Jared Zimmerman was a typically active child for the first three years of his life. Shortly before his 4th birthday, he started to mention to his family that he “felt dizzy” when playing with his siblings and friends. When a dizzy episode would hit, he learned to lay down and it would pass in time.

The infrequent dizzy episode soon increased to about twice per week. He kept having episodes for several months until he suddenly was experiencing them two to three times per day. His parents, Ella and Timothy Zimmerman, knew something wasn’t quite right and took Jared to the Compassion Parochial Clinic in Mifflinburg for examination.

Stacy Chubb, CRNP immediately ordered an MRI for the next day, which did not show anything unusual. Around this time, Jared was now experiencing about six to seven episodes a day and started displaying more prominent seizures with stiffening and shaking. Stacy referred the family to the Clinic for Special Children where he was seen by Dr. Vincent Carson, Pediatric Neurologist.

Dr. Carson started Jared on a seizure medication called oxcarbazepine. Within the first days of starting the medication, the Zimmerman family noticed Jared was experiencing shorter seizures. Dr. Carson met with the family a month later at an outreach clinic in Mifflinburg organized by the Clinic.

“Definitely appreciate that the Clinic does outreach in Mifflinburg. It’s much easier to access for us,” explains Ella.

By that time, Jared was already completely seizure-free. “Our time meeting with Dr. Carson was very positive,” says Ella. Dr. Carson ordered genetic testing to determine that Jared had a misspelling in the **DEPDC5** gene, which was causing his seizures.

The **DEPDC5** gene provides instructions for making the **DEPDC5** protein which is important for regulating the mTOR pathway. The mTOR pathway is important for the growth and development of nerve cells. Therefore, changes in **DEPDC5** can lead to brain malformations and seizures. Interestingly, people with changes in **DEPDC5** only sometimes experience seizures.

“When we received the diagnosis of **DEPDC5**-related epilepsy, we were glad to know what we were dealing with. We have extended family that have the **DEPDC5** genetic variant, so the diagnosis made sense,” explains Ella. Today, Jared has been seizure-free for almost a year. He loves to draw and play outside in the woods.

“We appreciate the research on genetic disorders that the Clinic does. It’s why we chose to go to the Clinic because we trusted that they knew a lot about **DEPDC5**,” says Ella. “If you have epilepsy in your family, it would be a good idea to get genetic testing so you know if your children may have it.”

Thank you to the Zimmerman family for sharing their story and we are inspired by Jared’s progress!
Staff News
Christine Hendrickson, RNC

We are celebrating a milestone work anniversary this summer for Christine Hendrickson, RNC, Nurse at the Clinic! Christine will be marking 20 years (!) with the Clinic on June 23rd.

Christine joined the Clinic on June 23, 2002. We are so thankful to Christine for her unwavering dedication to the families served by the Clinic.

Congratulations on your milestone anniversary, Christine!

Emilienne Bolettieri

Congratulations to Emilienne (Emi), Research Associate at the Clinic, for being accepted to medical school at the Penn State College of Medicine!

Emi will be starting her medical school journey in late summer and will be departing her position at the Clinic to pursue her medical degree. We wish Emi the best of luck and look forward to calling her Dr. Bolettieri one day soon!

Susan Walther, MS, CGC

We’re excited to welcome Susan to the Clinic! Susan will work as a Genetic Counselor alongside Amy Albright, MS, CGC.

In this role, she will assist in new patient triage and intake, provide genetic counseling services, and manage logistics of the molecular diagnostics service.

Susan brings a wealth of experience in genetic counseling, research, patient advocacy, and sales, and has collaborated on a number of peer-reviewed publications.

In her free time, she enjoys traveling and trying out new recipes!

Important COVID-19 Updates
Vaccine

We have reviewed the available data from studies on the authorized COVID-19 vaccines, which show the vaccines are both effective and safe.

The COVID-19 vaccine is now available for individuals who are 5 years old or older. Please contact your doctor with questions regarding the COVID-19 vaccine. If you are interested in receiving the COVID-19 vaccine, please call the national vaccine hotline at 1-800-232-0233 or visit Vaccines.gov for more information.

For individuals near Lancaster County, you can contact the WellSpan Health COVID-19 hotline at 855-851-3641.

Office Operations

We have updated our mask guidance for staff and visitors to our clinic facility. Since community level COVID transmission is currently low in Lancaster, masks are optional for staff members and visitors who are asymptomatic. If staff or any visitors to the Clinic have any symptoms or signs of illness, they will be asked to mask in our facility. Going forward, we will continue to monitor the community level of COVID transmission and will adjust our guidance as necessary.

We are continuing to ask that if you have a scheduled appointment and are feeling unwell, please give us a call to let us know before your appointment at 717-687-9407. If you have any questions before your visit, please contact us at 717-687-9407.

