



MD Anderson
Children's Cancer Hospital
FY20 Annual Report

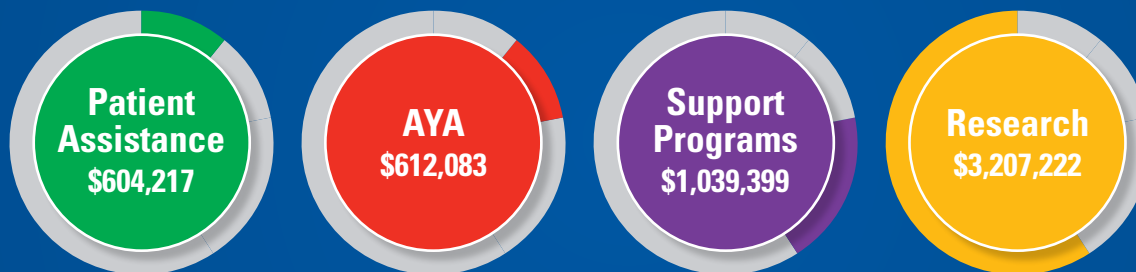
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Acknowledgments

This year, the Children's Cancer Hospital received an amazing total in philanthropic gifts and endowment dividends. We would like to thank our donors for their tremendous generosity. Your support has made a meaningful impact across patient assistance, research, support programs, and (AYA) populations.

Thank you for your partnership!



Grand Total
\$5,462,921



AYA Clinic Ribbon-Cutting



2020 Virtual
Teddy Bear Clinic



Santa's Elves Holiday Party



On the cover

Meet 7-year-old Sawyer. He's a rhabdomyosarcoma survivor who returns to the hospital every six months for follow-up visits with Douglas Harrison, M.D., associate professor of Pediatrics – Patient Care and center medical director at MD Anderson Children's Cancer Hospital. Rhabdomyosarcoma is a cancer that forms in the soft tissue. Sawyer was treated with chemotherapy and radiation and now his cancer is gone. Today, his mom describes him as a happy child who never complains and just 'enjoys life.'



Richard Gorlick, M.D.
Division Head



Lisa Hafemeister, M.H.A., F.A.C.H.E.
Executive Director and
Division Administrator

Despite the rapidly evolving global health crisis in Fiscal Year 2020 (FY20), MD Anderson Children's Cancer Hospital faculty and staff continued to provide high-quality care for children with cancer while maintaining the safety and health of our immunocompromised patients and dedicated employees.

We quickly adjusted to our new way of working and so did our patients. Whether through virtual telehealth visits or by socially distanced interactions following COVID-19 personal protective equipment use guidelines, the Children's Cancer Hospital accelerated progress in pediatric patient care, research, education and support programs. In this annual report, we are privileged to share with you the advances made toward our mission during this unforgettable year.

The widespread psychosocial impact of the COVID-19 pandemic required a multi-pronged approach to ameliorate its effects. A Pediatrics Wellness Task Force was assembled to deliver stress management and wellness initiatives across the division. With the help of technology, our faculty and staff used their talents and strengths to inspire, uplift and connect with colleagues while physically apart. They invited us into their homes for virtual live healthy cooking demonstrations, spread joy via singing telegrams and helped us relax the body and mind with guided imagery and breathing techniques.

Our faculty and staff remained devoted to advancing pediatric cancer research, despite temporary laboratory closures at the start of the COVID-19 pandemic. Scientific productivity in the form of manuscripts, grant submissions and national presentations soared this year, demonstrating the resilience of our scientists in their pursuit of discoveries.

Educating the next generation of pediatric oncologists and childhood cancer scientists also continued in full force. In this publication, you will read about the innovative teaching methods developed by our pediatric intensive care service providers who utilized simulation rooms to train multidisciplinary teams on new COVID-19 institutional protocols and pediatric critical care medicine fundamentals. In FY20, the Children's Cancer Hospital implemented two new fellowship programs in pediatric stem cell transplantation and cellular therapy and in pediatric hospice and palliative medicine. We describe the many milestones of our clinical fellows and research trainees.

In closing, the unwavering commitment of our entire Division of Pediatrics team during this historic public health event is a testament to what can be accomplished when we are united. With the continued support of our donors and guidance from our Board of Visitors Children's Cancer Hospital Advisory Group, our potential is limitless. Now more than ever, we look forward to leading the way in cancer treatment, research and education for children, adolescents and young adults.

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard Gorlick".

Richard Gorlick, M.D.
Division Head

A handwritten signature in dark ink, appearing to read "Lisa Hafemeister".

Lisa Hafemeister, M.H.A., F.A.C.H.E.
Executive Director and Division Administrator



TEXAS
1,428
PATIENTS

U.S., OUTSIDE OF TEXAS
328
PATIENTS

INTERNATIONAL
72
PATIENTS

353

NEW PATIENTS



1,140

CONSULTS



9,356

FOLLOW-UP VISITS



6,369

INPATIENT DAYS

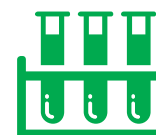


881

TOTAL TELEHEALTH VISITS



VIDEO VISITS 662
PHONE VISITS 219

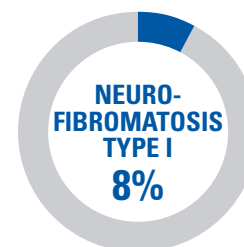
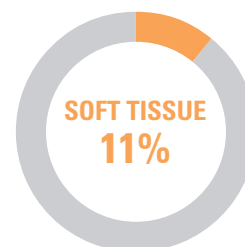
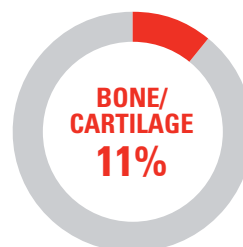
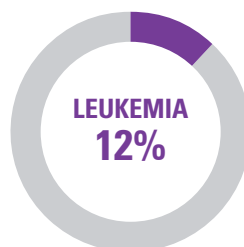
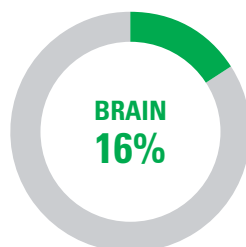


\$7,343,263

TOTAL RESEARCH GRANT DOLLARS

| | |
|------------------|-------------|
| FEDERAL | \$3,216,189 |
| PRIVATE INDUSTRY | \$2,587,245 |
| CPRIT | \$1,004,185 |
| FOUNDATION | \$535,644 |

TOP 5 NEOPLASMS



An unforgettable year: division pushes forward for patients despite COVID-19

MD Anderson Children's Cancer Hospital's FY20 brought about challenges and successes. It began as usual on Sept. 1 with Childhood Cancer Awareness Month, plans to launch many innovative clinical trials, and activities like Mueller's Monster Mash Halloween Bash, the annual holiday fun assembly and destruction of a beautiful Gingerbread Village donated by area country clubs, and the inaugural Valentine's Parents Night Out event.

Then, the COVID-19 pandemic made its way to Houston. MD Anderson implemented new safety protocols and visitor restrictions to protect our immunocompromised patients and our workforce from COVID-19. Pediatrics activated more technological reinforcements to support operations. For example, more than 50% of our employees and faculty worked at least part of their time off site. Thanks to divisional information systems employees, this was an easy transition. With strong financial leadership and participation from division team members at every level, Pediatrics navigated the onset of the pandemic and its impact on our financial portfolio and ended the year with a \$1.8 million positive operating margin compared to budget.

