Kleinerman wins $1.44 CPRIT grant to investigate exercise impact following sarcoma therapy

Eugenie Kleinerman, M.D., professor of Pediatrics-Research, was awarded a $1.44 million grant from the Cancer Prevention and Research Institute of Texas (CPRIT) in February to support her study of exercise as a factor that can decrease the impact of cardiac injury in adolescent and young adult sarcoma survivors previously treated with doxorubicin for sarcoma. The basis of her project, “Doxorubicin-Induced Cardiotoxicity: Defining Blood and Echocardiogram Biomarkers in a Mouse Model and AYA Sarcoma for Evaluating Exercise Interventions,” asserts these patients are 8.2 times more likely to develop heart failure later in life.

“We developed an adolescent cardiotoxicity mouse model and showed that exercise decreased acute Dox-induced heart damage and late cardiotoxicity without decreasing tumor efficacy,” wrote Kleinerman in her grant application. The funds will support her work with colleagues to define a set of echo and blood biomarkers in patients that can be used to identify patients at risk for cardiotoxicity and to help establish a randomized trial to evaluate the clinical effectiveness of exercise in the AYA sarcoma population.

The long-term goal is to reduce acute Dox-induced cardiac injury and late cardiomyopathy. Since Dox-induced cardiotoxicity is the second leading cause of death in AYA sarcoma survivors, this study has the potential to change clinical practice by incorporating exercise interventions into the continuum of patient treatment. “Decreasing the acute Dox-induced heart damage will in turn improve cardiac health, quality of life and long-term survival,” Kleinerman stated.
Division Head Richard Gorlick, M.D., professor and department chair, held five weekly virtual Town Halls from March 24 through April 30 to keep Pediatrics faculty and employees informed about our clinical and research enterprise. Quang Doan, M.S., senior systems analyst and Cecilia Aguerre, Ph.D., program manager for strategic initiatives, assisted with content and technical support. Altrivice Revis, M.B.A., project director for Pediatrics, was temporarily reassigned to provide program management support to the COVID-19 Core Leadership Team (CCLT). Chaired by Rosanna Morris, M.B.A., chief operating officer at MD Anderson, CCLT is the decision-making body leading MD Anderson’s COVID response. In support of the division heads and to facilitate rapid and accurate communication, Altrivice also created and disseminated daily COVID-19 briefing summaries to targeted leaders across the organization. For as much as possible in the weeks following the massive shift in operations, business continued. Some highlights are below.

- We restarted Grand Rounds on April 20 with Christopher Flowers, M.D., M.S., professor and chair, Lymphoma/Myeloma, as the first virtual presenter. Other lecturers were:
  - April 27—Ashley Wilder Smith, Ph.D., M.P.H., chief of Outcomes Research Branch at the National Cancer Institute (NCI). She discussed past and present AYA Research underway at the NCI.
  - May 4—Members of the Supportive Care Team. They discussed multiple options of cultivating creative approaches at end of life and throughout care continuum.
  - May 11—Stephen Gottschalk, M.D., chair of the Department of Bone Marrow Transplantation and Cellular Therapy at St. Jude Children’s Hospital. He discussed new targets and signaling pathways in CART therapies.
- Meetings typically held in conference rooms and offices were moved to a virtual environment.
- Kevin Long, M.B.A., F.A.C.H.E., director of Pediatric Operations, led a team of Child Life specialists and Facilities employees to relaunch within a span of a weekend a Child Visitation Room to accommodate the siblings of our patients whose out-of-town parents were in Houston without backup daycare when the COVID crisis began. The room for children under 12 opened March 16 at ACB2.1510, while Kim’s Place provided a space for older kids. The ACB location is now on standby status.
- Long also worked with Tony Choy-Morga, M.B.A., associate department administrator and Veronica Garza, M.A., human resources business partner in HR Strategic Partners, to redeploy employees to other locations at MD Anderson. This measure made it possible for those staffers to avoid using PTO because they did not have enough work to fill 40 hours a week if their faculty or program team was not on site.
- Karen Moody, M.D., M.S., and her integrative medicine team arranged many opportunities for employees to be guided in relaxation, meditation, breathing and stretching exercises. The wellness sessions, which include Doga—also known as Dog Yoga—have been well-attended. Look for the evites in your Outlook inbox.

Division leaders made the decision to cancel the traditional Camp Season and the Children’s Cancer Hospital’s biggest event of the year, the Prom Party Palooza. Instead, Tomika Gamble, B.S., program manager for Camps and Special Events, is working with volunteers and community partners to host three virtual camp experiences for our patients and families. The first one begins June 22.

