



Factor Nine News

The Coalition for Hemophilia B

WINTER 2019



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EMILY SOULE...

TAKING THE LEAP!

BY MICHAEL PERLMAN

Meet Emily Soule, a native resident of Eagle River, Alaska, who is 35 years old, happily married to her husband Matt, and a stay-at-home mom to two preschool-age boys. Since her teen years, she has been a member of the Coalition for Hemophilia B. Symptoms of a mild condition of hemophilia B can cause discomfort and setbacks, but with faith and a proactive approach, she is determined to persevere.

Emily is a humanitarian who has participated in programs for Volunteers of America as a mentor to young women in a residential treatment facility for substance abuse. Additionally, she has mentored youth in the Alaska Military Youth Academy so that children can overcome significant setbacks and earn a high school degree, paving the way for their future.

Emily has many hobbies, which include homemaking, health and fitness, the great outdoors, travel, reading, playing piano, and her latest—roasting coffee. “Now we have bags of green coffee beans and roasting equipment, which makes our house smell like a coffee shop ... wonderful in my opinion,” she chuckled. She also knits on occasion. “Alaska has extreme seasons and a long winter, so I’ve found it helpful to have a variety of hobbies in the arsenal when it’s hard to step outside,” she said.

When she is not tending to her family, which she considers a full-time opportunity, she is pursuing her home business as a macaron baker. As for her future pursuits, she said, “I often think about ways to expand my home business to a commercial level, or teaching beginner piano lessons from home while our kids are school-age. I also think about earning another college degree or seeking job opportunities within the bleeding disorders community, since it is meaningful and relevant to our lives.”

Recently, Emily was training to run her first full marathon but encountered a setback because of her bleeding knee. She said, “My training was a valuable learning experience, nonetheless. I’ve run many half marathons and shorter distances but have always wanted to complete a full marathon.” She began training in May 2019 and followed a Hal Higdon marathon schedule. She runs with the

local Chugach Run Team consisting of approximately 30 members and would typically run at 4:30 AM or 5:00 AM three days weekly, with longer weekend runs.

“I was comfortably increasing mileage and following the training plan until late June,” she said, but then she noticed that something was wrong. “I completed an 18-mile run on a Sunday, but during the second half, I felt some twinges in my right knee and needed to take several walk breaks. My knee became increasingly agitated as the week progressed, even with extra rest days. Joint mobility decreased, and it slowly swelled with pressure and pain. A week later, I could barely walk. Plans were in place with my Hemophilia Treatment Center (HTC) to start prophylactic infusions surrounding long runs, but I hadn’t received my factor yet, so the treatment plan did not begin. I have infused several days after that 18-mile run, but it didn’t seem to be enough to stop the bleeding that already took place. I traveled the following weekend and had no infusions, but by the time I got back to Anchorage, it was very obvious that I was actively bleeding, so I went into my HTC for on-demand treatment.”

With her diagnosis of mild hemophilia, she thought that by having a few additional days of rest, it would do the trick. She said, “A week into the undertreated bleed, I was suddenly debilitated and on crutches for two weeks, doing daily infusions and RICE-ing [rest, ice, compression, and elevation] around the clock. It was very painful and posed a lot of challenges to my everyday life.” That included her daily activities often taken for granted—caring for her children independently, driving, taking a walk and cooking dinner.

As a result, Emily learned to self-infuse and is on a



prophylactic schedule of three infusions weekly. Physical therapy is advantageous toward regaining strength and balance on her right side, which was lost because of immobility and muscle atrophy. She explained, “I won’t be returning to running in the immediate time frame. My physical therapist recommends low-impact activities while the joint heals, such as biking, swimming, and stretching. This experience has by no means derailed my dream of running a full marathon. I will attempt to train, hopefully next year, but will pursue it with a prophy plan in place much sooner. It will possibly be a modified training schedule with more rest days, and definitely a better knowledge of my body and its bleed symptoms.”

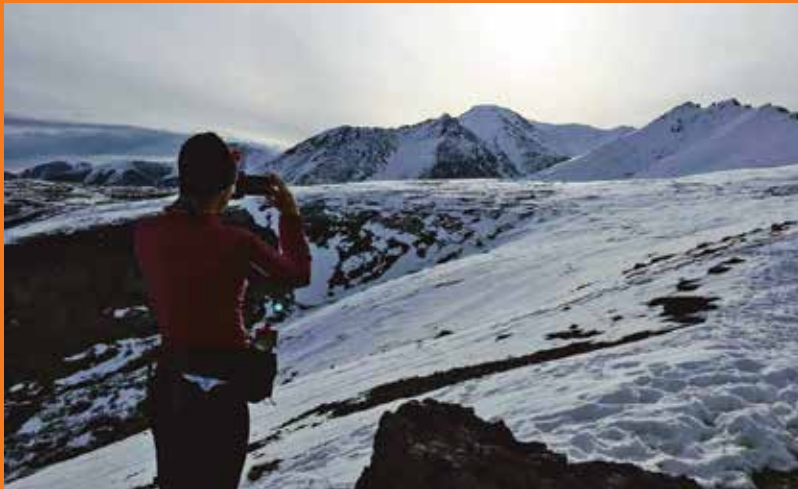
“I do not feel that any of my challenges have been insurmountable,” said Emily, who is strong-willed. As she was raised, she considered the fact that her family has mild hemophilia was more of a notion than a daily reality. She reminisced, “I had more nosebleeds than the average person, but I did not need an infusion of clotting factor until I was a teen having my wisdom teeth removed. I recall having some complications with healing and needing more factor than anticipated.” She also reflected on her adulthood. “I had surgeries, procedures, and births that required clotting factor, all of which were planned. When I first became pregnant, I considered a home-birth, but was quickly told that a home-delivery midwife ‘would not touch me with a ten-foot pole’ due to the risks associated with hemophilia. I soon learned that my pregnancies were considered high risk, and chances are that my sons will also be born with hemophilia.”

A most significant challenge that Emily experienced was when her second son was breech, which led to an unplanned C-section. She considered it a learning experience. “I thought that I would be conscious for his birth, but soon learned that the anesthesiologist would not administer a spinal block to someone with a bleeding condition, even after I was infused with a pre-surgery dose of clotting factor. I didn’t argue, but it was one of those reality-check moments—a reminder that I have a genetic and medical condition that sometimes calls for medical interventions.”

“ EMILY WAS TRAINING TO RUN HER FIRST FULL MARATHON BUT ENCOUNTERED A SETBACK BECAUSE OF HER BLEEDING KNEE. ”

Emily has also faced bleeds as a result of overuse injuries, which offers her much more of a learning curve. She explained, “I struggled with comparing my injuries and healing time to that of non-bleeders. When I get an injury or undergo surgery, I had to adjust my expectations and now estimate that my healing time is about double what the doctor tells me, unless it’s my hematologist.”

The HTC in Anchorage has been her go-to resource for decades. Whenever she works with another healthcare professional such as an obstetrician, orthopedist or a pediatric or general physician, she feels that their knowledge of hemophilia is lacking. “The HTC, the Coalition, and the bleeding disorders community have been very helpful, and I gain facts and wisdom from



professionals and peers. Within this community, we hear the term ‘self-advocacy’ very much and learn what it means to practice it. That’s exactly what I am learning to do for myself and my oldest son, who also has mild hemophilia B.” That makes her a stronger individual who is more knowledgeable, compassionate, and disciplined in the areas of self-care and advocacy.

Emily shared stories that capture her inspirational and rewarding experiences, such as when she was 18 years old and climbed 12,000-foot Mt. Fuji with a family friend. She reminisced, “I never hiked anything of that elevation, but living in Alaska, there is no shortage of mountains to train on and build up my stamina. Still, when I arrived in Japan and we started to climb Fuji, it was longer and more rigorous than anticipated. The air was thin and many people were using oxygen.” She felt as if it exceeded her league, but one question that remained with her was, “Did I have the physical and mental toughness to complete it?”

She said, “I just focused on putting one foot in front of the other, and before the day was over, I made it to the top and back!”

This was the first of many experiences that taught her that one is stronger than one may think. She explained, “We

can prepare as best we can, but the unknown is still going to be there, beckoning us. Go into it, unafraid. There is always wisdom and reward to be gained, and you may surprise yourself with a new accomplishment.” A memorable moment that surfaced was crossing paths with cyclist Greg LeMond and his family. “They climbed Mt. Fuji with our mutual friend who I traveled with, so it was also rewarding to have a common experience with the likes of a world-class cyclist.”

Learning to self-infuse is another rewarding story, which dates to August. Emily explained, “It has made my life so much easier to be able to take my treatment schedule into my own hands. It’s empowering and a really cool indicator of the good times we live in regarding bleeding disorders and treatment options. I am especially excited to see what being on prophylaxis can do for my future athletic goals. I will likely be on prophylaxis long-term now, and once my joint is healed I should be less likely to injure during a marathon training plan.”

Emily considers her husband Matt to be one of the strongest, most interesting people she knows, and he is a true inspiration. She explained, “When we met, we had running in common as a hobby and health venture. I’ve been a runner since my teens, but since meeting him, I watched him train for marathons and ultra marathons in the range of 50 to 100 miles, and I began pushing myself to pursue longer distances. He inspired me to run my first half marathon, later supported my training for a full marathon, and has been my best friend throughout many triumphs and setbacks. He is also a proud hemophilia dad and spouse, active in the bleeding disorders community.”

During Emily's recent bleed, another inspiration was Ryan White. She picked up a copy of *Ryan White: My Own Story* during the couple of weeks she was only able to sit with her leg elevated. "It may sound clichéd for someone with hemophilia, but his story is so fascinating and relevant to anyone living with a chronic condition. I was amazed at his resilience and positive attitude in the face of so many challenges." She also recalls the pleasure of meeting his mother, Jeanne White-Ginder, a guest speaker at this year's hemophilia education meeting.

Emily also feels inspired by the friendships she built through her run team, which consists of athletes on various levels ranging from walker to those training for their first 5K, as well as seasoned mountain runners and ultra marathoners. She said, "Everyone is so kind and encouraging, and even when one of us is out with an injury, we are still made to feel 'part of the team.' This group support inspires me to not give up on my health and fitness goals. It's always a bit easier when I don't proceed alone."

