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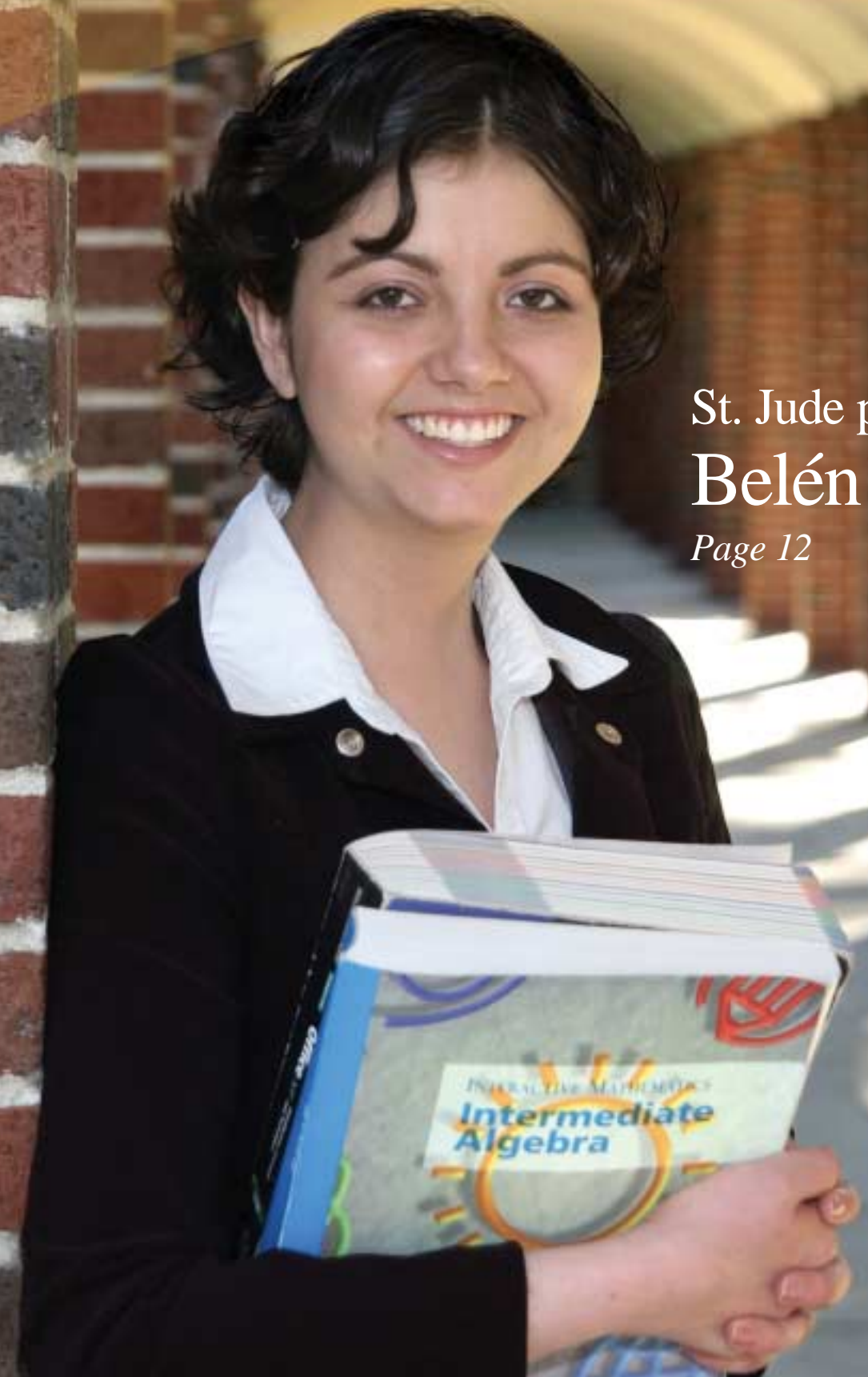
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Promise

Winter 2004

St. Jude patient
Belén López
Page 12



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Finding cures. Saving children.

St. Jude Children's Research Hospital was founded by the late entertainer Danny Thomas. It opened February 4, 1962. The institution was created because of a promise Danny made during the depression era to St. Jude Thaddeus, the patron saint of the hopeless.

"Show me my way in life," Danny prayed. In return, Danny promised to build St. Jude Thaddeus a shrine. That shrine became a world-class research institution that treats children regardless of race, color, creed or their ability to pay. This remarkable event also inspired the name of this magazine,

Promise.



St. Jude Children's Research Hospital, Memphis, Tennessee

Promise

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St. Jude Children's Research Hospital's mission is to find cures for children with catastrophic diseases through research and treatment.

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Promise

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On the cover: Belén del Socorro López (see article, page 12). Photo by Seth Dixon.

Highlights

Genetic fingerprints

St. Jude investigators have identified the genetic fingerprints of the major subtypes of pediatric acute lymphoblastic leukemia (ALL). The discovery may help physicians more accurately diagnose ALL, monitor their patients' responses to therapy, and eventually, develop more effective and less-toxic drugs to treat this cancer.

"Our ability to genetically fingerprint the different subtypes of ALL is extremely important," said James Downing, MD, chair of St. Jude Pathology. "The only way to know how aggressively to treat a

specific patient is to know which subtype of ALL the child has, since each subtype has a different prognosis." Downing is senior author of a report on this work, which appeared in the October issue of *Blood*.

The research builds on work the St. Jude team published in 2002, when they used a single gene chip to identify the known subtypes of ALL. The most recent study provided nearly complete coverage of the human genome. As a result, almost 60 percent of the ALL genes in the present study were newly identified.

Promise for the blind

Promise magazine is now available on cassette tape for individuals who have visual impairments. St. Jude donor Larry Spevak, who volunteers for Second Sight Taping Studio, donates his time and talent to create cassette tapes of this magazine. If you know someone with a visual impairment who would like to receive *Promise* on cassette, please e-mail that person's name and address to Elizabeth Jane Walker at elizabeth.walker@stjude.org or call Walker toll-free at (866) 2STJUDE, ext. 2125.

Stalked by PUMA

A study led by St. Jude scientists has demonstrated that the *p53* gene, long considered to be a central conductor of cell suicide, actually relies on the *PUMA* gene to trigger that activity.

Cell suicide, or apoptosis, is a natural way for the body to rid itself of damaged cells before they become useless or cancerous. The researchers showed that *PUMA* is the key gene in this process, despite the large number of genes regulated by *p53* that were thought to be involved.

PUMA also accounts for *p53*-dependent cell death in response to abnormal growth caused by cancer-causing genes.

"This discovery provides a detailed look at how the body tries to rid itself of cells that are unhealthy and how cancer cells might disrupt this vital housekeeping mechanism during tumor development," said Gerard Zambetti, PhD, of the St. Jude Biochemistry department, who led the study.

Results of the research are reported in the October issue of *Cancer Cell*.

Survivors and health

Adult survivors of childhood cancer generally consider themselves to be in good health, even though more than 40 percent indicated that at least one aspect of their health has been affected by the disease.

Researchers from the Childhood Cancer Survivor Study (CCSS), which included a team from St. Jude, published the finding in the September issue of the *Journal of the American Medical Association*.

The study's findings could help identify high-risk childhood cancer survivors who will be more likely to require intervention by health care providers to achieve optimal long-term health after treatment.

"In large part, adult survivors of childhood cancer have very good chances of living normal lives," said Melissa Hudson, MD, director of the St. Jude After Completion of Therapy Clinic and the report's lead author.

"Our findings underscore the need for physicians caring for young adult cancer survivors to be informed about treatment exposures and their potential long-term adverse effects."

For more information on any of these studies, visit the St. Jude Web site at www.stjude.org/media.

Irish Kids are Smilin'

John Murphy helps St. Jude strengthen pediatric hematology-oncology research in Ireland.

BY JOE HANNA



When John Murphy looks into the faces of his four healthy children, he can't help but think of the biblical quote "To whom much is given, much is expected." This expectation arises not from others but from himself; Murphy is always looking for the opportunity to give back for what he calls a blessed life.

President of Home Loan and Investment Bank FSB in Warwick, Rhode Island, and a first-generation Irish-American, Murphy says he feels obliged to help those less fortunate, particularly children and families who have been struck by catastrophic illnesses. "I owe something to God that my kids are

healthy and not suffering from this disease so I always make sure to say thank you by sending a note to St. Jude," Murphy says. So when Murphy found an opportunity to help children battling catastrophic diseases and to do something for his homeland of Ireland, he jumped at the chance.

St. Jude Children's Research Hospital is partnering with Our Lady's Hospital for Sick Children in Crumlin, Dublin, Ireland, to help strengthen the pediatric hematology-oncology research in Ireland. "We are seeking to enhance the treatment for children in Ireland suffering from catastrophic childhood diseases," said John Cunningham, MD, an associate member

of St. Jude Hematology-Oncology. "St. Jude will provide clinical and research resources to facilitate this effort. This includes a telemedicine link, clinical trials infrastructure and joint research projects."