Save the date!
Community Benefit Dinner

Thursday, October 13th
4:00 p.m. - 7:30 p.m.
at the Martindale Fellowship Center

The annual Community Benefit Dinner is slated for Thursday, October 13th from 4:00 p.m. until 7:30 p.m. at the Martindale Fellowship Center (352 Martindale Road, Ephrata, PA 17522)!

Meals will include a variety of delicious food like oysters, shrimp, ham, cole slaw, green beans, fresh fruit cup, rolls, and a whoopie pie! The cost of the dinner is by donation only. All proceeds will benefit the Clinic for Special Children’s mission.

We hope to see you there for a fun night of delicious food and great fellowship all in support of the Clinic!

2022 Mugs for Sale

It’s the latest mug in our Clinic for Special Children mug collection! Our 2022 Clinic for Special Children mugs are available for purchase today!

Each mug is just $10 and available for purchase on our online web shop (www.ClinicforSpecialChildren.org/store), in person at the Clinic, at our 2022 events, or by giving us a call at 717-687-9407.

This year’s 14 oz., individually crafted mug features a red glaze design with a black interior. Due to its individual crafting, variances in glaze color create a uniquely custom mug. The mug also features a CSC icon design – the CSC sign that greets all of our visitors at the end of our lane!

Matching Gift Opportunity!

We are excited to share our first giving match of 2022, a 1-for-1 match up to $20,000. The match is available thanks to the continued generosity of a local family foundation and is for wherever the funds are needed the most.

To help us fulfill the matching funds, please give via the included giving envelope in this newsletter. The first $20,000 in funds received will be matched dollar-for-dollar. We thank you for your support of the Clinic’s mission!
5th Annual
Clinic for Special Children®

5K
Saturday, September 17, 2022
9:00 a.m. - 11:00 a.m.
at the Clinic for Special Children

$30 (by Aug. 19th, includes t-shirt)
$35 (after Aug. 19th, t-shirt while supplies last)
$10 Kid’s color fun run (ages 10 & under)

KID’S COLOR FUN RUN
BAKE SALE
RUNNER’S SNACKS

Register for the Clinic for Special Children 5k!
You can sign-up by:
1) Filling out the application included in this newsletter
   OR
2) Visiting www.ClinicforSpecialChildren.org/events/5k
   OR
3) Calling the Clinic at 717-687-9407
   OR
4) Scanning the QR code

ClinicalforSpecialChildren.org

Remaining 2022 Benefit Auctions

7:00 a.m. | Breakfast
8:30 a.m. | Auctions Begin
CSC Remarks and Quilts to Follow

Saturday, July 9th
Shiloh, OH Auction
Blooming Grove Auction Inc.
1091 Free Road
Shiloh, OH 44878
Contact: Michael Newswanger | 419-896-2184

Saturday, August 20th
Memphis, MO Auction
Food & Fellowship | Aug. 19 | 5 - 8 p.m.
Ed Good Family Farm
10507 County Road 813
Memphis, MO 63555
Contact: Harlan Burkholder | 660-341-4113

Saturday, September 10th
Blair County Auction
Rib Dinner & Auction Preview | Sept. 9 | 4:30 p.m.
Morrison’s Cove Produce
4826 Woodbury Pike
Roaring Spring, PA 16673
Contact: Mervin Martin | 814-793-3529

Saturday, October 1st
Finger Lakes Auction
Ontario Produce Auction
4860 Yautzy Road
Stanley, NY 14561
Contact: David Fox | 585-526-5913
Stephen Hertzler | 607-592-6861

NEW!
Events are subject to change due to severe weather conditions, restrictions, or unforeseen circumstances.
At the Clinic, there are rare genetic disorders that can cause seizure activity in patients. Below, our genetic counseling team describes several of many disorders that we commonly see in the Plain community. Remember, seizures can be life threatening. If you or someone in your family is experiencing seizures, make an appointment with your physician to learn more.

**NPRL3**

Changes in the NPRL3 gene can impact development of the brain. One particular misspelling in the NPRL3 gene is especially common in the Mennonite community and is believed to have first occurred in a single member of the community in 1727. NPRL3-related epilepsy is inherited in an autosomal dominant pattern, meaning that someone can have symptoms of the condition even if just one copy of the NPRL3 gene is not working properly. A person with NPRL3-related epilepsy can have an affected child regardless of their spouse’s NPRL3 status. However, not everyone with the misspelling in the NPRL3 gene will have seizures; a phenomenon known as reduced penetrance.

