Valley Children's HEALTHCARE

Cancer and Blood Disorders Center

Piper, 19
Merced, CA

2020 & 2021 Annual Report

David Christensen, MD, MHCM, FAAP, FACHE
Senior Vice President, Medical Affairs,
Chief Physician Executive and
President, Valley Children's Medical Group

> "Despite all of the challenges our teams faced throughout the pandemic, they have remained focused on caring for kids and we've been able to not only maintain our quality standards, but improve on many of them."

The Cancer and Blood Disorders Center at Valley Children's is one of the leading pediatric cancer facilities on the West Coast, and the only provider of pediatric hematology and oncology services between Los Angeles and the Bay Area. The center, including an outpatient clinic and 36-bed inpatient unit, brings the best care closer to home to a service region of more than 1.3 million children. During the COVID-19 healthcare crisis that has affected the course of treatment for illnesses indirectly and directly on a global scale – kids depended on us more than ever.

The commitment and endurance exhibited by every member of the Valley Children's team to deliver the best care for kids in the Central Valley was inspiring. Through it all, our teams have demonstrated the highest level of quality – with measurable results – to the most vulnerable population who are in need of lifesaving care.

New programs, stories and data shared with you in this annual report are a testament to the immeasurable work of our oncology and hematology department, during a time that was unprecedented. Our children deserve nothing less than the best, and that they received – this is the promise we make to them every single day, despite the challenges the world may bestow upon us.

Rougeh Awad, RN, MSN, FNP-BC
Director of Ambulatory Clinic Practice

Cancer and Blood Disorders Center

The COVID-19 pandemic elicited an extraordinary response of selflessness, excellence and resilience from our team. Their commitment to providing the best care for our pediatric hematology and oncology patients is truly inspiring and humbling. There is a quote by Amy Poehler that says, "Find a group of people who challenge and inspire you, spend a lot of time with them, and it will change your life forever." Well, I consider my life truly changed forever.

Vinod Balasa, MD
Medical Director

Cancer and Blood Disorders Center

Our experiences as healthcare professionals over the last two years have consisted of one challenge after another, calling on us to deliver the best and most exemplary care because a diagnosis of cancer or a serious blood disorder and its treatment, would not be halted by a pandemic. The unflinching devotion of our team would not only overcome any challenge that came our way, but we would supersede the opposition because this kind of a fight was all too familiar to us, as we see it every day among the bravest kids in the Valley.

So while the pandemic permeated uncertainty throughout our country and the world, the children that presented for our care – new, existing or returning – faced an unprecedented risk like never before, torn between seeking care for their life-altering condition, or the possibility of exposure to a deadly virus. With more than 13,000 visits to the Cancer and Blood Disorders Center in 2021 alone, our kids sought the treatment they deserved, and our promise to deliver did not waver.

And while the residual fallout on all kids, and more specifically the hematology and oncology patients due to COVID-19, emotionally, physically and psychologically, will continue to unfold for generations to come, rest assured, when looking back, they will be able to speak in confidence of the safety precautions taken by our clinical teams to assure the best care.

Above and beyond providing specialized treatment, was the innovation and development of several programs in the hematology/oncology department, because the continued fight against anything threatening the health and safety of our kids knows no end. I invite you to learn more about the lifesaving work done right here in the Central Valley, because through these pages, you will gain further insight as to why it has been my honor and privilege to serve our kids alongside the most specialized team of experts, now more than ever.

> "More relentless than the pandemic as we knew it, was our team with the commitment and dedication to provide the best care. Their unwavering compassion for the kids who despite it all, faced a cancer diagnosis and were in need of lifesaving treatment, and the trust kids and their families had in us during these uncertain times, was not misguided."

Valley Children's Oncologist Honored with Lifetime Achievement Award

Dr. Vonda Crouse was awarded the Lifetime Achievement Award from the Fresno Madera Medical Society. Dr. Crouse has been providing care to pediatric hematology/oncology patients at Valley Children's for 35 years.

"I was so pleased and surprised to receive this award," says Dr. Crouse. "With more than four decades in pediatric oncology, it has been quite a ride that I am so proud to be part of."

Dr. Crouse was the first pediatric oncologist in the Central Valley and established the Valley's first pediatric oncology program, evolving into the Valley Children's Cancer and Blood Disorders Center that we know today. She has also served as the principal investigator for the Children's Oncology Group protocol at Valley Children's .

In addition to her clinical work, Dr. Crouse regularly volunteers at Camp Sunshine Dreams, a week-long summer camp for children with cancer. The camp offers children with cancer and their siblings the opportunity to enjoy a summer experience, while also providing on-site medical staff and opportunities for emotional support and connection.

"Dr. Crouse is more than deserving of this recognition," said Dr. Vinod Balasa, medical director of Valley Children's Cancer and Blood Disorders Center. "Her commitment to the Cancer and Blood Disorders Center, our staff and – most importantly – to the children of the Central Valley is an inspiration to healthcare professionals in Fresno and beyond."

A beloved fixture at Valley Children's, Dr. Crouse was also named Physician of the Year in 2020, an award voted upon by Valley Children's own staff and physicians that recognizes extraordinary contributions to improving healthcare and customer service.

A Research Grant That Funds Hope

St. Baldrick's Foundation – the largest private funder of childhood cancer research grants in the country – has awarded Valley Children's Hospital with a $25,000 grant for the coordination and treatment of children on clinical trials and the advancement of life-saving oncology research. The grant will partially fund a clinical research associate to ensure that more kids can be treated in clinical trials, often their best hope for a cure. This year, St. Baldrick's has chosen to award the grant to pediatric hematologist/oncologist Dr. Karen Fernandez.

"It is truly an honor for me to accept this grant on behalf of Valley Children's Cancer and Blood Disorders Center," Dr. Fernandez says. "The clinical trials we conduct today will lead to a better future for our children, offering hope for a life after cancer, with fewer side effects. It takes our entire team – from my fellow specialists like Dr. Vonda Crouse to our researchers to our oncology social workers – to make progress. Our kids are counting on us and thanks to St. Baldrick's, our vital work can continue."

Meet The Team

Physicians


Vinod **Balasa**, MD
Medical Director


Vonda **Crouse**, MD


Karen **Fernandez**, MD


John **Gates**, MD


Audrey **Green-Murphy**, DO


J. Daniel **Ozeran**, MD, PhD


Latha **Rao**, MD


Faisal **Razzaqi**, MD


David **Samuel**, MBChB, MD


Bindu **Sathi**, MD


Wendy **Tcheng**, MD


Ruetima **Titapiwatanakun**, MD

Nurse Practitioners


Katie **Baker**, NP


Jill **Cielnicky**, NP


Kelly **Folmer**, MSN, CPNP


Terea **Giannetta**, DNP, CPNP, FAANP


Alexia **Pratt**, DNP, CPNP

Service in Numbers

165
Newly Diagnosed Oncology Cases

Blastomas	**14**
Hepatoblastoma	
Nephroblastoma (Wilms)	
Neuroblastoma	
Brain / CNS	**33**
Carcinomas	**11**
Thyroid	
Other Carcinomas:	
Carcinoma, NOS	
Adrenal Cortical Carcinoma	
Genitourinary (Genital Organs)	**7**
Langerhans Cell Histiocytosis (LCH)	**4**
Leukemia	**62**
Lymphomas	**18**
Extra-Nodal	
Sarcomas	**19**
Soft Tissue:	
Sarcoma, NOS	
Ewing Sarcoma	
Histiocytic Sarcoma	
Alveolar Rhabdomyosarcoma	
Embryonal Rhabdomyosarcoma	
Bone:	
Ewing Sarcoma	
Osteosarcoma	

