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Introduction

“Your child has cancer.”

Physicians know that these four words strike terror into the heart and mind of any parent.

As one of the world’s premier pediatric biomedical research centers, St. Jude Children’s Research Hospital offers hope to families who hear those words as well as to the physicians who must utter them.

Since 1962, children from all 50 states and around the globe have come to St. Jude for the treatment of cancer and other catastrophic childhood diseases; thousands more children worldwide have benefited from the hospital’s research.

St. Jude is the first and only pediatric cancer center to be designated a Comprehensive Cancer Center by the National Cancer Institute. In its most recent ranking, Parents Magazine named St. Jude the No. 1 pediatric cancer hospital in the country.

In the past 49 years, St. Jude has gained worldwide recognition not only for its advances in the treatment of leukemia and numerous solid tumor forms of cancer, but also for its ability to attract the brightest scientific minds. We quickly translate scientific discoveries into better treatment for our patients through cutting-edge protocols and treatment efforts. St. Jude provides a multidisciplinary approach to the care of patients. Patient- and family-centered care programs coexist with the medical services provided, including financial, housing, social, educational and religious needs.

Today, St. Jude continues its commitment to the ideals of our founder, the late entertainer Danny Thomas, who proclaimed that “No child should die in the dawn of life.”
Mission
Our mission is to advance cures, and means of prevention, for pediatric catastrophic diseases through research and treatment. Consistent with the vision of our founder Danny Thomas, no child is denied treatment based on race, religion or a family’s ability to pay.

Vision
Our vision is to be the world leader in advancing the treatment and prevention of catastrophic diseases in children. This vision will be pursued by providing outstanding patient care; by conducting basic, translational and clinical research designed to elucidate biological mechanisms, understand disease pathogenesis, improve diagnosis, enhance treatment outcome, prevent diseases and minimize adverse consequences of treatment; and by educating health care and scientific research professionals. Through these efforts we seek to cure and enhance the quality of life for an increasing proportion of children who come to us for treatment, and by expanding and sharing knowledge, to advance treatment of children with catastrophic diseases world-wide, while developing strategies to prevent catastrophic diseases in children.

ALSAC
ALSAC is the fundraising organization of St. Jude Children’s Research Hospital. Each year, millions of Americans from all backgrounds participate in its activities, and more than 5 million people make contributions to St. Jude. ALSAC exists solely to raise and provide the funds necessary to operate and maintain St. Jude. Because of ALSAC, families never pay for treatments that are not covered by insurance and no child is ever denied treatment because of the family’s inability to pay. More than 50 years ago, Danny Thomas asked Americans of Arabic-speaking heritage to embrace St. Jude as a way of repaying America for the opportunities given to them and their families. He and approximately 100 leaders from these communities around the country founded ALSAC in 1957. From its humble beginnings, ALSAC has grown to be America’s second largest health-care charity. More than 70 percent of the hospital’s operating budget is covered by public contributions generated by ALSAC fundraising programs.
Letter from the Clinical Director

Dear Colleagues,

Thank you for the privilege of caring for your patients and their families. The faculty and staff of St. Jude Children’s Research Hospital remain dedicated to providing the best medical care possible for the children you refer to us.

As I enter my third year as clinical director and executive vice president at St. Jude, I wanted to reiterate our commitment to the partnership we have with you, your patients and their families. We recognize the critical role you play in helping us work toward our vision of advancing treatment for catastrophic childhood diseases. This edition of the St. Jude Guide for Referring Physicians reflects our continuing effort to enhance communication with our referring clinicians. The guide has brief overviews of services we provide along with profiles of our clinical staff.

St. Jude was founded on a dream that requires translating scientific advances into new treatments to help increase survival and improve the quality of life for pediatric cancer patients throughout the U.S. and the world. Success requires dedicated scientific and clinical professionals who excel at their unique missions. U.S. News and World Report continues to recognize their commitment and in 2011 ranked St. Jude as one of the nation’s top pediatric cancer care hospitals. The hospital’s intensive care unit nurses and staff have twice been honored with the Beacon Award for Critical Care Excellence from the American Association of Critical-Care Nurses (less than 3 percent of the nation’s roughly 6,000 ICUs earned the designation).

Even as we work to recruit and retain outstanding faculty and staff, we continue to emphasize collaboration. The St. Jude Domestic Affiliate and the International Outreach Programs continue to grow. In the U.S., the affiliate network now has six member institutions, which means even more opportunities for St. Jude patients to receive part of their research-based care closer to home. Internationally, we maintain efforts to improve global access to the latest information on treating catastrophic childhood diseases. The Cure4Kids website (www.cure4kids.org) is designed to make it easier for health care providers anywhere to find the latest advice and research on combating catastrophic childhood diseases.

Our recent investment in iMRI allows our brain tumor patients access to cutting-edge technology. By giving neurosurgeons a tool for imaging patient brains in the operating room, iMRI holds the promise of making surgery more effective. It is just one more example of how patients benefit from the St. Jude culture of collaboration, which has us reaching beyond academic departments and institutions in the quest for better lives for the patients entrusted to us. As we continue to improve the access to subspecialties, the hospital’s Department of Pediatric Medicine reflects the same emphasis on good communication and seamless quality patient care whether the treatment is provided by St. Jude faculty or by consulting physicians.

Nearly 50 years after St. Jude staff welcomed the first patient, we serve as a national and international resource for patients, families, survivors and their health care providers. I and others in the hospital’s leadership team are committed to building on the excellence that is a hallmark of St. Jude. We continue to be inspired by our patients whose resilience, optimism and will to live are daily reminders of why we are here.

This updated guide and our enhanced outreach services reflect how much we value you, our referring physicians. Since starting I have adopted an open-door policy. Please feel free to call me if needed: Office (901) 595-6476 or cell (901) 428-3505.

Our Referring Physician’s Office is also available to assist you with any questions or concerns. Please do not hesitate to call the office at 1-888-226-4343 or 901-595-4055.

I look forward to working with you in the future.
How to Refer a Patient to St. Jude

To refer a patient to St. Jude, the child’s treating physician must make contact with a St. Jude physician. During business hours, the physician may call toll-free 1-888-226-4343 or 901-595-4055. The physician may also contact us by email (referralinfo@stjude.org). After hours, please feel free to leave a voice mail, and the call will be returned the next business day. Many calls are also received through the central operator or by direct physician contact. For emergency access, you may page us at 1-800-349-4334. Referrals may also be made to our Domestic Affiliate sites:

- St. Jude Midwest Affiliate, Peoria, Illinois; Children’s Hospital of Illinois (OSF Healthcare System)
  Phone: 309-624-4945
- St. Jude Tri-Cities Affiliate, Johnson City, Tennessee; Johnson City Medical Center, Niswonger Children’s Hospital
  Phone: 423-431-3950
- St. Jude Shreveport Affiliate, Shreveport, Louisiana; Louisiana State University Health Sciences Center
  Phone: 318-813-1100
- St. Jude Baton Rouge Affiliate, Baton Rouge, Louisiana; Our Lady of the Lake Regional Medical Center
  Phone: 225-763-6337
- St. Jude Huntsville Affiliate, Huntsville, Alabama; Huntsville Hospital for Women and Children (Huntsville Hospital)
  Phone: 256-265-5833
- St. Jude St. John Springfield Affiliate, St. John’s Children’s Hospital; Springfield, Missouri,
  Phone: 417-820-5833

St. Jude welcomes referrals of children and adolescents with newly diagnosed untreated or suspected cancer or with certain hematologic or genetic diseases. In addition, previously treated patients who have received treatment elsewhere may be accepted on an individual case basis when there is a potential for protocol eligibility on ongoing studies, relapse studies, bone marrow transplantation protocols or Phase I–II studies. Patients with genetic disorders may also be accepted anytime in their disease history based on protocol eligibility or potential to contribute to research projects.

St. Jude requests the following information to initiate the referral or consultation process:

- Patient’s name
- Patient’s date of birth
- Patient’s address and phone number
- Patient’s diagnosis
- Date of diagnosis
- Treatment history
- Referring physician’s name, office address telephone number and fax number
- Patient’s guardian
- Insurance information

This information is taken by the Referring Physicians Office representative and triaged to the appropriate physician based on the diagnosis. Unless advised of an urgent situation, our physician will contact the referring physician’s office to complete the referral or consultation process. Additional specific information may be required for evaluation:

- Clinical summary
- Surgery information (if applicable)
• Slides of the tumor(s)
• CT, MRI results and scans
• Results of the child’s most recent evaluation

Patient updates will be provided to the referring physician. Throughout the patient’s treatment at St. Jude, the referring physician can check the patient’s progress by calling or emailing the hospital.

**Referral–Insurance**

While St. Jude accepts all medical insurance, including *per diems*, discounts from charges and/or case rates and is interested in developing formal relationships with all insurance companies and managed care organizations, **no child is ever turned away for financial reasons.**

Referral Line: 1-888-226-4343 or 901-595-4055
24-Hour Emergency Access Pager: 1-800-349-4334
Email: referralinfo@stjude.org or protocolinfo@stjude.org
Fax: 901-595-4011

**Referring Physicians Office**

The Referring Physicians Office at St. Jude establishes and facilitates ongoing links to physicians whose patients have been accepted for treatment or consultation. We are committed to ensuring that the needs of all referring physicians are met in a professional, knowledgeable and customer-friendly manner.