The partnership intrigued Murphy. A self-described "doer," he had been planning a charity project involving Irish history. But the more he heard about the partnership between St. Jude and Our Lady's Hospital for Sick Children, the more he wanted to be a part of the project. Over the next two years, Murphy committed a sizeable donation to help establish the partnership.

"I thought [the partnership] would be a wonderful thing," Murphy says. "Ireland is a changing country; it is making a lot of progress. I thought this work would be a way to give something back, to acknowledge Ireland and to be a part of helping it to make great forward strides in its economy, education and for its citizens."

Although a donor for almost 30 years, Murphy had never visited St. Jude until April 2003, during the hospital's Shower of Stars event. The visit, Murphy says, gave him a renewed passion for supporting the hospital. "I was very impressed, and it left me emotionally excited," he says. "You see the good work and the quality of the doctors and the research in the labs and the physical facilities; and the employees ... so enthusiastic, so dedicated. It's amazing. You get swept up in the excitement and the belief."

Murphy hopes that enthusiasm sweeps across the rest of Europe, with St. Jude forming more partnerships and helping more children. "Once this works in Ireland, I am hoping this is something that can be done throughout Europe." •

A Day with Billy DORN

PHOTOS BY LAURA HAJAR



7:58 a.m. A Different Kind of Breakfast

It's a little before 8 a.m., and 6-year-old Billy Dorn is slipping on his shoes, getting ready to catch the bus. He has just finished his breakfast, so his father disconnects the feeding tube protruding from Billy's chest.

Billy's breakfast doesn't come in a bowl or on a plate. It is in a clear plastic bag that hangs from an IV pole. It is the only way Billy can get the nourishment he needs while receiving chemotherapy, which makes him too ill to eat.

Sheila Dorn plunges a needle into a plastic bottle of medicine, pulling out just the right amount. She brings it to her son, who helps her attach the now needle-less syringe to the same tubing that had helped him "eat" his morning meal. Mom attaches the syringe. Billy places his hand on the plunger and pushes the medicine into his veins.

So begins the day for Billy, a brain

tumor patient at St. Jude Children's Research Hospital.

It is not a morning filled with cereal, last-minute homework or a frantic dash to school. It is a carefully prepared plan—the best his parents can do—to make sure that Billy will have an uneventful day as he heads to St. Jude for treatment.

He finishes his medicine, pulls on a blue coat and he and his family walk downstairs from their two-bedroom apartment in Target House to wait for the bus that will take them to St. Jude.

8:45 a.m. Finding Hope

When doctors told Sheila and her husband, Bill, that their son had a brain tumor called medulloblastoma, the news was crushing. Billy's younger brother, Jacob, had died from a heart defect just 11 days after birth. Doctors gave Billy a 30 percent chance of beating the cancer.

"That wasn't good enough for us,"

Sheila says. "We weren't going to lose another child."

At St. Jude, Sheila says, the family found the hope they were looking for. Billy was given a 60 percent chance of beating the disease. He would have to undergo aggressive treatments including high-dose chemotherapy and radiation. The family moved into Target House, a temporary home for patient families staying in Memphis for more than 90 days.

"Hi Billy!" the bus driver says as he steps off the bus to greet the Dorns. He holds his hand up and Billy slaps a high five and smiles.

Billy's first appointment of the day is to test his pulmonary function. Patients receiving chemotherapy at St. Jude must undergo the test monthly to make sure their lung capacity has not diminished.

"You're going to take four little breaths, then one great big breath," the technician tells Billy.

"Pretend you are blowing out

At St. Jude, Billy Dorn and his family found the hope they were seeking.



A typical day for a St. Jude patient is anything but typical. It can be fraught with worry; peppered with laughter; filled with tests and procedures that tax a child's courage and fray a parent's nerves. But underlying every activity is a singleminded focus: the hope for a cure.

birthday candles," Sheila says.

After a bit of practice, Billy breathes into the mouthpiece of the measurement device. Four little breaths and then Billy inhales as deeply as he can, straining to get the air in. He then pushes all of the air in his lungs back out, his cheeks reddening. He does this several more times before the testing concludes.

"You did a great job," the technician says, "better than last time." Billy's mom and dad look on proudly. Billy gives a smile. "Now you can go through my toy box," the technician says. Billy gleefully digs through the box, finds a purple ball and claims it.

"Thank you," Billy says in a frail little voice as he and his parents head to a waiting area until the next appointment.

9:32 a.m. Billy's Strength

"Between appointments we usually hang out in the clinics," Sheila says. Some days, the St. Jude Child Life department has activities for the children, ranging from crafts to games. This day, Billy entertains himself by playing with his new purple ball, tossing it back and forth to his mother as they await the next appointment.

"Billy Dorn, please come to Assessment Triage," the nurse's voice rings through the hospital public address system.

Billy takes his mother's hand as he

walks down a hallway to a square, silver plate in the floor that is the hospital scale. The process is done daily so Billy's doctor can monitor his weight. Blood work is also taken so that Billy's chemistry can be evaluated, from his absolute neutrophil count, which measures the body's ability to fight infections, to the amount of oxygen in his blood.

Thankfully, the blood can be drawn from Billy's Hickman line—the same tube that gave him breakfast—meaning that he doesn't have to be poked with a needle every day. He watches intently as the nurse pulls the plunger back on the syringe and his crimson blood flows into the container.

"Billy is a strong individual," Sheila says. "He continues to fight because he thinks about going home and playing with his dog ... getting back to his normal life. I've learned that he's stronger than I think I give him credit for."

It is approaching 11 a.m., and more tests are scheduled. One of them Billy is dreading.

11 a.m. Medical Play

Billy spent his morning bravely going through a pulmonary test and having his weights and measurements taken. More tests loom, but right now it is time to play.

Billy and his family make their way to one of the waiting areas in the Patient Care Center for a special activity. Medical

Play is one tool the St. Jude Child Life department uses to help patients understand what is happening to them. During Medical Play patients choose dolls, and, using actual medical supplies, "operate" to put in Hickman lines.

Billy works to give his doll

a port right in the middle of its chest ... just like his.

With play time over, Billy and his family head to Audiology for Billy's hearing test. The audiologist greets them and ushers Billy into a sound-proofed booth.

Chemotherapy can sometimes harm a patient's hearing. Some patients receive a medicine called amifostine before each round of chemotherapy to reduce hearing loss. But the drug made Billy's blood pressure drop, and he was unable to continue it. Now his doctors are worried about his hearing.

Billy performs hearing activities, repeating words and phrases that he hears in the headphones and throwing small blocks into buckets when he hears a particular sound. The tests don't take long, but Billy is getting tired. Finally, the audiologist tells Billy to come out of the booth.

The news is not good. The chemotherapy has damaged Billy's hearing, and he will need to be fitted for hearing aids. The Dorns and the audiologist briefly discuss the next step but are interrupted when Billy is paged overhead. It is time to go to EKG.

11:30 a.m. 'I HATE THIS PART!'

Just as chemotherapy can harm a patient's hearing, it can also affect the heart. Patients undergo regular EKG testing to make sure everything is working

properly. To do that, Billy must have a number of probes connected to his chest, including near his Hickman lines.

Billy is lying shirtless on a bed. The square white bandage that protects his lines covers most of his chest. Sheila explains to Billy exactly what is going to happen. Billy is scared. He knows it is going to hurt.

"He doesn't like the idea of having the device on his chest because he is very sensitive of his Hickman lines," Sheila says.

"Sit on the bed with me," Billy tells his mom. She complies, crawling up beside her son and lying down.

The small, round stickers that will hold the probes are placed on Billy's chest. Finally, it is time to affix the one near his lines. Sheila helps to comfort Billy and pull his bandages down. Billy begins to cry. He closes his eyes as tightly as he can, tears streaming out of the sides. "AHHH. I HATE THIS PART!" he screams as loudly as he can.

But then the part he dreads most is over. He slows his breathing, and the technician gets all the information she needs. Billy's heart looks good. Billy himself peels the last of the stickers from his chest. He even gives an energetic smile. But when he gets up, Billy looks exhausted.

1:45 p.m. The Final Test

After lunch, Billy rides a tricycle through the hallways to the procedure room for his last appointment of the day: an ABR (auditory brainstem response) test. Whereas the earlier hearing test determined the loss of hearing, the ABR test will look at the damage that has been caused to the cranial nerve that controls auditory function.

For this test, Billy will be sedated. He must lie perfectly still, a task that would be difficult for any 6-year-old without the added challenge of having a medical test performed. "Sleep medicine," as Billy calls it, is pumped into his Hickman line. Seconds later he is asleep,

and the doctor begins the test.

Sheila and Bill go to the waiting area. Almost an hour-and-a-half later, Billy slowly awakens to see his mom and dad there with him.