Emily is grateful for her health, especially post-bleed. "Going from being very active and fit to debilitated in a week was an eye-opener and an opportunity to focus on other aspects of health besides physical fitness," she said. "Even if I'm laid up, I can continue to make healthy choices with the food I eat, or devise alternate methods of addressing my emotional, spiritual, and mental health."



She is also thankful for her supportive family and that her husband can provide good health insurance, enabling treatments for Emily and her son.

In the short term, Emily's goal is to rehabilitate her knee. "I would like to get back into a fitness regime, so I can keep up with my sons, as well as complete that full marathon," she said.

As for the long term, Emily is determined to continue seeking creative methods of supplementing income for her family while being a stay-at-home mom. "I feel it's very important for a parent to be home when kids are home, whether preschool age or high school age. My goal is to be able to supplement our kids' college savings and build a travel fund for our family."

We Remember Nathaniel Lathrop

We sadly announce the sudden passing of Nathaniel "Natty" Lathrop, 22 years old. Nathaniel was born in Oshkosh, Wisconsin and as a young boy with his family moved to Peoria, Illinois. He had a beautiful soul with a kind, generous, loving spirit and amazing musical and artistic talent. Words used by his friends to describe him include: heart of gold, one of the funniest people, versatile and talented musician, one of the most genuine humans this world had to offer, genuine compassion and curiosity, unique and talented person, such a sweet guy, genuinely kind, caring and naturally empathetic, a wonderful soul...Natty will be missed deeply by family and friends. We are heartbroken.

In his honor, the Lathrop family asks that donations be made to The Coalition for Hemophilia B. Donations are accepted on our website, hemob.org, on Facebook at www.facebook.com/HemophiliaB/, or by mail to The Coalition For Hemophilia B, 757 Third Avenue, 20th Fl., New York, NY 10017

If you would like to send a personal message to the family, please address to: The Lathrop Family, 105 Freedom Trail, East Peoria, Illinois 61611

Jill, Ric and brother, Sam, we offer you love and support and keep you near in our hearts.



Nathaniel Lathrop

May 6, 1998 – Jan. 1, 2020

Emotional Wellness as a Mature Adult: Discussing the Unique Challenges of Living With Hemophilia



For more information, visit b2byourvoice.com to download *Learn from Experience: A Guide for Mature Adults*.

This content is brought to you by Pfizer.

How Hemophilia Affects Mature Adults

Mature adults may look back and recognize how living with hemophilia has influenced who they are today. Persevering through the challenges of being a child diagnosed with hemophilia when less was known about the condition, and navigating the issues of being a young adult with a bleeding condition can shape one's perspective. Knowledge and wisdom are some of the benefits that accrue with age, but along with these can also come additional health concerns such as high blood pressure, diabetes, and arthritis; depression and stress; and financial planning and retirement concerns. For those who have lived with hemophilia for many decades, the task of managing these concerns of older age may seem to be less important. However, there are some key points to keep in mind when addressing the effect hemophilia can have on mental health.

The Risk of Clinical Depression

Mature adults living with hemophilia typically have experienced substantial challenges related to their disease throughout their lives. In some instances, hardships may contribute to the development of clinical depression, which is more common among people living with hemophilia than the general population. The results from one study conducted at a hemophilia treatment center showed that 37% of a sample of patients met the criteria for depression. Of that 37%, 20% had moderate to severe symptoms, and 66% reported having functional impairment due to their depressive symptoms.¹ The authors of the study concluded that the comprehensive care of adults with hemophilia should include depression screening for the potential to improve overall health outcomes.¹

Education and support for people living with bleeding disorders and their families is one component of managing psychological wellness. Having control over life decisions and self-advocacy can also be important. For some living with hemophilia, past experiences may serve as a motivator to continue to work toward personal objectives. Others may find the journey more difficult to navigate. Self-help seminars and support groups are some of the resources that may help adults set and attain realistic goals.

“[A reminder to] older adults that there is always somewhere to turn, even in times of immense hardship. All you need to do is ask, and you should never feel ashamed for doing so.”

— Judy Bagato

RN, BSN, Hemophilia Specialist

Finding Support for Complex Issues

For people who acquired human immunodeficiency virus (HIV) and/or hepatitis C (HCV) from virally contaminated blood products, there may be feelings of anger and resentment. The adversity caused by a lack of family or social support during younger years or changes later in life, such as changes in one's capacity for employment or altered family dynamics, may also contribute to these feelings. Learning effective ways to cope with the stresses of living with hemophilia in older age may help an individual to be resilient to these challenges. If you are experiencing stress that is affecting your day-to-day outlook, it is important to seek help. Reach out to your treatment team to discuss your situation and learn about what help and support may be available.

Reference: 1. Iannone M, Pennick L, Tom A, et al. Prevalence of depression in adults with haemophilia. *Haemophilia*. 2012;18:868-874. doi: 10.1111/j.1365-2516.2012.02863.x.



Patient Affairs Liaisons are Pfizer employees who are dedicated solely to providing support to the community. Your Pfizer Patient Affairs Liaison is available to help you access the support and information you need. To find your Patient Affairs Liaison, go to hemophiliavillage.com/support/patient-affairs-liaison-finder or call Pfizer Hemophilia Connect at 1.844.989.HEMO (4366).



Donald Glascock
Feb. 21, 1963 – Dec. 1, 2019



In Memory of Donald Glascock

Donald Glascock, 56, passed away December 1, 2019. Born in Los Alamos, New Mexico, Donald enjoyed and excelled at all things technical. He was known as a brilliant and humble man. Donald was active and respected as a mentor and leader in the hemophilia community. Many in the community who knew him personally would say he was a kind gentleman and very caring of everyone he met. Donald will be greatly missed. Our sincere condolences to his family and friends, especially his wife, Stephanie, and their two sons, Ryan and Joel.

To read Donald's obituary or to leave a tribute, visit:
<https://www.ranfranzandvinefh.com/obituary/339449/Donald-Glascock/#tributes>



Mary M. Gooley
March 24, 1925 – Dec. 30, 2019

In Memory of Mary M. Gooley

Mary Margaret Salisbury Gooley passed away December 30, 2019, at the age of 94, in Rochester, New York. Mary served as Director of the Rochester Hemophilia Center until 1986 when, upon her retirement, it was named the Mary M. Gooley Hemophilia Center. She was then elected to a seat on the Board of Directors of the NHF. In 1992, Mary received NHF's Humanitarian Award, which subsequently has been awarded annually as the Mary Gooley Humanitarian Award. In 2017, Mary was honored as a New York State Woman of Distinction by the New York State Senate.

Mary Gooley will live on in the hearts of all those who were blessed to know her and whose lives were forever transformed by her love, compassion, and generosity.

Contributions in Mary's name may be made to the Mary M. Gooley Rochester Hemophilia Center, 1415 Portland Ave., #500, Rochester, or online: <https://millerfuneralandcremationservices.com/obituaries/rochester-obituaries/>



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†Once well controlled (1 month without spontaneous bleeding or requiring dose adjustments on a weekly dose of ≤ 40 IU/kg), people 12 years and older can be transitioned to 14-day dosing.

‡The average dose for people receiving prophylaxis every 7 days was 37 IU/kg and every 14 days was 73 IU/kg.

§Hemophilia FIX Market Assessment. Third-Party Market Research.

Is it time for a switch? Learn more at IDELVION.com



Important Safety Information

IDELVION is used to control and prevent bleeding episodes in people with hemophilia B. Your doctor might also give you IDELVION before surgical procedures. Used regularly as prophylaxis, IDELVION can reduce number of bleeding episodes.

IDELVION is administered by intravenous injection into the bloodstream, and can be self-administered or administered by a caregiver. Do not inject IDELVION without training and approval from your healthcare provider or hemophilia treatment center.

Tell your healthcare provider of any medical condition you might have, including allergies and pregnancy, as well as all

medications you are taking. Do not use IDELVION if you know you are allergic to any of its ingredients, including hamster proteins. Tell your doctor if you previously had an allergic reaction to any FIX product.

Please see additional Important Safety Information and brief summary of prescribing information on adjacent page and full prescribing information including patient product information at IDELVION.com.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call **1-800-FDA-1088**.

IDELVION is manufactured by CSL Behring GmbH and distributed by CSL Behring LLC. IDELVION® is a registered trademark of CSL Behring Lengnau AG. Biotherapies for Life® is a registered trademark of CSL Behring LLC.

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Important Safety Information (cont'd)

Stop treatment and immediately contact your healthcare provider if you see signs of an allergic reaction, including a rash or hives, itching, tightness of chest or throat, difficulty breathing, lightheadedness, dizziness, nausea, or a decrease in blood pressure.

Your body can make antibodies, called inhibitors, against Factor IX, which could stop IDELVION from working properly. You might need to be tested for inhibitors from time to time. IDELVION might also increase the risk of abnormal blood clots

in your body, especially if you have risk factors. Call your healthcare provider if you have chest pain, difficulty breathing, or leg tenderness or swelling.

In clinical trials for IDELVION, headache was the only side effect occurring in more than 1% of patients (1.8%), but is not the only side effect possible. Tell your healthcare provider about any side effect that bothers you or does not go away, or if bleeding is not controlled with IDELVION.

IDELVION®, Coagulation Factor IX (Recombinant), Albumin Fusion Protein

Initial U.S. Approval: 2016

BRIEF SUMMARY OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use IDELVION safely and effectively. Please see full prescribing information for IDELVION, which has a section with information directed specifically to patients.

What is IDELVION?

IDELVION is an injectable medicine used to replace clotting Factor IX that is absent or insufficient in people with hemophilia B. Hemophilia B, also called congenital Factor IX deficiency or Christmas disease, is an inherited bleeding disorder that prevents blood from clotting normally.

IDELVION is used to control and prevent bleeding episodes. Your healthcare provider may give you IDELVION when you have surgery. IDELVION can reduce the number of bleeding episodes when used regularly (prophylaxis).

Who should not use IDELVION?

You should not use IDELVION if you have had life-threatening hypersensitivity reactions to IDELVION, or are allergic to:

- hamster proteins
- any ingredient of IDELVION

Tell your healthcare provider if you have had an allergic reaction to any Factor IX product prior to using IDELVION.