FY2020

Patient Visits
11,830

Hematology - 5,038
Oncology - 6,792

Unique Patients
3,322

Hematology - 2,095
Oncology - 1,227

FY2021

Patient Visits
13,178

Hematology - 5,891
Oncology - 7,287

Unique Patients
3,759

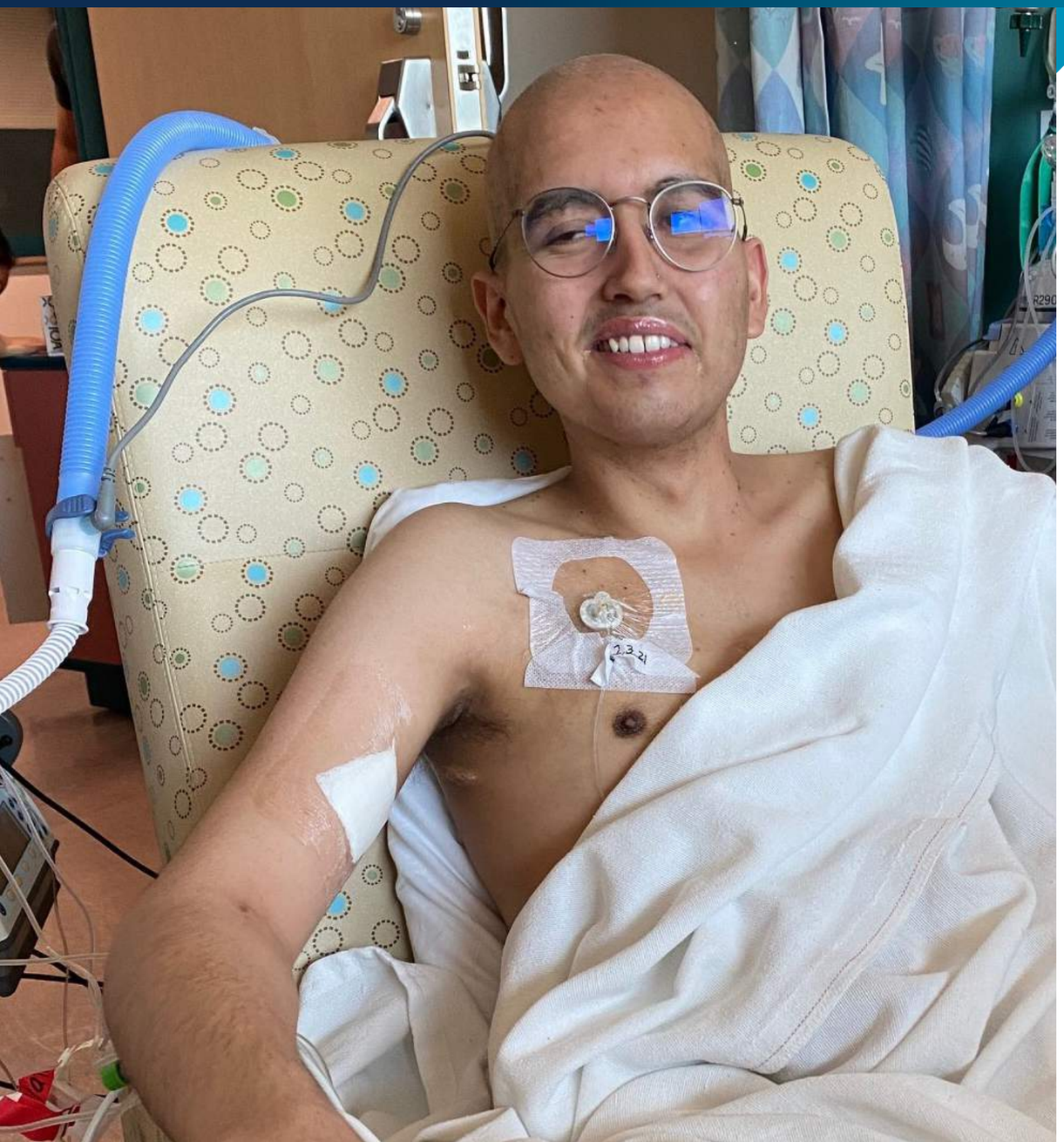
Hematology - 2,450
Oncology - 1,309

147
Newly Diagnosed Oncology Cases

Blastomas	**14**
Hepatoblastoma	
Nephroblastoma (Wilms)	
Neuroblastoma	
Brain / CNS	**25**
Carcinomas	**9**
Thyroid	
Other Carcinomas:	
Adenocarcinoma	
Solid Pseudopapillary Carcinoma	
Genitourinary (Genital Organs)	**5**
Langerhans Cell Histiocytosis (LCH)	**3**
Leukemia	**60**
Lymphomas	**12**
Extra-Nodal	
Sarcomas	**19**
Soft Tissue:	
Sarcoma, NOS	
Ewing Sarcoma	
Histiocytic Sarcoma	
Alveolar Rhabdomyosarcoma	
Embryonal Rhabdomyosarcoma	
Bone:	
Ewing Sarcoma	
Osteosarcoma	

A Pandemic Magnified:

How Testing Positive for COVID-19 Led to a Cancer Diagnosis



Extreme weakness, fatigue and all of the well-known symptoms that accompanied COVID-19 are what prompted 23-year-old Franco Galinda to seek testing that confirmed he had the virus which was rampant in our communities, and changed the world, as we knew it. After two weeks of self-isolation, his health was not improving, and a dizzy spell that led to fainting landed him in the hospital in January 2021.

"After being admitted and having further testing and x-rays on my chest, the only thing on my mind was that I was going to be put on a ventilator for my lungs," says Franco. "Unfortunately, it was worse than I could have ever imagined – I learned that I had a mass in my chest and abnormal white blood cells. Doctors believed I could have cancer and was in need of special care immediately."

At the onset of the pandemic, Valley Children's offered assistance to overwhelmed hospitals by accepting young patients up to the age of 26. Adult hospitals from San Francisco to San Diego were full, so Franco was transported to Valley Children's where he received care from the experts at the Valley Children's Cancer and Blood Disorders Center.

"We diagnosed Franco with T-cell acute lymphoblastic leukemia. As a young adult, Franco is part of a unique population with this condition, and he would have specific needs that are supported by pediatric protocols," explains Franco's oncologist at Valley Children's, Dr. Faisal Razzaqi. "At diagnosis, Franco required admission to an intensive care unit for several issues. We had to balance treating his leukemia and the potential side effects of that treatment, with the specific challenges that COVID-19 presented as well. He responded well to therapy and achieved remission, to the point where leukemia is no longer detectable."

After an inpatient stay and a few rounds of chemotherapy, Franco would face new challenges upon discharge – how to manage his vulnerable condition in a divided world that was shut down and filled with uncertainty.

"Life with cancer meant I had to adjust to hospitals, doctors, needles, medicine and a new set of struggles that used to be some of the most basic daily tasks," explains Franco. "Fortunately, for me, I had Dr. Razzaqi who felt like a friend and motivated me to stay strong and keep a positive attitude – a mindset that would get me through my toughest days."

"The good news is that survival for T-cell acute lymphoblastic leukemia using pediatric protocols is approximately 92%. Franco did have some challenges with regard to the treatment, but our ultimate hope is that he will be cured of his cancer," explains Dr. Razzaqi. "Although the COVID-19 pandemic has impacted care across the world, for Franco it meant that he was redirected to Valley Children's Hospital where he could receive the best care and support so that he can eventually return to his life prior to cancer. Franco and his family are wonderful people and we are honored to be a part of his care team."

"Today, I am in the maintenance phase of chemo, and it feels like time has flown by. As difficult as COVID-19 has made this past year, it opened the door that led to my diagnosis and treatment," adds Franco. "So while I may have a long ways to go, I am more confident than ever – with my family and medical care team by my side – I can handle it!"

