Improving cure rates for children with cancer

Childhood cancers are relatively rare – they represent less than one percent of new cancer cases each year. They are also often highly curable, as an estimated 85 percent of children with cancer will be cured of their disease.

“But it comes at a price, especially if we have to use multiple treatment modalities like chemotherapy, radiation or bone marrow transplant. Children often develop side effects later in life,” says Ken DeSantes, MD, chief of the pediatric division of hematology and oncology at the UW Carbone Cancer Center and American Family Children’s Hospital (AFCH).

Some children, such as those with high-risk neuroblastoma, receive all these treatments and more, and yet the disease still has only a 50 percent cure rate.

“We definitely need better approaches, and we need less toxic therapies,” DeSantes says.

Twenty years ago, DeSantes came to the pediatrics department at the University of Wisconsin-Madison because of its reputation: Paul Sondel, MD, PhD, was pioneering work in the field of immunotherapy – boosting the patient’s own immune system – to treat childhood cancers.

DeSantes and his colleagues are pushing for safer, but still highly effective, treatments. Two such trials are currently open at AFCH, with more in the pipeline.

In one trial, led by DeSantes, a type of immune cell, the natural killer (NK) cells, is isolated and expanded from the blood of a biological parent (their immune system is a half match). Patients with relapsed or refractory neuroblastoma receive those cells plus an immune molecule that helps the NK cells recognize and specifically target neuroblastoma cells. Because NK cells do not have the same specificity or longevity as T cells, the risk of attacking healthy cells long-term is greatly reduced.

Another trial, led by Otto, also seeks to reduce the potential harm caused by donor T cells by isolating only a subset of T cells that still attack the cancer cells, but have much less potential to damage healthy cells. It is open to children with relapsed leukemia or very high-risk, relapsed or refractory solid tumors.

“We are doing these trials with the hope of improving the cure rate for children with difficult-to-treat cancers,” DeSantes says. “Many of these trials are first-in-child, and they’re not currently available anywhere else in the world.”

“We definitely need better approaches, and we need less toxic therapies.”

— Ken DeSantes, MD
Cooling caps help give breast cancer patient a boost

DeeAnn Schmidt’s family is no stranger to cancer. She’s the third sister in the family to be treated for breast cancer. So, when the Fond du Lac woman learned in 2018 that she, too, had developed breast cancer, “My nine-year-old was very upset, and said, ‘Are you going to go bald, too?’”

Fortunately, the answer to that question was no. When it was time for her chemo treatments to begin, her nurse at the UW Health Breast Center suggested using cooling caps. Both of UW Carbone’s Madison chemotherapy clinics offer a cooling cap system for use during chemotherapy. The caps contain circulating refrigerant, which chills the scalp, closing the blood vessels and preventing the drugs from getting into the hair follicles.

“It has been such a blessing to me,” Schmidt says. “It was so hard for my sisters to lose their hair. And growing it back out is no fun, either.”

Schmidt paid $2,200 for caps to wear during her 12 rounds of chemotherapy (the cooling caps vendor, Paxman, works with a non-profit called Hair-to-Stay that provides financial assistance for low income patients). She says the cold is “very tolerable” and she coped by cuddling in a warm blanket. She used the caps for a half hour before and an hour after the infusion, to reduce the damage to the hair follicles.

“I’d recommend it to everyone. I lost my eyebrows, my eyelashes and all the hair on my body,” she says. But her long blonde hair stayed right where it was. “I’m beyond grateful; you wear your hair everywhere.”

The benefits were many. Keeping her hair meant keeping her privacy. The family owns a manufacturing business, and she and her husband, Rick, frequently entertain international customers. Looking healthy meant not having to discuss her treatment with everyone.

She even had an amusing moment when she was at the clinic for chemo. A friend who was bald from her own chemotherapy was with her and the nurses were startled that Schmidt, and not her friend, was the patient.

Looking normal made her children less frightened than they may have been (and sometimes she had to remind them, “Hey, mom is sick, can you pitch in a little?”). The family was also dealing with another serious health issue during her treatment: her grandson was born with a major heart defect that eventually required a transplant.

“You go through so many emotions with cancer, so much anger and feeling so sick,” she says, adding that she knows that for other women, hair is the least of their concerns as they go through treatment.

But for Schmidt, keeping her hair gave her a boost and helped her feel more normal.