Please feel free to contact our office to:
1. Request a free consult on your patient
2. Request patient information
3. Schedule an office visit
4. Request a speaker from our speakers bureau
5. Request information on any of our Continuing Medical Education (CME) opportunities

In order to reach out to physicians, the Referring Physicians Office staff also coordinates the hospital’s exhibit at many local, regional and national medical meetings, providing information about our specialized services, clinical trials, research protocols and CME opportunities. The staff is ready to meet with you and discuss how St. Jude can partner with you in caring for your patients.

We also want you to know that we respect your role in the patient’s care, and we want to work with you on behalf of your patients. St. Jude always advises families that call from around the world that the referral process must be initiated by the patient’s treating physician. Our goal is to ensure that the relationship between our referring physicians and the faculty and staff of St. Jude is mutually rewarding and satisfying.

Please feel free to contact our office with any questions or concerns about your patient or about the many services provided by St. Jude. Physician feedback is vital to our efforts at improving the referral process that supports patient and physician access to St. Jude.
Educational Resources

Continuing Medical Education (CME) Program

St. Jude is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education credits for conferences approved by Joan Chesney, MD, vice president and director of Clinical Education and Training.

Goals

- To consistently offer excellent educational programming to better enable physicians and other health care professionals to provide superior medical care for children with catastrophic diseases
- To enhance the dissemination of knowledge to ensure that clinicians have timely and relevant information available
- To facilitate a career-long continuum of medical education
- To foster innovation in current medical education programs
- To be a resource and model for course directors and educators at St. Jude

Scope

The scope of the St. Jude CME program fosters educational activities in both clinical and non-clinical environments with an expectation of enhancing scientific knowledge and skills for the clinical staff. The following areas are targeted:

- Basic and clinical science
- Practice management
- Medical/legal
- Ethics

In addition, the St. Jude CME Program provides opportunities through joint sponsorship with other respected and recognized medical organizations.

Regularly scheduled series approved for CME credit(s) include:

- Advanced Cardiac Life Support Provider and Renewal Courses
- Brain Tumor Conference
- Children’s Infectious Diseases Conference
- HIV Lunch-N-Learn
- Infectious Diseases Clinical Case Conference
- Infectious Diseases Clinical Journal Club
- Infectious Diseases Research Conference
- Leukemia/Lymphoma and Bone Marrow Transplantation and Cellular Therapy Conference
- Pediatric Advanced Life Support Provider and Renewal Courses
- Solid Tumor Conference
- Solid Tumor Board Conference
- St. Jude Grand Rounds
Treatment Programs

The Cancer Center

The Cancer Center at St. Jude is an organizational entity within a unique institution. St. Jude faculty members are engaged in a broad spectrum of research, including discovery-oriented basic science research, investigation of disease pathogenesis and drug resistance, biobehavioral and quality-of-life research, and therapeutic trials. The center is structured to emphasize interdisciplinary research programs with applicability to the understanding, prevention and treatment of childhood cancer.

Most of the more than 400 children who are accepted for cancer treatment each year are treated on disease-specific frontline protocols developed by Cancer Center investigators. The hospital also accepts children who have already been treated elsewhere and are eligible for transplantation, relapse, or Phase I or II protocols. The outstanding financial support provided by our independent fundraising arm, ALSAC, allows Cancer Center investigators to pursue innovative, concept-driven treatment and research programs.

The Cancer Center has been supported by consecutive Cancer Center Support Grants (CCSG) from the National Cancer Institute since 1977. The St. Jude Cancer Center is the only pediatric institution in the country to be an NCI-designated Cancer Center and in April 2008, received the highest NCI designation by being named an NCI Comprehensive Cancer Center. The Cancer Center currently contains six major programs and 12 CCSG-supported shared resources. The Molecular Oncology and Signal Transduction Programs focus on basic, discovery-oriented research. The Developmental Therapeutics for Solid Malignancies, Hematological Malignancies, Neurobiology and Brain Tumor, and Cancer Prevention and Control Programs all emphasize the translation of laboratory or population science to clinical application. Research by the Cancer Center is supported by the 12 shared resources and an outstanding clinical research infrastructure.

Brain Tumor

St. Jude Children’s Research Hospital has one of the largest pediatric brain tumor programs in North America and is also a member of the NCI funded Pediatric Brain Tumor Consortium and the Children’s Oncology Group.

The pediatric brain tumor program is committed not only to pursuing cures, but also to preserving the quality of the child’s life by providing ideal patient care in a setting that emphasizes clinical investigation and opportunities to explore new forms of treatment for brain tumors. Through close collaboration with Le Bonheur Children’s Medical Center in Memphis, TN, the brain tumor program offers a closely knit, multidisciplinary group of neuro-oncologists, neurosurgeons and radiation oncologists who have dedicated their careers to finding cures and providing treatment for children with brain tumors. Our brain tumor physicians also work closely with support staff in rehabilitation medicine, nursing, neuropathology, pharmacy, neuroradiology, behavioral medicine, clinical nutrition, child life and social work. These support personnel have been specifically trained in caring for pediatric brain tumor patients and assisting in meeting their special needs.

Hematology

St. Jude Hematology provides comprehensive medical treatment and research protocols for infants, children and adolescents with a wide variety of hematological disorders. All outpatient visits occur on the St. Jude campus. St. Jude Hematology has one of the largest sickle cell programs in the country, with about 800 patients receiving medical care and participating in important clinical and translational research protocols. In 2008, the National Heart, Lung, and Blood Institute named St. Jude one of 12 institutions nationwide to be awarded a Basic and Translational Research Program in sickle cell disease, St. Jude Hematology also provides care for a large group of children with bone marrow failure syndromes, and has active hemophilia and hemostasis programs, as well as a general hematology clinic.

Infectious Diseases

The most frequent catastrophic diseases of children worldwide are infections. Basic research in this department investigates the molecular mechanisms of the infections that most often kill children, including bacterial and viral pneumonias (particularly pneumococcus, influenza and parainfluenza), tuberculosis and HIV infection. Clinical studies focus on new treatments and diagnostics for infection in the immunocompromised child. The St. Jude Children’s Infection Defense Center was created to bring investigators with common interests in infectious diseases and immunology together
to confront these problems. This center emphasizes the translation of basic research findings into clinical applications such as vaccines, immunotherapies, diagnostic methods and small-molecule therapeutics. The clinical division of our department supports the care of immunocompromised children with infections at St. Jude and provides care for children with HIV infection in the Memphis area.

**Leukemia/Lymphoma**

Our experienced team of physicians, nurse practitioners, nurses, pharmacists, social workers, nutritionists, psychologists, child life specialists and researchers have dedicated their lives to finding cures for children who suffer from hematological malignancies such as acute lymphoblastic leukemia, acute myeloid leukemia, acute promyelocytic leukemia, non-Hodgkin lymphoma and Hodgkin disease, among others. All patients are placed on comprehensive protocols, which are designed to improve cure rates and to minimize side effects. The effective protocols have allowed us to eliminate the use of radiation therapy in patients with acute leukemia or non-Hodgkin lymphoma.

With support from basic scientists, we are uncovering the genetic abnormalities of leukemic and lymphoma cells and understanding the effects of host pharmacogenetics on the pharmacodynamics of anticancer drugs. This could lead to enhanced ability to diagnose leukemias or lymphomas more accurately, improved ability to monitor a patient’s response to therapy, development of more effective and less-toxic treatment regimens, and eventually, the measures to prevent their occurrence.

**Solid Tumor**

Our experienced team of physicians and researchers have dedicated their lives to finding cures for children who suffer from solid tumors such as neuroblastoma, retinoblastoma, Wilms tumor, Ewing sarcoma, osteosarcoma, rhabdomyosarcoma and other rare cancers. At St. Jude, a comprehensive team including pediatric oncologists, radiation treatment specialists, surgeons and ophthalmologists forms one of the largest groups dedicated to the treatment of the rare eye tumor retinoblastoma.

For bone tumors, the Solid Tumor team leads a multidisciplinary effort that includes experts in orthopedic surgery, radiology, physical therapy, pathology and oncology.

St. Jude presently is developing and testing an antibody designed to bind to neuroblastoma cells and other cancer cells that express the GD-2 antigen. This represents a new kind of cancer therapy that, unlike chemotherapy and radiation, targets the destruction of cancer cells without destroying nearby healthy cells.

St. Jude investigators are experts in the treatment of uncommon but devastating pediatric cancers such as melanoma, colon cancer, adrenocortical carcinoma and nasopharyngeal carcinoma. Furthermore, our scientist are uncovering the genetic hallmarks of one of these tumors, adrenocortical carcinoma. This could lead to earlier detection in families at risk and insights into prevention and treatment.

Lastly our group of experts in pharmacology, pharmacokinetics and clinical studies are recognized as leaders in developing and evaluating new pediatric cancer drugs.