Our school team began reaching out via phone and online to provide tutoring and support to students trying to complete the spring semester—all school districts and private systems closed their campuses.

Child life specialists and assistants began reaching out to parents and children online to establish alternate means of communications. This is part of a digital initiative that includes 25 iPads used to conduct daily activities such as playtime, art, music, and story time. The electronic devices make it easy for our Support Program stakeholders and community partners to have engaging activities with our patients.

The Child Life group also worked with Arts in Medicine employees to create beautiful and inspiring ‘chalk talk’ messages for employees and patients waiting to be screened upon entry to our buildings. Their artistry outside of the Main building near the Chapel and along the sidewalk in front of Pickens Tower received social media praise on two occasions—April 8 and 30.
Mahadeo publishes article in Oncology Times about stem cell transplantation complications

Kris Mahadeo, M.D., M.P.H., stem cell transplantation and cellular therapy (SCT-CT) section chief and medical director of Pediatric SCT-CT, published an article in the April 5 issue of the Oncology Times about recognizing and responding to potentially life-threatening complications of stem cell transplantation in pediatric and young adult patients. The challenge—called sinusoidal obstructive syndrome (SOS), also known as hepatic veno-occlusive disease, happens when tiny blood vessels in the liver become blocked and decrease blood flow, which can lead to liver disease. This complication can occur during the intense conditioning therapy prior to transplantation or after the procedure itself.

Pediatric and adult stem cell specialists, nursing organizations, and other groups participated in a conference held at MD Anderson last year where a consensus was formed about SOS symptoms. Papers were subsequently published in Nature Reviews and Lancet Haematology (see research publications on pages 6-7) enumerating complications which include two or more of the following:

- Unexplained consumptive and transfusion refractory thrombocytopenia
- Unexplained weight gain three days in a row despite use of diuretics
- Enlarged liver
- Ascites
- Rising bilirubin

An accepted response to treat SOS with renal or pulmonary dysfunction after transplantation is Defibrotide. Mahadeo wrote that improved diagnostic criteria should allow earlier detection of SOS/VOD. “Severity grading criteria recognized by interdisciplinary experts for respective organ systems should also augment our ability to determine the likelihood of this syndrome.”

Father of first CAR T cell therapy patient shares survivor’s story: worth the risk

Tom Whitehead, the father of now 15-year-old Emily Whitehead, the first child to receive CAR T therapy, gave a riveting account of his daughter’s survival during a Jan. 30 visit to Houston. He also thanked researchers and employees for being part of a worldwide team that investigates and delivers new life-saving options for pediatric oncology patients. Whitehead shared that not long before Emily was diagnosed with b-cell acute lymphoblastic leukemia (ALL), his five-year-old daughter had received a good report from her yearly checkup. Then, things changed. “She started having unexplained bruising and complained of leg pain,” he remembered. “So, one night I drew her a bath and when I tried to put her in the water she screamed out in pain.” He and wife Kari rushed Emily to an emergency room near their home in Pennsylvania, where after a series of tests, doctors gave their diagnosis. Treatment began and results looked promising for a time, but their daughter relapsed twice. She was approved for a bone marrow transplantation, but then that fell through and Emily got worse.

The Whiteheads decided to try another hospital around the same time as a Phase 1 clinical trial of CAR T cells had been approved for children. Emily would become the first pediatric patient. The immune cells were extracted and reprogrammed and multiplied in a lab to target and destroy her cancer—and then reinfused. “On day three, she got the sickest she’d ever been due to cytokine release syndrome (CRS),” Whitehead said. Emily experienced severe side effects such as low blood pressure, fever, chills, and fluid that flooded her lungs. Her care team induced a coma and put her on a ventilator. “Then one day, the doctor came in and explained that it would be only a one in one thousand chance that Emily would make it through the night,” he recalled. “Maybe I was naïve or something, but I told him, ‘I’ll talk to you tomorrow and she’ll be here.’” Her doctors added tocilizumab, an arthritis drug, to help respond to treatment-induced CRS symptoms and Emily made it through the night. She woke up two weeks later on her seventh birthday and received a “Happy Birthday” serenade from hospital staff. When she went home, the family found hundreds of people lined up along the street to wish them well. That was five years ago.
Gaynon Delivered Sutow Lecture

Paul Gaynon, M.D., (right) professor of Pediatrics at the University of Southern California’s Keck School of Medicine and an attending physician at the newly named Cancer and Blood Disease Institute of the Children’s Hospital of Los Angeles, was the W.W. Sutow Visiting Lecturer in Pediatric Oncology on Jan. 30. Seen here, he’s accepting an appreciation plaque from Cesar Nunez, M.D., professor of Pediatrics and leukemia specialist at the Children Cancer Hospital. Nunez leads a committee that selects speakers to come to Houston to share historical and current assessments of research and treatment options for pediatric and young adult oncologic disease. Gaynon’s topic was, “Further Progress in Childhood Acute Lymphoblastic Leukemia.”