"How'd you do, Tiger?" his dad asks. Billy groans. Already tired from the day's activities, Billy doesn't really want to wake up. A cold drink helps clear away some of the cobwebs. And then good news: the day is over. As the time nears 4 p.m., Billy and his mother and father climb back aboard the bus and head back to their temporary home at Target House.

"We have gone with the attitude of being positive, knowing we needed to be strong for Billy," Sheila says. "If he saw us get down or second guess, he would not want to fight."

One Month Later Coming Off Chemo

Billy has reached a milestone: his final chemotherapy treatment. To celebrate, Billy gets to place his handprint on the fourth-floor wall of the Patient Care Center. Billy places his red- and orange-

painted hands flat on the wall, joining other multi-color handprints.

Beneath his handprint, Sheila writes in black marker Billy's name, birth date, diagnosis and when the cancer was discovered. Beneath that, she writes, "Thank God for every day we have!"

Then Billy heads to the medicine room for his final session. The nurses gather around Billy's chair and sing the Coming-Off-Chemotherapy song, a tradition at St. Jude, sung to the tune of the famous Oscar Meyer bologna song.

Our patients have the cutest

S-M-I-L-Es.

Our patients have the sweetest

H-E-A-R-Ts.

Oh, we love to see them every day.

But now's the time we get to say

Pack up your bags, get out the door,
you don't get chemo anymore.

After the last stanza, the nurses cover Billy in confetti and silly string. Billy picks some of the string off of his bald head and throws it back playfully at the nurses. He clasps his mother's hand.

And then Billy Dorn smiles. ●



LIQUID ASSETS

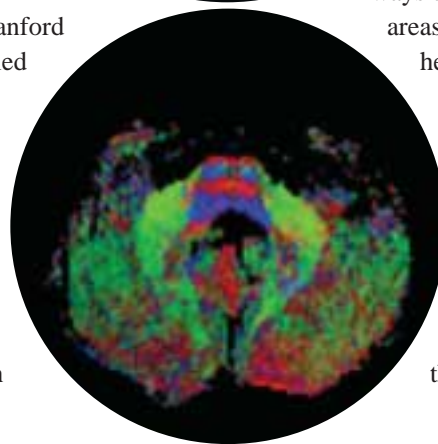
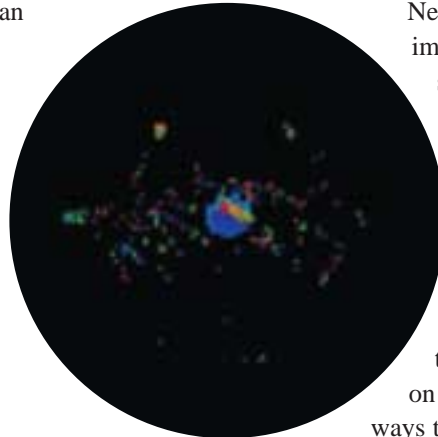
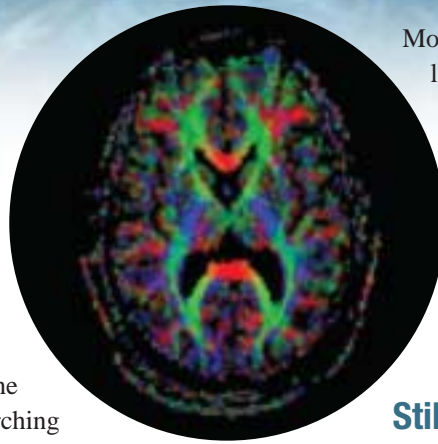
St. Jude pioneers the use of an MRI technique that relies on the movement of water molecules to produce brilliant images—and, ultimately, to save children's lives.

BY ELIZABETH JANE WALKER

Morgan Cox lives in a state that is surrounded on three sides by water. An intellectually gifted 9-year-old, she has spent many happy hours floating and bobbing and mastering swimming strokes. So perhaps it's appropriate that a revolutionary procedure based on the movement of water molecules helped save her life.

When doctors in Florida told Kim Chokanis that her daughter had cancer, the pediatric nurse immediately began researching her options. Morgan had ganglioglioma, an uncommon tumor that occurs in a rare location; in Morgan's case, the tumor extended from the upper part of her spinal cord into her brainstem. "The doctors here weren't sure what to do with Morgan," Kim says. "I called around the country trying to find out the best way to treat her. Doctors from New York and Duke said that Morgan would be in good hands with Dr. [Robert] Sanford."

Chief of the Neurosurgery division at St. Jude Children's Research Hospital, Sanford had access to a new MRI technology called diffusion tensor imaging (DTI). Sanford could use DTI to locate with pinpoint accuracy the white matter tracts in Morgan's brain. The surgeon wanted to remove the tumor without harming these crucial tracts, which govern motor skills. "Using traditional MRI, I would have been guessing as to where the tracts were," Sanford explains. But in



Morgan's case, we could identify exactly where they were so that I didn't have to guess."

DTI gave Sanford the advantage he sought. "If I had damaged the fiber tracts, Morgan could have been paralyzed from the neck down for the rest of her life," Sanford says.

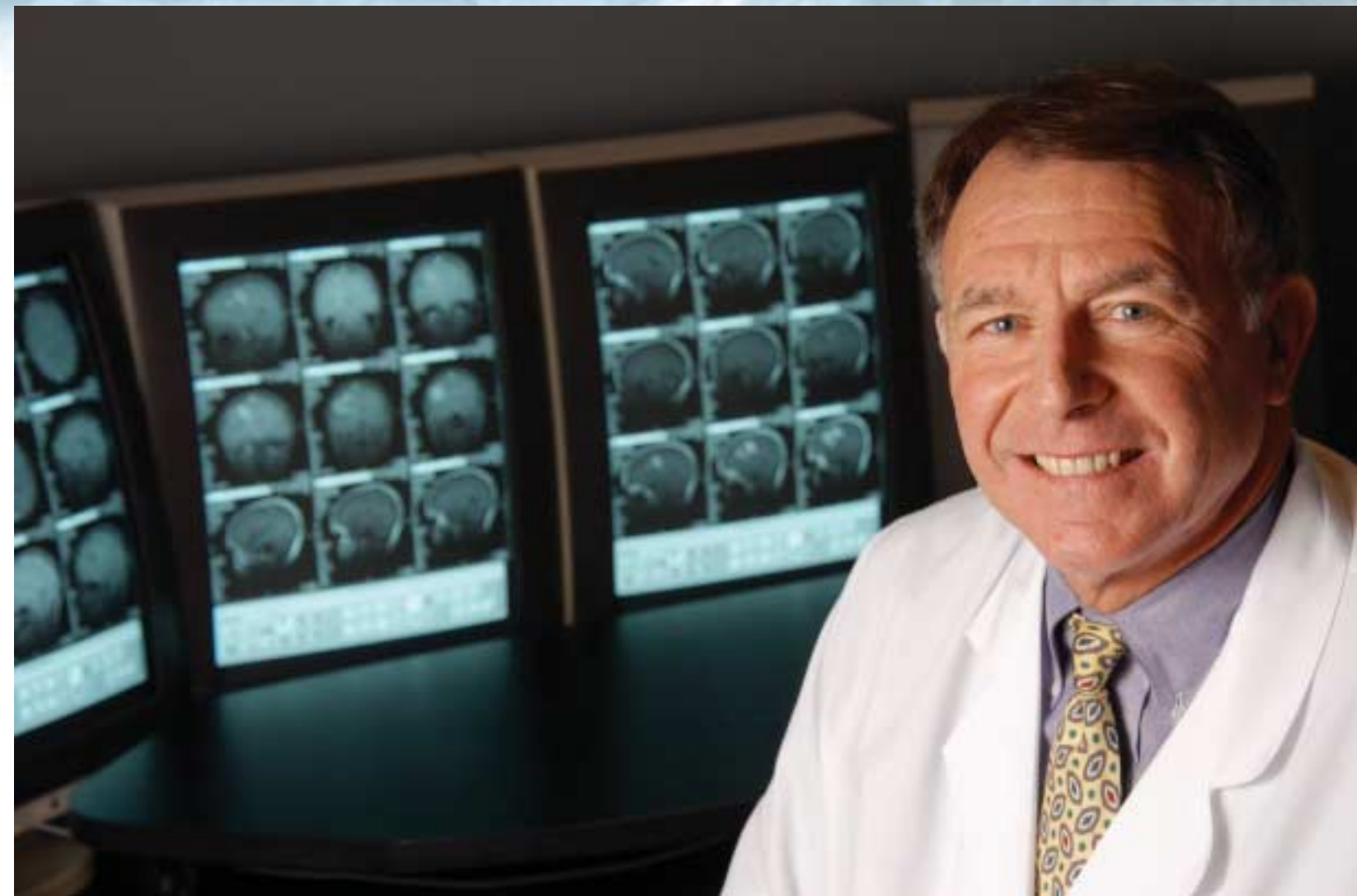
Still water moves fast

Neurosurgeons often rely on MRI images to help them determine surgical strategies. Traditional MRI images can be likened to the grainy scenes that appear on black-and-white televisions, but the new DTI images flaunt the flamboyant hues of high-definition color TV.