What should I tell my healthcare provider before using IDELVION?

Discuss the following with your healthcare provider:

- Your general health, including any medical condition you have or have had, including pregnancy, and any medical problems you may be having
- Any medicines you are taking, both prescription and non-prescription, and including any vitamins, supplements, or herbal remedies
- Allergies you might have, including allergies to hamster proteins
- Known inhibitors to Factor IX that you've experienced or been told you have (because IDELVION might not work for you)

What must I know about administering IDELVION?

- IDELVION is administered intravenously, directly into the bloodstream.
- IDELVION can be self-administered or administered by a caregiver with training and approval from your healthcare provider or hemophilia treatment center. **(For directions on reconstituting and administering IDELVION, see the Instructions for Use in the FDA-Approved Patient Labeling section of the full prescribing information.)**
- Your healthcare provider will tell you how much IDELVION to use based on your weight, the severity of your hemophilia B, your age, and other factors. Call your healthcare provider right away if your bleeding does not stop after taking IDELVION.
- Blood tests may be needed after you start IDELVION to ensure that your blood level of Factor IX is high enough to properly clot your blood.

What are the possible side effects of IDELVION?

Allergic reactions can occur with IDELVION. Call your healthcare provider right away and stop treatment if you get a rash or hives, itching, tightness of the chest or throat, difficulty breathing, light-headedness, dizziness, nausea, or decrease in blood pressure.

Your body can make antibodies, called inhibitors, against Factor IX, which could stop IDELVION from working properly. Your healthcare provider may need to test your blood for inhibitors from time to time.

IDELVION might increase the risk of abnormal blood clots forming in your body, especially if you have risk factors for such clots. Call your healthcare provider if you experience chest pain, difficulty breathing, or leg tenderness or swelling while being treated with IDELVION.

A common side effect of IDELVION is headache. This is not the only side effect possible. Tell your healthcare provider about any side effect that bothers you or does not go away.

Based on May 2018 revision

Please see full prescribing information, including FDA-approved patient labeling.


You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

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FEDERAL APPEALS COURT STRIKES DOWN OBAMACARE INSURANCE MANDATE



BY GLENN MONES

On December 18, 2019, a federal appeals court in New Orleans struck down the individual mandate of the Affordable Care Act (ACA), also known as Obamacare, by a 2-1 decision. Oral arguments in the case were heard on July 9. The ruling eliminates as unconstitutional the provision requiring that all Americans obtain health insurance or face financial penalties. The rest of the law will now be sent back to the lower court to determine whether the remaining provisions can stand by themselves.

Several of these provisions are of importance to people living with hemophilia and other expensive chronic conditions. These parts of the law include the elimination of lifetime caps and the end of most pre-existing condition clauses.

The appeals court reviewed the decision of a lower court in Texas that attempted to eliminate the entire ACA, including the aforementioned provisions. However, the decision on the appeal requires the Texas court to “explain with more

precision” why these provisions cannot stand alone. A legal doctrine called “severability” says that when a court eliminates one provision of a statute, it should leave the rest of the law alone unless Congress explicitly stated that the statute could not stand without the remaining provisions.

The White House, Justice Department, and most Republican governors have sided with the Texas court in supporting the elimination of the ACA. Since parts of the law will now undergo further review by the lower court, it is unlikely that any part of the decision will be immediately implemented.

The Coalition for Hemophilia B has tracked this issue from the beginning and worked to keep the community informed. We will continue to provide you with timely updates as new information becomes available. Please check our B Voice advocacy page (www.hemob.org/advocacy) for future updates.



WE'RE BOTH SEVERE... WHY DO I BLEED MORE?

BY DR. DAVID CLARK

One of the mysteries in hemophilia is that some people don't bleed in the way that would be expected from their factor level. For instance, someone with severe hemophilia (factor level less than 1% of normal) might bleed much less than expected, more like a moderate or mild. In fact, studies have shown that 10–15% of people with severe hemophilia have a clinically mild disease with few bleeds and minor joint damage. Conversely, some people with mild (5–50% of normal) or moderate (1–5%) disease may bleed more like a severe patient. Even people in the same family, who have the same defect in their factor gene, may bleed differently.

This is the difference between genotype and phenotype. Your genotype is your genetic makeup. If you have a mutated factor IX gene that only gives you an activity of less than 1%, we would expect you to have severe hemophilia B and bleed a lot. Your phenotype is the set of observable characteristics of an individual. That is, your phenotype is what you actually are, no matter what your genotype says you should be (in our incomplete understanding).

Researchers are finally starting to understand why there is a difference. A big part of it apparently has to do with the variable levels of all the other clotting factors and anticoagulants in your clotting system.

COAGULATION CASCADE

Your clotting system, called the coagulation cascade, is a large collection of proteins and other molecules that causes your blood to clot. The proteins include clotting factors that promote clotting and anticoagulants that inhibit clotting to provide control for the system. It also includes other molecules like phospholipids (fatty molecules that make up the walls of cells) and even elements like calcium and magnesium. In a person without a bleeding disorder, everything is in balance, so the blood clots when it should and doesn't clot when it shouldn't. Unwanted clotting is called thrombosis and can be deadly.

We tend to assume that if we have hemophilia B, we only have a defect in our factor IX level, but everything else is the same from person to person. It's not. One of the most important basic concepts in medicine is that

everyone is different. Even people without hemophilia have differences in the amounts of all of the clotting factors and anticoagulants in their blood. This is where the phenotype versus genotype differences come from. For instance, we say that the normal range for factor IX is 50–150% of average. That's quite a big range, and it does make a difference. A person with a 150% level will clot much more rapidly than one with 50%, even though both clot quickly enough that we call them "normal."



**YOUR PHENOTYPE IS WHAT YOU
REALLY ARE; YOUR SINGLE-FACTOR
GENOTYPE IS JUST AN APPROXIMATION.**



Many of the other clotting factors and anticoagulants also have wide "normal" ranges from person to person. The coagulation cascade is a complex system that has a lot of redundancy and flexibility to adapt to those differences. While it can't correct for a complete lack of factor IX, it can partially correct for the smaller decrease in factor IX activity in mild and moderate hemophilia. With a little outside help, it can even work adequately for severe hemophilia.

RESTORING HEMOSTASIS

We are starting to see some of that with the new non-factor products being developed. In hemophilia, with the loss of the factor VIII or IX clotting factor activity the balance in the system is disturbed, leaving too much anticoagulant activity. By reducing the anticoagulant



activity in various ways, researchers are showing that they can tweak the clotting system to restore hemostasis—adequate, controlled clotting— even in hemophilia.

Several companies have shown that by inhibiting tissue factor pathway inhibitor (TFPI), an anticoagulant, they can restore hemostasis in hemophilia patients. What if a severe hemophilia B patient naturally has a lower amount of TFPI in his blood? He might not bleed as much—he might have a milder bleeding phenotype. It appears that the many of the genotype/phenotype differences come from differences in the levels of all of the clotting factors and anticoagulants in one's blood.

A group of French researchers started pulling this all together in an article in the journal *Haemophilia* this year.¹ The researchers looked at the levels of various clotting factors and anticoagulants in 40 hemophilia A subjects, 32 hemophilia B subjects, and 40 normal controls (subjects without bleeding disorders). They measured each subject's bleeding tendency using a thrombin generation assay, which measures the overall clotting ability of the blood: The more thrombin generated, the more clot created.

For hemophilia B, they found that factor IX (as expected) and factor VII were positive influences on thrombin generation. Antithrombin, protein S, and TFPI, all anticoagulants, were negative influences. TFPI was the strongest inhibitor and also had the largest person-to-person variation. Interestingly, the French researchers found that TFPI level had no significant effect in the normal controls, probably because their normal levels of factor VIII and IX counteract the inhibition by TFPI.

In summary, the difference between genotype and phenotype comes down to the differences in the amounts of all the clotting factors and anticoagulants in a patient's blood, not just factor IX. If we expanded our concept of the genotype to include some of those other genes, we could probably establish a measure that would give a more accurate picture of true severity. Until then, your phenotype is what you really are; your single-factor genotype is just an approximation.

Reference:

1 Chelle et al., *Haemophilia* 25 (2): 343–348, 2019, <https://www.ncbi.nlm.nih.gov/pubmed/30690836>.

THANK YOU!

Many thanks to everyone who donated toward the 2019 Holiday Fund! We were able to supply 78 children with gifts, 20 children with coats and clothing and 18 families with food baskets during this festive season!

We hope your New Year is filled with lots of joy,
laughter and good cheer.
Best wishes from
The Coalition for Hemophilia B Team!



DON'T STAND ON THE SIDELINES

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MAY BE RIGHT FOR YOU

Visit RIXUBIS.com to learn more

➤ RIXUBIS® [Coagulation Factor IX (Recombinant)] Important Information

What is RIXUBIS?

RIXUBIS is an injectable medicine used to replace clotting factor IX that is missing in adults and children with hemophilia B (also called congenital factor IX deficiency or Christmas disease).

RIXUBIS is used to control and prevent bleeding in people with hemophilia B. Your healthcare provider may give you RIXUBIS when you have surgery. RIXUBIS can reduce the number of bleeding episodes when used regularly (prophylaxis).

➤ Detailed Important Risk Information for RIXUBIS® [Coagulation Factor IX (Recombinant)]

Who should not use RIXUBIS?

You should not use RIXUBIS if you

- are allergic to hamsters
- are allergic to any ingredients in RIXUBIS.

Tell your healthcare provider if you are pregnant or breastfeeding because RIXUBIS may not be right for you

What should I tell my healthcare provider before using RIXUBIS?

You should tell your healthcare provider if you

- have or have had any medical problems
- take any medicines, including prescription and non-prescription medicines, such as over-the-counter medicines, supplements or herbal remedies
- have any allergies, including allergies to hamsters

What should I tell my healthcare provider before using RIXUBIS? (cont'd)

- are breastfeeding. It is not known if RIXUBIS passes into your milk and if it can harm your baby
- are pregnant or planning to become pregnant. It is not known if RIXUBIS may harm your unborn baby
- have been told that you have inhibitors to factor IX (because RIXUBIS may not work for you).

What are the possible side effects of RIXUBIS?

