

# TRANSFORMING CARE THROUGH RESEARCH AND INNOVATION

## DIVISION OF HEMATOLOGY, ONCOLOGY AND BLOOD AND MARROW TRANSPLANTATION

The Division of Pediatric Hematology, Oncology and Blood and Marrow Transplantation at Children's Mercy Kansas City is a single, comprehensive center with three fully integrated sections. The division provides care annually to nearly 2,000 children with childhood cancers, sickle cell disease, hemophilia and other blood disorders. Patients with the most challenging refractory or recurring conditions typically are referred to Children's Mercy, which serves as a regional resource, experiencing survival rates that are frequently above national averages.



### A TOP-RANKED PROGRAM

One of the top cancer programs for kids in the nation, according to *U.S. News & World Report*.

Accredited by the Foundation for the Accreditation of Cellular Therapy.

## COMPREHENSIVE CLINICAL CARE

Children's Mercy offers comprehensive care, with a breadth and depth of expertise in hematology, oncology, and blood and marrow transplants. The clinically diverse program, with a faculty that is highly subspecialized within these three areas, provides the most advanced, highest quality of care to help patients achieve the best possible outcomes.

### HEMATOLOGY

The Hemophilia Treatment Center (HTC) at Children's Mercy is a federally designated HTC and part of a national network of centers that provide the latest, most advanced treatments for patients. The HTC cares for more than 800 patients with bleeding disorders. The sickle cell disease team cares for more than 300 patients each year. The program includes specialty services, such as a Sickle Cell Pulmonology Clinic and

(Cont. inside)

Hematology	
Sickle Cell	
Active Sickle Cell Patients	302
Active Pediatric Bleeding Disorder Patients by Type	
F9 Deficiency	28
F8 Deficiency	121
vWD	123
Plt Dysfunction	31
Other (F1, V, VII, X, XIII deficiencies)	23
<b>Total</b>	<b>457</b>

Sickle Cell Integrative Persistent Pain Clinic. Children’s Mercy also offers one of the only pediatric stroke centers in the country, bringing together specialists from hematology/oncology, neurology and rehabilitative medicine.

## ONCOLOGY

Children’s Mercy is an official consortium partner within the National Cancer Institute-designated cancer center at The University of Kansas Cancer Center. This relationship creates increased resources for Children’s Mercy researchers and jointly brings cutting-edge cancer therapy to young oncology patients. The specialists in the oncology center offer care for a range of conditions, including bone and soft tissue sarcoma, leukemia and lymphoma, histiocytic disorders, brain tumors and solid tumors, and there is a multispecialty team for liver tumors. Also available are specialized programs such as cardio-oncology, neuro-oncology, the Children’s Mercy HOPE Clinic for Spanish-speaking hematology/oncology patients, adolescent and young adult oncology (AYA), cancer genomics, immunotherapeutics and experimental therapeutics.

## BMT AND CELLULAR THERAPY

The Blood and Marrow Transplant (BMT) team at Children’s Mercy offers advanced treatment for leukemia, brain tumors, Hodgkin and non-Hodgkin lymphoma

and a range of other cancer diagnoses. In addition, the innovative program has expanded its scope, with successful transplants that address a variety of rare and nonmalignant diseases, including immunologic, hematologic and metabolic disorders. Successful sources of transplant include allogeneic, unrelated allogeneic, cord blood and autologous donors. The team also has experience performing haploidentical transplants. In addition, the BMT team is at the forefront of cellular therapy for children and is an experienced provider of Kymriah treatment for qualifying patients with multiple relapsed or refractory precursor B-cell ALL.



*Children’s Mercy is at the forefront of cancer genomics and has created a biorepository and tumor bank to support research.*

## 2019 TRANSPLANT AND CELLULAR THERAPY PROCEDURES

Blood and Marrow Transplants	
Disease	# of Transplants
Acute Lymphoblastic Leukemia	9
Acute Myeloid Leukemia	3
Chronic Granulomatous Disease	1
Medulloblastoma	3
Neuroepithelial Tumor	3
Neuroblastoma	6
Severe Aplastic Anemia	2
Severe Combined Immunodeficiency Disease	1
Schwachman Diamond Syndrome	1
<b>Total</b>	<b>29</b>

