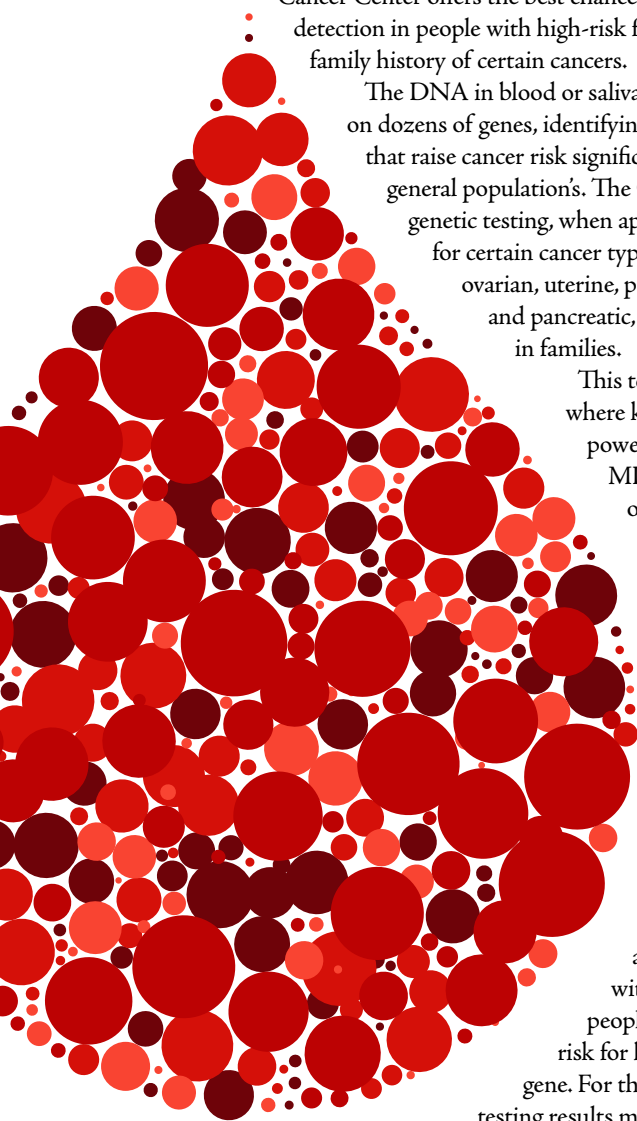
You can also learn more by visiting the Loma Linda University Cancer Center website at lluh.org/cancer-center.

Cancer is a formidable opponent, and we're committed to helping fight the battle with you.

ANSWERS

within a drop of BLOOD

BY HEATHER REIFSNYDER



Genetic testing available at the Loma Linda University Cancer Center offers the best chance for prevention or early detection in people with high-risk factors, such as a strong family history of certain cancers.

The DNA in blood or saliva can reveal information on dozens of genes, identifying genetic abnormalities that raise cancer risk significantly more than the general population's. The Cancer Center utilizes genetic testing, when appropriately indicated, for certain cancer types including breast, ovarian, uterine, prostate, colorectal and pancreatic, all of which can run in families.

This testing is truly a case where knowledge equals power, says Sharon Lum, MD, medical director of the Breast Health Center at the Cancer Center.

"These results are actionable," she says. "They are more actionable than most things we do in medicine."

For several types of cancers, the Cancer Center can test both patients already diagnosed with the disease and people identified at high-risk for harboring a cancer gene. For the latter, the genetic testing results may indicate the

need for more frequent cancer screening than the general population, or for preventive measures. Genetic testing can also influence the treatment they receive to lessen the chance of cancer recurring.

In the case of breast cancer, for example, which can strike men as well as women, a patient with a BRCA1 or BRCA2 gene mutation is about five times more likely to have cancer return a second time than a patient without the BRCA1 or BRCA2 mutations.

Family members can also be positively impacted by the discovery of genetic mutations, revealing whether they should also be tested.

Lum chose to be tested herself, because her father carries the BRCA1 genetic mutation, which increases risk for ovarian, breast, prostate and pancreatic cancers. Fortunately, the mutation was not passed on to her.

The technology for genetic testing has evolved rapidly over the past few years, making it faster and more affordable. Because it uses multigene testing panels, the Cancer Center sometimes discovers that a patient has high risk for a different type of cancer entirely than they were testing for.

"With a drop of blood, you can literally test for hundreds of different things," Lum says.

Though such testing is also now available directly to consumers, Lum warns that these companies may not meet the high standards of laboratories used by hospitals, geneticists and physicians. Nor can such companies offer the necessary medical follow-up support.

The Cancer Center recommends that individuals discuss their possible cancer risks with a physician. A statement to start the conversation can be simple, such as "I'd like to talk to you about getting screened for cancer."

When genetic testing is indicated, Lum says doing so proves true a second adage beyond "Knowledge is power." Traceable to the 13th century, the 800-year-old wisdom says, "An ounce of prevention is worth a pound of cure."

IMMUNE TO CANCER'S RETURN?

THE DAY COULD BE COMING

The body's immune system can be stimulated to help destroy cancer cells

BY HEATHER REIFSNYDER

Treatment advances that harness the patient's own immune system to fight cancer are allowing doctors at Loma Linda University Cancer Center to help people who couldn't be saved even just a few years ago.

Immunotherapy, which utilizes or enhances various components of the patient's immune system to fight cancer, has created a paradigm shift in cancer research and treatment, says Mark Reeves, MD, PhD, director of Loma Linda University Cancer Center. Thanks to this approach, for the first time in the history of cancer treatment, therapies are being deployed and developed that are "site agnostic" — meaning they can treat any and all types of cancer.

As a result, fewer and fewer cancers will be considered a death sentence.

In melanoma, this possibility is already becoming reality; immunotherapy has raised five-year survival rates for patients with a non-operable recurrence from 10 percent or less to 80 percent or above, says Frank Howard IV, MD, PhD, who specializes at the Cancer Center in melanoma and unusual tumors.

"Getting the immune system to fight cancer has been the holy grail of cancer therapy for decades," Howard says. "It is certainly gratifying to be able to help people I couldn't help before."

What's more, immunotherapy has few unpleasant side effects, making it more tolerable for weakened patients than chemotherapy or radiation.

"Immune checkpoint therapy" is one of two classes of immunotherapies the Cancer Center is offering, with "antibody therapy" being the second. The latter injects antibodies specific to the cancer cells into the patient's blood that focus the immune system on the cancer. Antibody therapy currently



shows greatest results in lymphoma and breast cancer.

Checkpoint therapy may actually make patients immune to the return of their cancer, similarly to how people only get chicken pox once.

Cancer can be so deadly because it rapidly mutates to outsmart treatment. One such mutation destroys a normal cellular pathway called "mismatch repair" that helps a cell heal itself. Freely replicating in their mutated state, the cancer cells produce abnormal proteins that signal the immune system to back off.

But the cancer cells' evolved inability to become normal again also makes them vulnerable to checkpoint inhibitors, which are injected into cancer patients and call the immune system back with deadly accuracy against the faulty cells.

"In the future, we will not primarily plan treatment based on location of the cancer's origin in the body," Reeves says. "We will ask

Frank Howard IV, MD, PhD, says immunotherapy is helping raise five-year survival rates for many patients battling cancer.

whether a patient's cancer has a defect in the mismatch repair pathway."

Already becoming mainline therapy against cancers that previously lacked effective treatment options, immune checkpoint therapy shows promise not only with melanoma, but also Hodgkin's lymphoma, lung cancer, some types of gastric and esophageal cancers, and bladder cancer. It is actually now approved for all cancers that have a defective mismatch repair pathway.

Upcoming in cancer immunotherapy is a combination of checkpoint therapy with vaccines, which is currently in human trials. It is hoped this double-edged sword will make cancer cells highly visible to the immune system while also magnifying the system's cancer-killing power.

Resource Center Offers Cancer Care to

body,

Whole person care for patients battling cancer includes crucial psychosocial support.

BY LARRY BECKER



PHOTOS BY ANSEL OLIVER

mind and spirit

A unique resource center housed within Loma Linda University Health offers a single location for patients to access services and information designed to treat more than the clinical and medical aspects of a cancer diagnosis.

The Stater Bros. Charities and Inland Women Fighting Cancer Patient Resource Center advances Loma Linda University Health's mission to provide whole person care, not just treat disease. Cancer patients are often overwhelmed with anxiety as they go through testing and diagnosis. They're also flooded with information about their medical condition and potential treatment paths.

"Our services provide focused support to the psychological, social and spiritual aspects of our patients' lives," says Tamie Vasquez, CLM, CLMC, coordinator for the Patient Resource Center. "All of those pieces must come together for a patient to return to total health. Our patients are not just here for a diagnosis and treatment. We make sure the right services are made available at the right time. That's our passion."

Each patient visiting the Cancer Center completes a distress screening form. A nurse navigator reviews the answers and can immediately refer that patient to a wide range of support services that will enhance the clinical side of their care.

"We automatically reach out to someone who has a high distress score," says Gabriela Gutierrez, MS, MFTI, an associate marriage and family therapist at the Loma Linda University Cancer Resource Center. "Often our initial contact leads to therapy or ongoing support."