Allergic reactions may occur with RIXUBIS. Call your healthcare provider or get emergency treatment right away if you get a rash or hives, itching, tightness of the throat, chest pain or tightness, difficulty breathing, lightheadedness, dizziness, nausea, or fainting.

Some common side effects of RIXUBIS were unusual taste in the mouth and limb pain.

Tell your healthcare provider about any side effects that bother you or do not go away.

What else should I know about RIXUBIS?

Your body may form inhibitors to factor IX. An inhibitor is part of the body's defense system. If you form inhibitors, it may stop RIXUBIS from working properly. Consult with your healthcare provider to make sure you are carefully monitored with blood tests for development of inhibitors to factor IX.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see RIXUBIS Important Facts on the following page and talk to your healthcare provider.



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RIXUBIS
[COAGULATION FACTOR IX
(RECOMBINANT)]

MOVING FORWARD

Important facts about RIXUBIS®:

This leaflet summarizes important information about RIXUBIS. Please read it carefully before using this medicine. This information does not take the place of talking with your healthcare provider.

RIXUBIS
[COAGULATION FACTOR IX
(RECOMBINANT)]

What is RIXUBIS used for?

RIXUBIS is a medicine used to replace clotting factor (Factor IX) that is missing in people with hemophilia B. Hemophilia B is also called congenital factor IX deficiency or Christmas disease. Hemophilia B is an inherited bleeding disorder that prevents blood from clotting normally. RIXUBIS is used to prevent and control bleeding in people with hemophilia B. Your healthcare provider may give you RIXUBIS when you have surgery. RIXUBIS can reduce the number of bleeding episodes when used regularly (prophylaxis).

Who should not use RIXUBIS?

You should not use RIXUBIS if you

- are allergic to hamsters
- are allergic to any ingredients in RIXUBIS.

Tell your healthcare provider if you are pregnant or breastfeeding because RIXUBIS may not be right for you.

What should I tell my healthcare provider before using RIXUBIS?

You should tell your healthcare provider if you

- have or have had any medical problems
- take any medicines, including prescription and non-prescription medicines, such as over-the-counter medicines, supplements or herbal remedies
- have any allergies, including allergies to hamsters
- are breastfeeding. It is not known if RIXUBIS passes into your milk and if it can harm your baby
- are pregnant or planning to become pregnant. It is not known if RIXUBIS may harm your unborn baby
- have been told that you have inhibitors to factor IX (because RIXUBIS may not work for you).

What is the most important information I should know about RIXUBIS?

Allergic reactions have been reported with RIXUBIS. Stop using the product and call your healthcare provider or get emergency treatment right away if you get a rash or hives; rapid swelling of the skin or mucous membranes; itching; tightness of the throat; chest pain or tightness; wheezing; difficulty breathing; low blood pressure; lightheadedness; dizziness; nausea; vomiting; tingling, prickling, burning, or numbness of the skin; restlessness; or fainting.

Your body may form inhibitors to factor IX. An inhibitor is part of the body's defense system. If you form inhibitors, it may stop RIXUBIS from working properly. Consult with your healthcare provider to make sure you are carefully monitored with blood tests for the development of inhibitors to factor IX.

The use of factor IX containing products has been associated with the development of blood clots. Talk to your doctor about your risk for potential complications and whether RIXUBIS is right for you.

What are the possible side effects of RIXUBIS?

Some common side effects of RIXUBIS were unusual taste in the mouth, limb pain, and atypical blood test results. Tell your healthcare provider about any side effects that bother you or do not go away. These are not all the side effects possible with RIXUBIS. You can ask your healthcare provider for information that is written for healthcare professionals.

What else should I know about RIXUBIS?

Consult with your healthcare provider to make sure your factor IX activity blood levels are monitored so they are right for you.

You should be trained on how to do infusions by your healthcare provider or hemophilia treatment center. Many people with hemophilia B learn to infuse their RIXUBIS by themselves or with the help of a family member.

Call your healthcare provider right away if your bleeding does not stop after taking RIXUBIS.

Medicines are sometimes prescribed for purposes other than those listed here. Do not use RIXUBIS for a condition for which it is not prescribed. Do not share RIXUBIS with other people, even if they have the same symptoms that you have.

The risk information provided here is not comprehensive. To learn more, talk about RIXUBIS with your healthcare provider or pharmacist. The FDA-approved product labeling can be found at https://www.shirecontent.com/PI/PDFs/RIXUBIS_USA_ENG.pdf or by calling 1-877-825-3327.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

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MENTAL HEALTH: MYTHS AND FACTS

BY DEBBIE DE LA RIVA, LPC



“How come when people have mental damage, it is always an act of imagination? How come every organ in your body can get sick and you get sympathy, except for the brain?”

“You know the one thing you get with this disease, because this one comes with a package—you get a real sense of shame.”

— Ruby Wax

These quotes sum up some common present-day misconceptions about how we view mental illness. Basically many people tend to view mental and physical health in very different terms. When someone says they have diabetes or hemophilia, most people do not question whether the condition is “real” and generally do not feel it is the person’s fault or the condition is a result of a character flaw. These misconceptions play into shame and secrecy about mental health, which sometimes is just as debilitating as a physical condition itself.

The truth is mental illness shares many of the same components of a physical condition. There are biological and psychosocial factors as well as a genetic predisposition. There is a diagnosis, treatment options, and recovery is possible. The intent of this article is to dispel myths, replace them with knowledge and help create an environment where talking about mental illness is as normal as talking about bleeds.

MYTH: Mental health problems do not affect me.

FACT: One in five people are living with a mental health condition in any given year, and only 40% of them are receiving treatment. It is very likely that your life is being touched by someone with a mental health condition.

MYTH: Personality weakness or character flaws cause mental health problems. People can snap out of it if they try hard enough.

FACT: Mental health problems have nothing to do with being defective or lazy. Research has established that there are many biological factors such as brain chemistry, genes, and physical illness. Additionally, there are multiple psychosocial factors such as trauma, chronic stress, and a family history of mental illness.

MYTH: Getting help with mental health problems is a luxury. I wouldn’t be depressed and anxious if I had enough money to cover my living expenses.

FACT: While it is true that financial stress does wreak havoc on your emotions, it is not true that seeking solutions to relieve mental distress is a luxury. In fact, it is quite the opposite; it is a necessity. Here are some practical tips:

YOU ARE NOT YOUR CIRCUMSTANCE.

People with financial problems tend to think less of themselves, and this causes more internal stress.

USE POSITIVE SELF-TALK.

When stressed, it is easy to beat yourself up mentally. It is important that you talk to yourself like you would a friend going through a hard time.

TAKE TIME FOR YOU.

Spend a few minutes thinking about what would bring you a little bit of peace within your circumstances and make that a priority. Take 5 for a walk or to visit with someone who makes you laugh. It doesn’t solve the problem but it does provide a rest from the distress. Your body and mind will thank you.

Change the way you think about asking for help. Organizations like the Coalition for Hemophilia B and others have deliberately set aside funds because they know that life with a bleeding disorder can create some challenging problems. Your responsibility is to not wait until the circumstance is out of control and your options are limited. Their responsibility is to make smart choices on how they can use the funds to relieve financial stress on community members. Additionally, keep in mind that just like mental health conditions are not a result of a character flaw, neither is being low on funds. It is OK to reach out for help for both.

For information on resources for mental health information and care, visit ***Mental Health Matters Too*** at www.mentalhealthmatterstoo.com. If you would be interested in a mental health presentation at a chapter event, contact Debbie de la Riva, LPC at debbie@mhmtoo.com.

HEMOPHILIA MOM TURNED OHIO LEGISLATOR PROPOSES RARE DISEASE ADVISORY COUNCIL

BY GLENN MONES

In the United States, diseases that affect fewer than 200,000 people are considered rare. Many of the individuals affected face significant challenges in accessing affordable, quality healthcare.

Furthermore, because each group is so small, getting elected leaders and the public at large to care about their issues is particularly difficult. However, when you put all those groups together, they include 10 percent of all Americans with a substantial voice if they can manage to coordinate their message.



This idea led Ohio State Representative Randi Clites (D-Ravenna), along with her colleague Representative Tim Ginter (R-Salem) to sponsor a bipartisan bill creating a rare disease advisory council. The council would include up to two dozen patients, medical professionals, researchers, and state officials who will work together to identify and address some of the unique challenges facing families affected by rare diseases.

As the mother of a 17-year-old boy with hemophilia, Randi is well-known in the community, not only in Ohio

but around the country. Randi became a fierce advocate almost immediately after her son was born, attending and speaking at events like NHF's Washington Days and the Ohio hemophilia community's State Advocacy Days. Randi went on to leadership positions at her local chapter and eventually decided to enter politics as a means of further advancing her fight. On January 7, 2019, Randi Clites was sworn in as a Member of the Ohio House of Representatives.

Representative Tim Ginter, Randi's cosponsor for this legislation from across the aisle, is currently in his third term and is a strong advocate for families and children.

The bill will need to go through a committee process with the hopes of eventually reaching a floor vote before the whole legislature. There are currently similar councils in several states, and this process is being watched closely by advocates in several other states for possible replication. The Coalition for Hemophilia B will provide updates to this important story as they become available.



Kelly Maynard (left) listens to a question at a press conference with Rep. Tim Ginter (R-Salem), Rep. Randi Clites (D-Ravenna) and Charlene York of the Ohio Rare Action Network. Clites' 17 year old son has hemophilia, which affects about 1,200 Ohioans.



We're Listening



At Pfizer Hemophilia, we have always been deeply committed to you and to listening to what you have to say. Over the years, what you've shared with us has proven invaluable. The events we sponsor, the technology we develop, and the educational materials we create are all designed in response to the requests, needs, and desires of the hemophilia community.

We are grateful for having the chance to partner with you.

—Your Pfizer Hemophilia Team

TREATMENT NEWS

BY DR. DAVID CLARK

Bayer Back in Hemophilia B?

