Noah Evans
Music Therapy

Until recently, 7-year-old Noah Evans saw the world as a pretty controlling place. Diagnosed with severe hemophilia A and an inhibitor when he was just a few months old, much of Noah’s life has been structured around preventing bleeds and making sure he takes his medications appropriately. In addition to having hemophilia, Noah has arthritis in his ankle, which causes severe pain.

“Noah’s medication schedule is a big factor in how we plan his day,” says Noah’s mother, Cicely. “And that’s just what we can account for. There are also all the accidental bleeds that we need to treat as they happen.”

Despite his limitations, Noah is a sweet and energetic kid. But even cheerful, fun-loving young hemophilia patients can get frustrated by aspects of their condition, and Noah is no exception. “He used to get so angry because of the way his hemophilia was constantly interrupting his day,” Cicely says. “For a while, he felt like he had zero control in his own life. That can be overwhelming for anyone, but it’s especially tough for a young boy.”

When he was littler, Noah had a difficult time managing his frustration and pain. It wasn’t unusual for him to yell at his kid sister or parents or to become moody. But all that started to change when he began working with certified music therapist Joy Indomenico, who met the Evans family after a referral from Laura Gray at the Boston Hemophilia Center. “When I first started working with Noah, he was very active and it was very hard to keep him still,” Joy says. “After a short time, it was clear to me that at times he was dealing with pent up frustrations and pain, which made it hard for him to focus.”

So Joy showed Noah how music could soothe him when he was upset. While working with Joy, Noah discovered that playing his keyboard or singing a favorite song could quickly calm him and bring him to a more peaceful place.

It’s a technique Noah has adapted in other parts of his life. On occasion, Noah has trouble going to sleep because he’s in pain or feels anxious that he’ll wake up with pain. Rather than watch a movie (which doesn’t soothe and induce sleep), Noah listens to the sound track of his favorite movie, Star Wars, which distracts him from real or anticipatory pain, and calms him to the point where he can drift off.

What started as a distraction technique has now blossomed into so much more. With Joy’s help, Noah is now learning to read music, and he’s experimenting with several different

Gene Therapy Safety Trial: What the Findings Mean

In December, an international group of scientists and hemophilia clinicians attracted worldwide attention with their announcement at the American Society of Hematology in San Diego. There, they shared the results of gene therapy treatment on six patients with severe factor IX deficiency. The work was published shortly thereafter in The New England Journal of Medicine.

We asked Boston Hemophilia Center Medical Director, Ellis Neufeld, MD, PhD, about these exciting findings.

What did the investigators do, exactly?

They conducted an early phase safety trial in six adults to try to find a dose of factor IX gene encapsulated in a gutted version of a common human virus, called AAV8, that could give expression of stable and robust levels of factor IX, without causing patients to be sick. They suspected that the lowest dose, tried in two patients, would be too low to be clinically meaningful, and this was essentially true. They also tried two higher doses that gave more expression of factor IX in two patients.

Gene therapy with factor IX has been tried before. The new AAV vectors were of a type that fewer patients had been exposed to over the

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Instruments. His appreciation for music has developed into a true passion that lets him grow creatively and think independently.

“The Nordoff-Robbins method of music therapy that I do with Noah, which is very varied and improvisational, is a perfect match because it lets him make choices,” Joy says. “Whether he’s choosing to blow a whistle, strum a guitar or learn how to play a song from Star Wars on his keyboard, Noah gets a great sense of pride and freedom from playing music.”

And while hemophilia may prevent Noah from participating in certain sports, he’s found that music can also be a great physical release. Who needs to kick a soccer ball when you can wall away on guitar strings or a set of drums? Whichever instrument Noah eventually ends up focusing on, Joy says that the sky is the limit for a child with Noah’s drive and talent.

And that’s good news, considering his many ambitions. “Just the other day, Noah looked at me and said, ‘Mom I think I want to be a musician when I grow up,’” Cicely says. “The whole experience has been wonderful for him because it’s really helped him focus on what he’s capable of accomplishing, instead of fixating on the things he can’t do.”

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Course of their everyday lives, so immune reaction against the gene-carrying particles was less likely. Also, AAV 8 can find its way to the liver (the normal site of factor IX production) with simple infusion in a peripheral vein. Prior attempts were done through the hepatic artery. The patients in this trial were selected based on having no history of inhibitors or family history of inhibitors. Of course, since this was a safety-oriented trial, there was no promise of successful induction of factor IX therapy at all.

What happened to the people in the trial?

All six patients tolerated the gene vector infusions well, and nobody made inhibitors to factor IX. Several patients were able to get less prophy lactic factor. Impressively, the mid- and high-AAV dose patients achieved steady levels of a few percent of normal factor IX levels. This was enough to maintain activities of daily living without additional prophylaxis. However, the two patients receiving the highest dose group had evidence of mild immunologic reaction to their livers about nine weeks after the AAV-factor IX infusion. This is similar to what happened in a previous gene therapy trial for factor IX deficiency at University of Pennsylvania. In this newer trial, the patients were treated briefly with prednisone, and the liver reactions subsided without knocking out the factor IX gene expression.