Patient Resource Center Services

Counseling

Individual, couple, group and family counseling can help assist in the adjustment to a life with cancer. All counselors have training specific to oncology needs. "Our support groups provide a safe place where patients can get help, when they can't get it at home," says Tamie Vasquez, Patient Resource Center coordinator.

Nutritional Support

Monthly nutrition talks help cancer patients, family members and the general public learn about how healthy nutrition relates to cancer. "These are popular because the talks focus on eating and less on cancer itself," Vasquez says. Call 909-558-2262 for the schedule and upcoming topics.

Cooking Demonstrations

These bimonthly 90-minute cooking classes are designed to be interactive experiences. Knowledgeable chefs and dietitians show how to prepare foods that reduce cancer risk, heart disease and more. These are held in the Nichol Hall kitchen at the School of Allied Health Professions. Schedule and topics are available at 1-877-LLUMC-4U.

Support Groups

An ongoing Women's Cancer Support Group provides opportunities to learn about topics such as stress reduction, symptom management, relaxation and lifestyle changes. Caregivers are welcome to attend the biweekly sessions at the Loma Linda University Behavioral Health Institute in Redlands. Call 909-558-2262 for dates and times.

Exercise Classes

Exercises can help open a patient's lymphatic system, reducing the swelling caused by lymphedema. Patients and family members enjoy the supportive environments. Open to all fitness levels, the classes are held every Thursday at the Loma Linda Senior Center. Call 909-558-2262 for more information.

Appearance Center

A free community wig bank is available to women whose chemotherapy or radiation treatments cause hair loss. "This can be a very emotional issue for women," Vasquez says. "Hair loss is such a visible sign of their cancer. We provide significant support to them at these moments."

Look Good, Feel Better Program

Patients can receive personal consultations with a skin-care professional. Free make-overs and cosmetics are available. Participants also learn how to keep contamination from their makeup. This is in partnership with the American Cancer Society.



Women's Cancer Support Groups serve most of the Patient Resource Center's patients. Groups are tailored to specific needs and are open to patients and caregivers.

One important avenue of therapy available at the center is in "onco-sex therapy."

"Cancer is increasingly becoming a chronic illness, not an acute one," Gutierrez says. "While the immediate medical issues may be over, it changes a person, and it changes their relationships. It's important to explore what it looks like to be in a relationship while having cancer." Virtually every patient has one conversation about this issue, with roughly 60 percent receiving multiple sessions to address the issue.

Gutierrez points out there are societal stigmas about illnesses, and it's up to each patient to decide if they wish to accept or reject the stigma. Women are accustomed to identify parts of their body as equating with femininity and desirability.

"The number one question most women ask is 'Who would want me now?'" Gutierrez says. "Who wants someone with cancer? I've had women call themselves Frankenstein's monster, feeling their bodies are completely unrecognizable."

Gutierrez helps couples explore how cancer has affected their intimate relationships and addresses body-image issues. Couples explore how they connected with each other before cancer and ways they can maintain their intimate connection despite cancer.

"Women will say to me, 'I feel lighter. I feel a weight has been lifted. I feel there's hope,'" Gutierrez says. "It's a privilege to help people move forward."



Loma Linda University Health's faith-based approach to health and healing adds an important component to the Patient Resource Center's work. Being able to incorporate a spiritual approach is an intricate part of care — one that is taboo in many secular institutions.

"In many places, therapists are afraid to initiate conversations about God," Gutierrez says. "They'll wait until a patient brings up religion. God's voice is a powerful voice for a person on this journey. I appreciate that this institution allows us to explore the spiritual dimensions of care."

THE TRUTH BEHIND CLINICAL TRIALS

DEBUNKING COMMON MISCONCEPTIONS

BY JANELLE RINGER

There is often confusion on the topic of cancer clinical trials. Thousands of clinical trials are conducted annually, and along with them come nearly as many misconceptions.

Some people say patients are merely guinea pigs, or that half the patients enrolled are simply given sugar pills. These are some of the many myths that cause some patients to pause, and sometimes back out of clinical research trials, says Judy Chatigny, MSN, executive director of the Loma Linda University Cancer Center.

“Clinical trials are a great way for cancer patients to get the latest treatment, and at the same time help the next generation of patients that will face a diagnosis of cancer,” she says.

The Cancer Center team addresses some common myths to reveal the truth behind clinical trials:

MYTH: Patients are treated like guinea pigs.

TRUTH: Before any new treatment is used with people in clinical trials, researchers work for years to understand its effects on cancer cells and animals in the lab. They also try to determine side effects the treatment. Before a treatment is used on patients, it has a long track record of excellent results based on careful study. The truth is, guinea pigs are treated like guinea pigs, and patients are treated like patients.

MYTH: Half the group will just get sugar pills.

TRUTH: Placebos (often found in the form of sugar pills) are rarely used in cancer treatment clinical trials. If they are used, they are typically given in addition to standard proven treatments. Most cancer treatment trials are designed to determine if experimental treatments can add benefits to existing proven treatments. Patients are always told if the study includes use of a placebo.

MYTH: There’s no real benefit to the patient.

TRUTH: Patients are living longer from successful cancer treatments that are the results of past clinical trials. By taking part in a trial, patients may have access to a new treatment that is not available to people outside the trial. Science and medicine are always evolving. Treatments are adjusted and constantly improved. Often, these more-effective treatments are included in clinical trials, allowing participants to be among the first to benefit.

MYTH: Research studies are only for people with no other options.

TRUTH: Research studies aren’t exclusively used for people who have cancer, let alone those who have no other options. Prevention trials and screening trials are also popular. These types of trials can reduce the threat that patients with a high risk might present, as well as find the disease early when it’s more treatable. In addition, research studies often enroll patients to determine if new treatments add anything to current proven treatments. All patients in such a study get at least the current, proven treatments.

MYTH: Clinical trials are too dangerous.

TRUTH: There are federal rules in place to help ensure the safety and ethics of clinical trials. In addition, the trial is subject to ongoing monitoring by the institution, the institutional review board (IRB) and the research teams.

MYTH: Patients will have to stop all other medical treatments.

TRUTH: Many clinical trials include standard therapy as part of the study, which may be testing an additional drug to see if the combination is more effective.

Understanding the truth behind clinical trials can help both current and potential patients decide if a clinical trial is a viable option for them. Clinical trials are an enormous weapon in the fight against cancer, and they hold the power to prove whether a new treatment works better than current treatments.

To find out more about the clinical trials offered at Loma Linda University Cancer Center, visit llu.org/cancer-center/research.

Treating A Child's

A growing number of cancer treatments benefits patients, now and in the future

BY ERIC GNECKOW

Treatment of childhood cancers can take many paths at Loma Linda University Children's Hospital, the only medical center of its kind in California's Inland Empire. Yet for families traveling as long as four hours to visit, the treatment process often starts with a very different — and distinctly non-medical — conversation.

One Of Anguish And Love.

"So often when anything happens to a child, parents at times with blinding love think it's their fault," says Rishikesh Chavan, MD, director of pediatric bone marrow transplant for the hospital. "It's very hard when you are sitting with the parents to explain, 'Your child has cancer, and here is the plan.' The most important thing, I believe, during that initial diagnostic talk is that we absolve them of their guilt."

Serving patients from four inland California counties and Nevada, from birth to age 25, Loma Linda University Children's Hospital's childhood cancer program is one of the largest in the United States. As part of the Children's Oncology Group, an international consortium of leading childhood cancer treatment and research centers, the hospital is on the forefront of the latest clinical trials and other best practice treatment protocols for all types of childhood cancers, says Albert Kheradpour, MD, division chief of pediatric hematology and oncology.

Parents in the region considering treatment for their children should know that Loma Linda University Children's Hospital aggressively treats the unique biology of childhood cancer. Physicians and staff in addressing the family dynamics that play an important role in the patient's long-term success, Kheradpour says.

"We're not only treating children, we are treating the family as a whole," he says.

Part of the 343-bed children's hospital, the Pediatric Hematology-Oncology/Stem Cell Transplant Unit — or Unit 4800 — is a 33-bed facility designed specifically for inpatient treatment of children with cancer. The nearby Pediatric Hematology Oncology outpatient clinic has numerous physician exam rooms and the capability to do infusion therapy for 13 patients simultaneously. It also has its own pharmacy and basic lab.

Many young patients begin treatment at Unit 4800 before transitioning to regular visits at the outpatient clinic, which sees around 700 patient visits each month.

Both facilities feature an open floorplan that allows patients and siblings to interact and socialize when possible over the course of treatment. Child life specialists focus on keeping young patients and their siblings engaged and entertained, and both locations have a social worker on site.

The goal is to create a comfortable space for families, where many treatment and lab services are available in one location, says Richard Chinnock, MD, chief medical officer for Loma Linda University Children's Hospital.

"It's an interesting question of how to best offer treatment for children," Chinnock says. "Do you create many separate rooms, which is more the adult method of treatment, or a more open area so kids can play with each other? We're trying to support the whole child, the whole family."

The children's hospital treats all types of childhood cancer, where methodologies follow the best-practice protocols from the Children's Oncology Group. Among the latest available treatments are immunotherapy trials using antibodies to target a child's cancer cells. Kheradpour describes this approach as one of today's most promising routes of pioneering childhood cancer treatment.