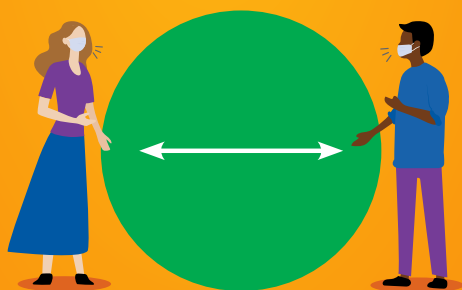
At the Children's Cancer Hospital, we modified patient scheduling at the Robin Bush Child and Adolescent Center to maintain social distancing in waiting areas and successfully implemented virtual care to ensure patients could safely continue to receive the care they needed. Pediatrics conducted 881 appointments via phone and virtual visits, with 75% of those being video-driven, a new capability at the institution. The Adolescent and Young Adult (AYA) Oncology Program, which opened clinic space

in December 2019 for patients ages 15-39, had the highest number of telehealth visits of all pediatric specialties, with 275 appointments, followed by non-neural solid tumor patients with 100 video and phone visits.



Jaclyne Rocha, B.S., R.N., outpatient clinical nurse at the Child and Adolescent Center, speaks to a front-desk employee prior to a patient visit.

COVID-19 did not deter the clinical research team's resolve to work with regulatory staff to lower the age of eligibility so more patients under 18 could participate in treatment studies. The Children's Cancer Hospital's portfolio of clinical trials grew as physician-scientists submitted 23 new protocols, 16 of which obtained approval. During FY20, Pediatrics offered between 29 and 34 therapeutic clinical trials to patients every month. The trials explore chemotherapy options for advanced blood and solid tumor cancers. Some of the regimens use chemotherapy in combination with stem cell transplantation and cellular therapies to treat cancer, as well as cellular therapies to respond to post-transplantation infections and for regenerative purposes in patients with brain injuries.



Despite a temporary closure of the laboratory building, the research department remained productive. Principal investigators gave virtual presentations, published 38 manuscripts, and were awarded an outstanding \$7.4 million in grants in FY20. This includes a \$1.44 million award from the Cancer Prevention and Research Institute of Texas (CPRIT), which **Eugenie Kleinerman, M.D.**, professor of Pediatrics – Research, won as principal investigator to support her study of exercise as a factor in decreasing the impact of cardiac injury in adolescent and young adult sarcoma survivors previously treated with doxorubicin. **Vidya Gopalakrishnan, Ph.D.**, associate professor of Pediatrics – Research, along with **James Bankson, Ph.D.**, and **Konstantin Sokolov, Ph.D.**, both Imaging Physics professors in the Division of Diagnostic Imaging, also received almost \$1 million in CPRIT funding to study high-sensitivity 19F MRI for clinically translatable imaging of adoptive NK cell brain tumor therapy. Additionally, **Shulin Li, Ph.D.**, professor of Pediatrics – Research, was granted multiple international patents for a tool that uses a small amount of blood to identify traces of cancer cells that have escaped treatment.

Six physicians graduated from the Pediatric Hematology/Oncology Fellowship Program following a virtual ceremony hosted by the division. Four applicants were selected to begin as fellows in July 2021 after participating in video interviews this spring. The division launched two one-year training programs – the Pediatric Stem Cell Transplantation and Cellular Therapy Fellowship and the Pediatric Hospice and Palliative Care Fellowship. **Sumit Gupta, M.D.**, a hematology/oncology fellow in Pediatrics,

was awarded a \$247,594 grant with **Candelaria Gomez-Manzano, M.D.**, professor of Neuro-Oncology, to study the use of a virus to increase immune response in brain cancer therapy. Basic science research trainees experienced significant milestones in FY20, including earning two doctorates in Cancer Biology, getting accepted into medical school and becoming part of the first cohort of UTHHealthLeads – a student fellowship program designed to develop tomorrow's leaders in health care today.

Our Child Life Program, part of Support Programs, established a Child Visitation Room during the pandemic to provide a safe place for siblings of patients who arrived for medical care with their parents. These temporary accommodations were supervised by employees with childcare experience. Donors and community partners who were accustomed to volunteering on campus to provide complimentary activities and inpatient comfort packages worked with our Support Programs team to host interactive virtual extravaganzas. These undertakings included online camps, art therapy sessions and surprise virtual visits with sports superstars, such as Houston Dynamo FC and Houston Dash soccer players. Support Programs also created encouraging sidewalk chalk art messages for people to see as they entered buildings on the campus. These ideas were part of overall wellness initiatives that also included online yoga sessions, healthy and fun cooking classes, story time sessions that allowed employees working at home to share the experience with their kids, and dance classes.

Now, we're looking forward to another year of advances.

Critical Care growth expands capabilities in complex patient care



Shehla Razvi, M.D. (left), and team review labs outside an inpatient room.

Critically ill children can present to MD Anderson at any time. Thus, it is vitally important to have a unit specially staffed and equipped to manage pediatric patients with life-threatening illnesses and complex medical problems.

Led by **Rodrigo Mejía, M.D.**, professor of Pediatrics – Patient Care and section chief, 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.**, both assistant professors of Pediatrics – Patient Care, joined as critical care specialists in August and October 2019, respectively. With the addition of these faculty, the team provides in-house coverage 24 hours a day. The Rainforest pod on our pediatrics inpatient floor is a nine-bed acuity transition unit where intensive care services are provided. It is equipped for hemodialysis and includes one negative pressure room. Intensivists are certified in Pediatric Advanced Life Support (PALS) and Advanced Cardiovascular Life Support (ACLS). Some clinical staffers on the floor, including **Patricia Amado, M.S.N., R.N.**, nurse manager on Nursing G9NW Pedi Intensive, are dual certified. The PICS team also plays an essential role for Pediatrics on the Medical Emergency Rapid Intervention Team (MERIT), in procedures scheduling and with provider training. **Jose Cortes, M.D.**, assistant professor of Pediatrics – Patient Care, oversees procedures, including bone marrow aspirations and lumbar punctures. He also manages our physician residency program while **Shehla Razvi, M.D.**, assistant

professor of Pediatrics – Patient Care, manages our nocturnalist program. Razvi and Ewing are in charge of the UTHealth-Hermann critical care fellows who rotate through the unit. Ewing is co-developing a pediatric simulation program for nurses and fellows.

Pediatric simulation room

The PICS team at MD Anderson Children's Cancer Hospital has a high-acuity, low-census population of patients. These critically ill children require round-the-clock care, urgent interventions, and seamless teamwork and communication. In 2020, the PICS team created an in-situ (on site) simulation room for team training. This type of training allows our team to come together quickly to practice urgent scenarios just before their use is needed. Over the past year, the pediatric simulation room has been used to train for the COVID-19 pandemic, test new institutional protocols and teach the Pediatric Fundamentals of Critical Care Support (PFCCS) training program directly in our work environment.

The creation of this room allowed our multidisciplinary team of attending physicians, critical care fellows, advanced practice providers, nurses and respiratory therapists to enhance their skills and communication. At the beginning of COVID-19, the aim was to practice a modified way of intubating children with COVID-19. Each physician, nurse and respiratory therapist completed a simulated COVID-19 intubation where they were able to practice the new treatment guidelines before applying them to a patient. The teams worked through troubleshooting communication while wearing additional personal protective equipment (PPE), practiced donning and doffing PPE, and ensured the correct type of personnel were included

Expanding access



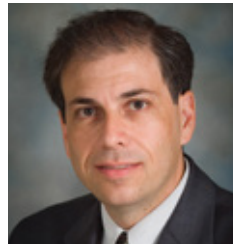
Rodrigo Mejía, M.D.
Professor of Pediatrics



Linette Ewing, D.O.
Associate Professor of Pediatrics



Ali Ahmad, D.O.
Associate Professor of Pediatrics



Jose Cortes, M.D.
Assistant Professor of Pediatrics



Shehla Razvi, M.D.
Assistant Professor of Pediatrics



Rodrigo Mejía, M.D. (left), critical care section chief, demonstrates technique for a pediatric intensive care nurse and a respiratory therapist.

to care for these medically complex patients. Feedback from each team member after these simulations provided an opportunity for education and a way to improve our patient care.