Although MRI can display minute details, it cannot indicate the direction of fibrous tissues. But on a DTI scan, areas in red show pathways that move from left to right; blue areas indicate pathways that go from head to foot; and green portions delineate pathways that travel from front to back. The colorful DTI images are created by measuring the distances that water molecules diffuse, or spread out, in various tissues.

To the casual observer, a pool of water may appear to be still. But the individual water molecules are

LAURA HAJAR



Traditional MRI images, like those banking Robert Sanford, MD, resemble the grainy scenes that appear on black-and-white televisions. New DTI images (like those on the facing page) flaunt the flamboyant hues of high-definition color TV. The colors in DTI scans can show neurosurgeons the direction of fibrous tissues, which enable physicians to operate with more precision.

constantly moving, colliding at high speeds. The water molecules spread out when they knock against each other or with molecules in tissues. The way that water molecules diffuse indicates the properties of the tissues themselves. DTI takes highly technical information about this diffusion and transforms the data into colorful, 3-D images.

Patients like Morgan don't care about all of these intricate computations—to them, the beauty of DTI lies in its simplicity. “It's completely painless for the patient,” says Kathleen Helton, MD, of St. Jude Radiological Sciences. “And the process takes about five minutes. They don't get stuck with a needle; for them, it's just like having a regular MRI.”

Ripple effect

White matter tracts are like telephone cables that connect different parts of the brain. But these tracts do more than just control motor function. St. Jude scientists have discovered a correlation between white matter and intelligence in brain tumor survivors. “We found that the less white matter survivors had, the lower their IQ scores were,” says Gene Reddick, PhD, director of the St. Jude Diagnostic Image and Signal Processing Laboratory. Because white matter is so important, neurosurgeons try to avoid damaging it.

A tumor growing in the brain may push white matter tracts aside. To avoid damaging those fibers, neurosurgeons must know exactly which way they have moved. “If you think the tracts have moved to the left and they haven't, you're in trouble,” Sanford says. “We can make educated guesses, but they're just that—guesses. With MRI, we still had to guess which direction the fibers had moved. But

Nine-year-old Morgan Cox was one of the first children in the world to reap the benefits of diffusion tensor imaging. Robert Sanford, MD, chief of the St. Jude Neurosurgery division, used the technology to identify the locations of white matter tracts in Morgan's brain before removing her tumor. Morgan's mom knows the value of DTI to her daughter: “If a doctor had gone a millimeter too far,” Kim says, “I might not have Morgan today.”

KIM CHOYKAMIS



Diving in

DTI is available at St. Jude through the efforts of a small team of scientists in the hospital's Radiological Sciences department. Biomedical engineers Robert Ogg, PhD, of Diagnostic Imaging, and Nick Phillips, a doctoral student at the

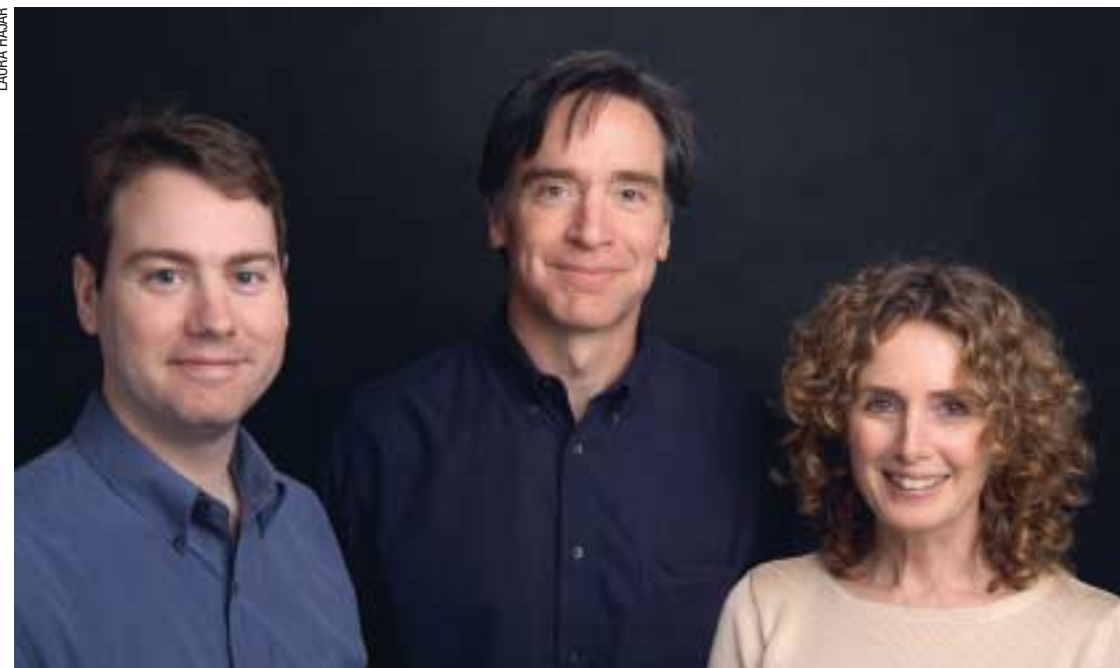
University of Tennessee, Memphis, put the technique in place. Then Helton posed clinical questions that might be answered by using DTI.

For more than a year, Sanford and his colleagues at St. Jude have been using DTI on a case-by-case basis to locate displaced white matter tracts before surgery even begins. Now, however, their use of DTI is about to expand dramatically.

University of Tennessee, Memphis, put the technique in place. Then Helton posed clinical questions that might be answered by using DTI.

For several years, Ogg has been using a process called functional MRI (fMRI) to look for disease- or treatment-induced changes in the way the brain works while doing basic activities. Ogg uses fMRI to visualize which parts of the brain are being activated when a child performs specific tasks or undergoes sensory stimulation. St. Jude is the first institution to use fMRI to investigate the learning problems children encounter during cancer treatment. Now Ogg is harnessing DTI's potential as part of his fMRI studies. “I'm interested in using DTI to assess the integrity of the white matter pathways that

LAURA HAJAR



CHERYL EDWARDS



Leslie Taylor arrived at St. Jude at age 11 with a rare brain tumor called pleomorphic xanthoastrocytoma. Since 1988, she has undergone operations to remove two tumors. Because of the tumors and the treatments she received, Leslie has encountered obstacles with learning and memory. Robert Ogg, PhD, has used diffusion tensor imaging in conjunction with functional MRIs to examine the white matter pathways in Leslie's brain. Today, Leslie is leading a productive life in Illinois. Overcoming severe memory problems, she has graduated from college, embarked on a career in real estate, and is currently considering a second career working in social services.

Nick Phillips, a doctoral student at the University of Tennessee, Memphis; Robert Ogg, PhD, of Diagnostic Imaging; and Kathleen Helton, MD, of Radiological Sciences have spearheaded the use of DTI at St. Jude. The hospital was the first institution in the world to use functional MRI to investigate the learning problems children encounter during cancer treatment. Now St. Jude will be the first hospital in the world to use DTI to plan brain surgeries for children.

interconnect the different parts of the brain that I identify using functional MRI,” Ogg explains. This marriage of technologies may help Ogg and his colleagues make further strides in identifying and addressing cognitive problems related to cancer treatment.

Meanwhile, Helton is creating a study that will use DTI to identify tumor margins and locate white matter tracts before surgeons make their first incisions.

“Surgeons don't want to take too much tissue,” Helton says. “They don't want to take normal brain. But they don't want to leave any tumor behind, either. DTI is a beautiful tool, and it holds a lot of promise for helping to define the exact borders of tumors. It can help you define which white matter tracts are displaced; it can help us determine whether the tumor's operable; and it can help surgeons plan surgical approaches before they even get to the operating room.”

Helton's study will be the first in the world to use DTI to plan brain surgeries for children. “In other places, they're using DTI to look at treatment effects on

kids who've had medulloblastoma [a brain tumor],” Helton says, “but no one has reported using it to plan surgery on kids.”

Helton is also planning to use DTI to study the brains of children with sickle cell disease. Children with sickle cell disease are 250 times more likely to have strokes than healthy individuals. “I want to use DTI to look at the white matter of children with sickle cell,” Helton says. “This study may actually help us design earlier, more aggressive treatment for kids with sickle cell disease.”

Rainbows on tap

Before Morgan's operation, Sanford explained

how the brilliant colors of the DTI scan would help him excise the tumor and leave the healthy tissue intact. Morgan, her family and their friends immediately began praying that Sanford would be guided by a “rainbow of color.” At that time, they were unaware that the hues of DTI were actually created by the diffusion of water molecules.