About 30 percent of children with cancer under the age of 15 suffer either leukemia or lymphoma — cancers of the blood originating in the bone marrow or lymph nodes — forming the most common group of childhood cancers, Chavan says. A smaller proportion are patients with brain tumors or other solid tumors.

Allogenic bone marrow transplant, where the child's bone marrow is replaced with stem cells from a different donor, is required in more difficult cases of leukemia or lymphoma; whereas autologous bone marrow transplant allows surgeons to harvest and save the child's own bone marrow to be transplanted after high-dose chemotherapy as a salvage mechanism for high-risk brain tumor and solid tumor patients. Loma Linda University Children's Hospital completed 24 pediatric bone marrow transplants in 2017 and a total of 280 since 2007.

Infection is the greatest risk for pediatric bone marrow transplant

Difficult Diagnosis

patients, so patients are required to live near the hospital during recovery. In the spirit of whole person care, the hospital helps facilitate housing assistance when necessary, Chavan says.

Treating childhood cancer is different than that of adults — children bounce back better from chemotherapy, for example. Yet much energy and time from medical staff goes into reassuring families as well, where children and young adults with growing independence must grapple with the shift to a secluded lifestyle in recovery.

Chavan said Loma Linda University Children's Hospital focuses on guiding young patients and their families through that transition, and also seeks to follow their recovery into adulthood, where some

cancer survivors may experience unique health issues such as hormonal imbalances and fertility problems.

"It's not just enough to cure childhood cancer. It's to ensure they survive well," he says.

The collaborative nature of childhood cancer treatment has had a marked impact on its success, and today, childhood leukemia carries a 90 percent recovery rate, Kheradpour says. Part of that success is the result of collaborative research facilitated by sharing of data through the Children's Oncology Group.

"It's not just to benefit your child, it's to benefit thousands of other children," he says.



PHOTO BY ISTOCKPHOTO

SURGICAL ONCOLOGIST *offers* REALISTIC HOPE *for stage IV cancer patients*

LOMA LINDA UNIVERSITY HEALTH PHYSICIAN IS ONE OF ONLY EIGHT IN SOUTHERN CALIFORNIA TO OFFER LIFESAVING PSM PROCEDURE

BY JAMES PONDER

A surgical oncologist at Loma Linda University Health is one of only eight physicians in all of Southern California qualified to offer a rare, and often lifesaving, procedure that is changing the game for patients diagnosed with stage IV cancer.

Maheswari “Magi” Senthil, MD, chief of surgical oncology and director of the peritoneal surface malignancy program, says peritoneal surface malignancy, or PSM, designates cancer that has invaded the lining of the abdominal cavity and metastasized to multiple organs.

“Very few hospitals in the United States offer realistic hope to patients with this diagnosis,” Senthil says, adding that it is often considered a death sentence since conventional therapies rarely achieve success once cancer reaches stage IV.

But thanks to the two-stage surgical procedure, that is not the case for Senthil’s patients. In the first stage, called cytoreductive surgery, the physician cuts, scrapes and ablates tumors and cancer cells off the affected organs. In the second — which is known as hyperthermic interperitoneal chemotherapy, or HIPEC — the surgeon inserts catheters into the abdominal cavity and delivers heated chemotherapy drugs to attack the microscopic cancer cells.

Together, the two stages can take between 10 and 24 hours, and the surgeon is required to stand the entire time. “It’s the mother of all operations,” she says.

Senthil’s medical odyssey began early in life. When she was 5 years old, her grandfather would often ask what she wanted to become when she grew up. The precocious child had a ready answer: she wanted to be a neurosurgeon. “I didn’t even know what it was,” Senthil admits, “but my mother was a physician and I used to go with her to the hospital a lot.”

Back in those days, regulations were not as strict in Senthil’s hometown of Madurai, India, as they are today, and she was allowed inside the operating room to observe her mother perform surgery.

“When I was 15, I became her scrub tech,” she says. “It was very convenient for her to have a scrub tech who lived at home, especially when she got called into the hospital to do surgery in the middle of the night. She just had to wake me up and I was ready.”

Senthil received her MD degree from Madurai Kamaraj University in 1998 and moved to Massachusetts for a year of research at Boston Children’s Hospital. After that, she completed a seven-year surgery residency at the University of Medicine and Dentistry of New Jersey and a two-year surgical oncology fellowship at City of Hope in Duarte, California. She learned the cytoreductive surgical procedure during her nine years of surgical training. While at City of Hope, she met Carlos Garberoglio, MD, chief of surgical services at Loma Linda University Medical Center, who invited her to start the peritoneal surface malignancy program she now heads at Loma Linda University Health.

Despite the rarity of the procedure, Senthil has performed it over 100 times since arriving at Loma Linda University Medical Center in 2010. She is proud of her work.

“We have spectacular results at Loma Linda,” she reports. “Instead of dying in a very short time, our patients are often able to recover their health and live for many more years.”

Read how a chance encounter on an airplane led Dr. Senthil to save the life of a man last year. Visit news.llu.edu/joseph-harouni.

PHOTO BY CHET WILLIAMS





PHOTO BY TANYA MUSGRAVE

RIGHT PLACE, RIGHT TIME

FOR RESEARCHER EXAMINING LEUKEMIA'S HIGH RATE IN HISPANIC CHILDREN

Founder of business incubator company Elf Zone is advancing research from lab to clinic

**BY KIMBERLY PAYNE, PHD, CEO OF ELF ZONE, INC. AND
DIRECTOR OF TRANSLATIONAL RESEARCH AT LOMA LINDA
UNIVERSITY SCHOOL OF MEDICINE AND CANCER CENTER**

Sometimes we like to imagine that the most important things in life come with a plan, but for me, it wasn't that way. When I first came to Loma Linda University in 2006, I felt guilty because I didn't have some grand plan, to be honest. But I think God had a plan.

I was studying the normal process by which our bodies make B-lymphocytes, a type of white blood cell. This particular research had drawn me in for various reasons, and over the years I studied what can go wrong in the development of B-lymphocytes, which leads to B-cell acute lymphoblastic leukemia, also known as B-ALL. It's one of the most common childhood malignancies.

Though I was doing research at the Center for Health Disparities and Molecular Medicine at Loma Linda University Health, I couldn't help but ask the question: how can I help patients in the area I was studying?

I was studying the pathways used by cytokines, a type of growth factor, and the role they play in normal B-cell development. It had been a year since I started at Loma Linda University when the

first data came back linking a DNA-binding protein that I was studying to B-cell leukemia. Three years later, the signaling pathway I was studying in normal cells was linked to three things: mutation of that DNA-binding protein, Hispanic children, and high-risk B-cell lymphoblastic leukemia. One by one the things I had been studying were linked to the disease.

Most B-ALL is curable — about 90 percent. The other 10 percent is what's most critical. More children die of B-ALL than any other cancer, and it disproportionately targets Hispanic children with Native American ancestry — a common patient base at Loma Linda University Children's Hospital.

It was all coming together. I was at a place where the patients had the greatest need, combined with my studies of the two mutations critical for the highest risk B-ALL. Where I was and what I was studying gave me the perfect position to begin looking at therapies.

Surprisingly, we found that a molecule required to produce leukemia killed the leukemia cells when they were given high

levels of it, while also helping normal immune cells to grow.

Once I had an idea of how it was working, I contacted Michael Samardzija, PhD, JD, associate vice president for research affairs at Loma Linda University Health. He had arrived just at the right time in early 2016 and helped me start Elf Zone Inc., a company in the new business incubator he started for the university.

Within six months, we were awarded a small-business grant from the National Institutes of Health. The goal right now is to work both through Elf Zone and the studies in our research laboratories to move the biologic molecule forward as a drug. This particular molecule both kills the leukemia cells and also helps normal B-cells recover and come back stronger, according to our data.

With any innovation, it takes the whole world. In this case, it took a team of people from 11 countries who helped work on the various studies. The good thing is, Loma Linda University Health is a smaller institution than some, but we have the infrastructure to make things happen.

We will continue experiments to move the molecule forward as a treatment and try to understand more about the mechanisms for how the molecule functions. If we understand how it works, we can modify it to work better and learn what other drugs work best in combination for the treatment of B-ALL.

Science has always fascinated me. In fact, I was interested in medicine at first simply because I had never been around scientists before. I grew up in a small town of only 1,000 people called Rising Star, Texas. Prior to pursuing my PhD in microbiology and immunology from the University of Oklahoma Health Sciences Center, I taught both high school and community college for eight years.

There's this idea that people will be doing exactly the same thing for 30 years, but I don't think that's the model anymore. I like to think I'm doing something different — I'm moving toward directly impacting people through science.

—As told to Genesis Gonzalez

Cancer researcher and team LOOKING FOR THE 'OFF' SWITCH

To turn off a cell's switching mechanism

BY ANSEL OLIVER

A stem cell is a primitive cell that is able to develop into a specific cell at the embryonic stage — perhaps skin, muscle or blood. But once the change is made, that switching mechanism is supposed to shut off.

Julia Unternaehrer, PhD, assistant professor of basic sciences at Loma Linda University School of Medicine, is working to find out why a cell's switching mechanism can turn back on to become cancerous. Once a cell is a cancer stem cell, it can build a tumor.