While Franco shed 65 pounds, he gained the courage to face a new reality during an unprecedented time.

Improving Care For Kids
With Sickle Cell Disease

Reducing Long-term Complications for Kids with SCD Right Here in the Valley

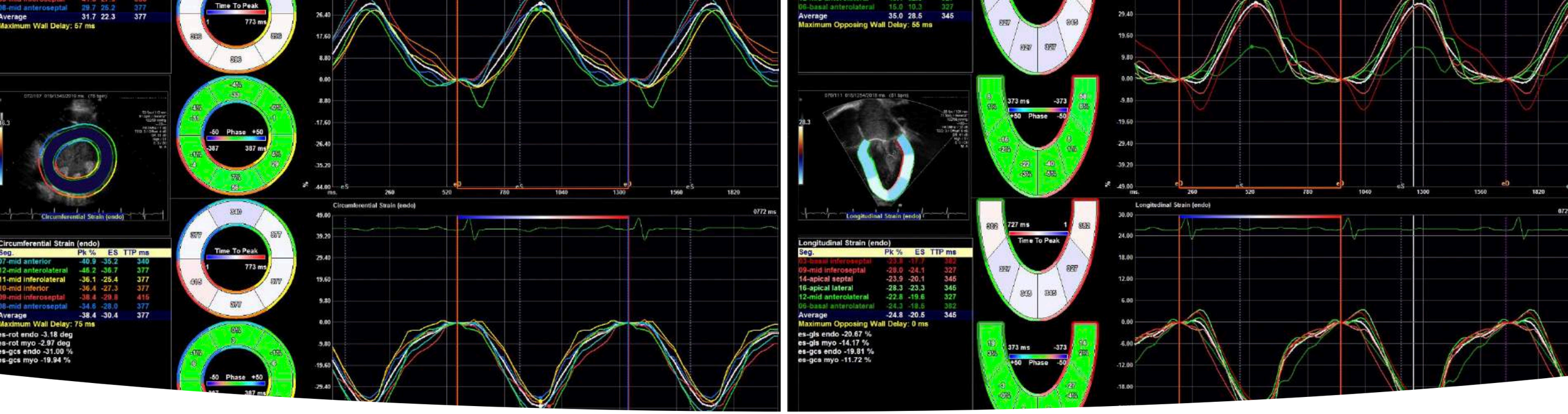
Valley Children's has the third largest sickle cell disease program in California, and in order to provide the best treatment for these patients, Valley Children's has launched an erythrocytapheresis program – otherwise known as automated red cell exchange.

As the cornerstone approach to managing sickle cell disease and its acute complications, this program is a non-surgical treatment used to remove some of the child's defective red blood cells and replace them with normal red blood cells from a donor. This exchange transfusion process helps to reduce and prevent iron overload due to multiple blood transfusions, which can lead to severe and debilitating long-term complications.

"With the launch and expansion of this program, I believe that every child with sickle cell disease in the Central Valley and beyond will have access to the latest cutting-edge, life-saving treatment," says Dr. Bindu Sathi, sickle cell disease program director at Valley Children's.

Since its launch in March 2021, this program has treated five patients who have undergone 27 procedures to date (as of Dec. 2021). The success of this program took the collaboration of an interprofessional team from all areas of the hospital.

"Through this program, we will be able to deliver this valuable disease-modifying treatment to children and young adults in the Central Valley who suffer from sickle cell disease," adds Dr. Sathi. "We plan to expand the program to plasma separation and stem cell and mononuclear separation in the coming years."



Strain Analysis: A Novel Technique to Detect Early Cardiac Dysfunction in Pediatric Patients with Sickle Cell Disease

Recognized by the American Society of Hematology with the Outstanding Abstract Award

Cardiac failure is one of the leading causes of death in sickle cell disease (SCD) and transfusion-dependent thalassemia (TDT), which is why early detection is crucial for treatment and prevention of heart failure. For this reason, Drs. Aura Daniella Santi, Leepao Khang, Miguel Restrepo and Bindu K. Sathi, and research associate Rosanna Spicer, worked together to further understand the changes of the myocardial strain in TDT and SCD patients, and to correlate the severity of anemia and hyperferritinemia with abnormal cardiac strain in these groups.

“Detection of early cardiac dysfunction is important because it is a cause of early mortality in individuals with sickle cell disease,” says Valley Children’s Pediatric Cardiologist Dr. Miguel Restrepo. “If subclinical cardiac dysfunction is identified, measures can be undertaken to protect the heart and even prevent early death.”

By using the technique of cardiac strain analysis, the team hypothesized that early heart dysfunction can be identified, and that this may be related to underlying anemia and iron overload. This method already has a significant use in detecting subclinical left ventricle dysfunction among patients receiving chemotherapy, in which case strain values are monitored over time and a relative percentage reduction in global longitudinal strain (GLS) triggers concern for subclinical myocardial disease.

This study revealed that GLS was slightly abnormal in children with SCD when compared to thalassemia and normal controls, as well as in asymptomatic SCD children with hyperferritinemia, but not among children with thalassemia. These changes were evident early, prior to other changes in heart function were detected.

In sickle cell disease, there was a correlation between anemia and heart strain observed. This could be secondary to underlying mechanisms related to disease pathophysiology of SCD and possible oxidative stress.

Research findings concluded that speckle tracking echocardiography is a useful and easily accessible method to monitor myocardial dysfunction in SCD patients. Our team speculates that therapies aimed at ameliorating anemia can potentially improve GLS and thus, early cardiac dysfunction in SCD patients. Abnormal cardiac strain is detected early and prior to evidence of change in routine echocardiographic parameters. Thus, strain analysis represents a novel technique to detect early cardiac dysfunction in pediatric patients.

“Early cardiac dysfunction needs to be detected in sickle cell disease for timely intervention and prevention of early mortality due to cardiac failure,” adds Dr. Sathi. “We believe strain analysis needs to be incorporated into routine echocardiographic analysis to detect and treat early cardiac dysfunction.”

According to the American Society of Hematology and the National Institutes of Health, an estimated

70,000 to 100,000

Americans have sickle cell disease.

Diastolic dysfunction was seen in 18%, and diastolic dysfunction with pulmonary hypertension was seen in 11% of patients with sickle cell disease, which can lead to early mortality due to cardiac failure.

Similarly, cardiac failure is a cause of early mortality in children with cardiac iron overload in transfusion - dependent thalassemia.

Advancing Care Through Innovation And Collaboration

Tumor-Cancer Predisposition Clinic: Optimizing Surveillance

Genetic advancements have fueled the options available for tumor and cancer surveillance, and Valley Children's has opened the only tumor-cancer predisposition clinic in the Central Valley – making innovative detection methods available to kids closer to home.

Dr. Karen Fernandez explains, "Through a multidisciplinary approach and collaboration with the genetics team, our clinic is optimizing cancer and tumor detection by providing genetic screening in order to identify cancerous mutations, and then coordinating care with other specialized disciplines."

Children with overgrowth conditions and cancer predisposition risk, such as Beckwith Wiedemann syndrome, hemihyperplasia/ hemihypertorphy, Sotos syndrome, PTEN, hamartoma syndrome/Cowden syndrome, DICER1, Li-Fraumeni, P53 mutation or Rhabdoid tumor syndrome, can all undergo genetic screening and surveillance guidance which can lead to early detection of cancer.