The next simulation training event tested the massive transfusion protocol updates for the institution. Representatives from MD Anderson's Blood Bank and the Gynecologic Oncology department joined the pediatric team to simulate a bleeding child in need of emergency blood transfusion with a large volume of blood products over a short period of time. These blood products are quickly and safely procured on site. Lessons learned from this event were incorporated into the updated protocol, which is currently under review. Upon approval of this protocol, each PICS team member will be trained, via simulation, in its use.

Because critically ill children can present in any inpatient or outpatient setting, the pediatrics simulation room is being used to train our pediatric advance practice providers and nurses in triaging sick children and beginning their care prior to arrival of the pediatric intensive care team. Using the PFCCS training program, this two-day set of lectures and skills stations provides an opportunity for education and training on the inpatient unit.

Simulation in health care is a growing field of learning that has been shown to decrease medical errors, improve teamwork and enhance communication. Our surveys show that bringing simulation into the pediatric inpatient unit has improved the confidence and competence of the patient care team. We plan to continue this important work into 2021 and beyond.

Music therapist adds joy to kids' lives during cancer treatment



Music therapy is a clinical and evidence-based field, where music is used within a therapeutic context.

Melissa Sandoval,
M.T.-B.C.,
music therapist



Melissa Sandoval, M.T.-B.C., music therapist, performs for a patient via Zoom.

Cancer can take a toll on the lives of patients and families, so it's essential that supportive programs are in place to help patients cope during treatment. The Arts in Medicine program at the Children's Cancer Hospital engages pediatric patients through art, dance, theater production and music. In her role as a board-certified music therapist, **Melissa Sandoval, M.T.-B.C.**, music therapist in Pediatrics – Support Programs, works with patients at different stages of their cancer journeys to help reduce stress and anxiety, while building confidence and connecting them to other patients and families through music.

Partnering with a care team of oncologists, nurses, social workers, advanced nurse practitioners and child life specialists, Sandoval works to provide pediatric patients with a unique opportunity to engage in self-expression through music. The program helps to build positive experiences through songwriting, normative music making and music therapy interventions focused on the individual needs of patients. "Music therapy is a clinical and evidence-based field, where music is used within a therapeutic context," says Sandoval. "Our program becomes the liaison between larger institutional events and the patients, with underlying therapeutic benefits."

Arts in Medicine works closely with the Pediatric Education and Creative Arts Program to merge educational and developmentally appropriate music therapy interventions into that school program. Music sessions with patients are unique from week to week depending upon the level of patient participation, the school program's various themes and the musical instruments used. "The goal is to enhance learning objectives by incorporating a music activity into the lessons," says Laura Rodriguez, early childhood education lead for the hospital's accredited K-12 school.

During the pandemic, Sandoval has continued to work with patients being treated in the hospital but has also worked to keep patients engaged through a virtual platform. Though some patients were not at the hospital, technology allowed Sandoval to continue to support them throughout their journey. Twelve-year-old osteosarcoma patient Hallie Barnard, for example, collaborated with Sandoval to record a song in honor of Childhood Cancer Awareness Month.

"It's inspiring to witness the resiliency of these patients and their families. Music has a beautiful way of showcasing their journey and allows freedom of creative expression in any form they feel necessary," says Sandoval. In addition to one-on-one bedside visits, virtual sessions and classroom lessons, Arts in Medicine collaborated with the school program and MD Anderson's Employee Choir to develop a children's choir for patients enrolled in the school program. The music collaboration inspired the school program to continue the collaboration in the hopes of recording songs to share with patients and families in the future.

"Having the children work on a larger project normalizes not only the hospital stay but allows a sense of larger community during isolating times," says Sandoval. "It also allows the parents to work with their children on something fun, like they would have if the child were in a regular school."

Along with supporting patients and their families with music therapy, Arts in Medicine brought the joy of music and song to clinical staff and colleagues around the institution during the holidays by caroling to patients. Earlier in the year, the Arts in Medicine team recorded singing telegrams to send to employees to show support during challenging times.

The five-year survival rate for children and young adults has improved greatly, from about 58% in the mid-1970s to more than 80% today, thanks to persistent laboratory science and bold clinical trials of novel agents. The arsenal of advanced oncology drugs has included new chemotherapies, but when that is not enough to achieve or sustain remission, MD Anderson recommends another option to a carefully selected subset of patients – immunotherapy. As a leader in the field, the institution offers a wide gamut of standard of care immune regimens and clinical trials, including stem cell transplantation, cellular therapies such as chimeric antigen receptor (CAR) T cell therapy, and checkpoint inhibitors and monoclonal antibodies for blood and solid tumor cancers. Our T cell treatments and other immune effector approaches are components of our cell therapy program, which is accredited by the Foundation for

The range of clinical trials available to patients is further expanded through the Division of Pediatrics participation in the Children's Oncology Group (COG). This is the world's largest pediatric cooperative trials group, with over 240 participating hospitals around the world. Other consortium and pharmaceutical partners also work with us to increase availability of treatment studies for childhood cancers. Accruals in our Pediatric Clinical Trials Program were temporarily reduced at the beginning of the COVID-19 pandemic; however, faculty later received institutional approval to reopen all studies. Among them were immunotherapy studies, such as the Phase II trial of allogeneic stem cell transplantation for children and young adults with

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Other immunotherapy clinical trials that launched in FY20 include:

- **COGAALL1731:** A Phase III trial that investigates how well blinatumomab works in combination with chemotherapy in treating patients with newly diagnosed, standard risk B-lymphoblastic leukemia or B-lymphoblastic lymphoma with or without Down syndrome. Site principal investigator, **Pooja Hingorani, M.B.B.S.**, associate professor of Pediatrics – Patient Care.
- **2020-0160:** A Phase IB/II study evaluating the safety, feasibility and efficacy of nivolumab or nivolumab in combination with azacitidine in patients with recurrent, resectable osteosarcoma. Site principal investigator, **Jonathan Gill, M.D.**, associate professor of Pediatrics – Patient Care.
- **2020-0171:** Phase II study also known as a Blood and Marrow Transplant Clinical Trials Network protocol is offered to eligible patients between five and 45 years old with symptomatic sickle cell disease (SCD). The study stratifies two groups – children with SCD who have suffered strokes and adults with severe SCD. Site principal investigator is **Kris Mahadeo, M.D., M.P.H.**, associate professor of Pediatrics – Patient Care.

Immune therapy research in pediatrics

Pediatric principal investigators are conducting multiple research projects, especially in the area of osteosarcoma. For example, bone cancer tumor tissue samples examined in genomic and proteomic testing in the laboratory of **Richard Gorlick, M.D.**, professor and division head of Pediatrics, have resulted in a Phase I trial to examine a HER2 antibody drug conjugate in treatment-resistant osteosarcoma. **Andy Livingston, M.D.**, assistant professor of Sarcoma Medical Oncology and Pediatrics – Patient Care, is analyzing osteosarcoma lung metastases tumor samples to evaluate immune response. **Eugenie Kleinerman, M.D.**, professor of Pediatrics – Research, continues her work with MD Anderson colleague **Stephanie Watowich, Ph.D.**, professor of Immunology, on a unique dendritic cell (DC) vaccine therapy to treat osteosarcoma patients with pulmonary metastases. Further details are published in the Journal for ImmunoTherapy of Cancer.