A recent study on the NPRL3 variant seen in the Mennonite community found that about 30% of people with the genetic misspelling experienced seizures, while the rest did not. The study also found that the average age of seizure onset in NPRL3-related epilepsy is just five years old, ranging from infancy to adulthood. The severity of seizures and location of seizure–onset can vary between individuals with the NPRL3 variant, even among members of the same family. For example, one person with NPRL3-related epilepsy may have seizures several times each day and require multiple medications, whereas another may have only one or two seizures with fever during childhood. At this time, it is not fully understood why different people with the same NPRL3 variant can have such variable symptoms.

People with NPRL3-related epilepsy who have recurrent seizures are treated with anti–seizure medications to prevent seizures from occurring. For those who have seizures that are resistant to medications, other treatments such as epilepsy surgery may be effective.

**STRADA deficiency**

STRADA deficiency, also known as PMSE syndrome (Polyhydramnios, Megalencephaly, Symptomatic Epilepsy) or “Pretzel syndrome” is another genetic cause of epilepsy and developmental delay seen in the Mennonite community. The STRADA gene contains important instructions for organization of the developing brain cells. STRADA deficiency is inherited in an autosomal recessive pattern and can only affect a person if they inherit two non-working copies of the STRADA gene; one from each healthy carrier parent. Carriers of STRADA deficiency do not have symptoms of the condition, though mothers pregnant with a child who has STRADA deficiency may notice more amniotic fluid during their pregnancy (polyhydramnios).

The brain is the main part of the body affected in STRADA deficiency. Affected children have a larger brain size (megalencephaly) and have disorganized connections between brain cells. As a result, they have seizures, low muscle tone, and significant developmental delay. Seizures typically start around four months of age and tend to get more severe as a child gets older. In some cases, other parts of the body, such as the heart and kidneys, can be affected. There is no cure for STRADA deficiency. Children and adults with STRADA deficiency require treatment with anti–seizure medications to prevent seizures from occurring.

**CASPR2 deficiency**

CASPR2 deficiency, also known as Cortical Dysplasia Focal Epilepsy syndrome, is a common cause of seizures and developmental delay in the Amish community. It is frequently referred to as “CASPR2” by families. A misspelling in the CNTNAP2 gene results in deficiency of the CASPR2 protein. The condition is inherited in an autosomal recessive pattern, meaning that a child diagnosed with CASPR2 deficiency inherited both copies of the CNTNAP2 gene containing instructional misspellings; one from each healthy carrier parent.

The features that develop due to CASPR2 deficiency include cortical dysplasia (failure of brain cells to migrate to their proper location during brain development), focal seizures, and relative macrocephaly (large head size). Focal seizures typically begin between one to two years of age, after which speech delay, hyperactivity, aggressive behavior, and intellectual disability develop in all affected children. An MRI scan of the brain can identify the areas of cortical dysplasia.

There is no cure for CASPR2 deficiency. Children and adults with CASPR2 deficiency require treatment with anti–seizure medications to prevent seizures from occurring. Many also require medications to help with behavioral issues.

**GM3 synthase deficiency**

GM3 synthase is an important enzyme for making gangliosides, which are found on the surface of all cells. In fact, gangliosides are abundant in the nervous system and are critical for proper brain development and function. GM3 synthase deficiency is a disorder of ganglioside biosynthesis that is commonly present in the Amish community. It is caused by misspellings in the ST3GAL5 gene, which encodes GM3 synthase. The condition is inherited in an autosomal recessive pattern, meaning that the child diagnosed with GM3 synthase deficiency inherited both copies of the ST3GAL5 gene containing instructional misspellings; one from each healthy carrier parent.

Symptoms of GM3 synthase deficiency develop within the first weeks of life and include difficulty feeding, irritability, vomiting, and seizures. Vision and hearing loss and developmental delay occur with time. Other names that are used to describe GM3 synthase deficiency are ‘Amish infantile epilepsy syndrome’ and ‘salt & pepper syndrome’ due to freckle–like patches of light and dark skin.

There is no cure for GM3 synthase deficiency. Treatment is focused on relieving distressing symptoms of the condition, and may include nutritional/feeding support and anti–seizure medications to lessen the severity of the seizures.
What is a seizure?
A seizure is an electrical storm in the brain caused by excessive firing of brain cells. A seizure may manifest as changes in consciousness or behavior for a short time, abnormal sensations, and/or involuntary movements of the body. Seizures can be life threatening and are a serious medical problem. Seizures may be provoked by another medical condition (such as low blood sugar or head trauma). Alternatively, seizures may be unprovoked as is the case with epilepsy.

Seizures can be divided into two groups: generalized seizures and focal seizures. Generalized seizures appear to involve both sides of the brain simultaneously and may present as stiffening of the body with rhythmic jerking of all extremities (tonic clonic seizure) or brief staring episodes (absence seizures). Focal seizures start in one part of the brain and may spread to involve other areas, often manifesting with staring, eye deviation, stiffening/rhythmic jerking on one side of the body, and/or lip smacking. The location of focal seizure onset determines the seizure characteristics.