“God did provide Dr. Sanford with a rainbow of color to decipher the good tissue from the tumor,” observes Kim. “It was this rainbow from the very source of life—water—that aided Dr. Sanford.”

Today, Morgan Cox has almost completed her radiation treatments and is looking forward to the time when she can return to a life that encompasses carefree dips in the pool. Morgan's mom says that the experience has led the family to new depths of faith. “God is in control,” she asserts. “He led us to Dr. Sanford, provided an opportunity to be part of this new development and He continues to show us ‘rainbows’ every day.

“After all,” she continues, “you can't have a rainbow without water.”●



After vanquishing Hodgkin disease, Belén del Socorro López is accustomed to setting goals and overcoming adversity. Far from her hometown near Guadalajara, Mexico, she works hard to earn a college education. But she has already set her sights on an even loftier goal—to obtain a master's degree and pursue a career in international business.

Improvise, Adapt & Overcome

Financing a college education in the U.S. is challenging for freshman Belén López, but if anyone can find a way, it's this tenacious young woman who has overcome Hodgkin disease.

BY VICTORIA TILNEY McDONOUGH

On the evening of May 2, 2003, Belén del Socorro López was doing what many other high school seniors were doing: priming for the prom. Her blue sequined dress hung just right over her willowy frame, makeup enhanced her dark, pretty features and her short hair curled playfully around her face. But unlike most girls her age, her biggest concern wasn't which boy was escorting her or what kind of corsage he

would pin upon her dress. For Belén, attending the prom was a victory, a milestone. She had been granted special permission to attend the event by her doctor at St. Jude Children's Research Hospital; just a week prior, she had been in intensive care, recovering from pneumonia—a danger for someone recuperating from a bone marrow transplant.

"I told her she looked all fou-foued out," grins Lou Ann Vaught, Belén's teacher in the St. Jude School Program.

Bringing her student to the hairdresser and helping her dress and apply makeup is not part of Vaught's job description, but Vaught knew how important it would be for Belén to attend the prom, especially since she had been too sick to attend the year before. "I told Dr. Benaim (Belén's doctor) that he had to let her go," Vaught says. "I would keep my cell phone on and make sure she called to let me know how she was the minute she got back to Target House. I mean, how could I *not* help



SETH DIXON

Although a scholarship covers much of her tuition, Belén struggles to finance a college education in a foreign country with little family support.

her get to her prom when the kid might be voted queen?”

Although Belén was not voted prom queen, she was one of only a handful of class-chosen “attendants in the queen’s court” and barely left the dance floor all evening. “When she got home,” Vaught recalls, “she phoned me and said: ‘Lou Ann, guess what? I danced with 12 guys!’”

Belén smiles when she recalls her prom. “Everyone was surprised I was there. I had been in the hospital the week before, very sick with an infection in my blood. Going to the prom was fun,” she says. “And good for my soul. It’s a natural thing for a teenager to go to the prom. I danced a lot. I’d sit down after a dance and then another boy would come up and say: ‘Dance with me, Belén?’”

As a reminder, Belén keeps a small photo of herself in her wallet, her prom dress sparkling under the party lights.

An unplanned move to America

When she was 16, Belén made her first trip from a small town near

Guadalajara, Mexico, to the United States. She and her mother were visiting an uncle in Kentucky; the trip was part vacation, part celebration. Belén was in remission from Hodgkin disease, a diagnosis she had received two years before. As she was frolicking in her uncle’s pool, Belén’s arm started to hurt. That night she could barely lift it, and red blotches appeared on her neck. The following day, her mother took her to the hospital, where the doctors referred her to St. Jude.

The cancer had returned.

What was to have been a short holiday in America became two and half years in Memphis. St. Jude became the landscape of her adolescence. Almost immediately, Belén started an aggressive regimen of chemotherapy and radiation. In October 2001, she underwent a bone marrow transplant. Not even 10 months after that she had to endure another one.

Pondering those early days at St. Jude, Belén realizes how far she has traveled—physically, spiritually and intellectually. “When I was first here, I didn’t know any English,” she says. “The nurses would ask me how I was feeling and all I could

do was point to one of the faces on the pain chart. I couldn’t speak in sentences, only in words like ‘vomit’ and ‘pain’ and ‘stop.’”

Although Belén could barely communicate with her doctors and nurses, she never stopped thinking about her education and how she could keep on track.

Two months after earning her high school diploma from Memphis Catholic, Belén celebrated the one-year anniversary of her bone marrow transplant. She was given a clean bill of health. “This is good,” comments Ely Benaim, MD, who has become close friends with Belén and her mother. “Belén had such an aggressive disease, needing the second transplant so soon after the first. That she has been in remission for over a year is good, good news.”

Belén is now a college freshman on partial scholarship at Christian Brothers University in Memphis. She is anticipating the day she completes her master’s degree in international business and hopes that that degree will open career doors in this country and others, including her homeland.

CBU or bust

To say that Belén is focused and driven would be a gross understatement. Ask anyone. “Belén always wanted to talk about attending college in the United States and how she could go about doing that. She is a very focused young lady,” says J.B. Donley, a volunteer at St. Jude.

“What always impresses me about Belén is how resilient she is, no matter what comes her way, especially for someone in a totally new country. She’s tough, smart, a real go-getter,” says Donley, who still meets Belén for coffee every week or so.

Another heart she has touched belongs to Michael Bunyard, administrative director of the hospital’s Ambulatory Care Unit. While writing a high school essay on international business careers, Belén interviewed Bunyard, who speaks several languages. He insisted that she interview him in both Spanish and English. “What

were an ideal model for a mother-daughter relationship.

“Belén makes me think of a slogan from my military background: ‘Improvise, adapt and overcome,’” adds Bunyard. “She could have been the poster child for that motto.”

Keeping perspective

To stay positive during treatment, Belén kept busy. Even when she was weak and sick, she attacked her school assignments as if each were a small mountain to conquer. From the time she started school in America as a non-English-speaking junior until the time she graduated, her grades leapt from *Bs* and *Cs* to consistent *As*.

Meanwhile, Belén befriended other patients and discovered a love of art. Her self-portrait, done in pencil, shows a face with eyes that express a freedom of spirit; an acceptance of what is; an understanding of the world in all its whites, grays and blacks. The gently sketched face is one of an old soul, looking into the middle distance.

“My father said that when I was a kid I was always busy painting and drawing,” Belén says, smiling sadly. Her father, who has had diabetes since he was 15, is now on disability after having had both legs amputated. She says she misses her father, sister and her mother, who has now returned to Mexico. “But it is good to feel independent,” she says as she looks out the window of the campus cafeteria. “I need to continue with my life without my mother by my side.”

One of the ways Belén seems to keep focused is through her ability to stay positive and hopeful. Although she feels stronger and healthier by the day, having spent the last several years as a patient at St. Jude has been draining. “I think I’m a different person than I would have been,” she says. “I see life differently because of the cancer. I will go to parties at college like other people my age, but I also know that I want to study hard and do things in my life, and I don’t want

to do anything bad to get off track.”

Belén smiles when she thinks of St. Jude and all the friends she made there. But she keeps many of the memories tucked away; they are too painful to revisit. Belén made friends with two girls her age—both Arabic, both recovering from bone marrow transplants. “The nurses made a party for one of them and me because we had the same birthday,” she says. “That girl ... died a month or so later.”

Around the same time, the other friend also died. Belén pauses, thinking.

“They were both fine, my friends; then they weren’t.” Remembering, she starts to cry, then pulls herself straighter and forces a small smile. “That was a hard time for me,” she says. “We were friends. They are in a good place now. I try not to think about it too much.”

Life is beautiful

Although Belén is struggling to make ends meet, she was recently given a used car to commute between school and the home of the family who has invited her to live with them. Now and then, she hopes to take a break from her studies and go with friends to enjoy some Memphis music or to a movie, something she has always enjoyed. “*Life is Beautiful* is my favorite movie,” she says thoughtfully, as if she can see the celluloid images rolling. “I first saw it when I was 12. I’ve seen it lots of times. It is sad and beautiful. There are many layers.”

When asked what advice she might offer a young girl, like herself, arriving at St. Jude, she answers: “That is hard to say. I would give her all my support; if she needs anything or wants to talk, I would be there. But it’s difficult to say. Everyone is different. I would want to say to her that everything will be okay... It would be hard to be honest, you know, to tell her about everything she would have to go through.”

Gazing at the bustling college morning beyond the window glass, she adds: “I would tell her that she would have to be strong, and that God always does the perfect thing.”●

Belén as she is and as she sees herself: Above, Belén poses for a photo at her senior prom, one week after emerging from the Intensive Care Unit and only a few months after undergoing her second bone marrow transplant. Below, her self-portrait sketched while she was a patient at the hospital.