Expanding knowledge about managing complications with groundbreaking cellular therapy

Pediatric Stem Cell Transplantation and Cellular Therapy (SCTCT) leaders at MD Anderson convened an international panel of multidisciplinary experts to update standards for managing the diagnosis, severity grading and treatment of sinusoidal obstructive syndrome, a potentially life-threatening complication among children, adolescents and young adults. Their recommendations were published in the Dec. 6, 2019, issue of The Lancet Haematology, among other journals. **Kris Mahadeo, M.D., M.P.H.**, associate professor, Pediatrics – Patient Care and section chief, Pediatric Stem Cell Transplantation and Cellular Therapy Program, subsequently published “Guidelines for Young Patients with Sinusoidal Obstructive Syndrome” in the April 5, 2020, issue of Oncology Times. Pediatric SCTCT faculty and other organizers are planning future conferences that will focus on critical care complications of Stem Cell Transplantation-Immune Effector Cell (SCT-IEC) therapies.



The division's staff launched two new publications to share news with external pediatric hematology/oncology providers, pediatricians and allied health specialists caring for young patients about clinical trials available at the Children's Cancer Hospital. The publications are distributed via email.



Scan QR code for more information about clinical trials offered at the Children's Cancer Hospital.

Recognizing outstanding nursing care



I am so proud
of the extraordinary contributions
from our pediatric nurses in this
important achievement.

Angela Yarbrough,
D.N.P., A.P.R.N., F.N.P.-B.C., C.P.H.O.N.,
advanced practice registered nurse in Pediatrics and
Magnet Champion Co-Chair



Carra Zayas and **Tiambe Kuykendall** (right)
discuss inpatient notes.

Nurses provide outpatient care during initial and follow-up visits, complicated bedside care to inpatients and assist faculty in providing intensive critical care. These nursing practitioners have additional specialized training to write prescriptions, help enroll patients onto clinical trials, perform independent research to identify gaps in evidence-based care and answer questions for survivors who may experience long-term treatment side effects.

Tiambe Kuykendall, B.S.N., R.N., a clinical nurse who also served as the inpatient nurse Magnet Champion and Lead Host for the site visit, said her colleagues also contributed to MD Anderson's being awarded a fifth consecutive American Nurses Credentialing Center's (ANCC) Magnet Recognition. Considered the gold standard in nursing, the Magnet status honors hospitals that meet the

most rigorous standards of nursing in patient care, research, leadership and community service. Final preparations for the award announced in October 2020 took place during the past fiscal year.

During that time, pediatric nurses took on roles as champions to attend meetings and educate their peers about the accreditation process, terminology, documentation requirements, and how to confidently and succinctly answer questions from appraisers. Clinical staff developed projects to further improve patient care and increase efficiency. For example, both inpatient and outpatient nurses learned how to administer tissue plasminogen activator to occluded ports and central lines — and cross-trained fellow nurses.

We want you to know the names of pediatric nursing superstars involved in MD Anderson's successful Magnet designation application.

| | |
|--|--|
| Tina Folloder, B.S., R.N. Outpatient Clinical Nurse, Child and Adolescent Center | Magnet Champion |
| Joanne Greene, M.S.N., R.N. Advanced Practice Registered Nurse in Pediatrics | Magnet Host for the Site Visit |
| Tiambe Kuykendall, B.S.N., R.N. Clinical Nurse, Nursing G9 | Inpatient Nurse Magnet Champion and Lead Host for Site Visit |
| Silvia Saenz, B.S.N., R.N. Coordinator, Nurse Transplantation, Pedi – Child & Adolescent Center | Magnet Champion |
| Carmen Sittig, B.S.N., R.N. Clinical Nurse, Nursing G9NW Pedi Intensive | Communications |
| Hannah Warr, M.S.N., B.S.N., R.N. Clinical Development Spec, Nursing G9 | Communications |
| Angela Yarbrough, D.N.P., A.P.R.N., F.N.P.-B.C., C.P.H.O.N. Advanced Practice Registered Nurse in Pediatrics | A.P.R.N. Magnet Champion Co-Chair and Host for Site Visit |
| Emily Young, B.S.N., R.N. Clinical Nurse, Nursing G9 | Communications |

Achieving breakthroughs in an unprecedented year

Although MD Anderson had to temporarily close its research labs to ensure the safety and health of our employees at the start of the COVID-19 pandemic, the Children's Cancer Hospital research faculty and staff resumed their pursuit of pediatric cancer discoveries soon after the institution began its systematic, phased approach to reinitiate research in May 2020. Under the leadership of **Tajuanna Thibodeaux, M.B.A.**, department administrator, Pediatrics – Research, the laboratory teams quickly adjusted to operating under “a new normal” and to working within the implemented safety procedures. The completion of analyses allowed scientific writing and manuscript submissions to increase. All labs found innovative ways to continue their research using technology to stay connected.

The research group submitted 58 grant applications, 19 of which were awarded. Faculty submitted 48 manuscripts, 79% (38 total) of which were accepted for publication. These outcomes clearly demonstrate the resilience of our scientists and research staff and show what our pediatric scientific community can accomplish when we work together. Despite the global challenges brought on by the pandemic, the Pediatrics – Research department continued to press forward in its mission to eradicate cancer in children and young adults.

Below, we highlight some of the recent accomplishments from each of its Pediatrics – Research laboratories.



The Chandra Laboratory published the first report of inhibition of a histone demethylase enhancing NK cell killing in any tumor type. **Joya Chandra, Ph.D.**, associate professor of Pediatrics – Research, said the tumor type chosen for this study is an incurable pediatric brain tumor, DIPG, thereby providing opportunities for future therapies. The Chandra Lab also successfully competed for NIH funding for their energy balance work in leukemia models. Despite challenges, lab members were able to advance knowledge of leukemia and brain tumor therapeutics.



The Gopalakrishnan Laboratory was able to resume research animal breeding and to obtain primary cells sent out for multi-omics analyses. **Vidya Gopalakrishnan, Ph.D.**, associate professor of Pediatrics – Research, said the lab also published data on the first-in-human Phase I clinical trial infusing ex vivo expanded autologous NK cells in children with recurrent/refractory fourth ventricular tumors.

Continues on next page



Nancy Gordon, M.D., assistant professor of Pediatrics – Research, completed and published pre-clinical studies related to NKTR214 therapeutic efficacy alone and in combination with immune checkpoint inhibitors against osteosarcoma using various pre-clinical mouse models. These pre-clinical studies were published in the International Journal of Cancer and support the ongoing Phase I study of NKTR214 in combination with nivolumab for patients with solid tumors.



The Kleiner Laboratory demonstrated that exosomal communication by metastatic osteosarcoma cells modulate alveolar macrophages to an M2 tumor-promoting phenotype, which inhibits their tumoricidal functions. Under the leadership of **Eugenie S. Kleiner, M.D.**, professor of Pediatrics – Research, the laboratory also showed that an exercise intervention decreases both acute and late doxorubicin-induced cardiotoxicity by preserving cardiac blood flow and vascular structure, and improves recovery following a myocardial infarction. Finally, lab members demonstrated the efficacy of a unique DC vaccine therapy alone with checkpoint inhibition against melanoma and osteosarcoma.