The challenging part of treatment, Unternaehrer says, is that cancer stem cells are more resistant to cancer drugs than any other cancer cells. Often when a patient's cancer goes into remission, cancer stem cells can remain and later reproduce.

Unternaehrer, a former physical therapist who earned a PhD in cell biology at Yale University and worked as a research fellow at Harvard Medical School, joined Loma Linda University Health in 2013. Her research career has

focused on understanding how cancer and embryonic development relate.

One strategy she and her team are targeting is using a protein that has been found to turn DNA on and off. Called Snail, it's one of the approximately 2,600 transcription factors of the human genome that can control how genes are activated. This transcription factor causes a process called epithelial-mesenchymal transition, or EMT — which takes place in embryonic development but is never supposed to happen again. In cancer cells, Snail triggers this dormant process and causes them to become migratory and act like stem cells.

A tumor that stays in the organ is obviously unhealthy, but it can turn deadly once its cells travel to another part of the body, known as metastasis.

Unternaehrer and her lab team have implanted ovarian tumors into mice, and the plan is to inject the mice with nano-particles loaded with ribonucleic acid molecules that can turn off Snail. If this targeting is found to work in mice, then the team could eventually prepare for clinical trials in humans.

She and teammate Yevgeniya Ioffe, MD, received a \$75,000 grant from the school earlier this year to study this process. They hope eliminating a patient's cancer stem cells could stop tumors in their tracks.

"I would love to help patients have a few more good years of life," Unternaehrer says.



PHOTO BY TANYA MUSGRAVE

PROMPTING LEUKEMIA CELLS TO DIE

Researcher trying to
find a cure for disease
that took his mother

BY ERIC GNECKOW

// Battling Cancer



PHOTO BY ANSEL OLIVER

Huynh Cao, MD, saw firsthand the side effects of chemotherapy after doctors diagnosed his mother with breast cancer in 1995. The treatment was difficult enough on her body, Cao says, yet he also credits it for causing her subsequent acute leukemia that, despite a bone marrow transplant and further chemotherapy, claimed her life in 2010.

The experience pointed Cao toward what he called his “life’s work” at Loma Linda University Health — developing a low-impact and effective treatment for acute leukemia that lacks the side effects of current options.

“My family went through the whole thing, from A to Z,” says Cao, who became an assistant professor at the School of Medicine after completing a four-year hematology and oncology fellowship in 2017. “I just hope we can find something more tolerable,” he says.

Cao and his team are investigating how vitamin D can prompt deadly leukemia cells to mature — and die off — like the body’s normal cells. Unlike normal cells with a finite lifespan, cancer cells are effectively “immortal,” Cao says, potentially growing unchecked to cause diseases like acute leukemia.

His method involves a gene that converts inactive vitamin D to an active form. Cao says he uses stem cells to carry this gene to the bone marrow.

The modified cell activates surrounding vitamin D, which prompts the nearby leukemia cells to mature. No longer immortal, the leukemia cells then resume a normal lifespan and die off, he says.

If taken orally, high doses of vitamin D would be dangerous for a patient, Cao says. The laboratory research shows promise that the modified cells activating vitamin D would limit their effect to the area of treatment before dying off on their own.

Cao draws a parallel with a similar leukemia treatment involving vitamin A. Doctors once considered one particular subtype of leukemia, acute myeloid leukemia (AML) sub-type M3, extremely dangerous until researchers discovered vitamin A could prompt those types of cancer cells to mature and die. Today, AML sub-type M3 is one of the most treatable versions of the disease, he says.

But Cao says treatment doesn’t work on all subtypes of the leukemia, a cancer with many variations that impact bone marrow and blood. His vitamin D research could reveal a way to treat other parts of the leukemia spectrum.

He says the inspiration for his current work followed the research of Loma Linda University Health’s Distinguished Professor of

Medicine and Basic Sciences David Baylink, MD, who discovered promise in treating inflammatory bowel disease with vitamin D.

“My question was — why can’t we use the same thing to treat leukemia?” he recalls.

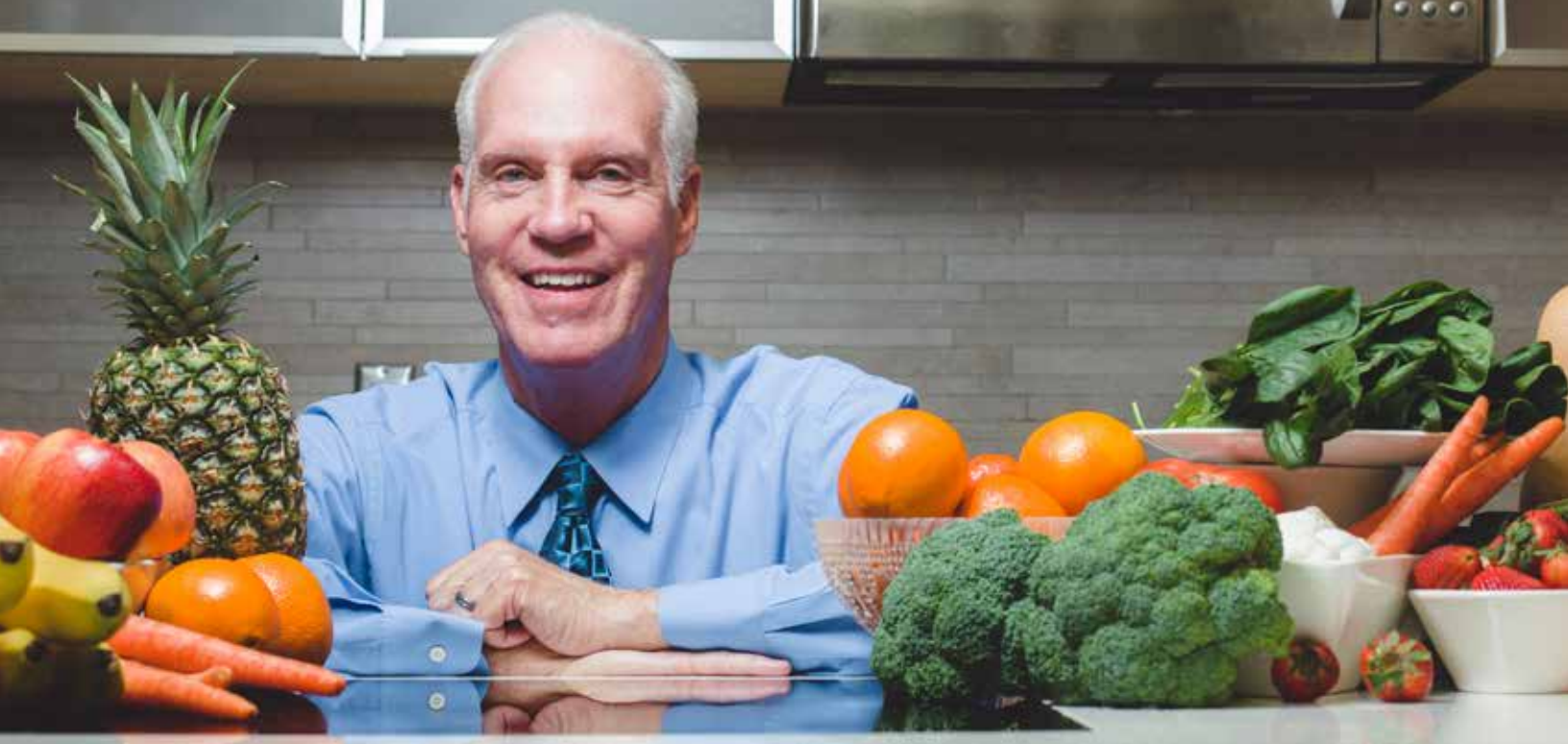
Originally from Vietnam, Cao attended UCLA’s Geffen School of Medicine before working as a resident surgeon and completing a subsequent internal medicine residency. He came to Loma Linda University Health in 2014.

In recognition of the potential of his research, Cao was one of 66 researchers nationally to receive \$50,000 in grant funding as part of the Conquer Cancer Foundation’s Young Investigator Award in 2017. He says he’s looking to obtain additional funding for further research.

Cao’s work is currently focused in the lab, using blood from leukemia patients and involving experiments with mice. Though it’s unknown when a possible treatment could be tested in human subjects, he says he’s optimistic about progressing toward his ultimate goal.

“I want to find a cure for acute myeloid leukemia,” he says.

THE NUTRITIONIST IS IN



ANDREW WOODWARD'S CANCER FIGHTING SUPER FOODS SHORT LIST

Tips to consider: Since there is no “perfect food” that has all the cancer fighting benefits, include a variety of at least 5-9 servings of foods from this list daily. Choose organic foods when possible. Use whole foods rather than extracts or supplements. These foods can be prepared as juiced, eaten raw or lightly cooked. The amounts to use can be suggested by a LLU Cancer Center registered dietitian. Be aware that certain foods may need to be avoided or limited, if allergy, intolerances or drug interactions exist.