12/5/19 Bayer and Children's Hospital of Philadelphia (CHOP) have signed a three-year \$5 million research agreement to jointly develop oral, small-molecule drugs for hemophilia A and B. Bayer will have the option to exclusively license any promising results. No further details are available. [Bayer press release 12/5/19]



BioMarin Submits License Application for Hemophilia A Gene Therapy

11/21/19 and 12/23/19 BioMarin Pharmaceutical submitted license applications for their hemophilia A gene therapy treatment to the European Medicines Agency (EMA, the European version of FDA) on 11/21/19 and to FDA on 12/23/19. These are the first gene therapy applications for any type of hemophilia. Interestingly, BioMarin admits that their treatment might only last about eight years, not a lifetime. Patients in the earliest hemophilia B gene therapy studies are already past the eight-year mark without any significant decline in factor IX levels. The hemophilia B treatments currently in Phase III studies are expected to be ready for license applications in a year or so. [BioMarin press release 11/21/19]



Enzyre and Takeda Plan Home Clotting Test

12/5/19 Enzyre, a Dutch company, and Takeda are collaborating to develop a home clotting test for hemophilia and



other blood disorders. The device would allow patients to test their own clotting status in almost real-time, and to be able to share their results with their physician. This could potentially enable patients to optimize their treatment themselves and reduce doctor visits. [Enzyre press release 12/5/19]

Gene Therapy Investment Soars

11/27/19 Eleven pharmaceutical companies are planning to spend a combined \$2 billion on gene therapy manufacturing facilities, lead by Pfizer and Novartis. The trend in the pharmaceutical industry today is to outsource manufacturing to separate companies called CMOs (Contract Manufacturing Organizations). However, because gene therapy treatments are difficult to make, and CMOs have little capacity and capability for the novel processes, many manufacturers are bringing the products back in house. This is expected to save both time and cost. [Reuters Business News article, 11/27/19]

Volunteering for Gene Therapy Trials

11/19 The latest issue of Laurie Kelley's Parent Empowerment Newsletter (PEN) is focused on gene therapy and clinical studies. It provides extensive information on clinical studies in general and hemophilia gene therapy studies in particular, as a guide for patients thinking about participating in a study. [PEN, 28(4), November, 2019 at www.kelleycom.com]

RESEARCH UPDATE

BY DR. DAVID CLARK

Hemophilia B Carriers Have 3-Times The Risk of Postpartum Bleeding

A group of Swedish researchers has published a report on the risk of postpartum hemorrhage (bleeding after giving birth) in carriers of hemophilia A and B. The bottom line is that hemophilia B carriers, but not A carriers, have about a three-fold higher risk of excessive postpartum bleeding than the controls (women who are not carriers). Blood loss by hemophilia A carriers was not statistically different from the controls. The rate of caesarian deliveries was also not a factor. Excessive bleeding is defined as loss of 1000 milliliters (about a quart) or more of blood. One determinant of the difference may be that factor VIII levels increase significantly during the third trimester of pregnancy, while factor IX levels remain about the same. [Olsson et al., Haemophilia, Epub ahead of print, 11/19/19]



REPORTS FROM THE AMERICAN SOCIETY OF HEMATOLOGY (ASH) 61ST ANNUAL MEETING

December 7 - 10, 2019; Orlando, Florida

BY DR. DAVID CLARK

The annual ASH meeting is a showcase of the latest research and product development news in the world of hematology, including hemophilia. The following items are from research posters and presentations at the meeting. Copies of all of the abstracts (summaries) are available for free at <https://ash.confex.com/ash/2019/webprogram/start.html>.

uniQure Gene Therapy Update

12/8/19 uniQure is developing a gene therapy for hemophilia B. At ASH, they presented four years of follow-up data for their first-generation treatment, AMT-060 and an update on their second-generation AMT-061 that is currently in Phase IIb and III studies. AMT-061 replaces the wild-type (normal) factor IX gene in AMT-060 with a gene for the more active Padua variant of factor IX. AMT-060 will not be marketed, but the studies performed with it will be part of the basis for the license application for AMT-061. The ten patients treated with AMT-060 continue to show lasting factor IX expression and have been able to discontinue factor IX infusions with bleeding rates of zero. The three patients in the Phase IIb study of AMT-061 (generic name: etranacogene dezaparvovec) also continue to be bleed-free with factor IX levels of 31 - 50% of normal. Note that in uniQure's previous report, the numbers were 33 - 57%, so the levels might have dropped slightly. None of the patients required steroids for liver inflammation.

In the Phase III HOPE-B study of AMT-061, 62 patients have been enrolled, and after a six-month lead-in period, most have been treated. uniQure plans to present 52-week data in 2020. [ASH abstracts 2059 and 3348]

12/7/19 uniQure also studied the fate of the AAV viral vectors after treatment. All of the gene therapy products under development treat the patient with huge amounts of viral particles. For instance, uniQure's AMT-061 treatment uses 2×10^{13} vector particles per kg of body weight. For an average 80 kg (176 lb) patient, that is 1.6×10^{15} or 1,600,000,000,000,000 vector particles. Many of those particles end up not transducing liver cells, so there is a need to know what happens to the rest and whether they could cause any environmental risk or risk of transmission to another person. The excess viral vector particles mainly remain in the bloodstream, and are "shed" (cleared from the body) in semen, nasal secretions, feces, urine and saliva.

The results showed that it can take up to 16 months for the vectors to be cleared from most bodily fluids, but up to three years for the vector particles to be completely cleared from the blood. uniQure did not find any adverse safety or efficacy effects due to the vector particles persisting in bodily fluids. [ASH abstract 2062]

uniQure

Takeda Reports Animal Data for TAK-748 Gene Therapy



Thanks to its takeover of Shire, Takeda is one of the world's largest developers of drugs for rare diseases. However, because Shire put a hold on continuation of Baxter/Baxalta's gene therapy programs, Takeda is now behind in that area, but plans to catch up. They are developing second-generation gene therapy products for both hemophilia A and B. They do have an advantage in manufacturing, having inherited Baxalta's viral vector manufacturing facility. Takeda's hemophilia A treatment is currently in Phase I studies, and they expect to start Phase I studies for hemophilia B soon.

12/9/19 Takeda's gene therapy for hemophilia B, called TAK-748, is a second-generation treatment. It includes a stronger promoter to increase production of factor IX by the transduced (modified by the new gene) liver cells. (Genes have regulatory elements, including promoters, that control how much of the gene product is produced.) It also uses the Padua factor IX variant that has a higher clotting activity. In pre-clinical studies in mice and rhesus monkeys, they found dose-dependent (the factor IX level increases with increasing AAV vector dose) factor IX increases and no safety issues. However, in the monkeys, they saw a decrease in factor levels after four weeks and inhibitors against the Padua variant. [ASH abstract 4633]

12/9/19 At ASH, Takeda also presented studies on the effects of pre-existing antibodies against AAV vectors. They also showed that AAV8-directed antibodies could be removed from a patient's plasma using an immune adsorption column to permit re-administration of AAV8 vectors. [Takeda ASH abstracts 3349 and 5922]

Safety of AAV Treatment?

12/9/19 In the 1990s, gene therapy seemed like a slam dunk. NHF was looking for "a cure by the end of the century." Then a patient in a gene therapy clinical study died in the U.S., and two boys in a trial in France developed leukemia (neither study was for hemophilia). That shut everything down for years while researchers tried to figure out what went wrong.

The U.S. patient was treated with an adenovirus vector. The large number of virus particles apparently triggered his innate immune system, which reacted so strongly that

it killed him. The two French boys developed leukemia because the new gene they were given integrated itself into their chromosomes in places that turned on cancer genes. Clearly, gene therapy wasn't going to be as easy to perform as everyone had thought.

Adeno-associated virus (AAV), which is a different virus than adenovirus, seemed to be the answer. It did not seem to trigger the innate immune system so strongly, and its genes do not seem to integrate into the genes on the chromosomes. It also infects the liver, which is where factor IX is normally made. All of the current gene therapy treatments use AAV vectors to deliver their new gene.

However, further work has shown that AAV vectors can sometimes have their genes integrate into the other genes on the chromosomes, which could cause problems by either disrupting necessary genes or turning on genes, such as cancer genes, which should be turned off. A group of researchers looked at nine hemophilia A dogs that had been treated with an AAV vector delivering a new factor VIII gene and had been producing good factor VIII for ten years. Liver samples (biopsies) from the dogs were tested to see whether there was any evidence of gene integration - there was. This shows that a small number of the genes in AAV vectors can integrate into the genome on the chromosomes.

The dogs showed no evidence of cancer. However, around many of the liver cells were small groups of similarly transformed cells indicating that integration of the new gene had changed the cells and they were growing. Cancer is uncontrolled cell growth. While there was no evidence that these small groups of cells would eventually start growing rapidly, it does suggest that there is that possibility. Thus, even with AAV vectors, there is the possibility of integration and its resulting issues. This is something the gene therapy developers will need to watch. [ASH abstract 611]

Updates on Anticoagulant Inhibitors

Several companies presented updates for their treatments under development that inhibit anticoagulants in the clotting system as a way to improve clotting:

12/7-8/19 Novo Nordisk is developing concizumab, an inhibitor of tissue factor pathway inhibitor (TFPI), an anticoagulant. Concizumab is a once-daily subcutaneous product for treatment of hemophilia A and B, with or without inhibitors. In two Phase II studies, Novo showed that concizumab is safe and effective in hemophilia B inhibitor patients and in hemophilia A patients with or without inhibitors. A third study showed that inhibitor patients had an improved Health-Related Quality of Life (HRQoL) on concizumab compared to treatment with NovoSeven. [ASH abstracts 1139, 2417 and 2419]



12/8/19 Pfizer is developing marstacimab, another inhibitor of TFPI. Marstacimab is a once-weekly subcutaneous product for treatment of hemophilia A and B, with or without inhibitors. Pfizer reported pre-clinical data characterizing marstacimab both in vitro ("in glass" that is, in the lab) and in rabbits. They found that marstacimab has a longer half-life than several other anti-TFPI antibodies. Pfizer also studied AAV viral vector gene therapy with marstacimab in mice. The transduced mice express marstacimab to continuously inhibit TFPI and restore hemostasis (normal clotting). [ASH abstracts 2391 and 3357]



12/7/19 Sanofi is developing fitusiran, a drug that reduces expression of antithrombin, an anticoagulant. Fitusiran was originally invented by Alnylam in collaboration with Bioverativ, for treatment of hemophilia A or B with or without inhibitors. As part of Sanofi's ongoing Phase II study, they developed guidelines on how to treat breakthrough bleeds for patients on prophylactic fitusiran. They found that most bleeds can be successfully treated with factor or with bypassing agents NovoSeven or FEIBA. [ASH abstract 1138]



Updates on Activated Factor VII (FVIIa) Products

At ASH, several organizations reported on FVIIa products under development for treatment of patients with inhibitors.