The Gorlick Laboratory has a long-standing focus on developing improved treatments for patients with osteosarcoma. Historically, **Richard Gorlick, M.D.**, professor and division head, founded the Children's Oncology Group (COG) Osteosarcoma Tissue Bank as a national resource in North America with fresh tumor samples stored in his laboratory. This evolved to the development of preclinical models of osteosarcoma including cell lines and patient-derived xenografts. Analyses using these materials have driven several local and national trials including, most recently, a study being developed by the COG, PEPN1924, a Phase I trial of HER2 targeted antibody drug conjugate DS-8201 in children, adolescents and young adults with relapsed/refractory osteosarcoma. More recently his laboratory has developed a pipeline for the identification of new osteosarcoma surface targets using a multi-omic approach in which RNA-Seq and mass spectrometry were utilized on patient specimens, osteosarcoma cell lines and osteosarcoma patient-derived xenograft models. Novel agents tested against a few of these newly discovered targets demonstrate high pre-clinical activity. Studies are underway to understand potential mechanisms of drug resistance to these novel therapies to anticipate issues that may be seen in the clinic. The Gorlick Laboratory is also glad to announce it has added many new members to its team – a result of increased philanthropic, NCI and CPRIT support, which will allow it to continue to actively pursue discoveries in pediatric osteosarcoma research.



The Li Laboratory accomplished many milestones during FY20. A blood-based pediatric/young adult tumor diagnosis biomarker received multiple issued patents across different nations. The Li Lab also filed a novel pediatric/young adult tumor treatment T cell vaccine patent application and obtained additional license fees from its inventions. **Shulin Li, Ph.D.**, professor of Pediatrics – Research and director of the Pediatric Research Laboratory Program, submitted seven grant applications including non-competitive renewals. Five received funding, of which four are R01s and the other is a U01.

Li published 10 manuscripts, many in high-impact journals such as *The Lancet Haematology*, *Nano Letters* and *Clinical Cancer Research*, and served as lead editor for a book. In the article “Induction of NKG2D Ligand Expression on Tumor Cells by CD8 + T-cell Engagement-Mediated Activation of Nuclear Factor-Kappa B and p300/CBP-associated Factor,” Li and colleagues unveiled a novel mechanism of natural killer group 2 (NKG2D) ligand upregulation, which may help develop induced NKG2D ligand-dependent T-cell therapy against cancers.



The Schadler Laboratory published five scientific papers in FY20, including the first ever demonstration that exercise remodels tumor vasculature in patients (patients with pancreas tumors). Previously the Schadler Lab, led by **Keri Schadler, Ph.D.**, assistant professor of Pediatrics – Research, showed that exercise-induced tumor vascular remodeling in mice improved chemotherapy efficacy, so finding tumor vascular remodeling in humans indicates that exercise may also help chemotherapy efficacy in patients. Other major accomplishments included publishing two book chapters, one on the mechanism by which exercise impacts cancer, and one about the use of exercise in patients with osteosarcoma. Finally, the Schadler Lab presented several posters at important meetings including American Association for Cancer Research, the Interventional Vascular Biology Meeting (poster won first place), and the North American Vascular Biology Organization (NAVBO, poster won first place).



The Swartz Laboratory was able to pivot and continue with research productivity despite the pandemic and restrictions placed on the type of clinical research that could be conducted. The lab, led by **Maria Swartz, Ph.D.**, assistant professor of Pediatrics – Research, was able to submit seven grants; provide virtual presentations, including two poster presentations, one oral presentation, and one invited talk; submit eight manuscripts, with five published; initiate a new study and revise an ongoing study to be conducted virtually. The lab’s abstract describing virtual assessments was recently accepted as a poster presentation at the 2021 Society of Behavioral Medicine’s Annual Conference. Swartz and **Stephanie Wells, M.S., R.D., L.D.**, research dietitian, Pediatrics – Research, supervised 10 dietetic interns virtually and supported their research rotation involving 200 hours per intern. To improve well-being during the pandemic, Swartz and Wells joined the Pediatric Wellness Task Force, providing nutrition and physical activity-related programming in an effort to improve quality of life among Pediatrics employees.

Understanding the effect of COVID-19 on AYA cancer patients and survivors

Pediatrics faculty members **Maria Swartz, Ph.D.**, **Michael Roth, M.D.**, and **Goldy George, Ph.D.**, in Symptom Research, sought to understand the effects of the global COVID-19 pandemic on the health and well-being of cancer patients and survivors, specifically adolescents and young adults (AYA). Members of this cohort are already at higher risk for mortality and experience a disparity in access to care. Further, their emotional and functional needs may make it even more difficult for them to cope with social isolation. The investigators hypothesized that the impact of COVID-19 is likely to be even more devastating for AYAs with cancer. This cross-disciplinary team, including a physician-scientist and practicing pediatric oncologist, behavioral scientist and dietitian, and symptom researcher joined forces to develop a clinical trial to fill this knowledge gap.



Their longitudinal study will assess self-reported psychological distress specific to COVID-19 in AYA cancer patients and survivors diagnosed between the ages of 15 and 39 and currently between the ages of 18 and 39. They will survey patients three times over the course of one year. The study will gather information on psychological distress, health care utilization, health behaviors and social and financial disruptions due to COVID-19. We applaud them for their initiative to launch a clinical trial during a trying year for the purpose of obtaining a greater understanding of the impact of the pandemic on our patients. Their work provides a shining example of the Children's Cancer Hospital's researchers' ability to transform challenges into learning opportunities that benefit patients. To learn more about this clinical trial, visit mdanderson.org/AYAcovidimpact.

Leading to a promising future for the next generation of providers and patients

The Pediatric Hematology/Oncology Fellowship Program reached many milestones in FY20 that included a new rotation to expand patient experiences, multiple published manuscripts, oral and poster presentations given to international – yet virtual – audiences, a socially distanced graduation ceremony and the addition of two new one-year fellowships. **Priti Tewari, M.D.**, associate professor of Pediatrics and director of the Pediatric Hematology/Oncology Fellowship Program, navigated the program's 12 fellows through COVID-19, which also included reprioritizing research projects for fellows nearing the end of their term and revising the recruitment process for candidates who were applying to enter the program in July 2021.

Medical training opportunities grew

Six physicians graduated from our program in June 2020 – three completing our three-year program and three who spent an additional year as advanced fellows pursuing a clinical or research specialty. The socially distanced ceremony was broadcast via Zoom from the Hickey Auditorium to allow all faculty and employees to participate.

To respond to increased COVID-19-related safety measures, the schedules of more senior fellows were altered to include designated clinical and bench research blocks instead of the traditional format of integrated clinical time. The program adapted its traditional recruitment process from in-person to virtual interviews for new candidates. Pediatrics leadership expanded educational opportunities for fellows by launching an Integrated Board Preparatory Series, which uses customized software to help fellows prepare for the American Board of Pediatrics/Pediatric Hematology-Oncology certifying board exam after graduation. Two new fellowship programs were also implemented in FY20. **Sajad Khazal, M.B.Ch.B.**, assistant professor of Pediatrics –



Mira Kohorst, M.D. (left), receives her fellowship program certificate of completion from **Nidra Rodriguez, M.D.**

Patient Care, leads the Pediatric Stem Cell Transplantation and Cellular Therapy (SCT-CT) Fellowship Program. One applicant will be selected each year and will be involved in the pre-transplant and cellular therapy workup, donor search, stem cell harvesting (leukapheresis, bone marrow and peripheral blood stem cell collection) and stem cell and immune effector cell therapy infusions. The fellow will be supervised by faculty members as they manage patient care in both inpatient and outpatient settings. Research activities, such as publications and oral and poster presentations at national annual meetings are expected at this level. **Karen Moody, M.D.**, associate professor of Pediatrics – Patient Care, leads the Pediatric Hospice and Palliative Medicine Fellowship Program, which provides the opportunity for physicians to master clinical and non-clinical milestones in the lives of patients. The goals include learning how to deliver impeccable symptom management, interventions to promote quality of life and reduce

suffering, supporting patients and their families, and when cure is unattainable, overseeing end-of-life care, advance directives, hospice referrals and bereavement support. Fellows will have support from faculty to pursue research interests in this area.