LYCOPENE AND CAROTENOID FOODS:

Acorn squash
Apricots
Beets
Bell peppers — yellow, orange or red
Carrots
Mangos
Nectarines
Papaya
Plums
Pumpkin (and other yellow squash)
Tomatoes (cooked is preferred)

CRUCIFEROUS VEGETABLES:

Bok choy
Broccoli
Broccoli sprouts
Brussels sprouts
Cabbage and purple cabbage
Cauliflower
Kale
Turnips

GARLIC/DIALLYL SULFIDE VEGETABLES:

Garlic
Leeks
Onions and Spanish purple onions
Shallots

ANDREW WOODWARD HELPS PATIENTS BATTLING CANCER FIND OPTIMUM, CUSTOMIZED NUTRITION

BY ANSEL OLIVER



PHOTO BY TANVA MUSGRAVE

// Battling Cancer

Patients battling cancer can struggle to maintain weight when undergoing infusion therapy or because of other life stresses. Many attempt to educate themselves about nutrition on the internet, where they find information that is often contradictory, outdated or marketing.

Enter Andrew Woodward, MS, RD, CSO, Loma Linda University Health's nutritionist for the Cancer Center, who helps patients with a nutrition-intervention strategy.

"I love enhancing a patient's quality of life and helping them get more enjoyment with eating," he says.

Woodward meets with more than 600 new patients each year, as well as many more returning patients. He also offers monthly cooking classes on health foods that can battle or help prevent cancer. "We go into the biochemistry of why certain substances in foods fight cancer," he says.

He enjoys traveling, and he brings his international experience with cultures, cuisine and seasonings into his presentations and individual counseling sessions based on a patient's culture, diet preference or locale.

Woodward's biggest job is often dealing with misinformation. "The internet can do a lot of damage," he says. Patients might start avoiding all carbs

and all sugars, then have a poor appetite, lose weight and develop malnutrition. "I acknowledge their fears and concerns and put together a plan specifically for them," he says.

His top tip is to eat a plant-based diet. He also helps infusion patients strategically use healthy snacks to maintain weight.

Woodward, a board certified oncology nutritionist, first had his interest piqued by Loma Linda University Health as a high school student. He remembers coming to the campus on a field trip in 1972 and eating vegetarian food in the cafeteria.

He went on to work in clinical pathology at City of Hope, located in Duarte, about an hour's drive west of Loma Linda, and later earned a master's degree in nutrition at California State University, Los Angeles. He then worked at Kaiser Permanente before joining Loma Linda University Cancer Center in 2009.

Woodward says he was intrigued by the organization's vegetarian approach and its pioneering studies on nutrition. Now he's a key part of helping patients nourish themselves through their treatment.

"I see the value of early intervention," he says. "It's encouraging to see patients who have a serious diagnosis receive a plan for nutrition direction."

BEANS/LEGUMES/SOY:

Black beans
Garbanzo beans (chickpeas)
Kidney beans
Lentils
Pinto beans
Soy* beans, tofu, soy milk, soy nuts
Other beans and legumes
*Soy is safe for women with breast cancer, but high intake of soy foods may interfere with thyroid medications.

WHOLE GRAINS:

Barley
Brown rice
Bulgur
Corn
Oats and oatmeal (steel cuts preferred)
Quinoa
Sweet potatoes/yams and purple potatoes

BERRIES:

Blackberries
Blueberries
Boysenberries
Cherries
Cranberries
Pomegranate
Raspberries
Strawberries

SEASONINGS:

Basil
Dill
Garlic
Ginger
Oregano
Parsley
Rosemary
Thyme
Turmeric
These are commonly used, but others are beneficial, too.

HEALTHY OILS:

Almond oil
Canola oil (rapeseed oil)
Extra virgin olive oil
Flax oil
Grape seed oil
Walnut oil

OTHER:

Apples
Asparagus
Citrus fruits
Melons
Mushrooms
Spinach



How a team of cancer researchers **FIND ANSWERS** and **NEW TREATMENTS** from the California Cancer Registry database

John W. Morgan directs Regions 4, 5, 7 and 10
of the California Cancer Registry

One of the world's most sophisticated research tools is helping cancer researchers at Loma Linda University Health discover new cancer treatments and resources.

John W. Morgan, DrPH, professor of epidemiology at Loma Linda University School of Public Health, and principal investigator for Regions 4, 5, 7 and 10 of the California Cancer Registry (CCR), says the \$100-million database provides detailed information about the more than 4.5 million cancer cases diagnosed among California residents since 1988.

Without the CCR database, cancer researchers at Loma Linda University Health might have access to only a few dozen cases of certain rare cancers. But with the database — which is conveniently housed within the Loma Linda University Cancer Center — researchers can plug into more than 10,000 cases.

“Without that rich database, a lot of questions would be unanswerable,” Morgan says. “We do population-based research. We have access to a huge resource.”

The database allows Morgan and his team of physicians,

specialty fellows, faculty members and doctoral students from Loma Linda University School of Public Health to evaluate predictors of improved survival in cancer patients after diagnosis. He says the goal is to comb through the data to identify best-treatment practices. “The big emphasis here is that our research is multi-disciplinary and translational,” he says.

Those terms reveal a lot about the goals of the team. Multi-disciplinary means the team includes various health specialties — such as surgical oncologists, medical oncologists,

epidemiologists, biostatisticians, cancer registrars and data analysts — to attack cancer problems from several angles and viewpoints. Translational indicates that once researchers find answers to particular questions, they publish their findings in respected cancer journals so clinicians and other health researchers can apply best-practice prevention and treatment practices.

Sometimes the findings are surprising, especially when they contradict widely held assumptions. Morgan cites beliefs about race and ethnicity

as examples. He points out that for many years, clinicians and researchers believed Black and Hispanic males were more likely to develop colorectal cancer than White males.

But when Morgan and his team — which includes breast oncologist Sharon Lum, MD, surgical oncologist Maheswari Senthil, MD, chief surgeon Carlos Garberoglio, MD, and Cancer Center Director Mark Reeves, MD, PhD — analyzed the data, their findings refuted this assumption.

“We found that as a group, Black and Hispanic males who are well-educated and live in wealthy neighborhoods are no more likely to get, or die from, colorectal cancer than a group of White men having the same socioeconomic status,” Morgan says. “We have changed the thinking about race

and ethnicity as predictors of colorectal cancer. Risk is more socioeconomically based than racially based.”

The team also researches breast, lung and stomach cancer. By evaluating differences in the behavior of cancers originating from the right and left sides of the colon, Morgan and his team can predict how it will respond to biologic therapy once it spreads to the liver. This provides opportunity to deliver best-treatment practices to specific patients.

“This previously undiscovered finding underscores the need for improved screening and treatment for the second leading cause of cancer death among Americans and holds potential for increasing survival for hundreds and thousands

of colorectal cancer patients around the world,” Morgan says.

In addition to this research, Morgan is the principal investigator for a long-term contract with the National Cancer Institute. The \$4-million study, funded since 1995, involves cancer assessments in hundreds of California communities. Morgan’s finding that cancer occurrence in Hinkley, California — the city made famous by the movie *Erin Brockovich* — was similar to the average risk in the wider population. It resulted in Hinkley’s removal from the Centers for Disease Control and Prevention’s list of cancer clusters in the United States.

California’s diverse population makes it an excellent resource for cancer research. “We can identify unique risks predicted by that diversity,” Morgan says. Although California is not a high-risk state for cancer, things are even better in Loma Linda and Redlands where socioeconomic

factors yield fewer tobacco-related and preventable cancers.

Morgan says clinicians bring the questions to the research team, he brings the database and epidemiology methods, and graduate students bring the sophisticated statistical analysis skills.

“Without the medical specialists asking the relevant questions, the team wouldn’t be translational,” he says, adding that the Loma Linda University School of Public Health doctoral students are the best data analysts available. Together, the team has published approximately 40 papers in scientific journals in the last eight years, some of which have changed the practice of medicine, Morgan says. He predicts the team will publish many more, with three already published or accepted for publication during 2018.

That, of course, is good news for patients who will benefit from new insights and treatments these studies will uncover.