Cellular Therapies	
Disease	# of Infusions
Acute Lymphoblastic Leukemia	8
Severe Combined Immunodeficiency Disease	3
<b>Total</b>	<b>11</b>
HCT	# of Infusions
Allogeneic	17
Autologous	12
<b>Total</b>	<b>29</b>
Cellular Therapy	# of Infusions
Allogeneic	4
Autologous	7
<b>Total</b>	<b>11</b>

## CHANGING CANCER CARE THROUGH RESEARCH

Children's Mercy is dedicated to improving outcomes for pediatric hematology/oncology patients through groundbreaking translational research. Here, Hematology/Oncology/BMT physicians and staff partner with the health system's world renowned experts in genomics, clinical pharmacology and precision therapeutics, to find answers for challenging and complex pediatric diseases.

## PERSONALIZED MEDICINE AND EXPERIMENTAL THERAPEUTICS

Home to one of only nine pediatric clinical pharmacology programs in the U.S., the Precision Medicine core of Experimental Therapeutics at Children's Mercy is focused on accurate drug exposure for each patient, as well as new drug development. The hospital's GOLDILOKs program has developed a busulfan dosing tool and is currently involved in the evaluation of other cancer-fighting drugs. The Experimental Therapeutics Program at Children's Mercy has provided more than 100 cancer patients a second chance at a cure. Currently, 33 clinical trials are open for children with refractory or relapsed cancer.

## GENOMICS AND CANCER

Children's Mercy is a leader in finding links between genomics and cancer. The Genomic Medicine Center offers a clinical test to sequence patient data to look for mutations in the genes known to cause cancer. The goal is to determine if certain treatments might work better based on a tumor's specific genetic mutation – a true advance toward more personalized medicine. The center has created a biorepository and tumor bank to aid in research.

Genomics is also playing a crucial role in advancing the understanding of acute lymphoblastic leukemia (ALL) in infants. A team is focused on learning to target therapies to the genetics of the leukemia cells to kill them and prevent relapse. Research results to date were recently presented at the International Society of Pediatric Oncology conference, as well as the American Society of Hematology conference.

## ACTIVATING THE IMMUNE SYSTEM VIA CAR IMMUNOTHERAPY

The BMT team is leading the way in research involving chimeric antigen receptor, or CAR, immunotherapy. Children's Mercy supported early development of the technology and its experience dates back to 2010, when Children's Mercy was one of only a few institutions with open CAR clinical trials. The hospital was one of the first

five to participate in the trial of Kymriah, a promising treatment that can activate a patient's own immune system to fight cancer. Children's Mercy researchers are participating in other clinical trials to investigate possible applications for CAR immunotherapy, including tumor vaccines and multimodal therapies.

## OUTCOMES

As a regional, comprehensive cancer center, the most complex and challenging cases are referred to Children's Mercy. Our experienced specialists and array of advanced therapies offer survival rates that are often better than or comparable to national averages.

Five-Year Pediatric Cancer Survival Percentage*		
Type of Cancer	# Patients	Overall Five-Year Survival Rate
Acute Lymphoblastic Leukemia	359	93.31%
Acute Myeloid Leukemia	113	64.60%
Neuroblastoma	106	86.79%
Rhabdomyosarcoma	56	69.64%
Wilms Tumor	67	92.54%

\*Patients diagnosed 2007-2017

## CHILDREN'S MERCY RESEARCH INSTITUTE

The Children's Mercy Research Institute (CMRI) at Children's Mercy Kansas City is an integrated research environment where no boundaries exist between science and medicine. Here, physicians, scientists, academic colleagues and philanthropic partners are collaborating to change the future for children. CMRI areas of emphasis provide the supportive structure for all research conducted at Children's Mercy. Research may fall under one or more of these areas and include Genomics, Precision Therapeutics, Population Health and Health Care Innovation. To enhance its research endeavors, a new building, future home to the CMRI, is under construction. The institute has been carefully designed so research and clinical care work as cross-functional teams, aligned together, to find answers to pediatric medicine's most challenging questions.

## MEET THE TEAM

### DIVISION DIRECTOR

Gerald Woods, MD  
Division Director, Division of Hematology/Oncology/BMT  
Director, Sickle Cell Program

### LEADERSHIP

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THE UNIVERSITY OF KANSAS  
CANCER CENTER



**LEARN MORE ABOUT THE DIVISION OF PEDIATRIC HEMATOLOGY,  
ONCOLOGY AND BLOOD AND MARROW TRANSPLANTATION.**

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