JIMMY ALFORD STUDIO



amazed me about Belén was her ability to make the best of any situation,” says Bunyard. “A lot of her strength comes from her mother, Socorro. She was an incredible support mechanism for Belén. I admire her a great deal; she reminds me of that Nietzsche quote: ‘What doesn’t destroy you makes you stronger.’”

“Watching the love and respect they had for each other, I would say they

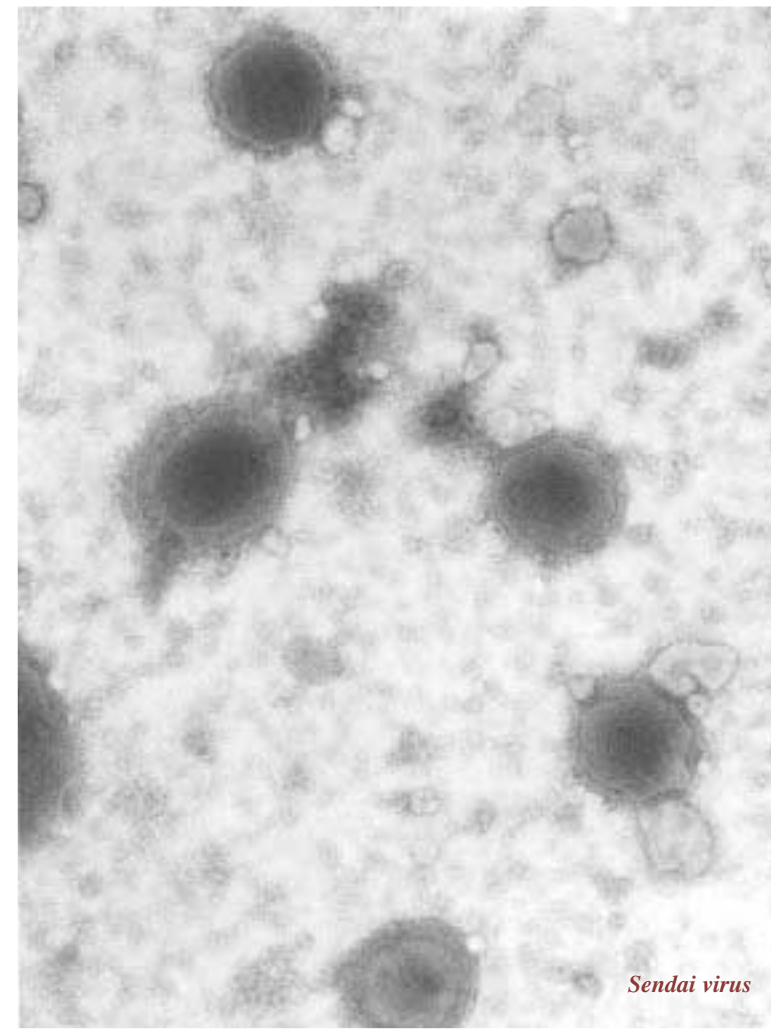
A Breath of Fresh Care

BY TANUJA COLETTA

St. Jude researchers are using viruses to fight common respiratory diseases, as well as cancer in children.



Newcastle disease virus kills cancer cells while sparing healthy cells. Sateesh Krishnamurthy, PhD, and his colleagues are trying to figure out why this process occurs.



Sendai virus

It's 2 a.m. and that bundle of joy who climbed into bed hours ago is now crying at the bedroom door. Clutching a teddy bear for comfort, the tot sounds like Darth Vader with a bad cough. It's the unmistakable, harsh bark of croup.

No medicines are available to treat the infection, and current remedies—which involve breathing shower steam or sniffing cool, dry midnight air—are helpful interventions, but not curative.

Scientists at St. Jude Children's Research Hospital hope to use unlikely allies—viruses—to make vaccines that prevent such respiratory nightmares. They're even using viruses to create new treatments for fighting cancer.

Awaking the soldiers

Although the human immune system is highly skilled at fighting infection, its soldiers, called B-cells and T-cells, sometimes need to be nudged into action.

"They're like a sleeping army," says Julia Hurwitz, PhD, of the St. Jude Immunology Department. "B-cells each make different weapons called antibodies that appear on the cell surface and that can be shed into the blood. An antibody will latch onto a virus, using a lock-and-key type interaction, and block virus infection. If the body has



Allen Portner, PhD, says St. Jude vaccine research using Sendai virus could eventually yield protection for some of the world's most common respiratory diseases.

never been attacked before by a particular virus, the immune cells responsive to that virus may be off guard, allowing viruses to slip past them and cause disease." A vaccine's job is to wake up the cells by way of a decoy.

"We want to find something that looks like the virus in question, but that is not dangerous," Hurwitz says. "This safe mimic can bind onto the antibodies on a B-cell surface and trigger the B-cell to multiply, giving rise to a huge army of activated soldiers. The cells will also release antibodies into the circulation. If the real virus appears later, antibodies will bind and destroy it."

St. Jude studies are targeted toward members of a family of viruses called *Paramyxoviridae*, which are common pathogens of infants and children. Viruses in this family include the Sendai virus; respiratory syncytial virus; Newcastle disease virus; and the human parainfluenza virus-1 (hPIV-1), which causes croup. Although the Sendai virus causes severe, flu-like disease in mice, it does not cause disease in humans. Because its structure so closely resembles hPIV-1, the Sendai virus is the perfect candidate for a vaccine against hPIV-1.

A St. Jude vaccine currently under study uses an unmodified laboratory strain of the Sendai virus as a vaccine to prevent hPIV-1 infection. It's a seemingly simplistic approach, but there is reason to be optimistic: the eradication of smallpox occurred in the same way.

Helping history repeat itself

When a deadly scourge of smallpox swept through his English town in the 1790s, Edward Jenner noticed that milkmaids didn't get sick. He found that they were naturally immunized against smallpox because they had been exposed to the virus that causes cowpox. This mild, bovine virus looks a lot like the smallpox pathogen, yet does not harm humans. So the milkmaids' fortified immune systems could recognize and thwart smallpox without getting the disease. Jenner's studies led to mass vaccinations, and the World Health Organization declared the world free of epidemic smallpox in 1980.

"That was the first truly effective vaccine," says Hurwitz. "We're using the same strategy to target hPIV-1."

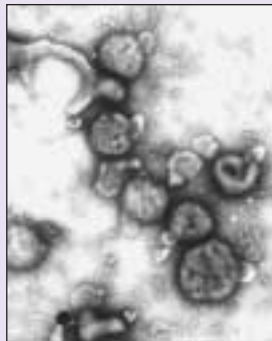
Jerry Shenep, MD, of St. Jude Infectious Diseases has patterned the St. Jude clinical studies after Jenner's design. This trial is the first human study of Sendai virus in the world. Results have been promising: the vaccine was well-tolerated in all adults who volunteered for testing. St. Jude is now planning to test the vaccine in healthy children.

Karen Slobod, MD, also of St. Jude Infectious Diseases, says an hPIV-1 vaccine could indirectly benefit patients who have weakened immune systems from cancer or other catastrophic illnesses. "The overall goal is to eradicate the

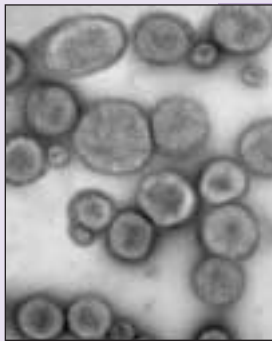


Karen Slobod, MD (at left), and Julia Hurwitz, PhD, are members of a team that is conducting the world's first human study of the Sendai virus. This virus is the perfect candidate for a vaccine against the human parainfluenza virus-1 (hPIV-1), which causes croup.

VIRUS IMAGES COURTESY OF GOPAL MURTI, PHD



Newcastle disease virus



human parainfluenza virus

virus from the healthy community," she says. "If you can eradicate it from the healthy population, chances are greatly reduced that patients would have to worry about catching the virus, either."

Tweaking the process for RSV

Not all *Paramyxoviridae* viruses have structural twins that can be used to prevent disease. For example, unmodified Sendai virus will not protect against its relative, respiratory syncytial virus (RSV), the leading cause of breathing diseases such as bronchitis and pneumonia in infants less than 6 months old.

But with a few genetic modifications, the Sendai virus can elicit immune responses to RSV.

"We're now building on the hPIV-1 findings and looking at a vaccine where the Sendai virus acts as a carrier," said Allen Portner, PhD, of St. Jude Infectious Diseases.

Portner is leading studies that use a technique called reverse genetics to convert the Sendai virus' RNA into DNA. "At this stage, we can put any gene we want into this Sendai virus DNA," Portner says. Using this technique, Toru Takimoto, PhD, and Sateesh Krishnamurthy, PhD, inserted genes for specific RSV proteins into Sendai virus, thereby generating a vaccine specific for the RSV.