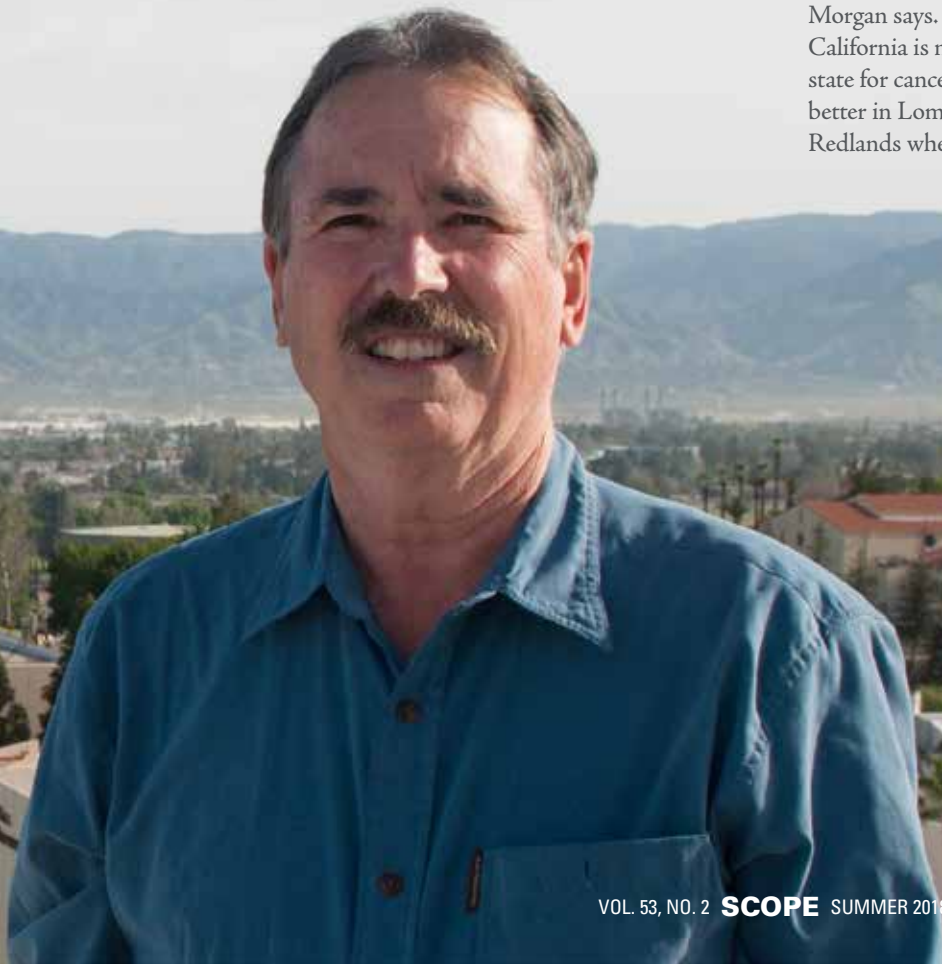


PHOTO BY ANSEL OLIVER

USING GIS TECH



PHOTO BY TANYA MUSGRAVE

NOLOGY

TO MAP ADHERENCE TO CANCER SCREENINGS

Public health researcher wants to know why some veterans don't use non-invasive home test

BY JAMES PONDER



A Loma Linda University School of Public Health researcher is trying to find out why some U.S. military veterans are reluctant to use a popular test for colorectal cancer.

The fecal immunochemical test, or FIT, is faster and more convenient than the other colorectal screening test, the colonoscopy, yet is often shunned by veterans.

Unlike a colonoscopy, which must be administered by a physician while the patient is sedated, FIT involves no pain and does not require anything to be inserted into the patient's anal opening while the patient is sedated. It is also far less expensive and can be self-administered at home.

Public health experts foresee a day when burgeoning demand will overtake the supply of gastroenterologists, making FIT the only sensible alternative.

Seth Wiafe, PhD, MPH, director of health geoinformatics at Loma Linda University School of Public Health, is analyzing data from more than 17,000 patients of the VA Loma Linda

Healthcare System to find out why U.S. military veterans from some zip codes, but not others, are less likely to comply with their doctor's orders to take the FIT.

Preliminary findings reveal zip code pockets within Inyo, Riverside and San Bernardino counties where approximately half of veterans do not complete the test. Wiafe uses Tapestry Segmentation, a geographic information system (GIS) developed by geomapping software firm Esri, to search for commonalities among zip codes where veterans do not support the test.

He says people should take colorectal cancer seriously and cites an American Cancer Society prediction that some 50,000 Americans will die from the disease this year. Wiafe notes that while colon cancer is the third most common cancer, it has the second-highest mortality rate of all cancers in this country. "Timely screening in adults can significantly reduce the incidence and mortality of colorectal cancer," he says.

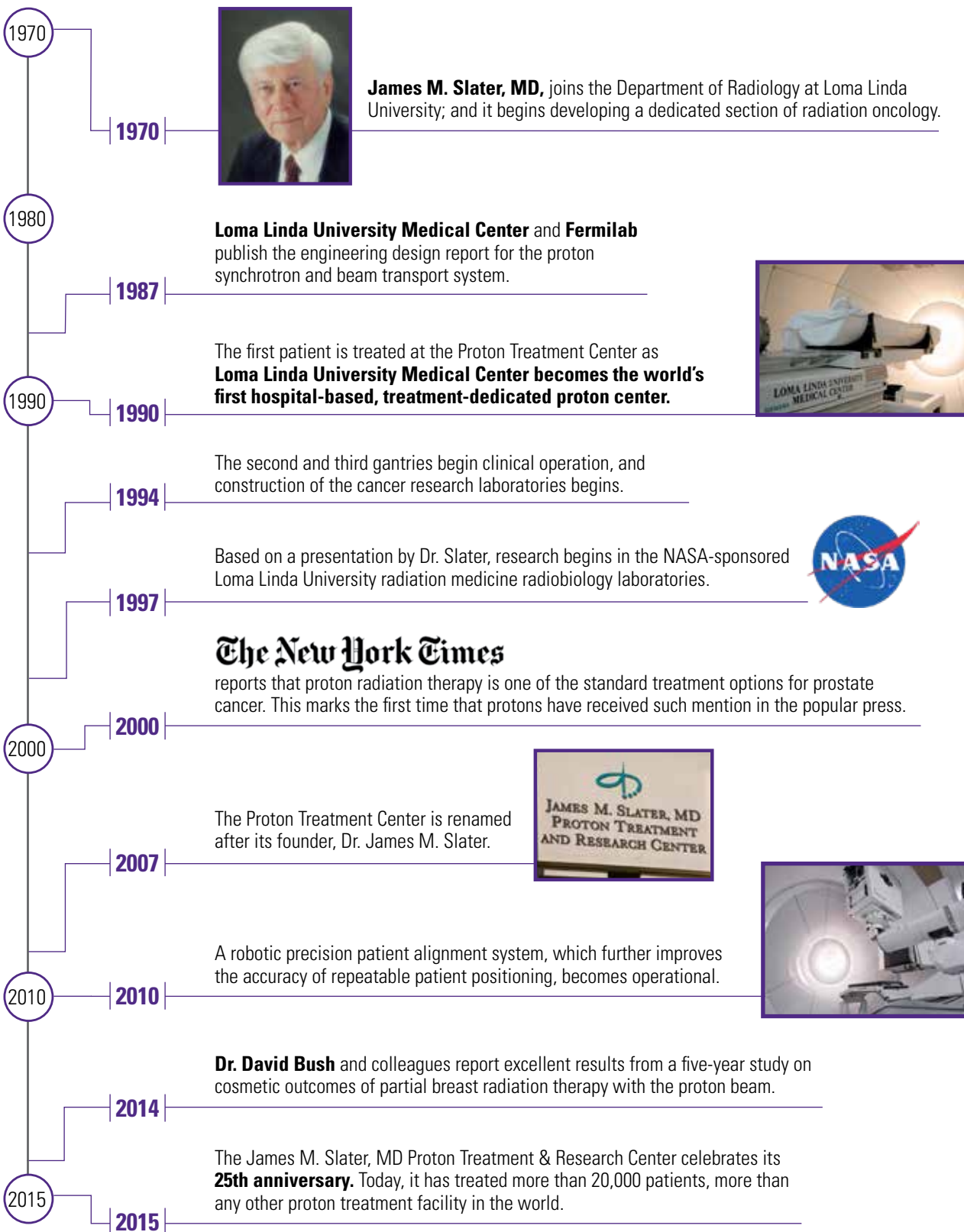
Wiafe is a pioneer in the use of GIS technology. A native of the West African country of Ghana, he hopes the data will yield a formula for predicting whether veterans of any given zip code are likely to take the test or not.

"If so, the Veterans Administration will need to find out how they can increase adherence in those areas," Wiafe says.

Seth Wiafe, PhD, MPH, is director of health geoinformatics at Loma Linda University School of Public Health.

Loma Linda University Cancer Center James M. Slater, MD Proton Treatment & Research Center

The James M. Slater, MD Proton Treatment & Research Center has treated more than 20,000 patients from 59 countries since it opened at Loma Linda University Health in 1990. It was the world's first hospital-based proton-beam accelerator dedicated to the treatment of patients with cancer. Here are some of the center's major milestones.



Journey to Comprehensive Cancer Center

Designation from National Cancer Institute would place Loma Linda University Health in elite group

**BY JUDY CHATIGNY, EXECUTIVE
DIRECTOR OF THE LOMA LINDA
UNIVERSITY CANCER CENTER**



PHOTO BY ANSEL OLIVER

The Loma Linda University Cancer Center treats 45,000 patients each year, many of whom have been told by other providers there was little that could be done. Its approach of using teams of specialists employing a combination of surgery, radiation and medication is able to offer hope and healing to those most in need.

Now, the LLU Cancer Center is preparing for the next level in its ability to serve patients and help offer groundbreaking research to professionals worldwide. Loma Linda University Health is currently taking steps to earn a designation from the National Cancer Institute to become a Comprehensive Cancer Center, a move that would place the organization in an elite fraternity of institutions around the country working to defeat cancer.

The designation would create a powerhouse discovery engine for research, as well as give the Cancer Center an even larger translational capacity to send that research to the clinic. The designation would make it one of only 50 cancer centers in the United States to hold "comprehensive" status by the National Cancer Institute.