12/8/19 Catalyst Biosciences is developing marzeptacog alfa (activated) (MarZAA) for treatment of hemophilia patients with inhibitors. MarZAA is a subcutaneous (SQ) variant FVIIa with a longer half-life and higher activity than normal FVIIa. At ASH, they presented data that suggests that SQ MarZAA could be used to quickly treat bleeds on-demand in all hemophilia patients. This could be a quicker, easier method for bleed treatment than intravenous clotting factors, for hemophilia patients with or without inhibitors. In mice, SQ MarZAA dosed one minute after injury significantly reduced blood loss from 635 µl in mice receiving placebo (a fake treatment) to 350 µl in the mice receiving MarZAA. Catalyst also showed that MarZAA gives comparable results to NovoSeven when spiked into hemophilia plasma with Hemlibra. That may be important for hemophilia A patients with inhibitors. [ASH abstracts 1112 and 2420]



12/9/19 A group of researchers from North Carolina has developed a variant FVIIa, called PC-FVIIa that does not bind to tissue factor (TF). Tissue factor from damaged cells starts the clotting process by activating factor VII. However, TF also binds to the activated factor VII and that TF-FVIIa complex starts an anticoagulant pathway to control the clotting process. Preventing binding of TF to PC-FVIIa, appears to correct the clotting deficiency in hemophilic plasma, at least in the lab (in vitro). The researchers plan to continue studies on PC-FVIIa as a

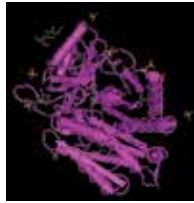
possible improvement over other FVIIa products. [ASH abstract 3623]

FVIIa and Joint Damage

12/7/19 A group from Texas is investigating the effects of FVIIa on joint damage in hemophilia. The TF-FVIIa complex described in the previous item binds to a protein on the walls of blood vessels called EPCR (endothelial cell protein C receptor) and activates the protein C anticoagulant pathway. This activation of protein C appears to delay the clotting that is needed to prevent damage to the joint. In studies in mice, interfering with the activation of protein C in the joints was shown to profoundly decrease joint damage. [ASH abstract 159]

TAFI and Joint Damage

12/7/19 A group of U.S. and Danish investigators has looked at the role of TAFI (thrombin activatable fibrinolysis inhibitor) in joint damage. Fibrinolysis (fibrin is the protein making up a clot and lysis means to cut) is the body's process for breaking down a clot. Fibrinolysis starts at almost the same time that clotting starts, but at first, it is overwhelmed by the clotting process, so a good clot is formed. Then, over the next week or so, it continues breaking down the clot as part of the healing process. However, in hemophilia patients, the clotting process is slower and can't always stay ahead of fibrinolysis, so weak clots are formed. TAFI inhibits the breakdown process. It is a control protein that makes sure the clot doesn't disappear too soon. The researchers showed that increasing the amount of TAFI in hemophilic mice decreases bleeding susceptibility and abnormal blood vessel growth in injured joints, leading to improved joint healing. [ASH abstract 158]



Low-Grade Inflammation in Hemophilia and EHL Products

12/7/19 A group of German researchers investigated whether hemophilia patients might suffer from prolonged low-grade inflammation, which can affect joint health, healing and age-related ailments such as heart disease. They showed that the impaired clotting in hemophilia leads to altered macrophage function. Macrophages are white blood cells, part of the immune system, which are involved in healing. The researchers looked at plasma from 48 hemophilia A and B subjects, mostly severe. They saw increased levels of two inflammatory molecules (markers) in the hemophilic plasma, but not in the normal controls (subjects without hemophilia). In addition, the amounts of the inflammatory molecules were proportional to the subjects' hemophilia severity (more severe had higher inflammation levels).

In a short clinical study, they looked at plasma from hemophilia B patients before and after switching from a standard half-life (SHL) to an extended half-life (EHL) factor IX. They found that with the SHL product, the patients had persistent low-level inflammation markers in their plasma, but after switching to the EHL product, they

saw the levels of the markers decrease to the levels seen in the normal controls. This implies that factor IX has roles in promoting healing and controlling inflammation, not just clotting. Thus EHL products not only are convenient treatments to restore clotting, but by maintaining a higher factor IX level for a longer time, they also may cause significant improvements in healing. [ASH abstract 1115]

Factor Switching May Not Induce Inhibitors

12/7/19 Hemophilia patients and treaters have always worried about whether switching from one factor product to another could cause a patient to develop an inhibitor. An inhibitor is an antibody that the immune system creates against infused factor VIII or IX, because it thinks that the protein is something foreign that shouldn't be in the body. About 30% of hemophilia A patients develop inhibitors, but only about 3 - 5% of Bs develop inhibitors. However, Bs that do develop inhibitors have a major problem. Infused factor IX does not work to stop or prevent bleeds, and they are susceptible to anaphylactic reactions (severe allergic reactions that can be deadly) and kidney damage.

The question whether switching factor products can cause inhibitor development has been controversial. Some anecdotal reports (personal stories, not scientific studies) as well as some studies have suggested that there may be an enhanced risk of inhibitor development, while other studies have not found a higher risk. The American Thrombosis and Hemostasis Network (ATHN), the organization that processes and stores the medical information for all of the Hemophilia Treatment Centers (HTCs), started sponsoring research studies a few years ago, and their first study, ATHN1, was to look at this question. Preliminary results were presented at ASH.

303 patients with either hemophilia A or B from 27 HTCs were enrolled. About one-quarter (74) were Bs and 82.3% were severe. 12.8% had a history of inhibitors but were inhibitor-free at the time of enrollment. Ages ranged from 10 - 32 years. Only three of the subjects were women. The most common reason for switching was to try an extended half-life (EHL) product, although 5.2% switched because their current product wasn't working well for them. They were all evaluated after at least 50 exposure days or 12 months.

None of the 303 subjects, including the 74 Bs, developed an inhibitor. This gives us confidence that inhibitor development is indeed a rare event for hemophilia B patients switching products. Based on these results, the investigators are currently planning a larger study. [ASH abstract 1114]

uniQure Study of Prophylaxis Costs and Outcomes

uniQure

12/7/19 uniQure, which is developing a gene therapy for hemophilia B, collaborated with a British economic research organization to study the costs and benefits of the current prophylactic treatment for hemophilia B. They looked at 44 hemophilia B patients who were on

prophylaxis and whose data were already available in the previous CHES study. The 20 patients on conventional factor IX products had an average annual usage of 287,141 IU, which cost \$397,491. The 24 patients on extended half-life (EHL) products had an annual usage of 232,278 IU at a cost of \$788,861. The annualized bleeding rate (ABR) for the group of 44 was 1.73 ± 1.39 . 18% had at least one target joint and 11% had a problem joint, a chronically damaged joint.

The results showed that only about 0.5% of their average yearly medical cost was due to hospitalizations; the rest was the cost of factor. The ABR and target/problem joints indicate that there are unmet needs, even for patients on prophylaxis. [ASH abstract 2118]

Studies on Cardiovascular Disease in Patients with Bleeding Disorders



Two groups of U.S. researchers looked at the incidence and outcomes for cardiovascular disease (CVD: heart disease, stroke, etc.) in hemophilia patients. Patients with hemophilia were once thought to be protected from CVD, but more recent studies with the aging population have shown that there is indeed a risk.

One group used the National Inpatient Sample (NIS) database and found a total of 20,854 hospitalizations between 2012 and 2015, out of a total of approximately 50 million, that also included a diagnosis of hemophilia. They found a significantly lower incidence of CVD (2.9% vs 5.5%) in the hemophilia group than in the controls (people without hemophilia). However, the mortality (death) rate was the same. Interestingly, they also found that the hemophilia patients had a lower average age, which could suggest that hemophilia patients might develop CVD at younger point. Apparently, hemophilia patients also have more adverse events during treatment of CVD. The authors advise further studies of prevention and treatment of CVD in hemophilia. [ASH abstract 2176]

Another group looked at the National Hospital Discharge Survey (NHDS) in a similar fashion to study the effects of hemophilia and von Willebrand Disease (vWD) on myocardial infarction (MI: heart attacks). They found 200,000 patients with these bleeding disorders who had been discharged from the hospital after MI between 2001 and 2010. The incidence of MI in hemophilia was 0.26% and 1.61% in vWD patients. Compared to patients without bleeding disorders, the hemophilia/vWD patients had shorter hospital stays and lower mortality, but a higher prevalence of complications. The complications included cardiogenic shock (the heart can't pump enough blood), pneumonia, respiratory failure and intubation (breathing assistance), while vWD patients also had a higher risk of acute kidney injury. These authors also recommend further study. [ASH abstract 1120]

Unexpected Bleeding in Patients on Extended Half-Life Products

12/8/19 A group of U.S. and Canadian researchers surveyed six HTCs to see if they had patients on extended half-life (EHL) factor IX products who had had bleeds even with factor levels above 10% or who seemed to require higher doses to prevent bleeding. Out of 67 patients on EHLs, they found 18 (27%) who had unexpected or poorly controlled bleeding. The numbers varied among the three EHL products suggesting that the issues may depend on their differing properties and not just on the patient's blood levels of factor IX. The authors speculate that this depends somewhat on each product's distribution to the extravascular space (everything outside the bloodstream). Unlike factor VIII, factor IX travels outside the bloodstream and binds to blood vessels and possibly other tissues in the body. The authors suggest the need for more robust measures than just factor levels for monitoring the clotting performance of EHL products. [ASH abstract 2407]

Need for Pharmacokinetic Studies in Patients

12/7/19 A group from Italy looked at the importance of performing pharmacokinetic (PK) studies in 29 patients with hemophilia (16 severe A, 5 moderate A, 6 severe B, 2 moderate B) treated at their HTC. Pharmacokinetics is the study of the distribution of a drug in the body. In hemophilia, it normally refers to the drop-off in factor level over time after an infusion. Every patient is different, but the traditional practice has been to just treat patients as though they were all "average." However, we are realizing that isn't good enough, especially in children who tend to have even more variability. This study found that by using PK studies, 32% of the patients could decrease their infusion frequency, 50% needed to increase it, and 18% could maintain their current levels. After these adjustments, they also saw a decrease in annualized bleeding rate (ABR) from a median of one (0 - 12) to a median of zero (0 - 5) in the group. [ASH abstract 1123]

Is Hemophilia A More Severe than Hemophilia B?