Portner says the St. Jude vaccine research using Sendai virus could eventually translate into protection for some of the world's most common respiratory diseases. "There isn't a population out there that isn't touched by such infections," he says. "Just like mumps and measles, this is another disease for which kids could get vaccines."

A tumor-killing virus

Another member of the *Paramyxoviridae* family—Newcastle disease virus (NDV)—actually kills cancer cells while sparing healthy cells. Portner's team is trying to figure out why.

Although the idea of killing tumors with viruses has been explored for decades, the mechanism behind NDV has remained an enigma. Newcastle disease occurs naturally in

birds and can be fatal to them. But although it can cause mild flu-like symptoms and conjunctivitis in some people, NDV is largely harmless to humans. Portner and Krishnamurthy have confirmed earlier studies that Newcastle disease virus kills tumor cells. "But we're not seeing anything in scientific literature telling us that anyone is looking into the very important question

of why normal cells are spared," Portner says.

The answer could have huge implications for cancer treatment. A tumor-killing virus that spares healthy tissue could someday support surgery, chemotherapy and radiation therapy.

Figuring out how NDV selectively destroys tumor cells may even offer clues to other biological agents that can act in the same way, says Krishnamurthy, who leads NDV research in Portner's lab. Like rummaging for the tip of a needle lost in a microscopic haystack, Krishnamurthy has painstakingly traced the virus' progression. He has found that NDV initially launches attacks on healthy and tumor cells, causing both cell types to secrete an antiviral protein called interferon-beta (IFN β) before the cells die. The IFN β then works its way through each cell's signaling pathway—the chain of command within cells—to elicit the response necessary to ward off the virus.

Krishnamurthy discovered that the signaling pathways work fine in both cell types after infection, yet the tumor cells are not protected by the IFN β as are the healthy cells. Thus vulnerable to NDV, the tumor cells release new copies of the virus and spread the infection among themselves.

Krishnamurthy thinks the key difference between the reactions of healthy and tumor cells to NDV lies with one of the antiviral proteins that are generated in response to INF β . These proteins sound the cell's alarm bell to thwart an attacking virus. This alarm system seems to be jammed in tumor cells—an ironic boon to patients battling tumors.

"By knowing what's going on, we can perhaps exploit these essential differences—as the virus does—to the patient's advantage," Portner says. "Just about every person in this world knows someone fighting cancer. A virus that attacks tumors gives us another bullet to fight the disease." ●

A Sparkling Alliance

The Jewelers Charity Fund for Children shines through its partnership with St. Jude.

BY JOE HANNA

It was in the midst of a war that a group of jewelers shone brightly.

In November of 2001, the United States was one month into Operation Enduring Freedom, a response to the terrorist attacks of Sept. 11. Charities nationwide were bracing for a drop in giving.

But that month, the Jewelers Charity Fund for Children (JCF) board of directors made a pledge to St. Jude Children's Research Hospital. They committed to endow the Stem Cell Transplantation Lab of Rupert Handgretinger, MD, PhD. Handgretinger had been working on a new process that would allow parents to donate stem cells to their own children, even if they were not perfect matches.

JCF set a three-year goal to fund the lab. Less than a year later, the lab was endowed.

Officially organized in 1999 as a way to combine the fund-raising efforts of the jewelry, diamond and watch industries, JCF's sole mission is to raise funds for charities that benefit children. The group has raised \$10 million toward its mission through collection canisters at jewelry stores, as well as through its annual Facets of Hope charity dinner, attended by more than 2,000 guests.

LAURA HAJAR



Alessandra d'Azzo, PhD, of Genetics/Tumor Cell Biology holds the chair in Genetics and Gene Therapy that is being endowed by the Jewelers Charity Fund for Children.

The St. Jude-JCF relationship came about through the hospital's partnership with Sterling Jewelers. Sterling CEO Terry Burman, a JCF founding member and its current chair; Victor Weinman, also a JCF founding member and its outgoing chair; and other executives visited the hospital. They left with a desire to help.

Since that first hospital tour, JCF has raised more than \$2.9 million for St. Jude, endowing the Bone Marrow Transplant Clinic in 2000 and the Stem Cell Transplantation Lab in 2002.

"We have been so fortunate," said Pattie Light, executive director of JCF. "Our support is growing each year. We have been able to involve many retail jewelers, manufacturers and trade organi-

zations as we build a broader base of donors."

Now JCF is investing in another area that is having significant impact in the medical field: genetics. In 2003, JCF pledged to raise an additional \$2 million for St. Jude to establish an endowed chair in Genetics and Gene Therapy. JCF has already contributed \$850,000 toward this goal. Alessandra d'Azzo, PhD, of the Genetics/Tumor Cell Biology department, has been appointed to the chair.

"I am dedicated to the JCF mission by continuing

to research possible treatments for childhood neurodegenerative lysosomal storage disorders," d'Azzo says. "This endowment will give me greater flexibility in my research program. It will allow me to pursue innovative new projects as we work to discover the causes of these diseases and develop innovative new treatments that may ultimately lead to cures."

For Light, the St. Jude partnership with JCF is personal. She remembers her parents putting St. Jude in their will years ago. In her position with JCF, she is continuing her family's legacy. Sometimes, Light says, she wishes she lived in Memphis and worked for St. Jude.

"Then I think, 'I may not live in Memphis, but I DO work for St. Jude.'" ●



PHOTO ILLUSTRATION BY SETH DIXON AND JESSICA ANDERSON

Cure4Kids

This St. Jude Web site shares information with physicians, nurses and caregivers throughout the world.

How can you reach around the globe while sitting comfortably in front of your computer? Or obtain the latest information about pediatric cancer without ever stepping inside a library? How can you talk with physicians in Egypt without ever dialing the phone?

Cure4Kids.org.

A resource, portal and bridge of knowledge, *Cure4Kids* is a major tool in the effort to build better health care in countries with limited resources. Established as part of the International Outreach Program at St. Jude

Children's Research Hospital, *Cure4Kids* is a Web site dedicated to medical education for physicians and nurses who treat children with catastrophic diseases and provides crucial tools to doctors and nurses around the world.

"We noticed that physicians visiting St. Jude would spend hours copying articles from books and medical journals to take back home," says Raul Ribeiro, MD, director of the International Outreach Program. "Because of the fast pace of medicine,

the articles would be outdated by the time the physicians could read them. At the same time, the Internet became pervasive in many countries outside the United States. The natural thing for us to do was to provide physicians meaningful information that could be easily accessed and remain current."

Yuri Quintana, PhD, is the *Cure4Kids* project director and education director for the International Outreach Program. "*Cure4Kids* was created to help bring the latest medical knowledge on treatments for cata-

strophic diseases to countries with limited resources," he adds.

The site began with just 120 people from hospitals with which St. Jude closely works in countries like Brazil and Honduras. Those people helped spread the word.

"People from those pediatric oncology wards told other people within their hospital, and they started signing up. People from that hospital told neighboring hospitals and colleagues, who then told other people—all by word of mouth. Quickly *Cure4Kids* was transforming from a medical education to a collaboration center," Quintana says. "Now it's becoming a community, because new groups forming to meet on a regular basis include people from several different countries."

More than 1,100 people have registered on the Web site, and more than 65 percent of those are from outside the United States. This population includes people from Latvia, Trinidad and Tobago, Belarus and Bangladesh—a great example of how powerful and far-reaching the Internet is and how important people think it is to continually gain knowledge to help children with catastrophic diseases.

"It's not just St. Jude helping other people now. It's people from several countries helping each other. It's becoming a global community. That is probably the most exciting part. We are facilitating this global dialogue and collaboration," Quintana says.

Mhamed Harif is a physician at

Hôpital 20 août 1953 in Casablanca, Morocco. "It is incredible how *Cure4Kids* has become essential in our daily work," Harif says. "It's really innovative and very useful for people who are working in settings with limited resources like ours where access to information is not an easy task."

Quintana says *Cure4Kids* provides a unique service. "There is not another Web site that focuses so thoroughly on children's cancer or has the kind of collaboration tools as *Cure4Kids*," he says. "I think, in the medical world, this is certainly one of the key examples of the vision of the Internet as a global village."

Since the Web site has been online, content developers at St. Jude have designed tools that allow for extensive collaboration and consultation from St. Jude to other countries and from country to country.

"We have Web-based tools that allow people to have live meetings," Quintana says. "This avoids things like long-distance telephone charges. With a set of speakers and a microphone, we can actually have a group conference. We use this for live lectures as well as clinical consultations where we've given assistance to doctors treating difficult cases for surgery, bone marrow or other

cancer-type treatments." The site offers a digital library with free full-text resources and the latest reference books, working groups that allow people to share documents; on-demand seminars with slides and audio in several languages; a list of events; and virtual meeting rooms. "If two

doctors in different countries want to meet and discuss medical issues, they can go to *Cure4Kids* any time of the day, and we have several virtual meeting rooms. It is being used quite a bit now as people find it a convenient, cost-effective way to communicate," Quintana says.