“I’d wake up in the morning and look in the mirror and see that I still had my hair,” she says. “I’d feel like: ‘I’ve got this. I can face anything.’”
Everyone has heard they should “eat healthy and exercise” for better quality of life, and cancer survivors are no different. “The largest branch of our research program focuses on lifestyle interventions for cancer survivors,” says kinesiology professor and UW Carbone Cancer Center member Lisa Cadmus-Bertram, PhD.

Cadmus-Bertram recently chose to focus on endometrial cancer survivors, because it is one of the cancers most strongly linked to obesity. Previous studies with these women have largely focused on weight loss through increased physical activity plus changes in diet. “With the combined interventions, you don’t know what the relative contribution of each individual component has on the outcomes,” Cadmus-Bertram says. “And we know that losing weight is hard, and keeping it off is hard. We decided to set aside the weight loss part and instead focus on something we thought would be very empowering: building muscle mass and strength.”

Cadmus-Bertram and Jess Gorzelitz, MS, a kinesiology graduate student, opened a clinical trial to study the effects of a strength training program on endometrial cancer survivorship. Participants are first evaluated for such factors as lean-vs-muscle mass, functional fitness and quality of life indicators. Then, they receive exercise equipment, access to online exercise videos and 10 weeks of in-person and video call instruction with Gorzelitz. Women in the control group receive the equipment and video access at the end of the trial.

“A lot of what we’re interested in is, can we help people gain strength and balance, to be able to do the things they want to do more easily?” Cadmus-Bertram says. “The nice thing about strength training is, the muscle adaptations happen relatively quickly, so participants should be able to feel differences in their strength after a few weeks.”

This study is open and actively seeking women to enroll. Participants do not have to be UW Health patients, though travel to Madison is required a few times during the trial.

To learn more about the trial, as well as additional quality of life studies that Cadmus-Bertram is doing on cancer survivorship, please visit uwhealth.org/lifestudies. You may also e-mail gorzelitz@wisc.edu
When viruses – tiny packages made of proteins that envelop DNA or RNA – infect humans, they can cause the mildest colds to the gravest influenza pandemics. But beyond the illnesses commonly associated with viral infections, viruses can also trigger different cancers.

“We’re swimming in viruses, we get infected with some viruses quite frequently, causing colds or the flu. Most of them do not cause cancer. But every now and then something goes wrong,” says Nate Sherer, PhD, a molecular virologist at the McArdle Laboratory for Cancer Research.

Sherer, who has been a member of the UW Carbone Cancer Center since 2011, and his team use advanced microscopy techniques to watch how viruses interact with living cells in order to better understand the machinery and pathways that govern viral infections. His research largely focuses on HIV – human immunodeficiency virus.

Although HIV is not thought to directly cause cancer, HIV-infected individuals are at higher risk for many cancers. Insights gained through his work will help guide the development of better treatments for cancer viruses, such as human T lymphotropic virus and hepatitis B virus, which cause leukemia and liver cancer, respectively.

“There’s a perspective that with effective vaccines and antiviral therapies, we could someday prevent or cure at least 20% of all human cancers...”

— Nate Sherer, PhD
MARK YOUR CALENDARS

SEPT 22
The Ride
Madison

SEPT 23
Links Strong Classic
Cottage Grove

SEPT 25
Gunning for Hope
Johnson Creek

SEPT 28
Multiple Myeloma Patient & Caregiver Symposium
Pewaukee

OCT 3
Mix 105.1 Survive Live
Madison

NOV 1
18th Annual Fall Cancer Conference
Monona Terrace, Madison
The UW Carbone Cancer Center’s annual fall conference will focus on issues facing rural cancer patients
uwhealth.org/cancerconference

SEPT 28

3 REASONS TO CONSIDER CLINICAL TRIALS

1. Advance Research
Your participation brings new breakthroughs from researchers to patients

2. Access to New Treatments
Your participation gives you access to cutting-edge treatment options

3. Help Others
Your participation is critical in preventing, diagnosing, and treating cancer

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In July 2015, Susan Udelhofen received a call from her 31-year-old daughter that no mother wants to receive.

“She said, ‘I’m in the emergency room in a lot of pain but it’s probably just a virus. I’ll call you tomorrow.’”

The next day, Katie did call but to tell her parents she wasn’t better and something felt very wrong. She asked her parents to fly out to Baltimore where she was living and working as a social worker. They flew out immediately.

“After several days and sending her labs to a physician friend in Madison, I became a pushy mother,” Udelhofen says. “In the middle of the night we got her transferred to Johns Hopkins where, within a few hours, they had her diagnosed with ALL [acute lymphocytic leukemia, a blood cancer].”