12/7/19 This question comes up periodically, and it's not just a matter of rooting for your "team." Factor VIII (deficient in hemophilia A) and factor IX (hemophilia B) act together in the same step of the clotting process. Both are necessary, so if either is missing, the clotting process stops at that step. A simple view would predict that hemophilia A and B should be identical then, but we know they are not. The body is not simple. In fact, the more we study it, the more amazingly complex we find it to be. Studying the unexpected differences can help us to tease out more of this complexity.



Using data from the HUGS study, a group of U.S. researchers looked at joint pain and range of motion (ROM), clinical and treatment outcomes, costs of care, and quality of life. They found no significant difference in quality of life, but both hemophilia groups scored lower than the general population. Otherwise, they did find

that As had a statistically worse (<0.05 level) difference in annualized bleed rate (ABR): median 17.0 for severe A adults compared to 6.7 for severe B adults. Mild/moderate As also had a higher ABR (medians 3.0 vs 0.7). As were also worse in self-reported joint pain and ROM and days missed from work. Interestingly, the median annualized total hemophilia-related medical costs were \$179,889 for Bs and \$317,961 for As. There was no significant difference in the numbers of adult As and Bs on prophylaxis, but for children, only 64% of Bs were on prophylaxis, compared with 84% of As.

According to these indications, hemophilia A could be considered more severe. Similar studies have shown similar results, so we have a good indication that there is a difference. This had led some people to suggest that we don't even need to treat Bs, but that's ridiculous. What this data actually shows is that we are doing a good job of treating Bs. What we need now, and what is much harder to do, is to determine why the differences exist. [ASH abstract 58]

SAVE THE DATE!



MARCH 5, 2020
ETERNAL SPIRIT AWARD GALA
 New York, NY



MARCH 18, 2020
LET'S PLAY IX
CHARITY GOLF EVENT
 Orlando, FL



MARCH 19-22, 2020
14TH ANNUAL SYMPOSIUM
 Orlando, FL



MAY 14-17, 2020
WOMEN'S SPRING RETREAT
 Orlando, FL



MAY 28-31, 2020
MEN'S SPRING RETREAT
 Orlando, FL



JUNE 9-14, 2020
GENERATION IX MENTORSHIP
 YMCA Camp Collins
 Gresham, OR



SEPTEMBER 23-27, 2020
GENERATION IX ADVOCACY
 YMCA Camp Collins
 Gresham, OR



JANUARY 4-10, 2021
GENERATION IX LEADERSHIP
 YMCA Camp Surf
 Imperial Beach, CA

**MARK
 YOUR
 CALENDAR!**

Dates for upcoming Meetings on the Road, the Beats Music Program, Retreats and Camp information coming soon!

Please check your emails, social media and website for updates!

"One of the most important things you can do on this earth is to let people know they are not alone."

— Shannon L. Alder



THE COALITION FOR HEMOPHILIA B PATIENT ASSISTANCE PROGRAM

The high cost of medical care is often a challenge for people with hemophilia B. Fortunately, insurance coverage, government programs and other forms of patient assistance cover much of that cost. Unfortunately, these programs do not cover the cost of non-medical emergencies, which may interfere with a family or individual's ability to deal with day-to-day life with a bleeding disorder. These emergencies may involve struggling to having enough resources for housing, food, transportation, or a range of other necessary and critical needs.

When these needs are not met, the health and well-being of the patient as well as the entire family can be negatively affected. Often, assisting a person in an immediate circumstance is all that's needed to keep the situation from spiraling out of control.

The Coalition for Hemophilia B deeply cares about families and individuals, and the urgent needs they may face. Several years ago, because of this and in order to live true to our mission statement, we established a patient assistance program for hemophilia B patients and families. We reintroduce our program as **BCares**.

BCares operates with funding generously donated by pharmaceutical manufacturers, homecare companies, business partners, and other interested supporters.

Those donating share our belief - in the case of an urgent situation, we can all do more to help. It is our obligation as a community to lend a hand and assist those in short-term, dire straits.

The Coalition for Hemophilia B is able to offer a limited amount of financial aid to our factor 9 community members who face a financial emergency. Those requesting assistance can submit a simple, confidential application. Each application will be reviewed thoroughly by a committee, who will determine and prioritize grants based on the request and level of urgency.

How you can help: We are exceedingly grateful to the donors whose charity and compassion have made this critical program possible. Please consider becoming involved by offering additional funds so we may help more hemophilia B patients through challenging times.

For more information, please contact:

Farrah Muratovic
farrahm@hemob.org
The Coalition for Hemophilia B

Tel: 212-520-8272
hemob.org



TAKE CONTROL TO A HIGH LEVEL WITH REBINYN® IN HEMOPHILIA B

Rebiny® elevates factor levels above your normal levels*

+94% Factor IX (FIX) levels achieved after an infusion[†]

83-hr average half-life (3.5 day) in adults[‡]

With a single dose of Rebiny® 40 IU/kg in adults with ≤2% FIX levels[§]



Clayton, 34 years old, is a pilot and enjoys hiking and camping in his spare time. Clayton lives with hemophilia B.

Achieve higher factor levels for longer

Compared with Alprolix[®], Rebiny® provides

4x

greater factor coverage

6x

higher factor levels at 7 days

Image of hemophilia patient shown is for illustrative purposes only.

[†]In a phase 3 study of adults, single dose pharmacokinetics were tested during the first Rebiny® 40 IU/kg dose in 6 adults.

[‡]Based upon a 2.34% increase in factor levels per IU/kg infused in adults.

[§]Based upon a phase 1 study comparing a single 50 IU/kg dose of Rebiny® to a single 50 IU/kg dose of extended half-life rFIXFc in 15 adults. To allow for direct comparison between products, all patients received the Alprolix standard 50 IU/kg dose.

INDICATIONS AND USAGE

What is Rebiny® Coagulation Factor IX (Recombinant), GlycoPEGylated?

Rebiny® is an injectable medicine used to replace clotting Factor IX that is missing in patients with hemophilia B. Rebiny® is used to treat and control bleeding in people with hemophilia B. Your healthcare provider may give you Rebiny® when you have surgery. Rebiny® is not used for routine prophylaxis or for immune tolerance therapy.

IMPORTANT SAFETY INFORMATION

What is the most important information I need to know about Rebiny®?

- Do not attempt to do an infusion yourself unless you have been taught how by your healthcare provider or hemophilia treatment center. Carefully follow your healthcare provider's instructions regarding the dose and schedule for infusing Rebiny®.

Who should not use Rebiny®?

Do not use Rebiny® if you:

- are allergic to Factor IX or any of the other ingredients of Rebiny®.
- are allergic to hamster proteins.

What should I tell my health care provider before using Rebiny®?

Tell your health care provider if you:

- have or have had any medical conditions.
- take any medicines, including non-prescription medicines and dietary supplements.
- are nursing, pregnant, or plan to become pregnant.
- have been told you have inhibitors to Factor IX.

How should I use Rebiny®?

- Rebiny® is given as an infusion into the vein.
- Call your healthcare provider right away if your bleeding does not stop after taking Rebiny®.
- Do not stop using Rebiny® without consulting your healthcare provider.

What are the possible side effects of Rebiny®?

- Common side effects include swelling, pain, rash or redness at the location of the infusion, and itching.
- Call your healthcare provider right away or get emergency treatment right away if you get any of the following signs of an allergic reaction: hives, chest tightness, wheezing, difficulty breathing, and/or swelling of the face.
- Tell your healthcare provider about any side effect that bothers you or that does not go away.
- Animals given repeat doses of Rebiny® showed Polyethylene Glycol (PEG) inside cells lining blood vessels in the choroid plexus, which makes the fluid that cushions the brain. The potential human implications of these animal tests are unknown.

Please see Brief Summary of Prescribing Information on the following page.

Rebiny® is a prescription medication.

You are encouraged to report negative side effects of prescription drugs to the FDA.

Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Learn more at rebiny.com and connect with your local HCL



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rebiny®

Coagulation Factor IX
(Recombinant), GlycoPEGylated

rebinyn[®]

Coagulation Factor IX (Recombinant), GlycoPEGylated

Brief Summary Information about: REBINYN[®] Coagulation Factor IX (Recombinant), GlycoPEGylated

Rx Only

This information is not comprehensive.

- Talk to your healthcare provider or pharmacist
- Visit www.novo-pi.com/REBINYN.pdf to obtain FDA-approved product labeling
- Call 1-844-REB-INYN

Read the Patient Product Information and the Instructions For Use that come with REBINYN[®] before you start taking this medicine and each time you get a refill. There may be new information.

This Patient Product Information does not take the place of talking with your healthcare provider about your medical condition or treatment. If you have questions about REBINYN[®] after reading this information, ask your healthcare provider.

What is the most important information I need to know about REBINYN[®]?

Do not attempt to do an infusion yourself unless you have been taught how by your healthcare provider or hemophilia treatment center.

You must carefully follow your healthcare provider's instructions regarding the dose and schedule for infusing REBINYN[®] so that your treatment will work best for you.

What is REBINYN[®]?

REBINYN[®] is an injectable medicine used to replace clotting Factor IX that is missing in patients with hemophilia B. Hemophilia B is an inherited bleeding disorder in all age groups that prevents blood from clotting normally.

REBINYN[®] is used to treat and control bleeding in people with hemophilia B.

Your healthcare provider may give you REBINYN[®] when you have surgery.

REBINYN[®] is not used for routine prophylaxis or for immune tolerance therapy.

Who should not use REBINYN[®]?

You should not use REBINYN[®] if you

- are allergic to Factor IX or any of the other ingredients of REBINYN[®]
- if you are allergic to hamster proteins

If you are not sure, talk to your healthcare provider before using this medicine.