Comprehensive Cancer Centers are uniquely situated to develop specific treatments and medications for specific cancers, often cancers that are prominent in a center's home region. They also operate in a catchment-area system, similar to regional trauma centers. When the Loma Linda University Cancer Center earns "comprehensive" status, its catchment area will be massive, and it will work to target the region's unique disparities. Other Comprehensive Cancer Centers in California are nearer to the coast. To the east of Loma Linda, the closest one is a 430-mile drive to Tucson,

Arizona. To the Northeast, the closest is a 650-mile drive to Salt Lake City, Utah.

We're looking to lead in helping solve problems that are unique to our region.

It will be several years before Loma Linda University Health officials present their formal submission. But steps are being put in place now, and the Cancer Center is aggressively recruiting for this new direction. In the meantime, here are ways in which supporters can help:

- Financially support the Cancer Center's research.
- If you have cancer or know someone who does, enrollment in a clinical trial moves medical professionals closer to a cure.
- Encourage friends to do screening for cancer, either through self-examination or through an appointment with a doctor.
- Volunteer at the Loma Linda University Cancer Center.
- Participate in community cancer awareness events, such as the Believe Walk in Redlands, held the first Sunday each October, or the Celebration of Life, the first Sunday each June.

Thank you for your support as the Loma Linda University Cancer Center moves toward the nation's most prestigious honor for an oncology institution, and more importantly, will contribute in an even greater way to the battle against cancer.

A VISION COMING INTO FOCUS

VISION 2020 – THE CAMPAIGN FOR A WHOLE TOMORROW IS TRANSFORMING LIVES THROUGH INNOVATIVE EDUCATION

Vision 2020 is a \$360-million comprehensive philanthropic initiative, the largest in the history of Loma Linda University Health. The effort also represents the largest investment in healthcare and education in the Inland Empire.

A key part of Vision 2020 is to ensure Loma Linda University remains a special place where students aspire to study and learn about our unique brand of healthcare. One priority is affordability, helping put this valuable education within reach for the most promising and mission-minded future healthcare workers.

Representatives from Loma Linda University School of Nursing recently received a call from a person acting as trustee for an estate. The trustee shared a story of how the estate holder was so impressed with the warm, professional care that Loma Linda University Medical Center nurses had provided more than 40 years ago that she wanted to contribute support for future nurses. The trustee indicated that there would be a gift of \$1 million coming to the School of Nursing. When school representatives went to meet with the trustee to learn more of the story, they received news of a second estate gift of \$500,000, making a total bequest of \$1.5 million. Each year, 16-24 nursing students will benefit from this endowment. This generous act has resulted in a nearly 12 percent increase in scholarship funds available for School of Nursing students.

Since Vision 2020 was launched, people with abundant hearts for students have established more than 20 new scholarship endowment funds. In addition, donors have contributed to more than 100 scholarship funds that started before Vision 2020 began. These gifts provide vital financial support for students in need.

"Education is the best thing you can give a person," Loma Linda University alumnus Don Hall said. And over the years many people have benefited from Hall's belief in education. After earning a Doctor of Public Health in Preventive Care, Hall's career led him 40 years ago to launch Wellsource, a company offering computerized health analysis programs. Corporations use these programs to help their employees better understand and improve their health.

Hall is continually exploring ways to have the most impact on helping people live healthy lives. Seeing the potential to shine a light on the Adventist Health Study, Hall and his wife, Trish, decided to fund an endowed chair for the School of Public Health — the Don and Trish Hall Research Professorship. These funds will be significant in supporting the important Adventist Health Study, the long-term series of research projects exploring the benefits of lifestyle and diet on disease among Seventh-day Adventists.

The Hall professorship is one of eight new endowed chairs/professorships established since the beginning of Vision 2020. In addition, more than 20 existing chairs/professorships have been expanded during Vision 2020. These professorships and chairs generate earnings from endowments, and it's those earnings that support a professor's compensation, scholarship and responsibilities in teaching, research and service.

Loma Linda University is dedicated to continuing our growing research emphasis. Throughout its history, university-based researchers have asked questions that were daring, difficult and ahead of their time: Could we save a newborn's life with a transplanted heart? Could a beam of protons destroy cancer without damaging surrounding tissue? Is there a way to keep dental patients conscious yet comfortable during procedures?

The world is waiting for answers to new questions that Loma Linda University Health is uniquely positioned to answer.

Earlier this year, the Vision 2020 effort passed a significant milestone when it was announced that less than \$100 million of the \$360 million goal was left to be raised.

"We are so grateful to all who have supported the campaign," said Rachelle Bussell, MA, CFRE, senior vice president for advancement. "Our community friends and university alumni who believe in our mission to continue the teaching and healing ministry of Jesus Christ have played key roles in helping us reach this point. But we know that we still have much work to do."

For more information, visit luhvision2020.org.





PHOTO COURTESY OF THE SCHOOL OF NURSING

MOVING ON UP

VISION 2020 IS A \$360-MILLION PHILANTHROPIC CAMPAIGN SUPPORTING LOMA LINDA UNIVERSITY HEALTH'S COMPREHENSIVE VISION FOR THE FUTURE THROUGH FOUR PRIORITY AREAS: EDUCATION, CLINICAL CARE, RESEARCH AND WHOLENESS.

The construction of a new Medical Center and new Children's Hospital tower are the most visible aspects of the Vision 2020 campaign.

The foundational pedestals were put in place last summer — all 126 of them. Each one was designed and built to support a new 16-story Medical Center and nine-story addition to Children's Hospital at Loma Linda University Health. Now, Loma Linda's skyline is undergoing a dramatic, permanent change with the construction of the steel frames.

There's an urgency to completing these new facilities. The State of California has mandated stringent seismic safety regulations for acute-care hospital buildings, which must meet these new standards by the year 2020. Facilities that have not met the new requirements face closure. Confronting what seemed to be a monumental challenge, Loma Linda University Health stepped forward in faith, placing the new hospitals as a cornerstone of Vision 2020.

After considering various options to move forward, Loma Linda University Health leaders concluded that retrofitting the institution's iconic cloverleaf tower, in use since 1967, would not be the best approach. Instead, constructing a new Medical Center and expansion of the Children's Hospital was more financially responsible. New construction also meant an opportunity to rethink how healthcare is delivered in a hospital setting

in the 21st century and create a model for the future.

The 126 pedestals play a key role in meeting the new state seismic requirements. The entire array will operate as "friction pendulum isolators," designed to slide up to 84 inches horizontally under the hospital structure during an earthquake without the building itself moving. Special springs to absorb vertical movement may also be added, which would make this the first hospital building in the world to implement such earthquake-mitigation measures and set a new standard in seismic safety.

The pedestal system serving as the base of the new hospital is the first of its kind, said Kerry Heinrich, JD, chief executive officer of Loma Linda University Medical Center. "These pedestals represent the leading technology in the world, and they will make a real difference in the seismic safety of the new hospital."

Each pedestal is 10-1/2 feet wide, 10-1/2 feet long, and 3-1/2 feet tall, with each one weighing 10 tons. The units were built in Eloy, Arizona, and trucked to Loma Linda for placement. Each pedestal took about three weeks to assemble.

While seismic safety is the primary consideration in the pedestal design, these 126 units will be the platform for a hospital facility that incorporates the latest advances in patient care and comfort. The new building also supports expansion of key adult services, such



as the Level 1 trauma center, the Emergency Department, the International Heart Institute and nearly doubles the size of the Neonatal Intensive Care Unit.

"There is no question this new building will be the foundation of another significant expansion of the Loma Linda University Health story," said Richard H. Hart, MD, DrPH, president of Loma Linda University Health. "But the building itself only supports the people and events that happen inside. Students will learn new skills, residents will perfect their specialties, faculty will push the boundaries of science and thousands of patients will be blessed with a special kind of care."

Loma Linda University Health's mission statement commits the organization and its people to continue the teaching and healing



PHOTO BY ANSEL OLIVER

ministry of Jesus Christ. The new hospital facilities are central to fulfilling many healing objectives. But it's the mission statement's teaching emphasis that is a large part of why the hospital exists at all. The organization's hospitals are the primary teaching laboratory for the thousands of students studying here in medicine, nursing, allied health professions, pharmacy, behavioral health specialties and chaplaincy.

Learn more at luhvision2020.org.

Kerry Heinrich, JD, right, CEO of Loma Linda University Medical Center, and Eric Schilt, assistant vice president for construction, during a recent tour of the construction site



PHOTO BY JANELLE RINGER

1



/ Gallery /

homecoming

2018

4



1. The Loma Linda University Church Orchestra and Choir perform during Sabbath worship, which was held in the Drayson Center.
2. Participants of the Sabbath morning Parade of Flags wore native dress from their home countries or countries where they served as missionaries.
3. Attendees were treated to a haystack lunch following the Sabbath church service.
- 4, 5, 6. Numerous alumni performed in a talent show on Saturday night.
7. A 5K fun run was held Sunday morning, with proceeds supporting scholarships for the schools of Nursing and Pharmacy.
8. School of Allied Health Professions Dean Craig Jackson, JD, MSW, right, formally participated in the Sunday pickleball tournament along with School of Public Health Dean Helon Hopp Marshak.
9. Homecoming was a great chance to catch up with friends.