Is the ability of the patients’ livers to make factor IX from the AAV vector permanent?

Nobody can really predict how long the effect will last, nor whether it would be possible to retreat the patients again, now that they’ve been exposed to AAV8 and their immune systems can recognize it. I think that scientists, patients and providers alike are extremely interested in the answer to this question.

Why wasn’t factor VIII mentioned?

It’s the simple but frustrating reason that the factor VIII gene itself is much larger than the factor IX gene, and it doesn’t fit well into the AAV vectors. Therefore, factor VIII gene therapy will require a somewhat different approach or delivery system, which will certainly happen someday.

What’s the plan going forward?

At least three groups around the world are now working on better ways to conduct factor IX gene therapy, and I look forward to more dramatic advances in the near future or two. This could possibly happen with higher level expression or up-front immunosuppression to try to avoid the liver inflammation. Only when one or more of these groups has compelling phase 1/2 data (on safety and initial effectiveness) will a larger clinical trial be planned.

What does this advance mean for the field of hemophilia care?

It would be wonderful to have a “one-time-and-you’re done” approach to treating hemophilia, but that prospect is still far in the future. At best, gene therapy will be able to deliver levels of factor IX like twice weekly prophylaxis can now. (Treats of longer acting factor are coming, with the hope of weekly or fewer infusions.) There was a lot of excitement around the announcement of this trial, but that doesn’t make it yet better than current prophylaxis therapy for most patients.

Several members of our staff, along with families and friends of the Boston Hemophilia Center, honored World Hemophilia Day on May 20 at the Embassy Suites Hotel in Waltham. Michael Rosenthal, the director of the World Federation of Hemophilia (WFH), USA, flew in from Arizona to talk about the state of healthcare for people with bleeding disorders in developing countries. He showed some disturbing videos of many people suffering unnecessarily due to lack of available treatment.

Kapil Saxena, MD, MS, Associate Director of the Boston Hemophilia Center, talked about how the Boston Hemophilia Center could get involved in closing the gap of care for people with hemophilia in Jaipur, India. Currently, the Center plans to “twin” with the SMS Medical College and Hospital in Jaipur, India to improve hemophilia care there. As part of the WFH Treatment Center Twinning Program, we aim to help the emerging hemophilia treatment center by developing a partnership and sharing our expertise. Hopefully, our Center will play a critical role in improving treatment for people with bleeding disorders in Jaipur, India.

Digital Innovations In Health Care Management

The Boston Hemophilia Center is proud to be an affiliate of the American Thrombosis and Hemostasis Network (ATHN). As an ATHN affiliate, our Center—along with other Hemophilia Treatment Centers across the country—is committed to advancing and improving the care of people affected by bleeding and thrombotic disorders.

ATHN's main purpose is to oversee a safe and secure national database of patient health information that follows national and hospital privacy guidelines. The first of its kind, this national database will be used to improve the care of people with bleeding and thrombotic disorders, and will support vital research. From this national database, a smaller subset of anonymous patient health data, called the "ATHNdataset," will be used by doctors, scientists, policy makers and other health care providers for research purposes, and to aid in policy decision-making.

Anonymous for the database—personalized for you

For patients, sharing non-identifiable health data with ATHNdataset is entirely voluntary. The database is updated regularly to reflect participants' current health status, but it does not directly identify patients by name or use their personal information, such as zip code and date of birth. Moreover, patients have the opportunity to voluntarily opt in (or out) before their anonymous information is included in this dataset. However, sharing your health information in the ATHNdataset ensures that research and public health initiatives represent a broad spectrum of patients with bleeding disorders. So far, 169 patients at our Center have opted in.

Our ATHN Affiliate status also allows you access to resources that can support your care in the event of an emergency, such as a free Personal Health Report. The report is generated by the Boston Hemophilia Center (BHC) and captured on a convenient wallet-sized card with an attached flash drive. This Personal Health Report has crucial, up-to-date health information that can be helpful to other care providers in the event of an emergency.

Tech support for infusion and prophylaxis tracking

An app called ATHNadvy allows patients to securely record infusions of factor products electronically. Available for iPhone, iPad, and iPod, ATHNadvy helps make recording infusions a convenient process that’s easy to integrate into your life. The program was recently updated with new features, such as the ability to add up to six prophylaxis entries at once. A monthly usage graph clearly displayed on the app’s homepage shows total usage for the preceding three months, and is automatically updated. Managed by the BHC, patients and their providers can have access to an accurate log of a patient’s bleeds and factor usage. You can take the first step of using ATHNadvy by establishing an account on ATHN.org. Once you’re granted access, you are free to begin logging infusions. Information about all of these programs is available on our website, www.childrenshospital.org/hemophilia as well as ATHN.org.