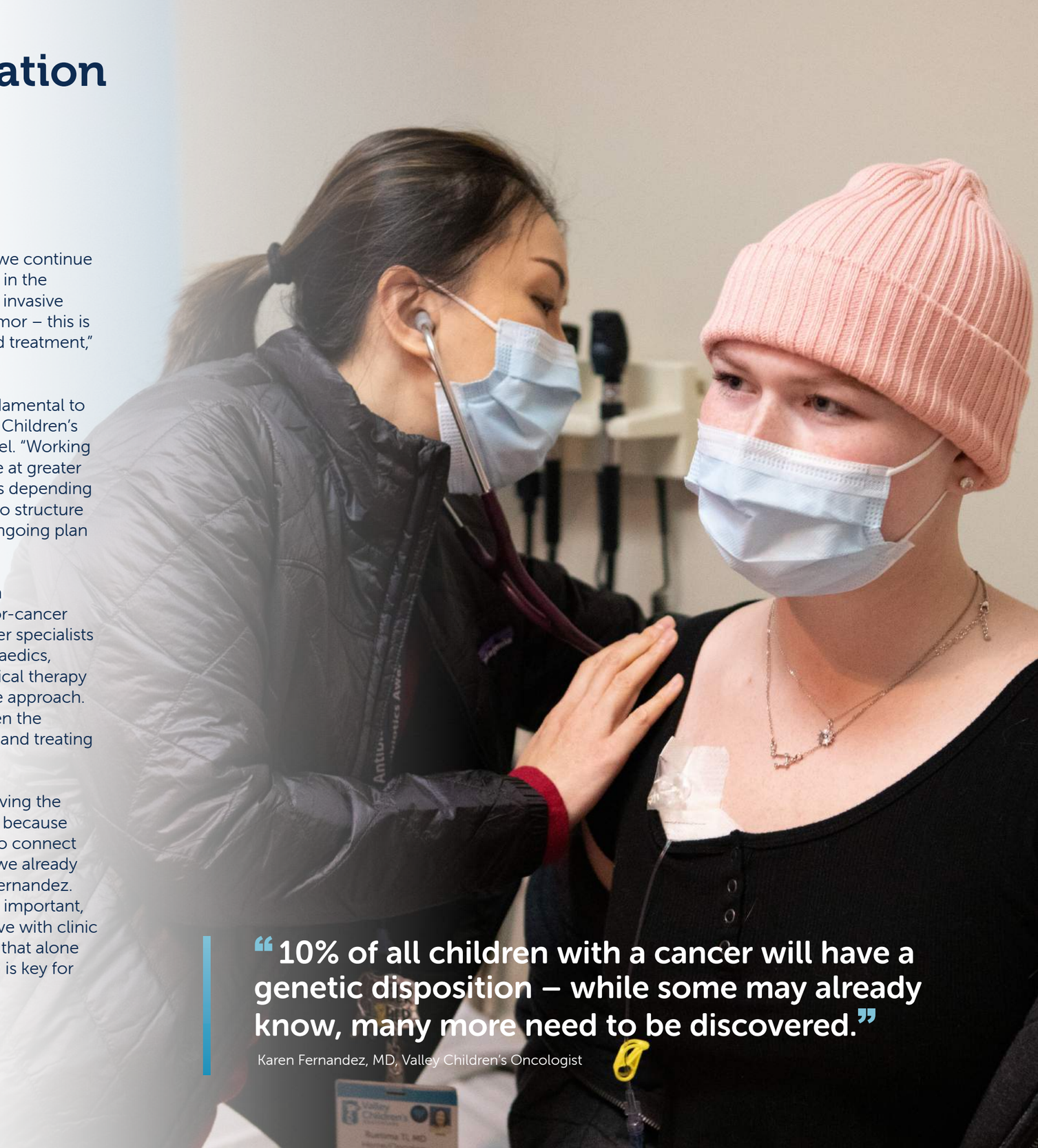
In some instances, genetic testing detects variants of uncertain significance, which can complicate the diagnostic course. Evaluation of the patient by a clinical geneticist is often essential in the process of determining the appropriate testing, interpreting results, follow-up recommendations and identifying at-risk family members.

A new revolutionary screening tool has been developed to help detect cancer – known as liquid biopsy. Approved for use by the FDA in late 2020 and offered at Valley Children's, a liquid biopsy is a sequencing test that can identify cancer cells or pieces of tumor cells in DNA by using peripheral blood. "As we continue to learn how to use this information in the disease course, this approach is less invasive and just as informative about the tumor – this is the future of cancer surveillance and treatment," elaborates Dr. Fernandez.

"A multidisciplinary approach is fundamental to optimizing care for kids," says Valley Children's Genetic Counselor Jason Carmichael. "Working together to identify patients who are at greater risk of developing cancerous tumors depending on the genetic mutation, allows us to structure an optimal follow-up care and an ongoing plan for surveillance is pivotal."

In addition to early detection and an ongoing surveillance plan, the tumor-cancer predisposition clinic works with other specialists including, but not limited to, orthopaedics, endocrinology, neurology and physical therapy in order to provide a comprehensive approach. Access to these disciplines have been the foundation to successful outcomes and treating patients.

"There is something to say about having the opportunity to launch this program, because we cannot exist without the ability to connect patients with other specialties, that we already have at Valley Children's," adds Dr. Fernandez. "Providing care closer to home is so important, as they are likely to be more proactive with clinic appointments and surveillance, and that alone can help with early diagnosis, which is key for good outcomes."



> **"10% of all children with a cancer will have a genetic disposition – while some may already know, many more need to be discovered."**
>
> Karen Fernandez, MD, Valley Children's Oncologist

Caring for Kids with Neurofibromatosis

Neurofibromatosis (NF) was, for many years, felt to be an inherited cancer predisposition syndrome or tumor-forming disorder. Over the years, we have come to understand that it is actually a systemic disorder. People with NF have complex issues including nerve tumors (plexiform neurofibromas, optic pathway gliomas, brain tumors, neurofibromas and schwannomas), learning disabilities and psychological issues (ADD/ADHD, autism, depression, anxiety and OCD). Additionally, orthopaedic issues (pseudo arthrosis which can lead to fractures and scoliosis), seizures, pulmonary fibrosis, vascular issues (moyamoya which can cause strokes, hypertension) and a risk of nerve tumors becoming cancerous over time, as well as higher risk of cancers like melanoma, leukemia, brain tumors and breast cancer.

"Since its inception in April 2020, Valley Children's Neurocutaneous Syndromes Clinic has been the medical home for more than 200 children with neurofibromatosis and tuberous sclerosis. We evaluate any child with known or suspected neurofibromatosis and coordinate with genetics to make the confirmatory genetic testing," explains Dr. Merveen Appu, Valley Children's Pediatric Neurologist and Neurocutaneous Syndromes Clinic Lead. "Our patients with neurofibromatosis undergo surveillance imaging and subspecialty evaluations based on nationally accepted recommendations, and have the opportunity to discuss their queries with the appropriate specialist - all at one location - making this a true multidisciplinary clinic."

New to the hematology/oncology team is neuro-oncologist Dr. Audrey Green-Murphy who has joined Dr. Appu in the neurocutaneous syndromes clinic. "I joined Valley Children's to help with the NF program because it is my passion and why I pursued neuro-oncology fellowship training - to help patients with NF by educating them and their families for self-advocacy," explains Dr. Green-Murphy. "NF, even without cancer, can be fatal and it is my privilege to work alongside some of the most specialized experts to serve the Central Valley."

There are currently 400 patients known to have NF in the Central Valley. If a patient has a first-degree relative with NF, Café au lait macules on their skin (hyper pigmented birth marks), lisch nodules in their eyes, long bone pseudo arthrosis, optic pathway tumors or changes on a brain MRI, they should be evaluated in genetics or by a physician trained to see patients with NF. Once NF is confirmed by the clinical criteria or genetic testing, they should be seen annually for exams and comprehensive NF care.

Innovative therapies available at Valley Children's are extensive and include a newly FDA-approved medication called Selumetinib. There are screening recommendations to follow for early signs/symptoms of NF-associated cancers once risky lesions are identified. Screenings are available along with this therapy at Valley Children's.