**Stem Cell/Bone Marrow Transplantation**

The Transplant Program at St. Jude is one of the largest pediatric hematopoietic stem cell transplant programs in the world, caring for children, adolescents and young adults. Since the first stem cell transplant at St. Jude was performed in 1982, the Transplant Program has performed more than 2,000 transplants for children with malignant and nonmalignant diseases. Once accepted into the St. Jude Transplant Program, each patient is assigned a transplant physician who will direct that child’s care. Patients are cared for on a 18-bed unit dedicated to care of transplant patients.

The Transplant Program is a multidisciplinary service, consisting of doctors, nurses and other specialists whose practice is limited to transplant recipients and donors. These specialists include eight physicians, seven nurse practitioners/physician assistants, three transplant coordinators, two clinical nurse specialists, two social workers, one child life worker, two nutritionists, two clinical pharmacists and one quality coordinator. Patients are enrolled on clinical trials designed to
improve outcomes and reduce side effects of transplantation. Physicians in the St. Jude Transplant Program work closely with laboratory scientists to rapidly apply new developments to the care of patients. The program presently focuses on the use of unrelated and mismatched related donors for patients with malignant and nonmalignant diseases, innovative cellular therapies such as natural killer cell transplantation, and novel methods of graft processing for autologous transplant patients.

Phase I/Phase II/COG Clinical Trials

The hospital’s research and patient care facilities are housed on the same campus, allowing scientists and clinicians interested in Phase I and Phase II studies to work together as a team called the Developmental Therapeutics Team. This interdisciplinary team includes physicians specializing in the development of Phase I and Phase II trials, research nurses, clinical research coordinators, biostatisticians, pharmacists and basic scientists who rely on shared resources to support the design, implementation, analysis, interpretation and reporting of research. St. Jude has a number of ongoing Phase I and Phase II studies available for children with malignancies that are recurrent, refractory to treatment or for which no effective therapy exists.

In a Phase I trial, the goal is to determine the safest dose and schedule of the drug for children. During this phase, side effects are carefully monitored and we study how the drug behaves in each child’s body. Once we know the safest dose, then, in a Phase II trial, we study the drug treatment’s effectiveness in causing shrinkage (response, remission) in different types of cancers. Before an experimental agent can be evaluated in children, it is carefully studied in the laboratory and in adults.

In addition to the new protocols that we are constantly developing at St. Jude, we also use protocols that are developed by the Children’s Oncology Group. Many of our faculty members play a key role in developing these protocols, which are large trials that are conducted at participating centers across the United States.

St. Jude also participates in a number of industry trials.

Multidisciplinary Care

Anesthesiology

Members of the Division of Anesthesiology concentrate on providing safe and effective perioperative care; on investigating new methods, equipment and pharmacologic agents; and on various aspects of pediatric pain management. The goals of our clinical research are to work in a multidisciplinary fashion to develop new anesthetic methods that apply to pediatric oncology patients and to improve established methods for perioperative care of such patients.

The Pain Management Service at St. Jude comprises anesthesiologists, nurses, pharmacists, physical therapists and psychologists who work with patients who have complicated pain issues. Clinicians refer to the service patients who have pain that is unusually complex. The anesthesia personnel use advanced ultrasound equipment to assist them in placing peripheral nerve blocks for treating patients with acute and severe chronic pain.

Cancer Survivorship

We know that the need for medical care does not end when treatment is completed. St. Jude patients return to our After Completion of Therapy Clinic for 10 years or until they are 18 years of age, whichever comes later. When patients graduate from the clinic, we continue to monitor their progress through contact once a year. In 2007, St. Jude launched a major new initiative to promote healthful living throughout these patients’ adult lives. Through the program—called St. Jude LIFE—adult patients are invited to return to St. Jude, where they undergo detailed physical exams to evaluate their health status. On the basis of exam results and patients’ specific risk factors, we will then help patients draft plans to stay healthy throughout their middle adult years and beyond.
Critical Care
The mission of the Critical Care Division is to improve the clinical outcomes of children with catastrophic diseases that require intensive care, through continuous introduction of advances in critical care medicine. Our research involves analysis of the impact of this care on survival of our patients and the study of methods used to predict such outcomes. Our recent reviews of patient outcomes indicate that mortality is decreasing in the intensive care unit, particularly for children with sepsis or respiratory failure. In fact, a deeper understanding of the pathophysiologic processes involved in multiple organ system dysfunction is an important focus of research in our division. Our hope is that this research will lead to future therapeutic strategies that increase the likelihood of survival.

Pathology
The mission of the Department of Pathology is to investigate mechanisms underlying catastrophic pediatric diseases and to use this information to develop and efficiently deliver laboratory-based services that aid in the treatment and management of these diseases. To achieve this goal, the department has focused its research efforts on basic science studies that are designed to improve our understanding of the genetic basis of pediatric cancer and the role of fundamental cell processes in hematologic disease and the immune response, and on translational studies that discover prognostic and predictive markers and new therapeutic targets in pediatric cancer. A strong discipline-wide effort in Pathology is the development of novel sensitive and specific assays, which are designed to enhance the specialized care provided at our institution. Such resources incorporate a high level of clinical expertise among Pathology faculty, who work alongside their colleagues to provide the highest standard of multidisciplinary care for children treated at St. Jude.

Psychology
The Department of Psychology is focused on optimizing the psychosocial functioning and quality of life of patients across the treatment continuum from diagnosis through long-term survivorship. Investigators in the department conduct trials aimed at improving cognitive and academic functioning, adjustment to illness and treatment, and behaviors to promote long-term health following completion of therapy. Staff psychologists are aligned with each clinical service including leukemia, solid tumor, brain tumor and bone marrow transplant teams. An outpatient clinic is staffed Monday through Friday, where patients are seen for assessment, including neuropsychological assessment, consultation and intervention. Patients may be seen both for protocol-driven needs as well as by clinical referral. Psychiatry services are also available, staffed by faculty from the University of Tennessee Division of Child Psychiatry. An on-site psychiatry clinic is housed within the psychology clinic one afternoon per week.

Patient Support
Patient Care Services
Patient Care Services consists of Nursing, Rehabilitation Services, Clinical Nutrition, Cardiopulmonary Services, Child Life, School Program, Social Work, Chaplaincy, Interpreter Services, Patient Education and Family-Centered Care Services, and Volunteer Services. By forming one coordinated team, we have put patients and families first in planning all aspects of patient care. Our planning process, called Shared Decision Making or SDM, provides a means of communication and decision-making between the various staff who provide care for the patient and family.

Family-Centered Care
At the heart of patient family-centered care philosophy is the belief that health care staff and the family are partners, working together to best meet the needs of the child. Excellence in health care happens when we work together and honor the expertise each of us brings to every health encounter. Patient family-centered care is a continual effort to be responsive to the needs and choices of each family by honoring information sharing, supporting involvement by patients and families in policy and process development, and by collaborating to better understand the uniqueness of each patient family experience.
**Pharmaceutical Sciences**

Survival rates for children with cancer, HIV-1 infection and other serious diseases continues to increase, largely through the improved use of medications. Failure of current therapies and unacceptable adverse effects are partly due to less-than-optimal medication dosing. For many medications, inherited differences in patients’ ability to metabolize, transport, and eliminate drugs and in the characteristics of their targets and receptors are significant determinants of therapeutic or adverse effects of medications. In addition, the acquired genetic alterations of malignant cells may further influence the therapeutic index of medications. The faculty and trainees in Pharmaceutical Sciences develop preclinical models and integrate their work into translational clinical studies to elucidate the mechanisms responsible for interindividual differences in drug disposition and effects in the host and in the tumor. The Pharmaceutical Services faculty and staff integrate state-of-the-art testing and approaches into complete pharmaceutical care for St. Jude patients. Projects are underway to integrate pharmacogenomic testing into clinical care, capitalizing on the hospital’s electronic medical record. Our pharmacogenetic research integrates high-throughput molecular analyses, functional genomics, pharmacokinetics and pharmacodynamics to identify genetic determinants of drug effects in humans, with the long-term goal of optimizing drug therapy for individual patients.

**Radiological Sciences**

Radiological Sciences includes faculty and staff involved in clinical care and research in all of the radiological sciences: diagnostic radiology (neuroimaging and body or pediatric radiology, nuclear imaging and molecular imaging research, and translational imaging research) and therapy (radiation oncology, including radiation physics). The diagnostic divisions emphasize research and care to enhance initial diagnostic studies, objective measures of response, and quantifiable parameters of the effects of cancer therapy. Novel MRI techniques combine with the development and study of new radiopharmaceuticals to highlight some of the unique imaging research in pediatric oncology and sickle cell disease. Radiation Oncology has introduced prospective models to optimize disease control and detail radiation effects with focused interests in childhood brain tumors, pediatric sarcomas, Hodgkin lymphoma and other common pediatric cancers, and treatment-related effects of cancer therapy.