What they produced

Medical oncology fellows:

Despite the challenges of social distancing, all the medical fellows had an extremely productive year that included publications, national abstracts and virtual presentations to international audiences. Fellows led a discussion among participants of the 2020 European Society for Blood and Marrow Transplantation and the European Hematology Association European CAR T Cell Meeting in Barcelona, Spain. They also gave poster presentations at the 2019 Connective Tissue Oncology Society (CTOS) Annual Meeting, the 2020 Society for Neuro-Oncology Annual Meeting and 2020

American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. They also took on significant roles in MD Anderson's House Senate Staff, including second-year fellow **Dristhi Ragoonanan, M.D.**, who served as secretary.

Fellows, pediatric stem cell transplantation clinicians and MD Anderson faculty co-authored manuscripts in high-impact journals, such as *The Lancet Haematology* and *Frontiers in Oncology*, about the management of young patients undergoing stem cell transplantation and cellular therapies. Ragoonanan published six manuscripts related to stem cell transplantation and cellular therapies as part of treatment in blood and solid tumor cancers and her experience in participating in a simulation conference about preventing and managing toxicities occurring in chimeric antigen receptor (CAR) T cell treatment, as well as an opinion paper on adenovirus infection in allogeneic stem cell transplant patients. Second-year fellow **Sumit Gupta, M.D.**, also a member of the House Senate Staff, won a \$247,594 Chance for Life Foundation grant with **Candelaria Gomez-Manzano, M.D.**, professor of Neuro-Oncology – Research. The co-awardees are studying a new treatment modality that uses a virus to induce an antiviral effect and increase immune response against pediatric diffuse intrinsic pontine gliomas.

Pediatrics research trainees:

Basic science research trainees also had an outstanding year. **Kerri Wolf-Dennen, Ph.D.**, and **Cavan Bailey, Ph.D.**, former post-doctoral fellows, both successfully defended their dissertations and earned doctorates from the MD Anderson Cancer

Training the next generation of compassionate care physicians

Center UTHealth Graduate School of Biomedical Sciences in FY20. **Ajay Sharma, M.S.**, a senior research assistant in Pediatrics – Research, was accepted into a Cancer Biology doctorate program at the University of Virginia. He is scheduled to begin in August 2021. Research assistants **Meredith Buzbee, B.S.**, and **Sofia Yi, B.S.**, were accepted into medical schools at Sam Houston State University and The University of Texas Southwestern Medical School, respectively. **Mary Figueroa, B.S.**, graduate research assistant, became part of the first University of Texas fellowship cohort designed to develop tomorrow's future leaders in health care today.

Research trainees and staff had to conduct some of their work in shifts to ensure social distancing in the laboratory throughout most of the fiscal year, but still published – with faculty mentors – several manuscripts as first authors in journals such as Oncoimmunology, Neuro-Oncology, the International Journal of Cancer, and Journal of the Academy of Nutrition and Dietetics, among others. Some trainees also served as first authors on book chapters and gave poster presentations at national and international conferences, such as the North American Vascular Biology Organization (NAVBO) Conference, held in Monterrey, California in October 2019, and the virtual American Association of Cancer Researchers Annual Meeting in June 2020. Many also took on leadership roles, including **Long Dao, Ph.D.**, postdoctoral fellow in Pediatrics – Research, as president of the Pediatrics Trainee Association and **Sreepadha (Sreeja) Sridharan, M.S.**, graduate research assistant in Pediatrics – Research, as president of the Association of Minority Biomedical Researchers at MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.

The launch of the Pediatric Hospice and Palliative Medicine (HPM) Fellowship Program serves to provide training for a much-needed shortage of compassionate care physicians. The program, developed under the leadership of **Karen Moody, M.D.**, associate professor of Pediatrics – Patient Care, provides clinical training to pediatric oncology fellows pursuing a career in conventional and holistic care of children, adolescents and young adults with serious illnesses.

Developed with oncology care in mind, the program currently admits one fellow a year who receives training in a variety of settings including pediatric outpatient and inpatient clinics, an adult clinic and hospice care. The fellow also sees patients through the continuity clinic overseen by Moody and **Kevin Madden, M.D.**, assistant professor of Palliative, Rehabilitation and Integrative Medicine at MD Anderson.



I am excited about the program and what it offers. The Palliative Care and Supportive Oncology multidisciplinary team is an integral part of the mission of MD Anderson Children's Cancer Hospital to provide the best comprehensive cancer care for pediatric patients and their families.

Karen Moody, M.D.,
associate professor of Pediatrics – Patient Care

The program's key components include prevention, physical pain assessment and management, as well as psychosocial and spiritual training. Fellows entering the program are exposed to opportunities to enhance

their academic and research capabilities, while accelerating their development as future leaders in supportive care.

The goal of the fellowship program is to train compassionate pediatric palliative care physicians so they can lessen the burden of diagnosis and treatment and reduce suffering for families. Through the program, fellows have an opportunity to work with an interdisciplinary care team from a variety of areas including psychology, nursing, child life, social work, chaplaincy, nutrition and physical therapy, while they focus on delivering symptom management, interventions, and assist with advance directives and hospice care where needed.

In addition to supporting patients and families through comprehensive pain management, graduating fellows learn a skill set that includes discussing important goals of care, delivering news regarding poor prognosis, helping transition patients to another level of care and addressing patients' unique needs as they relate to care.

