



MD Anderson
Children's Cancer Hospital
FY20 Annual Report
At-a-glance

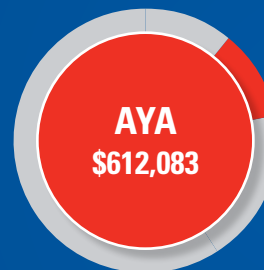
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Acknowledgments

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



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 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 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

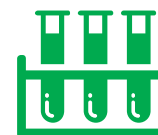


881

TOTAL TELEHEALTH VISITS



VIDEO VISITS 662
PHONE VISITS 219

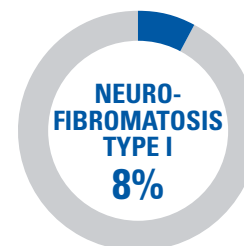
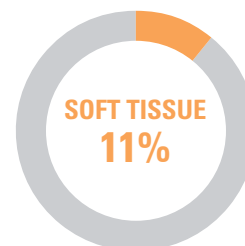
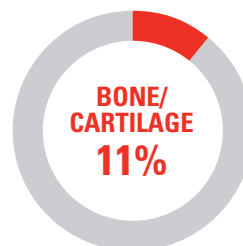
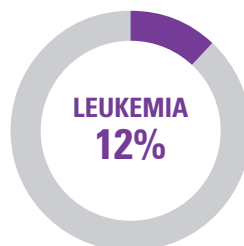
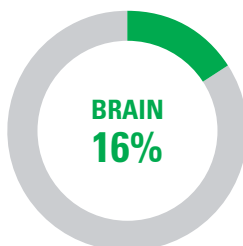


\$7,343,263

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.

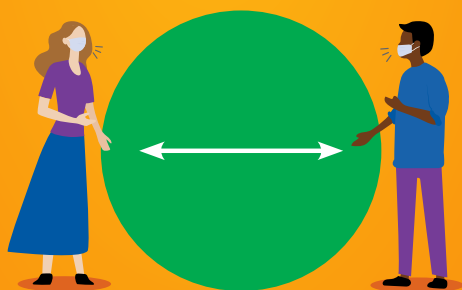
At the Children's Cancer Hospital, we modified patient scheduling at the Robin Bush Child and Adolescent Center to maintain social distancing in waiting areas and successfully implemented virtual care to ensure patients could safely continue to receive the care they needed. Pediatrics conducted 881 appointments 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



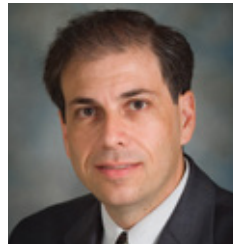
Rodrigo Mejía, M.D.
Professor of Pediatrics



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



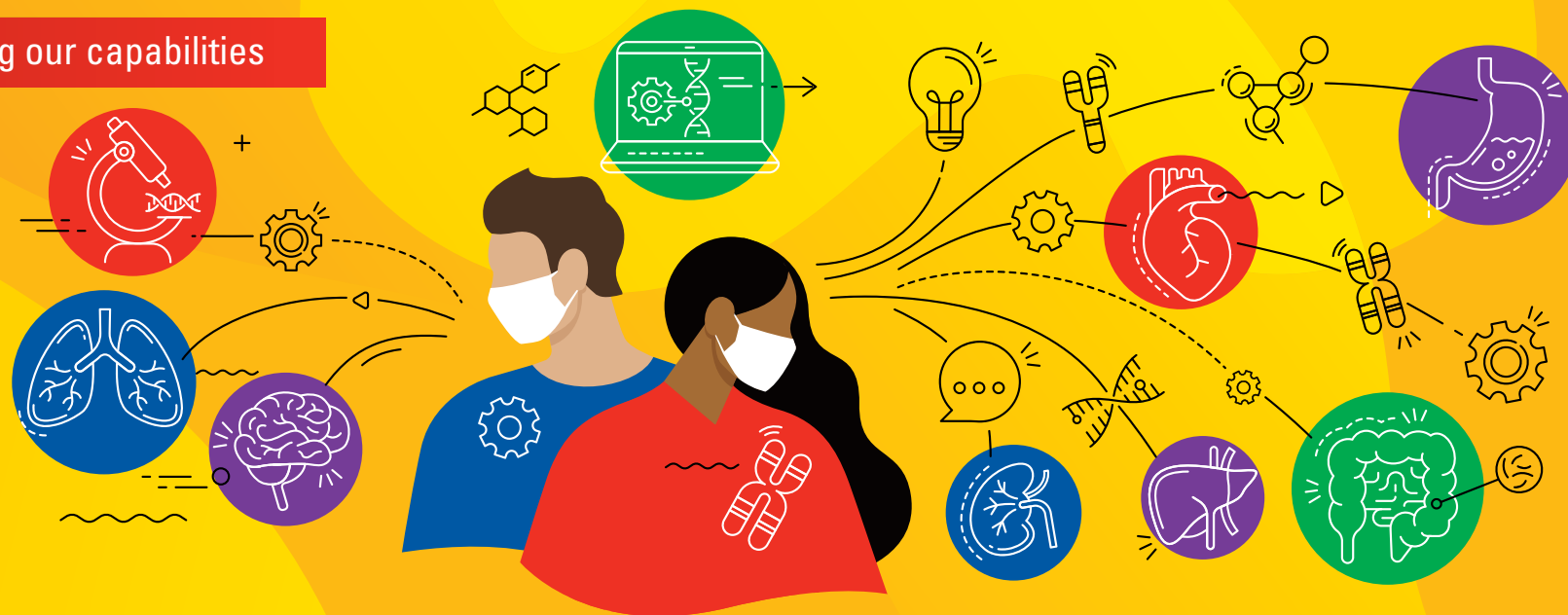
Rodrigo Mejía, M.D. (left), critical care section chief, demonstrates technique for a pediatric intensive care nurse and a respiratory therapist.

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.



Immunotherapy clinical trials and bench research

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.

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.



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.

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.

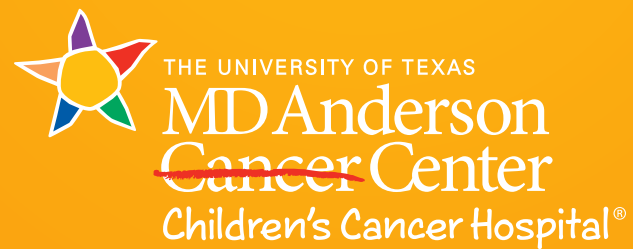
Program Manager

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



MDAndersonNews



MDAndersonCancerCenter



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