**Surgery**

In 1996 St. Jude opened its state-of-the-art surgical complex and established a Department of Surgery. Since then our surgeons have been an integral part of the diagnosis and treatment team that includes oncologists, radiation therapists, stem cell transplant physicians, radiologists, pathologists and basic scientists. Children referred to St. Jude receive complete diagnostic testing and are assured that all of the necessary imaging and biological studies are performed to properly diagnose and manage childhood tumors.

The medical and nursing staff of the pediatric surgical center/operating room complex care exclusively for children. Our experience and sensitivity to the special needs of children with cancer enable us to provide an exceptional level of specialized care. The operating rooms and surgery team allow us to offer children superior care, using cutting-edge procedures and state-of-the-art equipment for achieving the best outcomes possible.

The Department of Surgery actively participates in the development of clinical research protocols, develops and evaluates innovative surgical approaches, and leads basic science efforts that bring a surgical perspective to research on childhood tumors. The department also serves as an educational resource for pediatric surgery, locally, nationally and internationally. The Surgical Fellowship Program provides fellows with an opportunity to work hand-in-hand with some of the world’s most noted researchers and clinical faculty.

**Blood Donor Center**

The Blood Donor Center is responsible for obtaining and providing the hospital with platelets and other blood products necessary for our patients’ care. The center provides families and friends with a convenient location to donate blood products to patients who need them. Every product collected in our center goes directly to St. Jude patients. The center also has a directed donation policy. If you would like to direct your donation to a specific patient or have questions about this policy, call the Blood Donor Center at 901-595-2024.
Patient Services

Patient Housing
If a patient lives less than 35 miles from St. Jude, the patient will return home between clinic visits. If home is more than 35 miles away, lodging assistance is provided with free housing for the patient and one family member in one of these St. Jude-sponsored lodging facilities.

Memphis Grizzlies House
The Memphis Grizzlies House serves as our primary short-term stay (one to seven days) facility and has the capacity to serve up to 100 families per night. Each guest room is furnished with bed and bath linens, ironing board and iron, TV/DVD/cable, a safe for valuables, a clock and a hair dryer. Cribs are available. All rooms are nonsmoking.

Ronald McDonald House
The Ronald McDonald House serves St. Jude patients and families staying in Memphis for treatment that is expected to last eight days to three months (90 days). Each guest room is furnished with two double beds, private bath, a TV and a comfortable lounge chair. Bed and bath linens, free laundry facilities with an ironing board and iron, and several fully equipped kitchens are provided.

Target House
Patients are assigned to Target House if their treatment is scheduled to last more than three months. This house features 96 fully-furnished, two-bedroom apartments. Each apartment is equipped with a full kitchen (including cookware, dinnerware, glassware, flatware, etc.), one queen and two twin beds, bath and bed linens, a sofa and an entertainment center.

Patient Meals
St. Jude offers help with the cost of meals for the patient and one family member by issuing a St. Jude meal card or a grocery store gift card.

School Program
The St. Jude School Program offers hospital bound and home-bound educational services to assist patients with their academic progress.

Travel
After a child is accepted as a patient, St. Jude offers help with travel plans and costs for the patient and one parent/guardian for planned treatments and check-ups.
Beyond the Hospital’s Walls

**Domestic Affiliate Program**

St. Jude care extends far beyond the hospital’s campus. The Domestic Affiliate Program is a network of pediatric hematology-oncology clinics, hospitals and universities united to extend the mission of St. Jude. The physicians and staff at these sites work in collaboration with the staff of St. Jude to deliver protocol-related care to pediatric hematology-oncology patients. The program’s mission is to extend care and benefits to more children; increase the number of children on St. Jude protocols; and to provide clinical, academic and financial support to our affiliates.

**Domestic Affiliate Sites**

- St. Jude Midwest Affiliate, Peoria, Illinois; Children’s Hospital of Illinois (OSF Healthcare System), Phone: 309-624-4945
- St. Jude Tri-Cities Affiliate, Johnson City, Tennessee; Johnson City Medical Center, Niswonger Children’s Hospital, Phone: 423-431-3950
- St. Jude Shreveport Affiliate, Shreveport, Louisiana; Louisiana State University Health Sciences Center, Phone: 318-813-1100
- St. Jude Baton Rouge Affiliate, Baton Rouge, Louisiana; Our Lady of the Lake Regional Medical Center, Phone: 225-763-6337
- St. Jude Huntsville Affiliate, Huntsville, Alabama; Huntsville Hospital for Women and Children (Huntsville Hospital), Phone: 256-265-5833
- St. Jude St. John Springfield Affiliate, St. John’s Children’s Hospital; Springfield, Missouri, Phone: 417-820-5833

**International Outreach—Cure4Kids**

The St. Jude International Outreach Program developed **Cure4Kids**, a Web-based, interactive virtual community for medical education and collaboration, to help international partners counter the limitations caused by insufficient technical and personnel resources. **Cure4Kids** ([www.cure4kids.org](http://www.cure4kids.org)) is a comprehensive educational program dedicated to supporting the care of children with cancer and other catastrophic diseases by providing high-quality continuing medical educational materials and online collaboration tools. The goal of **Cure4Kids** is to improve the medical care of children throughout the world by offering easily accessible, up-to-date information to medical teams.

**Cure4Kids reaches out to professionals and parents alike to provide:**

- Online lectures about catastrophic disease in children, with an emphasis on pediatric oncology
- Online conference tools that support live Internet-based audio group discussions and live lectures
- Access to online consultations with, and mentoring by, physicians and nurses at St. Jude
- Technology and skills to help physicians better manage patient information

**Cure4Kids** provides educational content to more than 27,000 doctors, nurses and other health care professionals in 175 countries. Content is presented in the form of online seminars with audio narration; electronic full-text books and journals; and online self-paced courses and interactive case discussions in the Oncopedia section. All material can be easily downloaded and shared for educational use. More than 4 million items have been downloaded since the inception of Cure4Kids in 2002. All content and services are provided at no cost to registered users. Users can register at [www.cure4kids.org](http://www.cure4kids.org).
William E. Evans, PharmD
Member, St. Jude Faculty
Director and Chief Executive Officer
St. Jude Children’s Research Hospital

Departments
Administration
Pharmaceutical Sciences
Education
PharmD—University of Tennessee

Research Interests
• Pharmacogenomics of anticancer agents, with an emphasis on childhood acute lymphoblastic leukemia
• Identification of genes that are important determinants of the disposition and effects of antileukemic agents, including the interrogation of candidate genes
• Application of genome-wide approaches such as gene expression profiling of leukemia cells
• Haplotype mapping of patient cohorts that have been uniformly treated and evaluated on prospective clinical trials at St. Jude
• Ongoing studies investigating genes that the lab has linked with resistance to antileukemic agents; genes linked to the disposition of antileukemic agents; and the influence of karyotypic abnormalities on genotype-phenotype concordance

James R. Downing, MD
Member, St. Jude Faculty
Deputy Director
Scientific Director and Executive Vice President
Associate Director of Basic Research, Cancer Center
Co-Leader, Hematological Malignancies Program
Gignac Chair of Pathology
Director, Molecular Pathology Laboratory

Department
Pathology
Education
MD—University of Michigan

Research Interests
• Developmental hematopoiesis and the role of AML1 in the formation of hematopoietic stem cells
• Mechanisms of Leukemogenesis
• Mouse genetics
• Clinical applications of expression profiling

Joseph H. Laver, MD, MPH
Member, St. Jude Faculty
Clinical Director and Executive Vice President

Departments
Administration
Education
MD—Technion, Faculty of Medicine, Haifa, Israel
MHA—Medical University of South Carolina, College of Health Professionals

Clinical Interests
• Pediatric stem cell transplantation
• Pediatric non-Hodgkin lymphoma

George B. Bikhazi, MD
Member, St. Jude Faculty
Chief, Anesthesiology Division

Division
Anesthesiology
Education
MD—American University of Beirut, Lebanon

Research Interests
• Pharmacology of investigational drugs
• Neuromuscular blocking agents, narcotics, benzodiazepines, hypnotics and reversal agents in pediatric and adult patients
• COX-2 inhibitors
• Applicability of certain monitoring devices or equipment for pediatric surgical patients
• Management of chronic cancer pain in children

Doralina L. Anghelescu, MD
Member, St. Jude Faculty
Director, Pain Management Service

Division
Anesthesiology
Education
MD—Bucharest University School of Medicine, Romania