Clinical role changes to note

Several faculty and clinical employees have taken on new roles to help manage our extensive patient care enterprise.

- **Douglas Harrison, M.D.**, has a new job—sort of. In March, MD Anderson announced 13 inpatient medical directors and four associate inpatient medical directors who joined forces with the institution’s Inpatient Operations team to help improve hospital flow and patient experience. Harrison was named as the inpatient medical director for G9. This responsibility is in addition to his ‘regular’ roles as an oncologist, center medical director for the Robin Bush Child and Adolescent Center and medical director for Pediatrics Children’s Cancer Hospital.

- **Trish Amado, B.S.N., M.S.N., R.N.**, accepted the role as nurse manager of the G9NW Pediatric Intensive Care Unit (PICU), effective Jan. 16.

- **Janet Smith, B.S.N., R.N.**, remains associate director for Ambulatory Nursing for the Child and Adolescent Center, while taking on responsibilities as ad interim associate director of G9, effective April 16, following the transfer of **Shea Simon, D.N.P., A.P.R.N.**, who now works on G12.

**Critical Care Team expands to meet needs of complex patient care**

Our Pediatric Intensive Care Services (PICS) team has grown to accommodate an increased number of patients requiring critical care services while receiving complex treatments to cure their cancer. Linette Ewing, D.O. and Ali Ahmad, D.O., joined as critical care specialists in August and October, respectively. Rodrigo Mejia, M.D., professor, serves as section chief as **Shehla Razvi, M.D.**, assistant professor, takes the lead in his absence. Jose Cortes, M.D., assistant professor, has long been in critical care services and oversees procedures, such as endotracheal intubations, central and arterial line placements, chest tube placements, abdominal paracentesis, bone marrow aspirations, lumbar punctures, and others. Mejia and Ahmad are currently updating care policies, order sets, and equipment. Razvi and Ewing manage critical care fellows from Memorial Hermann Children’s Hospital who rotate through the unit. Additionally, Ewing is co-developing a pediatric simulation program for nurses and fellows. The team provides in-house coverage 24 hours a day. All of our faculty members are Pediatric Advanced Life Support (PALS) and Advanced Cardiovascular Life Support (ACLS) certified. Clinical staffers on the floor, including **Patricia Amado, B.S.N., M.S.N., R.N.**, nurse manager, are also dual certified. All 13 beds in the Rainforest Pod are equipped for hemodialysis and the unit has one negative pressure room.

**Children’s Tumor Foundation Network Recognizes Excellence of our NF Clinic**

Our Pediatrics Neurofibromatosis Clinic was accepted into the Children’s Tumor Foundation Network, putting us on the largest referral map and creating more opportunities for clinical research partnerships. Co-directors for clinic are **John Slopis, M.D.**, professor of Neuro-Oncology and Pediatrics and Zsila Sadighi, M.D., associate professor of Pediatrics.

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Racheal Bingham, B.S., M.S.N., R.N., is the advanced practice registered nurse on the team. Neurofibromatosis (NF) is a genetic disorder of the nervous system which causes tumors to form on the nerves anywhere in the body at any time. In the United States, it is found in about 2,500 to 3,500 births, and impacts more than 100,000 Americans. The disorder has three distinct forms, approximately half of all patients diagnosed have a family history of NF, with the remaining cases the result of spontaneous genetic mutation. Right now, there is no cure.

College and Career Fair offered our patients real world options

The second annual Future Redefined: College and Career Fair was very successful, with representatives from 21 organizations attending to support our patients. The event held at The Park on March 4 introduced our teen and young adult patients to representatives from local colleges and universities, energy and oilfield sectors, the City of Houston and Harris County, hotels and restaurants, an airline, a jeweler, STEM companies, grocers and the health industry—including representatives from the UT School of Public Health and MD Anderson. “We believe that our patients will have productive, bright futures following their treatment. They just need someone to help them get started and to support their abilities and goals,” said Bonnie Butler, M.Ed., senior educational specialist with the Pharmacy Continuing Educational Program and former coordinator with the Pediatric School program.