Tell your healthcare provider if you are pregnant or nursing because REBINYN[®] might not be right for you.

What should I tell my healthcare provider before I use REBINYN[®]?

You should tell your healthcare provider if you

- Have or have had any medical conditions.
- Take any medicines, including non-prescription medicines and dietary supplements.
- Are nursing.
- Are pregnant or planning to become pregnant.
- Have been told that you have inhibitors to Factor IX.

How should I use REBINYN[®]?

Treatment with REBINYN[®] should be started by a healthcare provider who is experienced in the care of patients with hemophilia B.

REBINYN[®] is given as an infusion into the vein.

You may infuse REBINYN[®] at a hemophilia treatment center, at your healthcare provider's office or in your home. You should be trained on how to do infusions by your hemophilia treatment center or healthcare provider. Many people with hemophilia B learn to

infuse the medicine by themselves or with the help of a family member.

Your healthcare provider will tell you how much REBINYN[®] to use based on your weight, the severity of your hemophilia B, and where you are bleeding. Your dose will be calculated in international units, IU.

Call your healthcare provider right away if your bleeding does not stop after taking REBINYN[®].

If your bleeding is not adequately controlled, it could be due to the development of Factor IX inhibitors. This should be checked by your healthcare provider. You might need a higher dose of REBINYN[®] or even a different product to control bleeding. Do not increase the total dose of REBINYN[®] to control your bleeding without consulting your healthcare provider.

Use in children

REBINYN[®] can be used in children. Your healthcare provider will decide the dose of REBINYN[®] you will receive.

If you forget to use REBINYN[®]

If you forget a dose, infuse the missed dose when you discover the mistake. Do not infuse a double dose to make up for a forgotten dose. Proceed with the next infusions as scheduled and continue as advised by your healthcare provider.

If you stop using REBINYN[®]

Do not stop using REBINYN[®] without consulting your healthcare provider.

If you have any further questions on the use of this product, ask your healthcare provider.

What if I take too much REBINYN[®]?

Always take REBINYN[®] exactly as your healthcare provider has told you. You should check with your healthcare provider if you are not sure. If you infuse more REBINYN[®] than recommended, tell your healthcare provider as soon as possible.

What are the possible side effects of REBINYN[®]?

Common Side Effects Include:

- swelling, pain, rash or redness at the location of infusion
- itching

Other Possible Side Effects:

You could have an allergic reaction to coagulation Factor IX products. **Call your healthcare provider right away or get emergency treatment right away if you get any of the following signs of an allergic reaction:** hives, chest tightness, wheezing, difficulty breathing, and/or swelling of the face.

Your body can also make antibodies called "inhibitors" against REBINYN[®], which may stop REBINYN[®] from working properly. Your healthcare provider may need to test your blood for inhibitors from time to time.

You may be at an increased risk of forming blood clots in your body, especially if you have risk factors for developing blood clots. Call your healthcare provider if you have chest pain, difficulty breathing, leg tenderness or swelling.

Animals given repeat doses of REBINYN[®] showed Polyethylene Glycol (PEG) inside cells lining blood vessels in the choroid plexus, which makes the fluid that cushions the brain. The potential human implications of these animal tests are unknown.

These are not all of the possible side effects from REBINYN[®]. Ask your healthcare provider for more information. You are encouraged to report side effects to FDA at 1-800-FDA-1088.

Tell your healthcare provider about any side effect that bothers you or that does not go away.

What are the REBINYN[®] dosage strengths?

REBINYN[®] comes in three different dosage strengths. The actual number of international units (IU) of Factor IX in the vial will be imprinted on the label and on the box. The three different strengths are as follows:

Cap Color Indicator	Nominal Strength
Red	500 IU per vial
Green	1000 IU per vial
Yellow	2000 IU per vial

Always check the actual dosage strength printed on the label to make sure you are using the strength prescribed by your healthcare provider.

How should I store REBINYN[®]?

Prior to Reconstitution (mixing the dry powder in the vial with the diluent):

Store in original package in order to protect from light. Do not freeze REBINYN[®].

REBINYN[®] vials can be stored in the refrigerator (36-46°F [2°C-8°C]) for up to 24 months until the expiration date, or at room temperature (up to 86°F [30°C]) for a single period not more than 6 months.

If you choose to store REBINYN[®] at room temperature:

- Note the date that the product is removed from refrigeration on the box.
- The total time of storage at room temperature should not be more than 6 months. Do not return the product to the refrigerator.
- Do not use after 6 months from this date or the expiration date listed on the vial, whichever is earlier.

Do not use this medicine after the expiration date which is on the outer carton and the vial. The expiration date refers to the last day of that month.

After Reconstitution:

The reconstituted (the final product once the powder is mixed with the diluent) REBINYN[®] should appear clear without visible particles.

The reconstituted REBINYN[®] should be used immediately.

If you cannot use the reconstituted REBINYN[®] immediately, it should be used within 4 hours when stored at or below 86°F (30°C). Store the reconstituted product in the vial.

Keep this medicine out of the sight and out of reach of children.

What else should I know about REBINYN[®] and hemophilia B?

Medicines are sometimes prescribed for purposes other than those listed here. Do not use REBINYN[®] for a condition for which it is not prescribed. Do not share REBINYN[®] with other people, even if they have the same symptoms that you have.

More detailed information is available upon request.

Available by prescription only.

For more information about REBINYN[®], please call Novo Nordisk at 1-844-REB-INYN.

Revised: 11/2017

REBINYN[®] is a trademark of Novo Nordisk A/S.

For Patent Information, refer to: <http://novonordisk-us.com/patients/products/product-patents.html>

Manufactured by:

Novo Nordisk A/S

Novo Allé, DK-2880 Bagsværd, Denmark

For information about REBINYN[®] contact:

Novo Nordisk Inc.

800 Scudders Mill Road

Plainsboro, NJ 08536, USA

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Registration Open!



**REGISTER
ONLINE**

Go to –

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**Annual Symposium
March 19-22, 2020
Renaissance Orlando
at SeaWorld**

**THE COALITION FOR
HEMOPHILIA B**





Share
YOUR
Voice

YOUR
Input Is
Critical

Coming in January 2020 Coalition Membership Survey

Why a Survey?

- Our last comprehensive survey was more than 5 years ago.
- New developments demand that we take stock of the experiences, needs, and concerns of the members we serve.
- Your responses provide useful information to support our efforts to improve or sustain the programs we offer you and assist with future program planning.

Bonus!

Patients completing the survey can ask to be entered into a separate drawing to attend our 2020 Symposium in March in Orlando and receive 4 tickets to Universal or a theme park of your choice. For those who complete the survey but are unable to travel, we'll have a second lotto drawing you can opt into and we'll gift you with something of similar value. After completing the survey, please email Farrahm@hemob.org with your name, phone, and email preference to be entered (your survey responses are anonymous and are not in any way tied to the bonus drawings).

**All members will receive a survey in the mail.
Watch your mailboxes and inboxes! Survey is anonymous.**

PLEASE TAKE THE SURVEY!



FREE for individuals and families
with HEMOPHILIA B.
To join B contact administrators,
Rick Starks and Shad Tullledge at:
bconnected@hemob.org

THERE'S A NEW WAY

TO STAY CONNECTED TO

PEERS-FAMILIES-EXPERTS

PAST PROGRAMS FEATURED:

- » KIM MAUER, MD: PAIN MANAGEMENT
- » DONNIE AKERS, ESQ: LEGAL TOOLS ON THE ROAD TO LIFE WHILE KEEPING PUBLIC BENEFITS
- » DR. DAVID CLARK: NEW PRODUCTS IN DEVELOPMENT & GENE THERAPY
- » DEBBIE DE LA RIVA, LPC: MENTAL HEALTH & BLEEDING DISORDERS



Why B Connected?

New therapies are flooding the market. It's more important than ever that everyone in the Hemophilia B community has a way to:

- » Get critical information in a timely way.
- » Dispel false rumors immediately and get correct information from expert sources.
- » Stay engaged with the community virtually even if your hemophilia limits your mobility.
- » Ask questions and share experiences with other patients and caretakers.
- » Customize and control the content you want to receive notifications for.

contact: bconnected@hemob.com

PEER SUPPORT & ASK THE EXPERT GUESTS

Through B Connected you can also digitally join online **Ask the Expert** sessions – hour-long discussions on topics such as advocacy, depression, pain management, unaffected siblings, physical therapy and how to cut down on joint bleeds, nutrition and exercise, inhibitors, new family support, aging with hemophilia, and much more!

JOIN TODAY!

Hemophilia B Connected online discussion board is hosted on Slack and is 100% HIPAA compliant.





SCHOLARSHIP APPLICATION

THE COALITION FOR HEMOPHILIA B

2020 SCHOLARSHIP APPLICATION PROCESS NOW OPEN!

THE WILLIAM N. DROHAN SCHOLARSHIP

FOR STUDENTS WITH HEMOPHILIA B AND THEIR SIBLINGS

DEADLINE FEBRUARY 20, 2020

The 2020 application for the William N. Drohan Scholarship is now available!

The William N. Drohan Scholarship was created in memory of Dr. William N. Drohan who passed away in 2007. Dr. Drohan was a well-known microbiologist and educator who will long be remembered for his many contributions to science. He was a pioneer in using molecular biology to produce recombinant proteins and a visionary scientist who dedicated his life to improving the safety of blood and blood products.

This scholarship is for college and graduate students with hemophilia B and their siblings. Please visit our website www.hemob.org to download the application. The application includes eligibility information and instructions. Completed applications must be received by end of business day February 20, 2020 to be considered.

For questions, please contact Kim Phelan (212) 520-8272.



The Coalition for Hemophilia B

757 Third Avenue, 20th Floor; New York, New York 10017
Phone: 212-520-8272 Fax: 212-520-8501 contact@hemob.org

VISIT OUR SOCIAL MEDIA SITES:

Website: www.hemob.org

Facebook: www.facebook.com/HemophiliaB/

Twitter: <https://twitter.com/coalitionhemob>

Instagram: www.instagram.com/coalitionforhemophiliab



**For information, contact Kim Phelan
kimp@hemob.org or call 917-582-9077**