Research Interests
• Pediatric pain management
• Pediatric regional anesthesia
• Anesthetic implications of mediastinal masses
• Anesthesia for painful procedures
• Sedation and anesthesia for diagnostic imaging
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Division</th>
<th>Education</th>
<th>Clinical Interests</th>
<th>Research Interests</th>
</tr>
</thead>
</table>
| Roland Kaddoum, MD | Assistant Member, St. Jude   | Anesthesiology            | MD–Saint Joseph University School of Medicine | • Management of chronic cancer pain in children  
• Pediatric regional anesthesia  
• Pediatric airway management in children with mediastinal masses                                           |                                                                                      |
| Becky B. Wright, MD| Associate Member, St. Jude   | Anesthesiology            | MD–University of Tennessee          | • Improving pain management for post-operative and chronic pain situations in which nerve blocks can provide significant advantages |                                                                                      |
| Wing H. Leung, MD, PhD | Member, St. Jude Faculty     | Bone Marrow Transplantation and Cellular Therapy | MD–University of Hong Kong  
PhD–Johns Hopkins University | • NK cell and stem cell transplantation  
• Late effect and molecular epidemiology                                                                 |                                                                                      |
| Mari Dallas, MD    | Assistant Member, St. Jude   | Bone Marrow Transplantation and Cellular Therapy | MD–University of Pennsylvania      | • Stem cell and T-cell development  
• Cord blood transplant  
• Infections and immune reconstitution after bone marrow transplant                                               |                                                                                      |
| Asha B. Pillai, MD | Assistant Member, St. Jude   | Bone Marrow Transplantation and Cellular Therapy | MD–Indiana University              | • Immunobiology of GVHD, engraftment  
• Immunoregulatory cell interaction and polarization after host conditioning  
• Non-myeloablative versus myeloablative conditioning effects on immune networks                                   |                                                                                      |
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Research Interests</th>
</tr>
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<tbody>
<tr>
<td>Ashok Srinivasan, MD</td>
<td>Assistant Member, St. Jude Faculty</td>
<td>Infections in the immune-compromised host</td>
</tr>
<tr>
<td>Brandon Triplett, MD</td>
<td>Assistant Member, St. Jude Faculty</td>
<td>Hematopoietic cell transplant for high-risk leukemia</td>
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<tr>
<td></td>
<td>Departments</td>
<td>Use of alternative donors in patients lacking a fully matched sibling donor</td>
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<tr>
<td></td>
<td></td>
<td>Immune reconstitution following hematopoietic cell transplant</td>
</tr>
<tr>
<td></td>
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<td>Broadening the use of hematopoietic cell transplant for patients with non-malignant diseases</td>
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<tr>
<td>R. Ray Morrison, MD</td>
<td>Associate Member, St. Jude Faculty</td>
<td>Consequences of myocardial ischemia-reperfusion, adenosine and adenosine receptors, coronary regulation, myocardial protection</td>
</tr>
<tr>
<td>Lama Elbahlawan, MD</td>
<td>Assistant Member, St. Jude Faculty</td>
<td>Genetic polymorphism of cytokine and their impact on sepsis and acute lung injury</td>
</tr>
<tr>
<td>Leslie Robison, PhD</td>
<td>Member, St. Jude Faculty</td>
<td>Epidemiology and etiology of childhood cancer</td>
</tr>
<tr>
<td></td>
<td>Chair, Epidemiology and Cancer Control</td>
<td>Cancer survivorship</td>
</tr>
<tr>
<td></td>
<td>Associate Director for Cancer Prevention and Control, Cancer Center</td>
<td>Outcomes research</td>
</tr>
<tr>
<td></td>
<td>Co-Leader, Cancer Prevention and Control Program</td>
<td>Clinical trials in cancer prevention and control</td>
</tr>
</tbody>
</table>

**Ashok Srinivasan, MD**
*Assistant Member, St. Jude Faculty*

**Brandon Triplett, MD**
*Assistant Member, St. Jude Faculty*

**R. Ray Morrison, MD**
*Associate Member, St. Jude Faculty*

**Lama Elbahlawan, MD**
*Assistant Member, St. Jude Faculty*

**Leslie Robison, PhD**
*Member, St. Jude Faculty*

**Education**
- **MD–Maulana Azad Medical College, New Delhi, India**
- **MD–Saint Louis University**
- **MD–University of Nebraska**
- **MD–American University of Beirut, Lebanon**
- **PhD–University of Minnesota**
Gregory T. Armstrong, MD  
Assistant Member, St. Jude Faculty  
Department/Division  
Epidemiology and Cancer Control  
After Completion of Therapy Program  
Division of Neuro-oncology  
Education  
MD–University of Alabama

Research Interests  
• Epidemiology and etiology of childhood cancer  
• Cancer survivorship  
• Outcomes research  
• Neurofibromatosis Type 1 and Optic Pathway Glioma  
• Neuro-oncology

Daniel Green, MD  
Member, St. Jude Faculty  
Department  
Epidemiology and Cancer Control  
Education  
MD–Saint Louis University

Research Interests  
• Late effects of treatment of childhood cancer, particularly fertility and pregnancy outcomes, cardiac disease and second malignant neoplasms.  
• Treatment of Wilms tumor

Kevin R. Krull, PhD  
Associate Member, St. Jude Faculty  
Departments  
Epidemiology and Cancer Control  
After Completion of Therapy Program  
Psychology  
Education  
PhD–Florida State University, Tallahassee

Research Interests  
• Neurocognitive outcomes of childhood cancer  
• Late effects of cancer therapy  
• Neurotoxicity  
• Biologic and psychosocial moderators/mediators  
• Treatment of attention and memory problems

Brian P. Sorrentino, MD  
Member, St. Jude Faculty  
Director, Experimental Hematology Division  
Director, Vector Production Facility  
Department  
Hematology  
Education  
MD–State University of New York Upstate Medical Center College

Research Interests  
• Experimental Hematology

Arthur W. Nienhuis, MD  
Member, St. Jude Faculty  
Experimental Hematology Division  
Department  
Hematology  
Education  
MD–University of California at Los Angeles

Research Interests  
• Genetic therapy of hematological diseases  
• Regulation of hematopoiesis and hemoglobin synthesis
<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Institution</th>
<th>Department</th>
<th>Education</th>
<th>Research Interests</th>
</tr>
</thead>
</table>
| Derek A. Persons, MD, PhD | Associate Member, St. Jude Faculty | Experimental Hematology Division | MD, PhD–Duke University | - Gene therapy for hemoglobin disorders  
- Hematopoietic stem cell biology |
| Banu Aygun, MD     | Associate Member, St. Jude Faculty     | Hematology       | MD–University Faculty of Medicine, Ankara, Turkey | - Sickle cell disease  
- Iron overload |
| Jane S. Hankins, MD, MS | Associate Member, St. Jude Faculty     | Hematology       | MD–Federal University of Rio de Janeiro, Brazil  
MS–University of Tennessee | - Decision-making in sickle cell disease  
- New therapeutic approaches in sickle cell disease  
- Long-term effects of hydroxyurea in sickle cell patients  
- Iron overload |
| Ulrike M. Reiss, MD | Associate Member, St. Jude Faculty     | Hematology       | MD–University of Heidelberg, Germany | - Bone marrow failure syndromes  
- Sickle cell disease |
| Winfred C. Wang, MD | Member, St. Jude Faculty                | Hematology       | MD–University of Chicago           | - Sickle cell disease  
- Bone marrow failure disorders, including a plastic anemia  
- Genetic disorders in hematology |
### Elaine I. Tuomanen, MD
**Member, St. Jude Faculty**  
Chair, Infectious Diseases  
**Director, Children’s Infection Defense Center (CIDC)**  
Co-Leader, Bacterial Pathogenesis, CIDC  
**Department**  
Infectious Diseases  
**Education**  
MD–McGill University, University Scholar, Montreal, Quebec, Canada  
**Research Interests**  
- Molecular pathogenesis of Streptococcus pneumoniae invasion and inflammation

### Elisabeth E. Adderson, MD
**Associate Member, St. Jude Faculty**  
**Director, Pediatric Infectious Diseases Fellowship Program**  
**Department**  
Infectious Diseases  
**Education**  
MD–University of Alberta, Canada  
**Research Interests**  
- Epidemiology and therapy of infections in the immunocompromised host  
- Pathogenesis of infections caused by encapsulated bacteria  
- Evidence-based medicine

### Miguela A. Caniza, MD
**Associate Member, St. Jude Faculty**  
**Director, Infectious Diseases Program**  
**International Outreach**  
**Department**  
Infectious Diseases  
**Education**  
MD–Universidad Nacional de Asuncion, Facultad de Ciencias Medicas, Asuncion, Paraguay  
**Research Interests**  
- Educational programs in infectious diseases for international health care professionals who take care of children  
- Infection control in pediatric hematology-oncology services in countries of limited resources

### P. Joan Chesney, MD
**Member, St. Jude Faculty**  
**Vice President and Director, Clinical Education and Training**  
**Department**  
Infectious Diseases  
**Education**  
MD–McGill University, Montreal, Quebec, Canada  
**Research Interests**  
- Pediatric infectious diseases  
- Pneumococcal infections  
- Bacterial pathogenesis

