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On Cancer

Meet Julia Glade Bender, Who's Focused on Developing Better Treatments for Kids with Cancer

By Julie Grisham, Friday, September 20, 2019



Pediatric oncologist Julia Glade Bender is a leader in developing clinical trials and other treatments for children with cancer that does not respond to standard therapies.

Summary

In this Q & A, pediatric oncologist Julia Glade Bender talks about how childhood cancers and adult cancers are different, and the promise of personalized medicine to treat tumors that are especially challenging.

Julia Glade Bender is a pediatric oncologist and Vice Chair for Pediatric Clinical Research at **MSK Kids**. She specializes in treating children with solid tumors of the bone and soft tissue, including **osteosarcoma**, **Ewing sarcoma**, **rhabdomyosarcoma**, and germ cell tumors.

She is a leader in developing **clinical trials** and other treatments for children with cancer that does not respond to standard treatment.

We spoke with Dr. Glade Bender about the challenges of treating rare childhood cancers and how personalized medicine is leading to better therapies for tumors that are especially hard to treat.

What makes cancer in children different from cancer in adults?

Most cancer in adults is spurred by a lifetime of exposure to outside factors — like tobacco smoke and UV light — combined with the natural DNA damage that comes with aging. Harmful genetic mutations begin to accumulate and eventually can tip the balance and cause cancer. Childhood cancers, in contrast, are often triggered by a unique event, such as a rearrangement in the chromosomes that creates an entirely new gene. These alterations can happen early in a child's life or even before they are born.

Additionally, solid tumors in children usually arise in a different type of cell. Most adult cancers are carcinomas, which develop out of the tissues that line the inner and outer surfaces of the body, like the skin and the lining of the intestines and other organs. Childhood cancers are usually sarcomas, which form in cells in the muscles, bones, and other connective tissues.

What are some of the biggest challenges of treating cancer in children?

We can cure 80% of kids with existing treatments, especially chemotherapy, radiation, and surgery. But for the remaining 20%, new options are urgently needed.

Because these cancers are so rare, even if we have an idea of which drugs we should use to treat them, it's difficult to develop clinical trials. A certain number of patients are required for clinical trials. For rare subtypes of uncommon cancers, which may occur in only a few dozen children in the whole country, this isn't always possible.

Learn about the [Pediatric Translational Medicine Program](#) at MSK Kids.

Although we already have successful treatments and can cure the majority of children with cancer, we know that these treatments can have long-term effects on their health, well into adulthood. We hope to eventually develop treatments that don't have these side effects.

How is targeted therapy changing treatment?

At MSK Kids, all children receive testing with [MSK-IMPACT™](#). This test helps us find particular mutations that may be driving the growth of tumors and suggest ways to treat them.

Clinical trials developed by MSK's [Early Drug Development Service](#) can now include children as young as 12. Previously the age was 18. Although we always make the case that kids are not just little adults, we know that when it comes to things like side effects, kids over the age of 12 are more closely aligned with adults than they are with younger kids.



For Child & Teen Patients

MSK Kids is dedicated to caring for children, teens, and young adults with cancer, immune deficiencies, and benign blood disorders.

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For a few mutations, we have drugs that have already been approved for use in kids by the US Food and Drug Administration. The biggest success is probably **larotrectinib** (Vitrakvi[®]), which is approved for solid tumors that have a mutation in a gene called *NTRK*.

For other, rarer mutations, we may develop a protocol for single-patient use (SPU). These compassionate-use plans require tremendous resources, including finding a drug — and a company willing to supply it — then getting permission from the Institutional Review Board and the FDA to administer the drug. It can be a lengthy and labor-intensive process.

We always collect a lot of data when we do SPUs, so that we can learn as much as possible about how and why these drugs work or don't.

How does research done at MSK Kids help children who aren't able to come here for treatment?

Because we collect so much information with our SPU protocols, they can eventually lead to clinical trials that may be expanded to other hospitals. That has already happened with five drugs that started as SPUs.

Members of MSK Kids also participate in a number of collaborative groups. I'm involved with the **Pediatric MATCH Trial**, which is a national effort to get drugs to as many patients as possible. It's co-sponsored by the National Cancer Institute and the Children's Oncology Group. We are already looking at eight different parts for different drug targets, and we're adding new ones all the time.

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Through these efforts we not only develop trials but also help set the standard of care for the treatment of children with cancer throughout the country and the rest of the world.

You came to MSK Kids about a year ago, after spending most of your career at another hospital. Can you talk about the move?

One thing that's really special at MSK Kids is the collaboration with specialists beyond pediatrics, whether that's scientists working in labs or medical oncologists who work with adults. We have a lot we can learn from one another.

Another thing that's interesting about being at MSK is that this is where some of the earliest successful treatments for childhood cancer were developed 30 or 40 years ago. And some of those pioneering doctors are still here.

Now we're at the forefront of this new era in personalized medicine. You've got this interplay between the mothers and fathers of chemotherapy and the new leaders in targeted therapy. To cure the greatest number of children, you really need both.

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