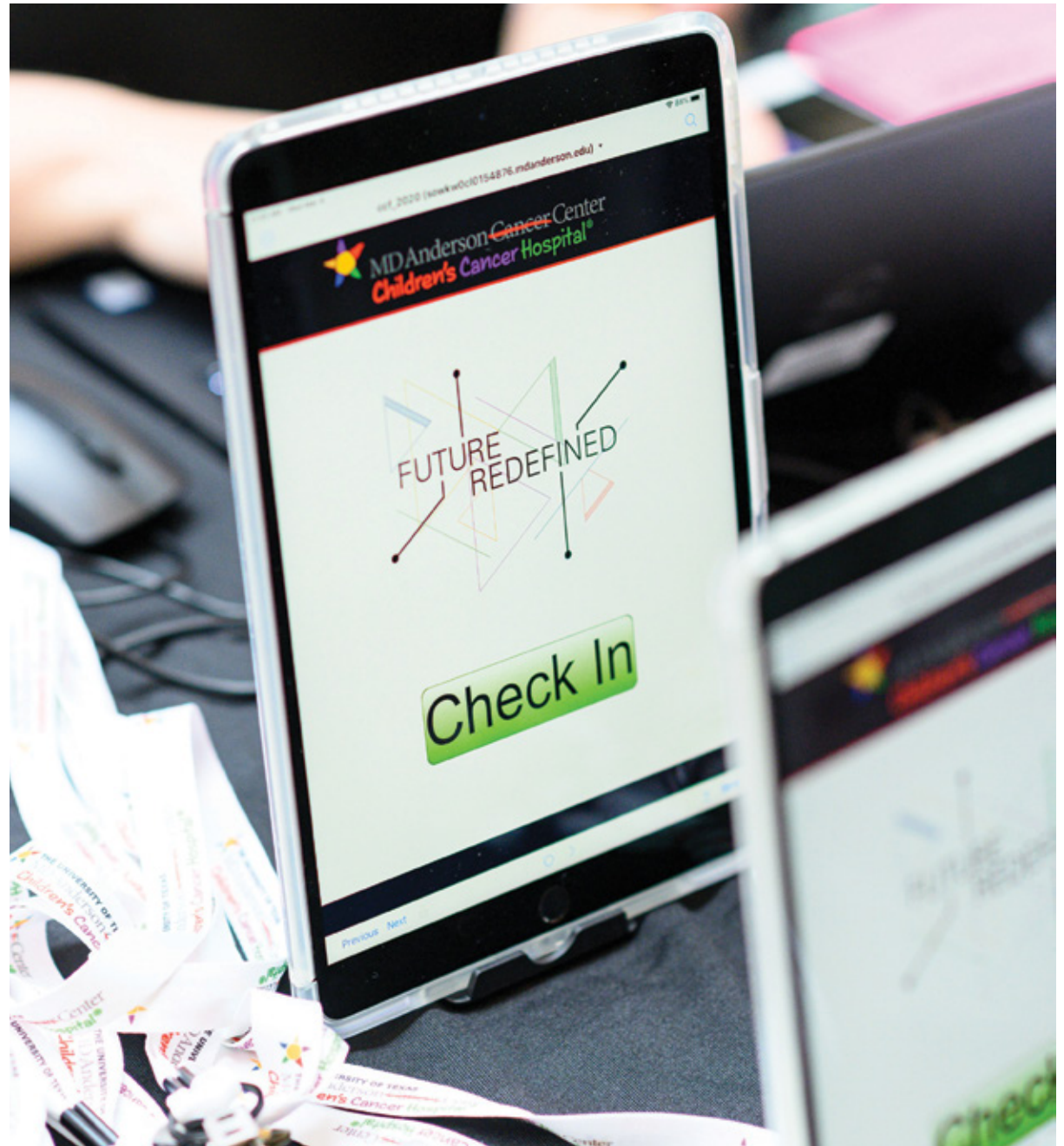


"I believe that the program serves as a model in the field of supportive care, and other programs across the country should use this program as a model to better serve pediatric patients," says **Muhammad Usman Baig, M.B.B.S.** (left), a current fellow of the

program. "The comprehensive program provides family-centered care and offers all of the resources under one umbrella."

Improving educational and real-world career opportunities for patients

Our in-hospital, accredited Pediatric Education and Creative Arts Program, also known as “The School,” represents normalcy for patients who may miss out on learning opportunities during treatment. Master’s-prepared educators work with patients in the classroom and at the bedside to help keep them at grade level. Last year, the division welcomed two teachers who came with years of experience working with special populations. Those skills were deployed immediately as the entire team went from mostly in-person interactions to virtual appointments. School staff provided virtual classroom instruction for early childhood material through 12th grade coursework, quick tutoring sessions for test preparation and even virtual field trips. We are thankful to enthusiastic donors who supported the cost of more than 50 iPads, which made it possible to deliver the school’s digital initiatives. Other donor contributions included dozens of backpacks that are usually presented in person to our patients and their siblings. The Second Annual “Future Redefined: College and Career Fair” was held on campus in March to introduce our teen and young adult patients to representatives from area colleges and universities and local employers in a variety of industries.



Supporting wellness for patients and workers

As MD Anderson implemented its COVID-19 response last spring, the Children's Cancer Hospital immediately developed programs in collaboration with donors and partners to bolster the well-being of our faculty, staff, patients and families we serve. Support Programs and the Pediatrics Wellness Task Force, chaired by **Karen Moody, M.D.**, associate professor of Pediatrics – Patient Care, led the development, implementation and dissemination of wellness initiatives focused on four key areas of stress management and wellness: physical activity, such as yoga, tai chi, and dance; nutrition, including cooking and tips for healthy eating in quarantine; mindfulness, such as meditation; and spiritual/emotional well-being that was encouraged through writing, art, music, prayer and play. Programs were made available across the division and were tailored to employees and faculty, as well as patients and their families.

Key areas of stress management and wellness



Yoga



Tai chi



Dance



Nutrition



Wellness initiatives for employees and faculty

Chalk art messages: Support Programs created chalk art on the sidewalks near several employee entrances in April 2020 to honor and celebrate the health care heroes at MD Anderson. This was so well-received that we repeated the effort several times, including for Nurses Week in May 2020, and to further honor nurses by celebrating MD Anderson's Magnet re-designation.

Food deliveries: Our community partners continued their outpouring of love for our patients, families and staff by providing food to them, which was coordinated by our Child Life team. Support Program employees helped with ensuring the safe instruction for proper packaging and then helped with the receipt and distribution of food to patients, families and clinical staff. This continued throughout the pandemic and is still ongoing.

Virtual weekly wellness: The well-being of patients, families and staff was impacted in a variety of ways in FY20. The team stepped forward to address these issues by creating

weekly wellness initiatives in coordination with Support Programs and others in the Division of Pediatrics. These activities included stress management, healthy cooking, mind-body health, story time, creative arts and games, professional development and more. The program was designed to restore a sense of normalcy, foster engagement and address the effects of a turbulent year.

Virtual code lavender: This program provides ad hoc support for staff after a patient death. We added a virtual option to ensure that staff received the needed support from wherever they were working during this difficult time.

Virtual singing telegrams: In May, the Arts in Medicine Program's **Melissa Sandoval, M.T.-B.C.**, licensed music therapist, spread kindness throughout the division with virtual singing telegrams. Employees selected a song to send to a co-worker in need of a pick-me-up. Sandoval created singing telegrams in which she performed the song and allowed employees to share the uplifting message with a colleague. This act of kindness connected people who found themselves disconnected from their work family during the early stages of the pandemic. The singing telegrams were shared throughout the Division of Pediatrics and across the institution by people who wanted to connect with others in a meaningful way. Similarly, a holiday singing telegram was delivered to the whole department.

Virtual activities for patients and families



Camp on the Go: Camp programming that our patients and siblings enjoy every year had to be reimaged to fit within

a virtual environment. Fortunately, the Support Programs team was up for the challenge and created one-of-a-kind virtual camps via the Zoom platform. The “Camp on the Go” concept involved shipping boxes filled with supplies to the homes or hospital rooms of patients and siblings to allow them to participate in the various activities planned. One of the three camps was conducted in coordination with a community partner who funded the camp and helped lead the activities.

Virtual family meetings: Hybrid in-person and virtual family meetings were implemented to allow more family and staff to attend in spite of institutional COVID-19 visitor restrictions. Family meetings are used by palliative care specialists to communicate a patient's condition and prognosis, identify preferences of the patient and family, and delineate the appropriate next steps forward. As noted in a paper published in the Archives of Palliative Care and Medicine, our group successfully conducted family meetings virtually. Patient families, staff and learners all benefited from conducting family meetings in this new virtual format. The team is considering making virtual family meetings a permanent offering for Children's Cancer Hospital patients and their families.