### Patricia M. Flynn, MD
**Member, St. Jude Faculty**  
**Arthur Ashe Chair in Pediatric AIDS**  
**Director, Clinical Research, Infectious Diseases**  
**Director, Translational Trials Unit**  
Co-Leader, HIV Therapeutics and Vaccine Development, Children’s Infection Defense Center  
**Department**  
Infectious Diseases  
**Education**  
MD–Louisiana State University  
**Research Interests**  
- Infections in immunocompromised hosts (mycotic infections and intravascular catheter infections)  
- AIDS  
- Epidemiology
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
<th>Education</th>
<th>Research Interests</th>
</tr>
</thead>
</table>
| Aditya H. Gaur, MD   | Associate Member, St. Jude Faculty | Infectious Diseases   | MD–South Gujarat University, Surat, Gujarat, India                        | • Diagnosis and treatment of infections in immunocompromised children  
• Pediatric HIV infection  
• Epidemiology of infectious diseases                                                                                                                     |
| Hans Haecker, MD, PhD| Assistant Member, St. Jude Faculty | Infectious Diseases   | MD–Albert Einstein University Ulm, Germany/Technical University of Munich, Germany  
PhD–Technical University of Munich, Germany | • Signal transduction of members of the Toll-like- and TNF-receptor family innate immune cells  
• CD40- and BAFFR-mediated signaling pathways in B-cells and B-cell malignancies  
• Definition and Function of novel Influenza Virus – Host protein interactions                                                                                                               |
| Katherine Knapp, MD  | Staff Physician                | Infectious Diseases   | MD–University of Arkansas for Medical Sciences                            | • Fungal infections in immunocompromised hosts  
• Bacteriology and Mycology Study Group (BAMSG), institutional principal investigator  
• Pediatric Fungal Network (proposed), institutional principal investigator infectious complications in transplant recipients  
• TRANSNET (Transplant-Associated Infection Surveillance Network), institutional principal investigator Pediatric/Adolescent HIV Management and Prevention  
• Pediatric AIDS Clinical Trials Group  
• Memphis Adolescent and Young Adult HIV Program                                                                                                 |
| Jonathan A. McCullers, MD | Member, St. Jude Faculty       | Infectious Diseases   | MD–University of Alabama at Birmingham                                     | • Influenza viruses  
• Viral-bacterial synergism                                                                                                                                   |
| Vanessa D. Redecke, MD| Assistant Member, St. Jude Faculty | Infectious Diseases   | MD–Medical University of Lubeck, Germany                                   | • Regulation of the innate and adaptive immune response by different members of the Toll-like receptor family  
• Physiological role of cholinergic transmitters in lymphocyte activation and the pathogenesis of asthma                                                                                      |
### Jerry L. Shenep, MD
- **Member, St. Jude Faculty**
- **Chief Medical Information Officer**
- **Department**
  - Infectious Diseases
- **Education**
  - MD–Vanderbilt University

**Research Interests**
- Management of the neutropenic cancer patient
- Vaccination against respiratory viruses
- Clinical informatics
- Pathogenesis of septic shock

### Melissa M. Hudson, MD
- **Member, St. Jude Faculty**
- **Director, Cancer Survivorship Division**
- **Co-Leader, Cancer Prevention & Control Program**
- **Department/Division**
  - Oncology
  - Epidemiology and Cancer Control
  - Psychology
- **Education**
  - MD–University of Texas at Houston

**Research Interests**
- Protocol development and clinical investigations in Hodgkin disease
- Late effects of cancer therapy
- Health education and promotion in childhood cancer survivors

### Ching-Hon Pui, MD
- **Member, St. Jude Faculty**
- **Chair, Department of Oncology**
- **Co-Leader, Hematological Malignancies Program; Fahad Nassar Al-Rashid Chair of Leukemia Research, American Cancer Society Professor, Medical Director, China Program–International Outreach**
- **Departments**
  - Oncology
  - Pathology
- **Education**
  - MD–National Taiwan University, Taiwan

**Research Interests**
- Development of “Total Therapies” for children with leukemia
- Evaluating the efficacy of novel antileukemic drugs or new therapeutic strategies
- Applying molecular genetic, pharmacologic and immunologic discoveries to clinical problems

### Raul C. Ribeiro, MD
- **Member, St. Jude Faculty**
- **Director, Leukemia / Lymphoma Division**
- **Director, International Outreach Program**
- **Associate Director for Outreach Program, Cancer Center**
- **Department**
  - Oncology
- **Education**
  - MD–University of Parana School of Medicine, Brazil

**Research Interests**
- Pediatric leukemia
- Adrenocortical carcinoma
- Pediatric hematology-oncology in developing countries

### Deepa Bhojwani, MD, PhD
- **Assistant Member, St. Jude Faculty**
- **Leukemia/Lymphoma Division**
- **Departments**
  - Oncology
- **Education**
  - MD–Kasturba Hospital, Manipal, India

**Research Interests**
- Genomic profiling of childhood leukemia
- Pediatric leukemias and Non Hodgkin lymphomas
- International outreach
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Research Interests</th>
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<tbody>
<tr>
<td>Patrick K. Campbell, MD, PhD</td>
<td></td>
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<tr>
<td>Staff Physician</td>
<td>Leukemia/Lymphoma Division</td>
<td>• Acute lymphoblastic leukemia</td>
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<td></td>
<td>Oncology</td>
<td>• Histiocytosis</td>
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<td></td>
<td>Education</td>
<td>• Clinical education in pediatric hematology-oncology</td>
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<tr>
<td></td>
<td>MD, PhD–Emory University</td>
<td>• Expression of multi-drug resistance genes in leukemia</td>
</tr>
<tr>
<td>Tanja A. Gruber, MD, PhD</td>
<td></td>
<td></td>
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<tr>
<td>Assistant Member, St. Jude Faculty</td>
<td>Leukemia/Lymphoma Division</td>
<td>• Pathogenesis of infantile acute lymphoblastic leukemia</td>
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<td>Oncology</td>
<td>• Pathogenesis of acute megakaryoblastic leukemia</td>
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<td>Education</td>
<td>• Genomics of leukemia</td>
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<tr>
<td></td>
<td>MD, PhD–University of Southern California</td>
<td>• Identification and development of targeted agents for the treatment of leukemia</td>
</tr>
<tr>
<td>Scott C. Howard, MD, MS</td>
<td></td>
<td></td>
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<tr>
<td>Associate Member, St. Jude Faculty</td>
<td>Medical Information Officer</td>
<td>• International pediatric hematology-oncology–translating state-of-the-art pediatric cancer treatments to countries with limited resources</td>
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<tr>
<td></td>
<td>Director, Clinical Trials, International Outreach Program</td>
<td>• Treatment and research for children with Hodgkin lymphoma and acute lymphoblastic leukemia</td>
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<td>Leukemia/Lymphoma Division</td>
<td>• Prevention and treatment of complications of cancer therapy in children</td>
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<tr>
<td>Hiroto Inaba, MD, PhD</td>
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<tr>
<td>Associate Member, St. Jude Faculty</td>
<td>Leukemia/Lymphoma Division</td>
<td>• New therapeutic strategies for acute myeloid leukemia (AML)</td>
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<td>Oncology</td>
<td>• Cellular therapy for hematological malignancies</td>
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<tr>
<td>Sima Jeha, MD</td>
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<tr>
<td>Member, St. Jude Faculty</td>
<td>Leukemia/Lymphoma Developmental Therapeutics</td>
<td>• Leukemia/lymphoma developmental therapeutics</td>
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<td>Oncology</td>
<td>• Leukemia in the adolescent and young adult</td>
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<tr>
<td></td>
<td>Education</td>
<td>• Relapsed/refractory leukemias</td>
</tr>
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<td></td>
<td>MD–American University of Beirut, Lebanon</td>
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</tr>
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</table>
Monika Metzger, MD  
Associate Member, St. Jude Faculty  
Leukemia/Lymphoma Division  
Department  
Oncology  
Education  
MD–Rheinisch-Westfaelisch Technische Hochschule (RWTH) Aachen, Germany  
Clinical Interests  
• Late toxicities in pediatric Hodgkin patients

Jeffrey E. Rubnitz, MD, PhD  
Member, St. Jude Faculty  
Director, Pediatric Hematology-Oncology Fellowship Training Program  
Leukemia/Lymphoma Division  
Department  
Oncology  
Education  
MD, PhD–University of California, San Diego  
Research Interests  
• Developing new strategies for the treatment of acute myeloid leukemia (AML) based on genetic alterations at diagnosis and minimal residual disease  
• Development of new agents for AML, including tyrosine kinase and histone deacetylase inhibitors

John T. Sandlund, MD  
Member, St. Jude Faculty  
Medical Director, Leukemia/Lymphoma Clinic  
Medical Director, Russia Program–International Outreach  
Leukemia/Lymphoma Division  
Department  
Oncology  
Education  
MD–The Ohio State University  
Research Interests  
• The non-Hodgkin lymphomas  
• c-Myc regulation in Burkitt lymphoma  
• Acute leukemias

Amar Gajjar, MD  
Member, St. Jude Faculty  
Scott and Tracie Hamilton Endowed Chair in Brain Tumor Research  
Co-Chair, Department of Oncology  
Director, Neuro-Oncology Division  
Co-Leader, Neurobiology & Brain Tumor Program  
Department  
Oncology  
Education  
MD–Grant Medical College, Bombay, India  
Research Interests  
• Innovative protocols for the treatment of childhood brain tumors, with a focus on medulloblastomas, PNET and rhabdoid tumors (ATRT).  
• Development of new chemotherapeutic agents for the treatment of brain tumors.