7





SCHOOL OF MEDICINE ALUMNUS BRAYLEY IS PHYSICIAN FOR NBA'S SACRAMENTO KINGS

By **ARIN GENCER**

When Jason Brayley, MD, applied to become chief of sports medicine for Kaiser Permanente in Sacramento, he was drawn to the healthcare system's vision for growing its sports medicine practice and its approach to keeping people healthy.

He didn't give much thought, if any, to talk of Kaiser Permanente potentially becoming the primary medical provider for the California capital city's Sacramento Kings.

But about a month after the Yucaipa, Calif., native started his new job, his boss asked what he would think about being a Kings' team doctor.

Brayley is now one of two physicians who regularly attend home games, responsible for the care of the Kings and of the visiting team, referees and other staff. If a medical issue arises before, during or after a game, Brayley is available to attend to the matter as needed.

He also acts as the Kings' primary care doctor, advising and treating players and their families when they have medical needs — whether it's dealing with the flu, stomach ailments, infections or other issues.

"It's a 24/7 job," Brayley says. "NBA athletes are human beings just like us with families and life stresses.

Part of my job has been to establish relationships that help provide care in any way that the athlete or family may need."

Brayley also enjoys providing the same level of care to the range of patients who walk through the doors of Kaiser's sports medicine center inside Golden 1 Center, the Kings' home arena.

Brayley's role is one he never imagined for himself, though he can pinpoint experiences that, in retrospect, clearly helped set the stage. One is his time in medical school: he especially credits two professors — Resa Chase, MD, and Ben Nava, PhD — for encouraging him to persevere despite a trying first quarter.

He also points to the sacrifices of his family to support his education. His father was a psychiatric tech who worked two full-time jobs, and his mom taught second-grade. Brayley didn't come from a line of doctors, but growing up near Loma Linda, he was surrounded by them. An early interest in physical therapy while in high school at Loma Linda Academy evolved into a desire to pursue medicine.

"It was a career that was interesting, that I thought was a good calling, so I went for it," he says.

He attended Pacific Union College in Northern California's Napa Valley before going on to Loma Linda University School of Medicine in 1997. He grew interested in family medicine as he completed rotations at military hospitals, which were required for the U.S. Navy scholarship that paid for his last three years of medical school. After graduating in 2001, he completed a three-year family medicine residency through the Naval Hospital Camp Pendleton on the Marine Corps base north of San Diego, followed by three years of service at Naval Air Weapons Station China Lake in the western Mojave Desert.

A sports medicine fellowship at Ohio's Cleveland Clinic — the healthcare provider for the Cleveland Cavaliers — began laying the groundwork for his future practice. Working under team doctors for a year gave him an up-close view of the rhythms and requirements of being an NBA physician. At the same time, he volunteered as doctor for a cycling team, a role he performed until 2013, further expanding his experience in caring for professional athletes.



PHOTO BY ANSEL OLIVER

"The fellowship leaders thought it was a good idea for me to get my feet wet, so they supported me doing that on my own," says Brayley, who had long followed professional cycling and done his share of road racing. "Being involved with a domestic professional cycling team was a great opportunity to expand taking care of athletes."

After his fellowship, Brayley looked for jobs with a sports-medicine focus that

also would bring him back to California. An opportunity with a Seattle-area healthcare system came first, and he and his young family headed west. Five years later, the position in Sacramento opened, and he jumped at the chance to work in Northern California.

In some ways, he's come full circle: The Kings played in the first NBA game he ever attended.

"I look back in hindsight and realize how many of these

little small things that seemed relatively unimportant at the time were part of the bigger picture," Brayley says.

"Every move I've made since high school and college is based on leaps of faith, and you feel like you're sort of steered in one direction," he says. "My wife and I felt like we've been led every step of the way."

Jason Brayley before a game in March. He typically arrives to games 90 minutes before tip off.

THE EMERGENCY PREPARER

*School of Public Health alumna coordinates
international support when tragedy strikes*

By **CLIFFORD GOLDSTEIN**

The complexity of humanitarian work hit Canadian Elizabeth Tomenko as a new college graduate when she worked at a homeless shelter in the Downtown Eastside — a neighborhood in Vancouver, British Columbia, notorious for poverty, drug addicts, prostitutes and criminal runaways.

She worked in the kitchen and loved helping people eat healthy, but reality hit hard.

"We would put a salad before someone off the street, but they couldn't eat it because they had no teeth. It was then I learned that health was a lot more complicated than telling someone to eat their veggies," Tomenko says.

Since then, she's gone on to work in the complex world of international humanitarian service, coordinating food and emergency support for tens of thousands. The 2014 graduate of Loma Linda University School of Public Health now works at the home office for the Adventist Development and Relief Agency (ADRA), which is based at the Seventh-day Adventist Church's world headquarters in Silver Spring, Maryland. Her role as the Emergency Response Program Manager for Asia-Pacific and North America has taken her all over the globe and brought her face-to-face with numerous humanitarian crises.

Last year, her job at ADRA took her to the sprawling Rohingya refugee camps in Bangladesh. Hundreds of thousands of Rohingya, a stateless Muslim minority, have fled their homes in Myanmar because of violent persecution and are stuck in makeshift camps in a country that can ill-afford to help.

"It was debilitatingly heartbreaking," she says about what she saw in the camps. "It's extremely motivating to be there, but at the same time, you have to somewhat distance yourself from the people you are trying to help to be able to function."

What was striking, she says, was just 40 minutes away from the nearest camp was a resort town filled with tourists having a great time. "Vacationers were jet-skiing when, just down the road, I was in a camp filled with desperate, fearful, hungry families."

She has helped coordinate responses to numerous massive emergency situations — everything from flooding in Nepal and Bangladesh to typhoons and volcanic eruptions in the Philippines to hurricanes and wildfires in North America.

Tomenko first joined ADRA in 2014 as the Adventist Church's Ebola response coordinator, a newly-created position at the time to help several denominational entities respond to the Ebola outbreak in West Africa. She had been with World Vision when she learned ADRA needed someone in a temporary slot to help with that emergency. She got the job and, when the crisis abated, ADRA hired her permanently.

When not in the field, Tomenko spends most of her time in the office, remotely coordinating and providing support to humanitarian activities across her region. "I'm on the phone and Skype a lot," she says. "It's not unheard of for me to be on a call at midnight when it's business hours on the other side of the world."



PHOTO BY ARJAY ARELLANO

Her support comes in the form of proposal writing and review, seeking and coordinating pooled funding for responses, and training country office staff. When necessary, she helps deploy extra teams to support emergency responses. Sometimes that means she goes herself.

"I had less than 12 hours' notice before deploying to Bangladesh for the Rohingya refugee crisis," she says. "I had been planning a different trip but was advised to change it at the last minute."

Tomenko's interest in working internationally was piqued in high school when she went on a mission trip to Belize. Later, she went on several

more trips, even living and studying in Thailand and teaching English in Albania before earning a degree in food, nutrition, and health science at the University of British Columbia.

From there, Tomenko came to Loma Linda University, where her love of travel, interest in nutrition, and desire to help others all coalesced when she earned her Master of Public Health degree in Global Health. Here, mentors and teachers encouraged her, helping her catch the vision that enabled her to take all her passions to their potential.

In the Integrated Community Development course, she spent part of a summer with several hands-on community health projects in Peru.

She says the school provided great mentorship and opportunities to be involved and connected to church-based health systems and initiatives around the world.

"I wouldn't have gotten that networking or those opportunities anywhere else," she says.

For now, she's watching out for other potential emergencies, monitoring a cyclone, a tropical storm and two volcanoes at once, and keeping in close contact with ADRA's teams on the ground.

"In this world, you never know what is going to come next," she says. "We need to be ready for anything."





GOING TWICE

Auctioneer Jim Nye, left, works the audience at the 25th Anniversary Children's Hospital Foundation Gala at the Riverside Convention Center in March to sell a painting by Jeff Hanson, right, a visually impaired philanthropic artist.

The painting sold for \$24,000 — twice, with Hanson offering to paint a replica for a second bidder. Hanson then auctioned off his tie and cummerbund, which sold for \$1,000.

The event raised \$2.36 million for Loma Linda University Children's Hospital services.

Yolanda and Dennis De La Paz
Revocable Living Trust with Charitable
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Powerful Strategies

FOR PEOPLE WHO CARE

Retired banking VPs Yolanda and Dennis had their financial future covered.

Once Dennis was diagnosed with prostate cancer, the family searched for stability and healing at Loma Linda University Health (LLUH).

Given a second chance at life, the De La Paz's were inspired to give back to LLUH through Planned Giving.

Their strategy was to include a charitable remainder clause in their revocable living trust.

Let us help you discover your Powerful Strategy.

Office of Planned Giving

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To read more about Dennis and Yolanda's story, visit lulegacy.org/ps.



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What is Your Reason to get a **Cancer** Screening?



Encourage each other to know your cancer risk by visiting **LomaLindaCancerQuiz.org**. Loma Linda University Cancer Center has the latest screening technology for the early detection of breast and prostate cancer. We are the leading cancer center in the region, offering comprehensive care from diagnosis to survivorship. Cancer is not a choice. Choose to get a screening today.

We **LIVE for early detection** of breast and prostate cancer.

For more information, visit **LomaLindaCancerQuiz.org**.

MANY STRENGTHS. ONE MISSION.



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