"By working with multiple disciplines from genetics, neurology, orthopaedics and ophthalmology, to neuro-oncology, neuro-surgery and neuro-psychology, we can ensure the best care for our kids," adds Dr. Green-Murphy. "I will remain invested in NF treatment for as long as I can because this is an area of healthcare that is much-needed, and with the right training and experience, it can also be lifesaving."

1 in 2,500/3,000
people are born with NF

When a parent has NF, there is a
50%
chance they will pass it along to their child

50/50
Half of patients newly diagnosed with NF are spontaneous mutations, the other half inherited it from a parent

Vascular Malformations Program

Access to treatment for vascular anomalies has been limited, and there seemed to be a gap in the conventional process for seeking medical care, which is why Valley Children's has opened the only pediatric vascular anomalies clinic in the Central Valley. The simpler vascular anomalies can resolve on their own, but more complex ones can cause significant health concern for children.

"While most patients with vascular anomalies present symptoms to a dermatologist or pediatrician, we all too often see this in our own clinics," says Dr. Faisal Razzaqi. "This seemed like a gap, so we organized a vascular malformation team comprised of specialists from hematology/oncology, pediatric and reconstructive surgery and interventional radiology to address the need in our Valley."

Children with vascular malformations have several treatment options available. Medical management with medicines such as propranolol, sirolimus or even chemotherapy, can help to reduce or resolve the malformation. Sclerotherapy, which is an injection of a medicine directly into the lesion, can be performed by an interventional radiologist which results in the lesion scarring down and resolving. Occasionally, surgical removal is necessary and this can be challenging depending on the location. Our expert surgeons in pediatric and plastic surgery, and also ear, nose and throat, have the experience to do these interventions safely. Laser ablation of superficial skin lesions is also a potential treatment. Some children are born with a genetic predisposition to develop these malformations and have mutations in the PIK3CA gene. The potential for medications to directly target these mutations is another treatment option that may be available to patients.

"Through coordinated care, we are able to manage specialized treatment from various disciplines in a single appointment," adds Dr. Razzaqi. "This is a great benefit to families who are no longer having to bounce back and forth to several appointments."

In addition to providing specialized treatment from several disciplines, the vascular malformation clinic provides new patient visits and follow-up care either in person or via telehealth when needed. Over the last two years, approximately 100 new patients have been seen here at the Valley Children's multi-disciplinary vascular malformation clinic.

A venous malformation has an incidence of about

1 in 5000

More minor vascular anomalies, such as capillary hemangiomas, are present in up to

5%

of all births

The general prevalence of a vascular malformation is about

1.5%

Childhood Cancer Survivorship Program

Valley Children's team adapted to the changing global pandemic and hosted a successful 5th annual – first virtual – Childhood Cancer Survivorship Conference in Oct. 2020 and 6th annual – second virtual – conference in 2021! The conferences, held in partnership with The Leukemia & Lymphoma Society, featured themes of "Navigating Challenging Times: Childhood Cancer Survivors and Resilience," and "Healthy Living: Childhood Cancer Survivors Strive for Healthy Body, Mind and Soul," which were well received by attendees.

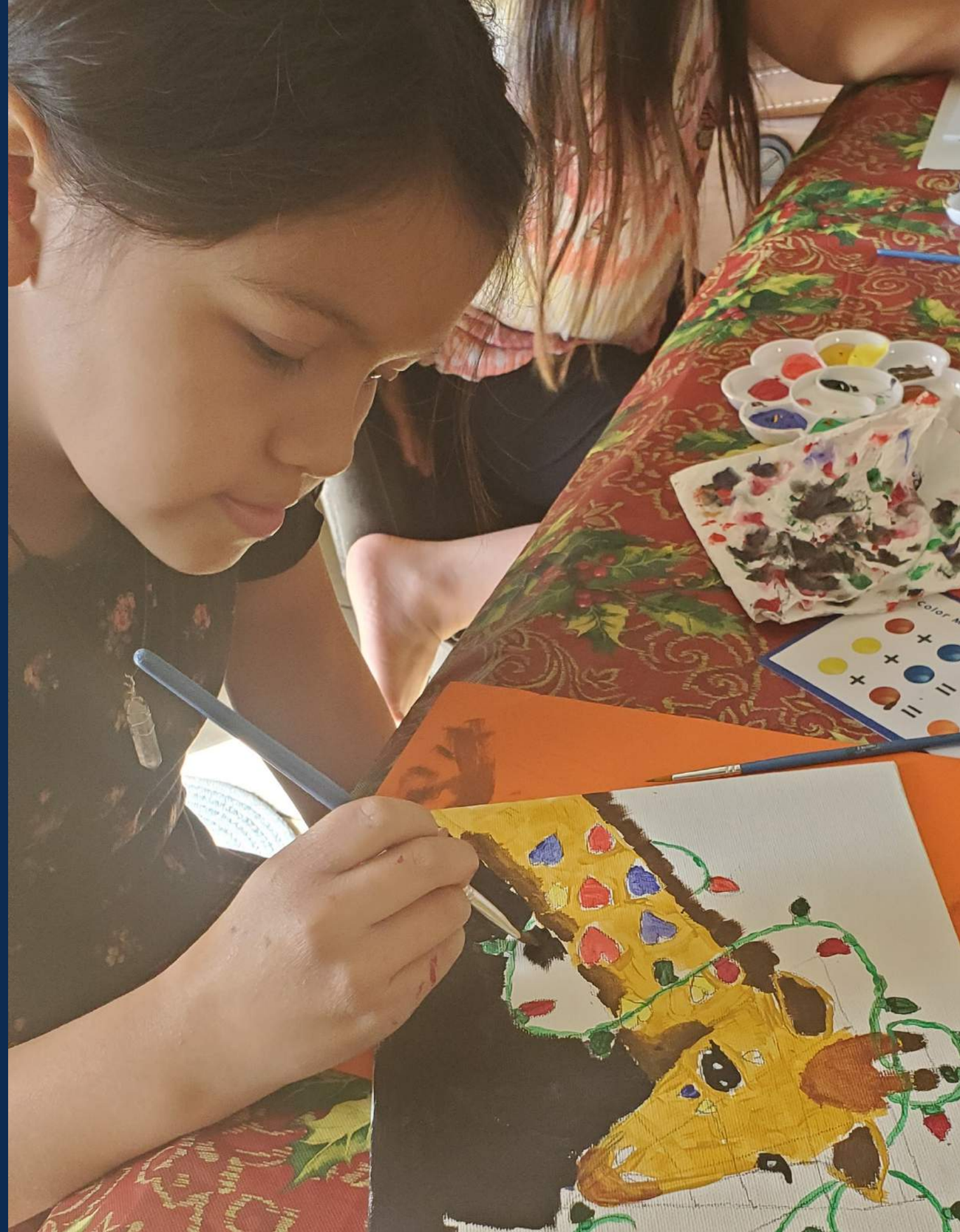
The Survivorship Program continued to enhance patient engagement through social media and the start of the Survivorship Book Club. Virtual programming and events expanded to include a holiday roundtable event for survivors in Dec. 2020, and a holiday paint party as part of a grant from the Pediatric Brain Tumor Foundation in Dec. 2021 (held in collaboration with the Merced County Arts Council).

Additionally, Survivorship unveiled the survivor "swag bag," a tote made possible by a generous donation from the Fresno Rotary, complete with Survivorship Program-branded items that promote healthy living (water bottle, sunscreen, t-shirt, hand sanitizer and more). The "swag bag" is given to new survivors entering the program, of which there have been more than 100 since June 2020.