“Feedback from attendees this year was overwhelmingly positive,” said Ashley Smith, B.A., program coordinator in our Arts in Medicine Program and co-organizer with Butler. She gave an example of one patient who had previously been unsuccessful in finding a new job. “He subsequently attended the mini-workshops for job strategy that we added this year and he felt like the sessions gave him the confidence he needed to find a new job and gain new independence. Today he looks like a new person and has been getting interviews,” Smith said.

AYA clinic opens to suit needs of young adults

A ribbon-cutting ceremony and tour were held Dec. 9 to officially open the beautiful new Adolescent and Young Adult (AYA) Oncology Clinic Space. Faculty, employees, and members of the Young Adult Advisory Council attended the event. The program launched in June 2018 and has served more than 800 survivors between the ages of 15 and 29 who have concerns about fertility and survivorship. Previously, these young adults checked in at the Robin Bush Child and Adolescent Clinic, with the babies and smaller kids.

Now they enter an area down the hall from the center that was repurposed just for them to include a lobby that feels more like a living room than a waiting room and features iPad check-in stations, a large television screen that promotes upcoming AYA events, and multiple charging stations for their electronics. The area also has counseling and exam rooms.

Roth assumes leadership role in COG AYA committee

Michael Roth, M.D., associate professor of Pediatrics and codirector for our Adolescent and Young Adult (AYA) Oncology Program, became the chair for the Children’s Oncology Group’s (COG) AYA Oncology Discipline Committee in September 2019. He also leads the AYA Responsible Investigator Network, which includes more than 140 investigators from COG sites around the world, all focused on increasing the number of AYA patients in clinical trials.

Roth, who serves as the director of our Childhood Cancer Survivorship Program, maintains his clinical research focus on long-term survival and health-related quality-of-life outcomes for patients between the ages of 18 and 39.
Li completes four patents on device that traces cancer cells that escaped treatment in pediatric patients

Shulin Li, Ph.D., professor of Pediatrics-Research, has received patents in the United States, Europe, China, and Japan for a tool that uses a small amount of blood to identify traces of cancer cells that have escaped treatment. The “Specific Detection Tool for Mesenchymal and Epithelial-Mesenchymal Transformed Circulating Tumor Cells (CTCs),” was commercialized globally for research application through The University of Texas system, with MD Anderson retaining the rights for clinical application. Known as the seeds of metastases, CTCs make treatment less effective and spread disease to distant organs. This tool was developed primarily for pediatric patients because CTC assays designed for adult tumors—by detecting epithelial markers such as EpCAM and cytokeratins—are ineffective in detecting CTCs from non-epithelial tumors, such as neuroblastoma and certain sarcomas that are diagnosed in children. Li received a Pediatric Cancer Research Foundation (PCRF) grant and an NIH R01 award in 2017 and 2018, respectively, to support this effort.

Research Publications

Our faculty members have published manuscripts in high-ranking journals in the past several months. Joining that group of authors were two advanced practice registered nurses. Lisa Triche, DNP, RN and Angela Yarbrough, DNP, RN, both advanced practice registered nurses in Pediatrics, described a clinical response of a patient who started experiencing stunted growth during treatment for chronic myelogenous leukemia (CML), a condition that was diagnosed when the child was 12-months-old. The manuscript, “Sustained molecular response following a failed attempt of tyrosine kinase inhibitor discontinuation & the effects on growth in a child with chronic myeloid leukemia: not always a short story,” was published in the April 29 e-version of the Journal of Pediatric Oncology and Hematology, with Drs. Michael Roth, Anita Ying, and Robert Wells as co-authors. The paper details the patient receiving a stem cell transplantation, interferon, donor lymphocytes and imatinib, but still progressing until dasatinib was added to the regimen until the child was three-years-old and she achieved a complete molecular response. However, she recurred and dasatinib was restarted for five more years with the child later achieving a second major molecular remission. During treatment she experienced growth failure, but when she was given a growth hormone, she began to physically flourish, which continues to date.