Cure4Kids developers have taken the hospital's mission of sharing knowledge a step even further and developed a tool called *POND4Kids.org*. POND stands for Pediatric Oncology Network Database. Through *POND4Kids*, hospitals can create their own virtual area where they can keep, in a private and controlled way, records of their patients.

"Every registration on *Cure4Kids* and *POND4Kids* is a human being, and the knowledge is actually getting into the hands of the people who help children," Quintana says. "So, it doesn't really matter whether we helped 2,000 or 3,000. The fact is that we're making a difference."●



BY CARRIE L. STREHLAU

Thanks to St. Jude research and treatment, the sky's the limit for children like Ana Dena Colgin and David Cooper. St. Jude doctors and researchers have found that with equal access to effective therapy, both African-American and white patients can now expect high cure rates for ALL.



Flying High

BY VICTORIA TILNEY MCDONOUGH

When it comes to ALL treatment, survival rates for all children soar at St. Jude.

The word “energetic” takes on new meaning when it’s applied to 4-year-old David Cooper. If he had his way, he’d spend every day playing outside—running around the backyard, hanging upside down from his swing set like a lemur and defending his fort from invisible bad guys. In September 2002 when he complained of being too tired and sore to play, Collette Mathis, his mother, knew something was not right.

“He would tell us that his legs were broken,” Collette says. “It was like he was having a seizure. Suddenly, he would turn horribly pale, his lips white. He would spike a fever and cry that his legs and ankles hurt. Then, about 20 minutes later, the fever would be gone and he’d be back to normal.” The episodes intensified for about two weeks. At one point, David collapsed when his mother tried to stand him up.

“I kept taking him to the doctor and they’d tell me he had a

virus or that he should see an orthopedic specialist for his joint pain,” Collette explains. “Finally, I sat down with him in the waiting room and said: ‘We’re not moving ... We’re going to camp out here till you figure out what is wrong with him!’”

St. Jude Children’s Research Hospital has an affiliate in Baton Rouge, Louisiana. This affiliate is in the same building as the medical clinic David visited. When David’s blood work was complete, an oncologist from the affiliate came to talk to them. “I finally got an answer,” Collette laughs sardonically, recalling the moment she was told her son had acute lymphoblastic leukemia (ALL). The oncologist told Collette to book a flight to Memphis.

Within hours of arriving at St. Jude, Collette and her family knew that David would be taken care of, that all stops would be pulled to make sure he received the best treatment. And at St. Jude, there would be no question that he would fare as

well as a white child with a similar diagnosis.

Although treatment results for children of all races with ALL have improved since the 1980s, African-American children have not fared as well as white children in large national trials. “These results were always attributed to the fact that black children often present with high-risk leukemia, but the fact is that with access to modern effective therapies delivered by an experienced and dedicated team of caregivers, black and white children should have equally excellent treatment outcome,” explains Ching-Hon Pui, MD, director of the St. Jude Leukemia/Lymphoma division and lead author of a study documented in the October 2003 *Journal of the American Medical Association*.

A team of 15 doctors and researchers compared therapy outcomes for ALL patients treated at St. Jude. The team found that with equal access to effective therapy, both African-American and white patients could expect high cure rates.

“This study shows that equal access to the most effective therapy abolishes the racial differences that continue to exist at other treatment centers,” says William Evans, PharmD, the hospital’s scientific director, and an author of the study. “This is what St. Jude is all about: developing the best therapy and making it available to everyone; going the extra mile to ensure equal access to all patients. At St. Jude, we are dedicated to developing therapy that cures every child, and this is another step in the quest.”

The study included 406 children with newly diagnosed ALL. The patients received the same treatment until the leukemia was in remission; then the children received 120 weeks of a personally tailored approach to treatment. Patients deemed to be at low risk for cancer recurrence received less aggressive therapy than those considered to be at high risk.

At the end of 10 years, the survival rates were 86.2 percent for African-American children and 80.3 percent for white children. In addition, 74.8 percent of African-American children and 73.6 percent of white children did not develop a recurrence or a secondary cancer.

One of the main reasons St. Jude is able to offer superior care to all patients is because the institution is the only pediatric cancer research center where families never pay for treatments not covered by insurance, and families without insurance are never asked to pay.

“We are color blind at St. Jude,” says Pui. “Because of the resources provided by ALSAC, our dedicated fund-raising organization, we do not need to be concerned about the cost of certain tests or drugs. If we think a patient needs a certain test or drug, we never second-guess the way other institutions worried about insurance coverage do. We do not have to wonder: ‘Does this patient really need this?’”

Another reason St. Jude produces such good results is because the hospital has vast experience in treating children with

leukemia. “We are super-specialized here,” explains Pui. “We have doctors, nurse practitioners, nurses,

pharmacists and social workers who just take care of patients with leukemia, nothing else. Because of this, we have more experience and see many more cases of children with a large variety of leukemia than people elsewhere.”

Scott Howard, MD, an assistant member of Hematology-Oncology and an author of the study, says St. Jude clinicians are able to save so many lives because of the generosity of donors. “It’s gratifying to be able to offer the same cure rates for black children that white children have enjoyed for years. And even more so since a higher proportion of black children have higher-risk leukemia,” says Howard. “We are lucky to be able to offer social services and support services to children of all races and economic levels. These results are a tribute to the generosity of the donors who make it possible to run St. Jude.”

For more information about this research, visit the St. Jude Web site at www.stjude.org/media. •

Perspective

The A-B-Cs of Partnership

By Terry Burman

When most of us think back to our childhood, we can all recall how we learned the alphabet; “A is for apple,” “B is for ball,” “C is for cat” probably came to play in some fashion. But to the kids at St. Jude Children’s Research

“When you see the bright smiles of the children ... it inspires each of us to do more.”



Terry Burman (center) and colleagues from Sterling Jewelers Inc. share Cubby bears with St. Jude patients. With Burman are (from left) Garrett Cotten, Tryna Kochanek, Caitlyn Garner, Alexandria Bell and Mark Light.

Hospital, the alphabet takes on an entirely different meaning. In their world, “C is for cancer,” “K is for chemo,” and “V is for vomit.” The innocence of the artwork patients created for the hospital’s “Alphabet Wall” demonstrates the strength of the human spirit and the remarkable character of the children and their families.

Sterling Jewelers Inc. began its association with St. Jude four years ago. It was important to us to partner with an organization that provided care and treatment, while finding cures through medical research. And we wanted to associate with a charity that efficiently

managed its funds.

What began as a corporate responsibility quickly became a personal commitment for me. My first visit in 1999 was one of the most moving experiences of my life. It wasn’t just the medical care and research that impressed me; it was also the hospital’s approach to providing care and support for patients and their families. Although challenging cir-

cumstances occur daily at the hospital, the attitude and spirit are unexpectedly upbeat. That atmosphere is driven by the dedication and commitment of the staff and the great personal efforts and innocence of each patient.

A similar sense of dedication and commitment from each of Sterling’s 13,000 employees has made us an industry leader. Our employees have embraced our partnership with St. Jude with open arms and giving hearts, and have made the program a success through their effort.

In the months leading to Christmas we offer our customers the opportunity to buy “Cubby” bears, with every penny of

the profits benefiting St. Jude. The commitment and donations from our employees and customers have enabled us to raise \$2.9 million dollars for St. Jude in four years. These funds have helped us complete our endowment for the hospital’s Solid Tumor Clinic and Patient Registration area and fulfill nearly 20 percent of our five-year, \$5 million endowment for renovating the hospital’s second floor.

When you help mobilize a group of people to help save children’s lives, it can’t help but be personal. Once you step into the hospital and witness the staff’s dedication and the organization’s depth, you can’t help but be committed.

But when you see the bright smiles of the children you’ve helped; or you get a big hug and kiss from one of the kids; or their moms say, “thank you for all you do,” it makes everything we’ve ever done for the hospital worthwhile and inspires each of us to do more.

After all, we’re in it for the kids. We’re doing the best we can, and we’ve only just begun. •

Terry Burman is chairman and CEO of Sterling Jewelers Inc. and CEO of Signet Group plc. Based in Akron, Ohio, Sterling Jewelers operates 1,073 stores in 49 states as “Kay Jewelers,” “Jared the Galleria of Jewelry” and under a number of regional names. Sterling Jewelers is a subsidiary of the London-based Signet Group plc, the world’s largest specialty jewelry retailer.



Lights, camera, action

St. Jude National Outreach Director Marlo Thomas chats with patient Emily Miller during filming of the hospital’s newest hourlong television special, “Saving Kids Like Me.” The TV program recently debuted on stations across the country. Hosted by Thomas, the program features new stories about St. Jude patients and the latest medical breakthroughs at the hospital. For air times, check your local listings or call (800) 822-6344 between 8 a.m. and 4:30 p.m. CST.