As the clinic sees a majority of adolescent and young adult patients, with approximately 70% of survivorship patients over age 18, questions about fertility and reproductive health are often top concerns. To that end, several survivorship team members participated in an intensive Enriching Communication Skills for Health Professionals in Oncofertility (ECHO) training, allowing for better and more comprehensive reproductive health counseling and education to patients after cancer treatment. The survivorship team has also expanded clinical tools in EPIC, allowing for clear and accessible documentation of individualized cancer treatment summaries and recommendations for follow-up, benefitting patients and providers.

In Sept. 2021, the team was honored to receive the Recognition Award for Scalability, part of the Survivorship Champion's Prize from the Children's Cancer Cause and Stewart Initiative for Childhood Cancer Survivors. This award highlights our program's efforts to provide life-long health maintenance for survivors of pediatric cancers.

In the beginning of 2022, the Valley Children's Childhood Cancer Survivorship Scholarship was announced, which will be awarded to our very own patients. The scholarship fund has already received more than $15,000 in donations in support of the educational and professional goals of childhood cancer survivors. The survivorship team is grateful for the support of generous donors and community partners that make their work possible.



I am a Childhood Cancer Survivor, But my Mental Health is a Daily Battle

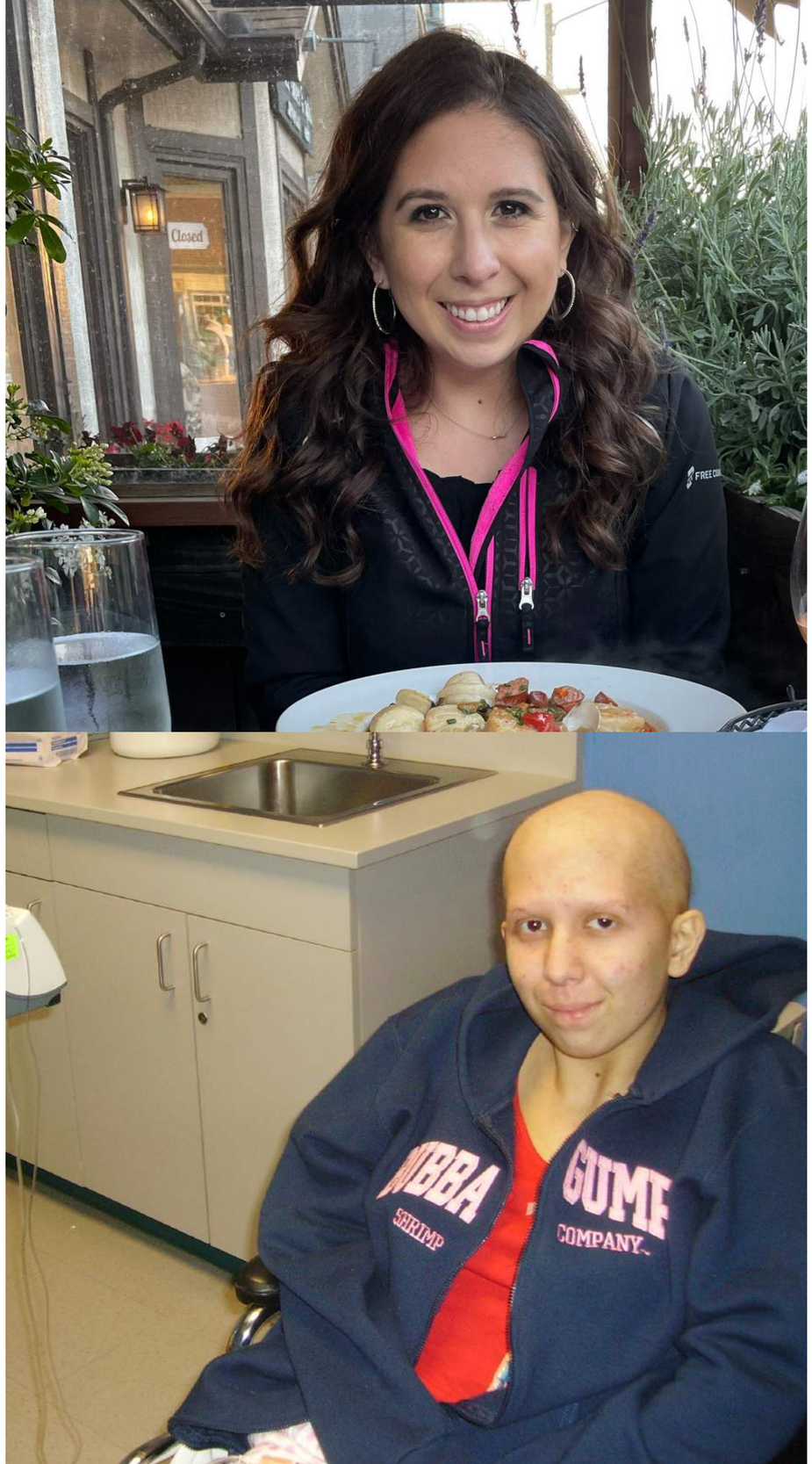
by Savannah Gomes, ASW, PPC
Valley Children's Cancer and Blood Disorders Patient

On September 15, 2008, I was at Valley Children's being hooked up to the IVs one last time – at just 17 years old, I had survived cancer treatment. The journey was over, time to move on and "go back to life." Little did I know that surviving cancer was only half the battle. In the months and years that followed, I was faced with a new challenge: my mental health.
My name is Savannah and while I am a childhood cancer survivor, it is the mental health struggles stemming from my diagnosis that I wanted to share with you.

It was more than one year after completing treatment that I hit a point where I could no longer ignore that I was struggling. It was my freshman year in college when I would wake up in the middle of the night from vividly realistic "dreams" – or flashbacks – of being in the hospital receiving treatment. Many nights I would end up laying on the bathroom floor in a cold sweat, feeling utterly sick, mimicking the aftermath of chemo treatments. During the day I would feel so weak that I could not even stand on my own at times, I had pain throughout my entire neck and spine, not to mention the horrible headaches. What was happening? In my mind, this could only be one thing: the cancer was back.

I later learned that this was not the case, blood work came back normal and scans were clear. There was no cancer. The nurse practitioner looked me in the eye and, with compassion, told me that this was not physical. What I was experiencing was the mental effects of surviving a childhood trauma.
With the help of professionals, I have learned how to navigate these side effects and the impact trauma can have on both the body and the mind.
I have learned to recognize when my body gives me cues, like when I'm feeling anxious and overwhelmed. Listening to these cues has been validating and created a foundation for my healing.

Perhaps most cathartic has been using my personal struggle to become a better mental health practitioner. Following treatment, I went on to get a college education, eventually earning my master's degree in social work. For the last four years, I served high school students as a school social worker, providing mental health support on campus and now, I am an intensive in-school therapist. As a mental health practitioner and as a patient, there are three things I want to share:



1 Therapy works and is not for the weak!
Finding a therapist who I trusted and connected with was truly life changing.

2 There is no shame in taking or needing mental health medications.
There is still so much stigma around this. If I had diabetes, would I withhold the insulin needed to maintain my wellness? No. So why would I deny myself of medications, like anti-depressants, if that's what I needed to be and stay well?

3 My surviving had purpose.
There is a reason I am here now and have survived, even though at times, it came with guilt. Using my story to give back and help other patients/survivors has been my mission, a process we call post-traumatic growth.

My mental health struggle is not something that can be cured. It's an ongoing process. At times, it is strong and healthy, and other times it is weaker and needs support. It was, is and will always be something I must be mindful about. And the kicker? It's not just me. Just like we all have bodies, we all have mental health.

Throughout all of this I've come to know that I'm not alone. By being connected to the Childhood Cancer Survivorship Program at Valley Children's Hospital, I have learned that sharing my story is powerful, for my own healing and that of others. I encourage everyone to do the same. Our stories matter and should be told if and when we are ready.