Other publications with our faculty and/or employees as first and last authors include:


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The Seventh State of the Science Cancer Survivorship Research Symposium, held Nov. 15, highlighted the emerging evidence-based research and empirical data on clinical practice in cancer survivorship care. MD Anderson’s Office of Cancer Survivorship conducted the symposium. Trainees, staff, and faculty submitted abstracts and were selected as finalists to present at the interactive poster sessions. Angela Yarbrough, D.N.P., R.N., advanced practice registered nurse, was selected for the staff award for her clinical research, entitled “Long-Term Survival Among 5-Year Survivors of Adolescent and Young Adult Cancer.” Maria Chang Swartz, Ph.D., M.P.H., R.D., L.D., was selected for the faculty award for her research entitled Effect of Active Video Game Intervention on Physical Function in Breast Cancer Survivors.

**Publications continued**


- **Najat C. Daw**, MD; Yueh-Yun Chi; John A. Kalaparakal; Yeonil Kim; Fredric A. Hoffer; James I. Geller; Elizabeth J. Perlman; Peter F. Ehrlich; Elizabeth A. Mullen; Anne B. Warwick; Paul E. Grundy; Arnold C. Paulino; Eric Gracias; Deborah Ward, Pharm; James R. Anderson, PhD; Geetika Khanna, MD; Brett Tornwall, PhD; Conrad V. Fernandez, MD; and Jeffrey S. Dome. Activity of Vincristine and Irinotecan in Diffuse Anaplastic Wilms Tumor and Therapy Outcomes of Stage II to IV Disease: Results of the Children’s Oncology Group AREN0321 Study. *J Clin Oncol*, 2020 May 10;38(14):1558-1568. doi: 10.1200/JCO.19.01265. Epub 2020 Mar 5


**Pediatrics Team Recognized at Survivorship Symposium**
**Researcher becomes Shine inductee**

**Joya Chandra, Ph.D.**, associate professor of Pediatrics—Research, was inducted as a member of the 2020 incoming class of the Shine Academy of Health Science Education. Only 16 people in the entire University of Texas System are tapped for the honor each year. Shine Academy members serve to support and promote excellence in all aspects of health science education, scholarship, and leadership.

The accolade honors Chandra’s work with our students at our graduate school. She’s worked extensively with first generation college students and has served on advisory and examining committees for many graduate students. The induction ceremony was held in February.

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**Research group celebrates employee milestones**

Several of our research trainees and employees for achieving recent significant milestones.

**Kerri Wolf** successfully defended her PhD dissertation on the behavior of metastatic osteosarcoma cells in the lungs. In May, she will receive her doctorate in Cancer Biology from the UT Graduate School of Biomedical Sciences. Her advisor was **Eugenie Kleinerman, M.D.**, professor of Pediatrics-Research.

**Ajay Sharma** was accepted into the Cancer Biology PhD program at the University of West Virginia Graduate School of Biomedical Sciences. His advisor was **Vidya Gopalakrishnan, Ph.D.**, associate professor of Pediatrics-Research.

**Mary Figueroa**, a graduate research assistant, was one of three students selected to participate in the first cohort of UTHealth Leads, a student fellowship program designed to develop tomorrow’s leaders in health care today. The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences manages the program. Figueroa is a Ph.D. student in the Graduate School of Biomedical Sciences’ Program of Therapeutics and Pharmacology. Her advisor is **Joya Chandra, Ph.D.**, associate professor of Pediatrics-Research.

Additionally, two research assistants were accepted into medical school. **Meridith Buzbee** (left) will attend Sam Houston State University and **Sofia Yi** (bottom left) will attend The University of Texas Southwestern Medical School. Their advisors were **Keri Schadler, Ph.D.**, assistant professor and **Shulin Li, Ph.D.**, professor, both of Pediatrics-Research, respectively.

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**Other research trainee accolades...**

- **Hannah Savage**, a graduate research assistant in the laboratory of **Keri Schadler, Ph.D.**, received the 2019 Outstanding Poster Award at the North American Vascular Biology Organization (NAVBO) Meeting in Monterey, California.
- **Mary Figueroa**, graduate research assistant in the laboratory of **Joya Chandra, Ph.D.**, associate professor, won first place for oral presentations at the 2019 Annual Therapeutics and Pharmacology (TAP) Graduate Program retreat held at the Denton A. Cooley M.D. & Ralph C. Cooley, D.D.S. University Life Center in November.
Golden Boots did it again to support cancer research

The 2019 Boot Walk was a huge success on Nov. 9 with the Children’s Cancer Hospital’s Golden Boots team raising $9,260, going beyond our goal of $5,000. The team was made up of faculty, employees, trainees, and their families.

In case you’re wondering who raised the most money—Tomika Gamble, B.S., program manager, won the friendly competition. In second place was our fearless leader, Division Head Richard Gorlick, M.D.

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