Justin N. Baker, MD  
Assistant Member, St. Jude Faculty  
Neuro-Oncology Division  
Director, Division of Palliative Care and End-of-Life Care  
Attending Physician, Quality of Life Service  
Director, Hematology/Oncology Fellowship Program  
Department  
Oncology  
Education  
MD–University of Texas at San Antonio  
Research Interests  
• Pediatric palliative and end-of-life care  
• Decision making in pediatric oncology  
• Symptom control at end of life in pediatrics  
• Quality of life for pediatric Phase I study participants  
• Communication interventions in pediatric Phase I studies
Alberto Broniscer, MD, PhD  
Associate Member, St. Jude Faculty  
Neuro-Oncology Division  
Department  
Oncology  
Education  
MD, PhD–São Paulo University Medical School, São Paulo, Brazil  
Research Interests  
• Management and treatment of children with both low- and high-grade gliomas.

Ibrahim Qaddoumi, MD, MS  
Associate Member, St. Jude Faculty  
Director of Telemedicine, International Outreach Program  
Neuro-Oncology Division  
Department  
Oncology  
Education  
MD–Damascus University Medical School, Syria  
MS–The Medical University of South Carolina  
Research Interests  
• Brain tumors: low grade gliomas  
• Retinoblastoma  
• Pediatric oncology in countries with limited resources

Cynthia Wetmore, MD, PhD  
Associate Member, St. Jude Faculty  
Neuro-Oncology Division  
Department  
Oncology  
Education  
PhD–Karolinska Institute, Stockholm, Sweden  
MD–University of Minnesota Medical School  
Research Interests  
• Developmental neurobiology  
• Genetic control of normal and neoplastic proliferation in the nervous system  
• Neural stem cells  
• Repair of DNA damage in the nervous system.

Karen D. Wright, MD, MS  
Assistant Member, St. Jude Faculty  
Neuro-Oncology Division  
Department  
Oncology  
Education  
MD–Temple University  
MS–Lehigh University  
Research Interests  
• Cancer genomics  
• Pharmacokinetics in infants  
• New chemotherapeutic agents  
• Developmental neurobiology

Alberto Pappo, MD  
Member, St. Jude Faculty  
Director, Solid Tumor Division  
Department  
Oncology  
Education  
MD–Medical School, Universidad Anahuac, Mexico City  
Research Interests  
• Development of novel therapies for pediatric solid tumors  
• Pediatric melanoma  
• Soft tissue sarcomas  
• Pediatric gastrointestinal stromal tumors
Wayne L. Furman, MD  
Member, St. Jude Faculty  
Solid Tumor Division  
Department  
Oncology  
Education  
MD–The Ohio State University  
Research Interests  
• Phase I clinical trials  
• Therapy of neuroblastoma  
• Therapy of childhood liver tumors  
• Cytokine use in the treatment of cancer

Jocelyn Lewis, DO  
Staff Physician  
Solid Tumor Division  
Department  
Oncology  
Education  
DO–Kansas City University of Medicine and Biosciences–College of Osteopathic Medicine  
Research Interests  
• Development of novel therapies for pediatric solid tumors

Lisa M. McGregor, MD, PhD  
Assistant Member, St. Jude Faculty  
Medical Director, Solid Tumor Clinic  
Solid Tumor Division  
Department  
Oncology  
Education  
MD, PhD–Johns Hopkins University  
Research Interests  
• Phase I trials in pediatric patients  
• Therapy for neuroblastoma

Fariba Navid, MD  
Associate Member, St. Jude Faculty  
Solid Tumor Division  
Department  
Oncology  
Education  
MD–Tulane  
Research Interests  
• Solid tumors

Victor M. Santana, MD  
Member, St. Jude Faculty  
Charles B. Pratt Chair in Solid Tumor Research  
Vice President, Clinical Trials  
Associate Director for Clinical Research, Cancer Center  
Co-Leader, Solid Malignancies Program  
Department  
Oncology  
Education  
MD–University of Puerto Rico School of Medicine, San Juan, Puerto Rico  
Research Interests  
• Phase I clinical studies  
• Role of autologous marrow transplant in pediatric malignancies  
• Therapy of neuroblastoma
<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Division</th>
<th>Research Interests</th>
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<tbody>
<tr>
<td>Sheri L. Spunt, MD</td>
<td>Associate Member, St. Jude Faculty, Cancer Survivorship</td>
<td>• Soft tissue sarcomas</td>
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<td>Division, Solid Tumor Division</td>
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<td>MD–The University of Michigan, Ann Arbor</td>
</tr>
</tbody>
</table>
| David W. Ellison, MD, PhD, MRCP (UK), FRCPath | Member, St. Jude Faculty, Chair, Pathology, Director, Neuropathology | • The diagnosis and classification of childhood nervous system tumors  
• Molecular markers of biologic behavior in childhood nervous system tumors |
| Terrence L. Geiger, MD, PhD   | Member, St. Jude Faculty, Medical Director, Clinical Pathology | • Gene therapy for autoimmune, alloimmune and malignant diseases  
• Mechanism of immunoregulatory T-cell action |
| Randall T. Hayden, MD         | Associate Member, St. Jude Faculty, Director, Laboratory Medicine Initiative, International Outreach Program | • Application of molecular diagnostic techniques to clinical microbiology  
• Morphologic diagnosis of infectious diseases in tissue sections |
| Jesse J. Jenkins III, MD      | Member, St. Jude Faculty, Pathology Director, International Outreach Program | • All aspects of the neoplasms of infancy and childhood  
• The uses of histochemistry and immunohistochemistry (especially immunofluorescent and immunoperoxidase techniques) in the diagnosis of neoplasms  
• Cryogenic preservation of viable human tumor cells  
• Congenital heart disease |
Susana C. Raimondi, PhD
Member, St. Jude Faculty
Director, Cytogenetics Laboratory
Department
Pathology
Education
PhD–University of Tennessee
Research Interests
• The cytogenetics of the leukemias and lymphomas in relation to: diagnosis, prognosis, disease course, and disease subtypes, as well as specific DNA changes and associated gene expression
• Application of new diagnostic techniques in clinical medicine, mainly in molecular cytogenetics of neoplasias
• Development of FISH technology to enhance our understanding of subtle/cryptic chromosomal rearrangements that escape conventional cytogenetic detection

Mary V. Relling, PharmD
Member, St. Jude Faculty
Chair, Pharmaceutical Sciences
Department
Pharmaceutical Sciences
Education
PharmD–University of Utah
Research Interests
• Antineoplastic pharmacokinetics and pharmacodynamics in children
• Pharmacogenetics of antileukemic therapy
• Host- and treatment-related risk factors for secondary malignancies

William L. Greene, PharmD, FASHP
Member, St. Jude Faculty
Chief Pharmaceutical Officer
Department
Pharmaceutical Sciences
Administration
Education
PharmD–University of Tennessee
Research Interests
• Medication safety and methods to minimize patient risk
• Pharmacoconomics
• Pharmacotherapy of infectious disease

Clinton F. Stewart, PharmD
Member, St. Jude Faculty
Department
Pharmaceutical Sciences
Education
PharmD–University of Tennessee
Research Interests
• Clinical pharmacokinetics, pharmacodynamics and pharmacogenetics of anticancer drugs in children
• Role of ABC transporters in CNS penetration of camptothecin analogs
• Multidrug resistance proteins (e.g., MRP4, BCRP) in camptothecin pharmacology and physiology
• Novel methods to optimize drug exposure in children with cancer (pharmacokinetically guided dosing)
• Use of preclinical models to enhance design of clinical trials of new agents in children with cancer
• Role of pharmacokinetics in drug development in pediatric oncology
• Use of clinical pharmacology to optimize therapy for children with primary CNS malignancies

Sean Phipps, PhD
Member, St. Jude Faculty
Chair, Psychology
Department
Psychology
Education
PhD–Case Western Reserve University
Research Interests
• Psychological effects of bone marrow transplantation
• Coping and adaptive styles in children facing serious illness
• Personality factors in health and illness
Heather Conklin, PhD
Associate Member, St. Jude Faculty
Pediatric Neuropsychologist, Brain Tumor Program

Department
Psychology

Education
PhD–University of Minnesota

Research Interests
• Cognitive sequelae of childhood cancer and their treatments
• Risk and resiliency factors regarding cognitive outcomes following treatment
• Behavioral and pharmacological interventions to mitigate cognitive late effects of cancer treatment

James L. Klosky, PhD
Assistant Member, St. Jude Faculty
Clinical Psychologist, After Completion of Therapy Clinic

Department
Psychology

Education
PhD–University of Memphis

Research Interests
• Behaviorally based cancer prevention and control
• Health promotion among survivors of childhood cancer
• Psychological late effects of cancer treatment

Vida L. Tyc, PhD
Member, St. Jude Faculty

Department
Psychology

Education
PhD–State University of New York

Research Interests
• Assessment of health behaviors in pediatric cancer patients
• Development of health-promotion interventions for long-term survivors of cancer
• Tobacco control interventions in chronically ill pediatric populations

Robert A. Kaufman, MD
Member, St. Jude Faculty
Chief, Diagnostic Imaging Division
Radiologist-in-Chief