Publications

2020

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Abstracts

2020

Graf L, Yan S, Shen M and **Balasa V**. Efficacy and factor consumption of long-acting recombinant factor VIII products or prophylactic treatment of haemophilia A: a systematic review. Poster Presentation at the 13th Annual Congress of the European Association for Haemophila and Allied Disorders (EAHAD), The Hague, Netherlands, February 2020.

Escuriola-Ettingshausen C, Graf L, Yan S, Shen M and **Balasa V**. Systematic review of efficacy and factor consumption of long-acting recombinant factor VIII products for prophylactic treatment of haemophilia A. Poster presentation at the 64th Annual Meeting of the Society of Thrombosis and Haemostasis Research, GTH 2020, Bremen, Germany, February 2020.

Hentenryck M, Thongthip S,....**Balasa V**, et al. Treatment Resistance in a Fanconi Anemia Mosaic Patient with Myelodysplastic Syndrome. Poster presentation at the Fanconi Anemia Research Fund (FARF) 2020 Scientific Symposium September 15-17, 2020 (Virtual Symposium)

Bindu K Sathi, et al. Alloimmunization is associated with increased indirect markers of hemolysis and distinct end-organ specific complication in Sickle Cell Disease. American Society of Hematology. 2020.

Patricia Obando,...**Karen S. Fernández**. Co-Existencia de Linfoma de Hodgkin y Tuberculosis en Niños Presented at the Central American Society of Pediatric Hematology/Oncology (AHOPCA) Annual Meeting. Antigua Guatemala. Guatemala. February 19 – 22, 2020.

Ana Veronica Girón, MA. Ortega, JP. Díaz, M. Nuyens, **Karen S. Fernández**. Angiofibroma Nasofaringeo Juvenil: 20 Años de Experiencia en UNOP. Presented at the Central American Society of Pediatric Hematology/Oncology (AHOPCA) Annual Meeting. Antigua Guatemala. Guatemala. February 19 – 22, 2020.

Karen S. Fernández, et al. Recuperación de la Recuento Linfocitario Absoluto al Final de la Inducción Predice Sobrevivencia en Leucemia Linfoblastica Aguda. La experiencia de UNOP. Presented at the Central American Society of Pediatric Hematology/Oncology (AHOPCA) Annual Meeting. Antigua Guatemala. February 19 – 22, 2020.

Amy Kunchok, Eoin Flanagan,.....**Karen S. Fernández**, et al. Coexistence of neuronal synaptic autoantibodies with AQP4-IgG in 3752 patients undergoing encephalopathy evaluation. Submitted to the American Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Annual Forum. West Palm Beach, Florida. February 27-28, 2020.

Amy Kunchok,.....**Karen S. Fernández**, et al. Prevalence and phenotype of coexisting AQP4-IgG with synaptic autoantibodies in patients undergoing serological testing for CNS inflammatory diseases. Submitted to the American Academy of Neurology (AAN) 72nd Annual Meeting. Toronto, Ontario, Canada. April 25 – May 1, 2020.

Richard P. Greiwe,....**Karen S. Fernández**, et al. Response Evaluation of Sirolimus and Bisphosphonates for the Treatment of CLA with bone involvement. Submitted to the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Fort Worth, TX. May 6 - 9, 2020. Pediatr Blood Cancer. 2020; S67-68. DOI 10.1002/pbc.28321

Kristin Shimano,.... **Karen S. Fernández**. ANC and ALC during Sirolimus Patients with Non-Complicated Vascular or Lymphatic Anomalies. Submitted to the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Fort Worth, TX. May 6 - 9, 2020. Poster# 224. Pediatr Blood Cancer. 2020;67(Suppl.2):e28321 S70-S71. DOI 10.1002/pbc.28321

Rafael Gonzalez, Pooja Parmar, Steve Hardee, Brian Pugmire, Christine Chang-Halpenny, Reutima Titapiwatanakun, Wendy Tcheng, Karla Au Yeung, **Karen S. Fernández**. Hodgkin Lymphoma associated Biliary Vanishing Syndrome. Presented to the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Fort Worth, TX. May 6 - 9, 2020. Poster# 761. Pediatr Blood Cancer. 2020;67. DOI 10.1002/pbc.28321

Richard P....**Karen S. Fernández**, et al. Radiographic Features Of Bone Lesions In Complicated Lymphatic Anomalies. Submitted to International Society for the Study of Vascular Anomalies (ISSVA) Annual Workshop. Vancouver, Canada. May 2020

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Verón DA, Obando P, Castellanos M, **Fernández KS**. Simultaneous Occurrence of Hodgkin Lymphoma and Tuberculosis in Children and Adolescents. Presented at the American Society of Clinical Oncology (ASCO) Annual Meeting. Chicago IL. May 29 – June 2, 2020. Poster ID 297507. J Clin Oncol 2020 38:15_ Suppl,e20022. DOI:10/12000/JCO.2020.38.15_suple. e20022.

Thelma Velásquez, ...**Karen S. Fernández**, et al. Remission induction with low dose chemotherapy plus G-CSF in newly diagnosed acute myeloid leukemia in Unidad Nacional de Oncologia Pediatrica (UNOP), Guatemala Presented at the International Society of Pediatric Oncology (SIOP). Ottawa, Canada. October 14-17, 2020.

Thelma Velásquez,.... **Karen S. Fernández,** et al. Pediatric osteosarcoma in Guatemala: report of the experience of the Unidad Nacional de Oncologia Pediatrica (UNOP). Presented at the International Society of Pediatric Oncology (SIOP). Ottawa, Canada. October 14-17, 2020.

Daniella Santi, Anahita Emamian, Marveen Apu, Aleli Siongco, Frederick Laningham, Wendy Tcheng, **Karen S. Fernández**. When Agitation, Hallucinations and Paranoia Mean More than Psychosis: The Case of an Ovarian Teratoma. Presented at the American Academy of Pediatrics (AAP) Annual National Conference and Exhibition. Section on Pediatric Trainees (SOPT). Virtual Conference. October 25-29, 2020. Pediatrics Mar 2021. vol. 147 (33 Meeting Abstract 894-895. https://doi.org/10.1542/peds.147.3_MeetingAbstract.894

2021

Aura Daniella Santi, Leepao Khang, Rosanna Spicer, Miguel Restropo, **Bindu K. Sathi**. Global Longitudinal Myocardial Strain correlates with degree of Anemia in Sickle Cell Disease but not Transfusion-dependent Thalassemia. American Society of Hematology Annual Meeting, July, 2021 ***Best Abstract Award from American Society of Hematology**

Aqsa Sabir, Stanley Calderwood and **Bindu K Sathi** .Dexamethasone treatment of SARS-CoV-2 Infection presenting as Acute Chest Syndrome in a Pediatric Patient with Sickle Cell Disease (HbSD-Los Angeles): Case Report and Review of the Literature. American Society of Pediatric Hematology and Oncology. Virtual Meeting, 2021.

Caroline Chinchilla, Amy Kunchok, Brian Pugmire, Emmanuelle Waubant, **Karen S. Fernández** Hypersomnia as a Rare Presentation of Neuromyelitis Optica. Submitted to the American Federation for Medical Research and Participating Societies Southern Regional Meeting (Jointly sponsored by Tulane University Health Sciences Center. Virtual Meeting February 25 – 27, 2021

Anahita Emamian, Daniella Santi, Marveen Apu, Aleli Siongco, Frederick Laningham, Wendy Tcheng, **Karen S. Fernández. Ovarian Teratoma Masquerading as Encephalitis**. Presented to the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Portland, OR. April 6 - 9, 2021. Poster# 305. Pediatr Blood Cancer. 2021;68(Suppl. 3):e29060. S164.