Latoya Lashley obtained a BA in Biology and Community Health from Tufts University in 2008. Since 2008, she has worked at Children’s Hospital Boston as a Clinical Research Coordinator helping investigators implement research at the Boston Hemophilia Center, and also works on research involving Thalassemia and transfusion medicine. Latoya will be working towards a Master of Public Health at Boston University School of Public Health beginning in the fall on a part-time basis and will continue to work full-time as a Clinical Research Coordinator and coordinator for the American Thrombosis and Hemostasis Network (ATHN). She will be busy but looks forward to talking with you about ATHN and other research programs at your comprehensive annual visit.

Meet Our Newest Staff Member

Loren D’Angelo, CPNP, MSN, RN, joined our clinical team at the Boston Hemophilia Center (BHC) as our hemophilia nurse practitioner on February 1. Loren earned her Master of Science in Nursing and Pediatric Nurse Practitioner degree from S.U.N.Y. Stony Brook, New York, in 2008. She relocated to Boston’s North End from Connecticut, where she worked as a pediatric nurse practitioner on the Hematology/Oncology unit at Connecticut Children’s Medical Center in Hartford.

Loren is extremely committed to the physical and emotional well-being of patients and their families. She has excellent diagnostic and treatment planning skills and is a strong advocate of teamwork, positive change, healthcare excellence and continuous quality improvement. She’s looking forward to continuing her career at the BHC and getting to know you and your children. Outside of work, she loves spending time outdoors running, hiking and climbing. Loren is thrilled to be experiencing all that Boston and the BHC community have to offer.
Looking Back at the NHF’s 63rd Annual Meeting

By Jane Cavanaugh Smith

Last November, I was fortunate to be one of the almost 2,000 people who attended the National Hemophilia Foundation’s (NHF) 63rd annual meeting in Chicago. The meeting is unique in that it serves both patients and professionals who care for those with bleeding disorders, bringing them together at the same conference.

The meeting offered educational tracks designed for consumers, family members, medical professionals, and chapter staff. I appreciate that my choice of sessions has not been limited to the consumer category. I have always felt welcome at sessions designated for Hemophilia Treatment Center staff and appreciate the more sophisticated level of information that was available. That’s not to say that the consumer track doesn’t offer enough; in fact, on Thursday afternoon alone, it split into seven different sessions geared toward patients and families covering everything from babies and women’s health issues to hepatitis and exergaming. And that’s all before the conference officially started!

The opening session always has an uplifting tone, and this year’s celebration hit a new level. After a warm welcome from the NHF Chief Executive Officer, Val Bias, we were entertained by actress Alex Borstein who voices the character of Lois Griffin on Fox’s hit TV show, Family Guy. As it happens, Alex has von Willebrand’s disease, the most common genetic bleeding disorder. Her offbeat way of looking at things, not to mention her songs from the unlikely-to-ever-be-produced musical about bleeding disorders, were hysterical. Sharing a real belly laugh was a great way to start the conference and reminded me of how we can use humor to make everyday life brighter.

If I had to choose one speaker that really stood out, it would be Jeannie White-Ginder, the mother of Ryan White. Ryan was an incredible young man who became a poster child for AIDS during a time when the world was consumed by fear and misinformation. I was moved by Jeannie’s strength and appreciate that she is keeping this very important part of our community’s history alive. I applaud NHF for inviting Jeannie to speak, knowing that her honest comments do not always reflect favorably on the organization.

Ziva, Jane Cavanaugh Smith and Allie at the Chicago meeting

Other highlights included Advocacy Today and Tomorrow, which explored the Patient Protection and Affordable Care Act, and I Trust You... When Is It Okay to Stop Giving and Still Care. As the mother of a 19 year old, I found this topic to be particularly timely.

While the educational element of the annual meeting is important, the event is also very much about building a stronger community. In addition to connecting with friends from around the country, I was thrilled to see many others there from Boston Hemophilia Center and the New England Hemophilia Association. Whether it was sharing a quick hug in the hallway, sitting side by side at a session or sharing a meal, it was good to remember that when the national conference ends, our New England family of those affected by bleeding disorders will be waiting at home. Not all regions have that community, and I feel exceptionally fortunate that we do.

Hats off to our lucky winner. Jane Smith was the lucky winner of the Boston Hemophilia Center sponsored trip to National Hemophilia Foundation’s annual meeting, which took place in Chicago in November of 2011. She is a member of the Boston Hemophilia Center’s (BCH) Consumer Advisory Board (CAB) and her name was drawn from a hat (a BHC baseball cap!) of CAB members who expressed interest in attending. Congratulations Jane!

Mark your Calendar

- Come bowl with the staff of the Boston Hemophilia Center!
  Saturday, July 21, 11:30 am to 1:30 pm
  King’s Bowling, Dedham, MA
- Family Education Day
  Saturday, October 6, 9:00 am to 1:00 pm
  Embassy Suites, Waltham, MA