We commend the extraordinary efforts of the Support Programs department, the Pediatrics Wellness Task Force and our partners to improve the well-being of faculty and staff and to continue to provide high-quality, holistic care to our patients and support to their families during the COVID-19 pandemic.

This inter-disciplinary team demonstrated our core value of caring in every act of kindness, song played and helping hand extended. We are immensely grateful and proud of the work they accomplished this year, and we thank them wholeheartedly.



Here's a beautiful word cloud that expressed comments from employees and faculty after a yoga session. These images are generated online, with repeating words appearing larger to show their importance.

Division of Pediatrics — Administrative leadership and faculty

ADMINISTRATIVE LEADERSHIP

Division Head and Department Chair
Richard Gorlick, M.D., Professor

Deputy Division Head, *Ad Interim*
Cynthia E. Herzog, M.D., Professor

Medical Director for Pediatric Children's
Cancer Hospital and Center Medical
Director for the Robin Bush Child and
Adolescent Center
Douglas Harrison, M.D.
Associate Professor

Director, Pediatric Research
Laboratory Program
Shulin Li, Ph.D.
Professor

Director, Pediatric Clinical and
Translational Research Program
Jonathan Gill, M.D.
Associate Professor

Executive Director and
Division Administrator
Lisa Hafemeister, M.H.A., F.A.C.H.E.

Administrative Director,
Pediatric Clinical Services
**Joan O'Hanlon Curry, M.S., R.N.,
A.P.R.N., C.P.N.P., C.P.O.N.**

Associate Director, Pediatrics Finance,
Pediatrics Administration
Michelle Gatliff, B.S.

Director, Pediatric Operations,
Pediatrics-Support Programs
Kevin Long, M.B.A., F.A.C.H.E.

Department Administrator, Pediatrics-
Research
Tajuanna Thibodeaux, M.B.A.

Associate Department Administrator,
Pediatrics — Patient Care
Luis "Tony" Choy-Morga, M.B.A.

Project Director, Office of Division,
Pediatrics Administration
Altrivice Revis, M.B.A.

CLINICAL FACULTY

**These faculty have secondary appointments
in Pediatrics.*

Adolescent and Young Adult (AYA)
Oncology/Survivorship

Michael Roth, M.D.
Associate Professor

Andrew Livingston, M.D., M.S.
Assistant Professor*

Behavioral Medicine

Martha Askins, Ph.D.
Associate Professor

Rhonda Robert, Ph.D., A.B.P.P.
Professor

Peter Stavinocha, Ph.D., A.B.P.P.
Professor

Brain and Spinal Tumors

Soumen Khatua, M.D.
Associate Professor

Zsila Sadighi, M.D.
Associate Professor

John Slopis, M.D.
Professor*

Wafik Zaky, M.B.B.CH.
Associate Professor

Critical Care

Ali H. Ahmad, D.O.
Assistant Professor

Jose Antonio Cortes, M.D.
Assistant Professor

Linette Jeanna Ewing, D.O.
Assistant Professor

Rodrigo Mejía, M.D.
Professor

Shehla Razvi, M.D.
Assistant Professor

Endocrine

Steven Waguespack, M.D.
Professor*

Anita Ying, M.D., M.B.A.
Associate Professor*

Infectious Diseases

Natalie Daley Garnes, M.D., M.P.H.
Assistant Professor*

Integrative Medicine/ Supportive Care

Kevin Madden, M.D.
Assistant Professor*

Karen Moody, M.D., M.S.
Associate Professor

Leukemia/Lymphoma

Branko Cuglievan, M.D.
Assistant Professor

Cesar Augusto Nunez, M.D.
Associate Professor

Michael Roth, M.D.
Associate Professor

Michael E. Rytting, M.D.
Professor

Robert Wells, M.D.
Adjunct Professor

Non-Neural Solid Tumors

Najat Daw Bitar, M.D.
Professor

Jonathan Gill, M.D.
Associate Professor

Richard Gorlick, M.D.
Professor

Douglas Harrison, M.D.
Associate Professor

Cynthia E. Herzog, M.D.
Professor

Division of Pediatrics — Administrative leadership and faculty

Pooja Hingorani, M.B.B.S.

Associate Professor

Fiorela Natali Hernandez Tejada, M.D.

Assistant Professor

Stem Cell Transplantation and Cellular
Therapy/Immunology

Sajad Jawad Khazal, M.B. Ch.B.

Assistant Professor

Kris Michael Mahadeo, M.D., M.P.H.

Associate Professor

Demetrios Petropoulos, M.D.

Professor

Priti Tewari, M.D.

Associate Professor

RESEARCH FACULTY

Basic Research

Joya Chandra, Ph.D.

Associate Professor

Donghang Cheng, Ph.D.

Assistant Professor

Vidya Gopalakrishnan, Ph.D.

Associate Professor

Nancy Gordon, M.D.

Assistant Professor

Jiemiao Hu, Ph.D.

Instructor

Sankaranarayanan Kannan, D. Phil.

Instructor

Eugenie S. Kleinerman, M.D.

Professor

Pappanaicken R. Kumar, Ph.D.

Instructor

Shulin Li, Ph.D.

Professor

Shinji Maegawa, Ph.D.

Instructor

Amer M. Najjar, Ph.D.

Assistant Professor

Keri L. Schadler, Ph.D.

Assistant Professor

Shavali Shaik, Ph.D.

Instructor

Harjeet Singh, Ph.D.

Assistant Professor

Rong-Hua Tao, Ph.D.

Instructor

Hiroki Torikai, M.D.

Instructor

Xin Zhou, Ph.D.

Assistant Professor

Health Outcomes

Maria Chang Swartz, Ph.D., R.D., L.D.

Assistant Professor

UTHEALTH SCIENCE CENTER FACULTY LEADERSHIP

Cardiology

Gurur Biliciler-Denktaş, M.D., F.A.C.C., F.A.S.E.

Professor

Gastroenterology

J. M. Rhoads, M.D.

Director and Professor

Hematology

Deborah L. Brown, M.D.

Chief and Professor

Infectious Diseases

Gloria P. Heresi, M.D.

Chief and Professor

Nephrology

Rita D. Swinford, M.D.

Director and Associate Professor

Pediatric Neurosurgery

David I. Sandberg, M.D.

Director and Professor

Pediatric Surgery

Kevin P. Lally, M.D., M.S., F.A.C.S.

Chairman and Professor

Pulmonary Medicine

James M. Stark, M.D., Ph.D.

Division Chief and Professor

PROJECT TEAM

The Annual Report team is pleased to highlight recent accomplishments that provide hope and comprehensive treatment options to our patients and their families. We appreciate colleagues who contributed content and ideas to make the publication a success.

Altrivice Revis, M.B.A.

Project Director

Cecilia Aguerre, Ph.D.

Program Manager

Maxsane Mitchell, B.S.

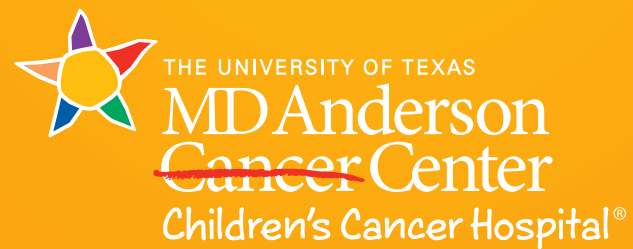
Program Manager

Katrina Burton, B.S.

Program Manager

Jasmine Raziuddin, B.F.A.

Senior Communications Designer



MD Anderson Children's Cancer Hospital group



MD Anderson Cancer Center



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