Department
Radiological Sciences

Education
MD–University of Chicago

Research Interests
• Skeletal radiology, including syndromes and malformations
• Technical aspects of computed tomography in infants and children
• Airway imaging including audio-fluoroscopy
• Blunt abdominal trauma investigation

Kathleen J. Helton, MD
Associate Member, St. Jude Faculty
Diagnostic Imaging Division

Department
Radiological Sciences

Education
MD–University of Tennessee

Research Interests
• Vasculopathy in sickle cell disease
• Quantitative MRI and MRA in patients with sickle cell disease
• Desmoplastic medulloblastoma and atypical teratoid/rhabdoid tumor
• Sagittal sinus thrombosis in children with acute lymphocytic leukemia
• Radiation “pseudotumor”
• Effect of cytoprotective agents on cochlear nerve function in children treated for medulloblastoma
• Head and neck rhabdomyosarcoma
• Differential responsiveness of “high-risk” pediatric brain tumors
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| Sue C. Kaste, DO              | Member, St. Jude Faculty              | • Pediatric oncologic imaging  
• Diagnostic imaging of “late effects” of oncotherapy  
• Orbital imaging  
• Bone sequelae in childhood cancer survivors (bone mineral density; osteonecrosis) |
| Mary E. (Beth) McCarville, MD | Associate Member, St. Jude Faculty    | • Ultrasound                                                                                                                                                                                                   |
| Zoltán Patay, MD, PhD         | Member, St. Jude Faculty              | • Normal and abnormal myelination  
• Inborn errors of metabolism  
• Multimodality tumor tissue characterization  
• Diffusion-weighted and diffusion tensor imaging  
• Cerebrovascular diseases  
• Epilepsy                                                                                                                                 |
| Noah D. Sabin, MD, JD         | Assistant Member, St. Jude Faculty    | • Brain tumor imaging  
• Imaging of metabolic disorders involving the brain  
• Treatment of sickle cell disease                                                                                                                                 |
| Barry L. Shulkin, MD          | Member, St. Jude Faculty              | • Use of radioisotopes for the noninvasive detection and management of malignant diseases in childhood  
• Use of positron emitting radiotracer probes to characterize the pathophysiology of malignant diseases in childhood  
• Application of radiopharmaceuticals as therapeutic agents for malignant diseases in childhood  
• Development of new tracers to characterize biologic features of malignant diseases in childhood  
• Characterization of the specific type 1 catecholamine uptake process in neuroendocrine tumors |
| Name                        | Title                                      | Department                                | Education                                                      | Research Interests                                                                                                                                                                                                 |
|-----------------------------|--------------------------------------------|-------------------------------------------|                                                               |                                                                                                                                                                                                                  |
| Larry E. Kun, MD            | Member, St. Jude Faculty                    | Radiological Sciences                     | MD–Jefferson Medical College                                  | • Brain tumors in children and adults, including clinical studies, administration of multi-institutional trials and data analysis  
• Soft tissue sarcomas, Ewing sarcoma, Hodgkin disease, malignant lymphomas, other pediatric malignancies  
• Late effects of cancer treatment  
• Adult cancers of the central nervous system, upper aerodigestive tract and hematopoietic system                                                                                                                    |
| Thomas E. Merchant, DO, PhD | Member, St. Jude Faculty                    | Radiological Sciences                     | DO–Chicago College of Osteopathic Medicine                    | • Brain tumors                                                                                                                                                                                                  |
| Matthew J. Krasin, MD       | Associate Member, St. Jude Faculty          | Radiation Oncology Division                | MD–University of Texas at Galveston                            | • Radiotherapy and integral role in the management of pediatric brain tumors  
• The ramifications of treatment in children by the potential years gained or lost due to both tumor and treatment  
• Maximizing cure while minimizing treatment complications is central to all cancer therapy and relates to both the practices of pediatric radiotherapy and pediatric cancer research                                                                 |
| Atmaram S. Pai Panandiker, MD| Assistant Member, St. Jude Faculty          | Radiation Oncology Division                | MD–University of Texas at San Antonio                          | • Radiotherapy and integral role in the management of pediatric brain tumors  
• The ramifications of treatment in children by the potential years gained or lost due to both tumor and treatment  
• Maximizing cure while minimizing treatment complications is central to all cancer therapy and relates to both the practices of pediatric radiotherapy and pediatric cancer research                                                                 |
| Andrew M. Davidoff, MD      | Member, St. Jude Faculty                    | Surgery                                   | MD–University of Pennsylvania                                  | • Clinical and translational investigation and treatment of pediatric solid tumors, neuroblastoma in particular  
• Development of two newly emerging strategies for the treatment of neuroblastoma (and other tumor types)–immunotherapy and antiangiogenic therapy  
• Gene-therapy approaches which are central to each of these strategies                                                                                                                                       |
Stephen J. Shochat, MD
Member, St. Jude Faculty
Department
Surgery
Education
MD–Medical College of Virginia

Research Interests
• Surgical oncology
• Immunologic studies of childhood neuroblastomas
• Evaluation and treatment of anterior chest wall deformities
• Pathophysiology and treatment of congenital diaphragmatic hernias

Bhaskar N. Rao, MD
Member, St. Jude Faculty
Surgery Director, International Outreach
Department
Surgery
Education
MD–Bangalore Medical College, India

Research Interests
• Osteosarcoma
• Germ cell tumors
• Role of interstitial brachytherapy in the management of pediatric solid tumors
• Subamputative surgery (limb-salvage procedures) in the management of primary bone tumors
• Central venous catheters in pediatric oncology patients
• Pneumopathy
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<td>Sheila Moore, MD</td>
<td>Adjunct Clinical St. Jude Faculty</td>
<td>Medical Director, Baton Rouge Affiliate Clinic</td>
<td>Hematology-Oncology</td>
<td>MD–Louisiana State University</td>
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<td>Jennifer Cox, MD</td>
<td>Adjunct Clinical St. Jude Faculty</td>
<td>Medical Director, Huntsville Affiliate Clinic</td>
<td>Hematology-Oncology</td>
<td>MD–University of Mississippi</td>
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<tr>
<td>Kathryn Klopfenstein, MD</td>
<td>Adjunct Clinical St. Jude Faculty</td>
<td>Medical Director, Tri Cities Affiliate Clinic</td>
<td>Hematology-Oncology</td>
<td>MD–University of Arizona</td>
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<td>Marcela Popescu, MD</td>
<td>Adjunct Clinical St. Jude Faculty</td>
<td>Johnson City, TN</td>
<td>Hematology-Oncology</td>
<td>MD–University of Medicine and Pharmacy, School of Medicine, Targu-Mures, Romania</td>
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<tr>
<td>David K. Kalwinsky, MD</td>
<td>Adjunct Clinical St. Jude Faculty</td>
<td>Chair of Pediatrics, ETSU</td>
<td>Hematology-Oncology</td>
<td>MD–University of Pennsylvania</td>
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Pedro A. de Alarcon, MD
Adjunct Clinical St. Jude Faculty
Chair of Pediatrics, UICOMP
Peoria, Illinois
Department
Hematology-Oncology
Education
MD–The George Washington University

Mohamad Al-Rahawan, MD
Adjunct Clinical St. Jude Faculty
Peoria, Illinois
Department
Hematology-Oncology
Education
MD–Damascus University Medical School, Damascus, Syria

Reuben Antony, MD
Adjunct Clinical St. Jude Faculty
Peoria, Illinois
Department
Hematology-Oncology
Education
MD–St. John’s Medical College, Bangalore, India

Karen Fernandez, MD
Adjunct Clinical St. Jude Faculty
Peoria, Illinois
Department
Hematology-Oncology
Education
MD–Universidad Francisco Marroquin, Guatemala City, Guatemala

Mary Beth Ross, MD, PhD
Adjunct Clinical St. Jude Faculty
Peoria, Illinois
Department
Hematology-Oncology
Education
MD, PhD–State University of New York at Buffalo

Kay Saving, MD
Adjunct Clinical St. Jude Faculty
Clinical Director, Children’s Hospital of Illinois
Peoria, Illinois
Department
Hematology-Oncology
Education
MD–University of Kansas

Majed Jeroudi, MD
Adjunct Clinical St. Jude Faculty
Medical Director, Shreveport Affiliate Clinic
Director, Sickle Cell Anemia Center of Northern Louisiana
Shreveport, Louisiana
Department
Hematology-Oncology
Education
MD–Aleppo University Faculty of Medicine, Aleppo, Syria

Remi Fasipe, MD
Adjunct Clinical St. Jude Faculty
Medical Director, Springfield Affiliate Clinic
Springfield, MO
Department
Hematology-Oncology
Education
MBBS–College of Medicine University, Lagos, Nigeria

Zaher Najji, MD
Adjunct Clinical St. Jude Faculty
Springfield, MO
Department
Hematology-Oncology
Education
MD–Damascus University Medical School, Damascus, Syria
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<td>Majed Jeroudi, MD</td>
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<td>Remi Fasipe, MD</td>
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<td>Zisher, Najl, MD</td>
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