Anahita Emamian, Daniella Santi, Marveen Apu, Aleli Siongco, Frederick Laningham, Wendy Tcheng, **Karen S. Fernández**. Ovarian Teratoma Masquerading as Encephalitis Valley Children's Hospital Interdisciplinary Research Day. Madera, CA. May 26, 2021. Poster# Booklet pg.

Xue Rachael Yang, Fouzia Naeem, Brian Pugmire, **Karen S. Fernández**. Tumors Of The Ribs Diagnosed At A Referral Center In Central California. Presented at the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Portland, OR. April 6 - 9, 2021. Poster#104 Pediatr Blood Cancer. 2021;68(Suppl. 3):e29060, S64.

Adrianna Sosa, John Caton Malcolm MacDonald, **Karen S. Fernández**. Rhabdomyoma and Cavernous Hemangioma of the Heart. Presented at the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Portland, OR. April 20 - 23, 2021. Poster# 234. Pediatr Blood Cancer. 2021;68(Suppl.3):e29060 S128-S29. DOI 10.1002/pbc.29060 https://doi.org/10.1002/pbc.29060

Nicole Diebert, Katherine Baker, **Karen S. Fernández**. Brentuximab Vedotin RelatedNeuropathy Associated to UGT1A1 Gene Mutation. Presented at the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Portland, OR. April 6 - 9, 2021. Poster #241. Pediatr Blood Cancer. 2021;68.

Katherine Baker, **Karen S. Fernández**. Pediatric Malignancies in Twin Siblings in a Referral Center in Central California. Presented at the American Society of Pediatric Hematology/Oncology (ASPHO) Annual Meeting. Portland, OR. April 6 - 9, 2021. Poster #247 Pediatr Blood Cancer. 2021;68(Suppl. 3):e29060, S135

Katherine Baker, **Karen S. Fernández**. Childhood Cancer in Twin Siblings in a Referral Cancer Center in Central California. Presented at Valley Children's Hospital Interdisciplinary Research Day. Madera, CA. May 26, 2021. Poster# 27 Booklet pg. 27-28.

Nicole Diebert, Katherine Baker, **Karen S. Fernández**. Brentuximab-Related Neurotoxicity In A Patient With Gilbert's Syndrome: Do mutations of UGT1A1 gene increase toxicity. Presented at the Valley Children's Hospital Interdisciplinary Research Day. Madera, CA. May 26, 2021. Poster# 54 Booklet pg. 54- 55.

Karen S. Fernández, Fouzia Naeem, Isaura Macias,Vini Vijayan, MD. The Culture of Scholarship at Valley Children's Hospital: A full circle of Quality Improvement in Clinical Practice, Evidence-Based Medicine and Medical Education. Presented at Valley Children's Hospital Interdisciplinary Research day. May 26, 2021.

Fouzia Naeem, Amy Davis, Sukesh Sukumaran, **Karen S. Fernández**. Trichodysplasia Spinulosa in a Child with Precursor T cell lymphoblastic Leukemia: A Rare Dermatologic Disorder. Submitted to the Infectious Disease Society of America (IDSA) Annual Meeting. San Diego, CA. September 29 – October 3, 2021.

Karen S. Fernández, Nicole Diebert, Lucy Roh, Alyssa Nakaguchi, Renzio Apostol. Blood Alcohol Concentration Monitoring with the use of Liquid Cyclophosphamide Formulation in Pediatric Patients. . Children's Oncology Group – Pharmacy Abstract Book. Children's Oncology Group, Fall Group Meeting, Virtual. September 27 to October 1, 2021.

Crouch J, Nakaguchi A, Roh I, and N Diebert. Impact of a pharmacist-run protocol for the monitoring of methotrexate clearance after high-dose methotrexate administration in acute lymphoblastic leukemia pediatric patients. Presented at: Pediatric Pharmacy Association Annual Meeting. Virtual (April) [National], Sierra Society of Health-Systems Pharmacists Resident Symposium. Fresno, CA (May) [Local], and Valley Children's Hospital Interprofessional Research Day. Madera, CA (May)

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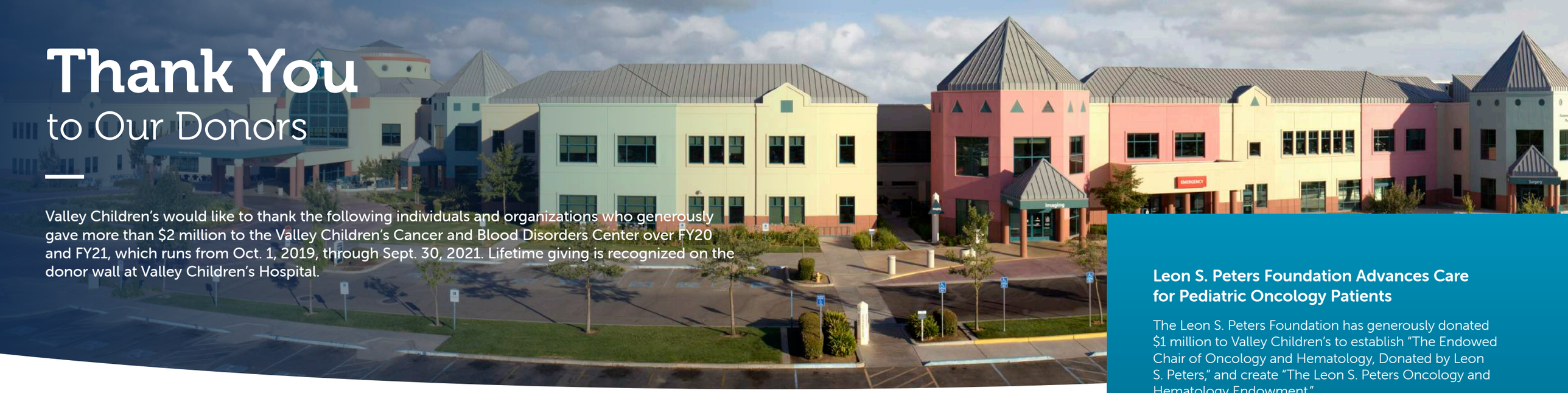

Valley Children's would like to thank the following individuals and organizations who generously gave more than $2 million to the Valley Children's Cancer and Blood Disorders Center over FY20 and FY21, which runs from Oct. 1, 2019, through Sept. 30, 2021. Lifetime giving is recognized on the donor wall at Valley Children's Hospital.

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The Leon S. Peters Foundation has generously donated $1 million to Valley Children's to establish "The Endowed Chair of Oncology and Hematology, Donated by Leon S. Peters," and create "The Leon S. Peters Oncology and Hematology Endowment."

"The Leon S. Peters Foundation has a rich legacy of generous investment across the Valley and to Valley Children's Mission at both our main campus in Madera and our outpatient center in Fowler," said Valley Children's Healthcare President and CEO Todd Suntrapak. "The Peters family's most recent gift will have a multigenerational, positive impact on the care that Valley Children's provides for pediatric oncology and hematology patients. We are tremendously grateful for their support."

Division Chief and Medical Director of the Cancer and Blood Disorders Center Dr. Vinod Balasa shares: "This gift and the creation of an endowed chair will greatly enhance the mission and vision of the Hematology and Oncology Departments at Valley Children's to provide the best care for children suffering from life-threatening cancer and other blood disorders right where they live. I am truly honored and sincerely humbled to be the first individual to hold this prestigious endowed chair position, as we continue our efforts towards ensuring that state-of-the-art care is available for these affected children and families – right here, right now. A big thank you to the Leon S. Peters Foundation for their generosity."

"The Leon S. Peters Foundation values the mission of Valley Children's and the very vital work of the oncology program," said Leon S. Peters Foundation Chair Kenneth K. Peters. "If we could have a small part in supporting children with cancer and provide them with resources they need to fight this awful disease, the foundation stands prepared to join the great team at Valley Children's in this fight."

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