Susan and her husband John moved to Baltimore to support Katie and Katie’s family – her husband and two-year-old daughter. Katie began treatments, and after two rounds of chemotherapy and a recently approved immune therapy drug she finally went into remission, which enabled her to have a bone marrow transplant from her brother, Brian, in February 2016. The transplant failed, and in May of that year the cancer returned. Her physicians had exhausted all treatment options and in June, Katie and her parents returned to Madison, Katie’s hometown.

“She had a list of things she wanted to do, and we did most of them in the three weeks before she died Susan says. “She was 32, left a young daughter and changed our lives forever. Her physical presence is so deeply missed.”

A few months after Katie passed away, one of her high school girlfriends asked Susan to meet for a glass of wine. She suggested honoring Katie with a birthday benefit to be held the next spring near her birth date. They hoped to raise $5,000 and fund both a scholarship in Katie’s name at Verona Area High School (VAHS), where Katie attended, and donate toward a “wish” for one child through Make-A-Wish. That first year, they raised $18,000. Happily surprised by the success, Katie’s parents worked to form a non-profit, which they named ‘We Believe in Katie.’

“Believe was her ‘word’” her mom says. “Katie believed in the goodness in people and being kind. She lived by the quote, ‘Everyone you meet is fighting a battle you know nothing about. Be kind. Always’. That’s the essence of who she was.”

BELIEVE in a future without cancer
Fast forward to today. We Believe in Katie has held three main spring fundraising benefits. They also raise money through other means, such as the wine glasses Susan paints and sells, or when Katie’s brother ran a half marathon and raised funds for their charity. They have funded three scholarships to a VAHS graduate and granted five Make-A-Wish wishes. But it was also important to Katie’s family to fund research, because, as Susan says, “Maybe there’s a Katie out there who will be saved because of it.”

Katie’s childhood friend, Ryan Behling, is a member of the UW Carbone Community Advisory Board, and he connected Susan and John to UW Carbone researchers. One of the doctors she met was hematologist Aric Hall, MD.

“Dr. Hall talked to us about what it is like to treat young people with hard-to-treat diseases like Katie had,” Udelhofen says. “He has such a big heart. He spoke at our benefit this past April and explained that often those hard-to-treat adults get forgotten, and efforts instead go to those who have a higher chance of surviving. But that wasn’t Katie and others like her.” He said, “We shouldn’t give up on those people.”

John and Susan learned of a clinical trial that Hall was looking to open, to serve people who have high-risk blood cancers, like Katie had (see sidebar). We Believe in Katie is now partially funding this trial. The same funding is helping with a parallel trial, led by UW Carbone and American Family Children’s Hospital pediatric hematologist Inga Hofmann, MD. Hofmann’s trial will be open to children and adults with non-cancerous blood diseases. At this past April’s “We Believe” benefit, the Udelhofen’s teamed up with the family of a young Sauk Prairie man, Rayce Raschka, who passed away in 2018 of aplastic anemia, a blood disorder.

“We’re here because of Katie’s life and her death from leukemia,” her mother says. “Do I wish Katie would have been saved? Of course. But we feel that our nonprofit brings deeper meaning to Katie’s life, raises awareness and gives back.”

Clinical trials supported by We Believe in Katie

One of the best treatments available for patients with blood cancers is a stem cell transplant. In it, the patient’s immune system is wiped out by chemotherapy, then a donor immune system replaces it. The goal is two-fold: the new immune system should attack the cancer cells (but not attack the healthy cells) and provide a lower risk of infection.

“But stem cell transplant is always a fairly dangerous procedure. And despite those risks, it unfortunately does not often work for patients with high-risk disease,” says Aric Hall, MD. “The trial we’re working on is trying to do transplant in a new way that will hopefully give patients a better shot.”

In Hall’s trial, the donation starts the same way as currently done. However, the subset of cells thought to be responsible for the worst side effects – the alpha/beta T cells – are removed. This same procedure is being used in a clinical trial for pediatric blood cancers and solid tumors at American Family Children’s Hospital, with early success.

Inga Hofmann, MD is building on their success of treating blood cancer in children with a similar approach to treat children and young adults with non-cancerous blood diseases such as aplastic anemia.
ALOHA, SUNSHINE

Pamela Hamel and George Hamel, III pictured during the live auction of the tropical-themed Garding Against Cancer signature event. Spearheaded by UW Men’s basketball coach Greg Gard and his wife, Michelle, Garding Against Cancer has raised more than $4 million for cancer research and patient care in Wisconsin in its first 30 months.

TO LEARN MORE VISIT:
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