What is epilepsy?
Epilepsy is a disorder of the brain, which results in recurrent unprovoked seizures. A person is said to have epilepsy if they have two or more unprovoked seizures or one unprovoked seizure with a high risk for more based on additional studies. There are many causes of epilepsy ranging from acquired causes, such as brain injury, to genetic causes, which account for about half of all cases of epilepsy.

How are seizures diagnosed?
An electroencephalogram (EEG) is used to look at the electrical activity of the brain (brain waves). During a seizure, there is abnormal electrical activity in the brain, which can be seen on an EEG. When there is concern for seizure activity, it is common to get an EEG. An EEG can help determine if seizures are generalized or focal, which is important for seizure management. It is also common to get head imaging (CT scan or MRI) to look for abnormalities, such as brain bleed, brain malformation, stroke, or brain tumor. If a genetic cause is suspected, genetic testing may be useful to look for genetic changes that are known to cause seizures.

How is epilepsy treated?
Since patients with epilepsy are at a higher risk to have more seizures, it is important to start treatment for seizures as soon as possible. Treatment options for epilepsy include seizure medications, vagal nerve stimulator, ketogenic diet, and epilepsy surgery. The goal of epilepsy treatment is “no seizures, no side effects”. Seizure characteristics, such as age when seizures first start, what the seizures look like, and changes on EEG and MRI, can help physicians choose the best medication for each patient. In addition, knowing the underlying cause of epilepsy can be very helpful for seizure management, especially with genetic disorders. Research is continuously advancing to identify new and effective treatments for epilepsy.

For more information on seizures or epilepsy, please visit the Epilepsy Foundation website at www.epilepsy.com.
How benefit auctions support the Clinic
Join us at one of our remaining auctions!

If you’ve been to one of the Clinic’s benefit auctions before, you’re familiar with the smell of freshly baked goods and barbecue chicken, the sound of auctioneers asking the crowd for a higher bid, and the feeling of community coming together to support an important cause. Not only are the auction days great fun for everyone, they provide vital funds and are a significant source of revenue for the Clinic for Special Children each year.

The annual benefit auctions, along with other fundraisers, contributions, and grants, made up 61% of the Clinic’s revenue in fiscal year 2021. In recent years the six auctions together raised over $1 million each year – an amazing testament to the power of the community’s continued support of the Clinic’s mission. All of this is only possible by the auction committees, made up of volunteers, that organize and put on their local auctions each year. In addition to the committee, countless volunteers graciously give their time to bake, solicit donations, organize food stands, recruit volunteers, cook, and much, much more to ensure that the auction days run as smoothly as possible. Many of the volunteers at the auctions have personal stories of how the Clinic has impacted their life directly and they feel deeply moved by the mission of the organization.

If you aren’t familiar with the auctions, each event includes a variety of items available for bid including furniture, plants, tools, gift baskets, farm-related items, gift cards, quilts, lawn furniture, household items, and more! Not only is there a great variety of items available for purchase, but delicious food options as well. Many of the benefit auctions feature chicken bbq, fresh baked goods, ice cream, salad and fruit, donuts, pretzels, and more.

While our 2022 benefit auction season is already underway, we invite you to join us for a day of fellowship and fun at one of our remaining benefit auctions. More information can be found on page 3 of this newsletter or at our auctions website (www.ClinicAuctions.org). Each year we are continuously in awe of the effort of the community in putting on the benefit auctions, and are deeply grateful to everyone that volunteers, attends, or in any other way supports the annual benefit auctions for the Clinic.
Meet our New Genetic Counselors

Highlighting our new genetic counselors that help families everyday at the Clinic for Special Children!

Amy Albright, MS, CGC

Amy joined the Clinic in 2021 and interned at the Clinic in her second year of graduate school. She graduated from Thomas Jefferson University with her Master of Science degree in Human Genetics and Genetic Counseling.

Why did you choose to study Genetic Counseling?
When my mother was pregnant with me, she met with a Genetic Counselor to discuss the likelihood for a genetic condition and ultimately decided to have an amniocentesis. While this testing returned negative results, my mom spoke so highly of her experience and the support she felt through her decision. In college I was inspired to reach out to local genetic counselors to learn more about their work. I met some of the most amazing genetic counselors at a Maternal Fetal Medicine office in York, PA and fell in love with the field!

What drew you to apply to the Clinic for Special Children?
I grew up in Lancaster and always knew I wanted to return to the area after finishing school. When I was in my final year of graduate training to become a genetic counselor, I was fortunate enough to have a rotation at the Clinic and study the Plain Insight Panel™ for my thesis project! After working with the lovely staff and families here, I was so excited to apply!

What’s something that you enjoy most about your job?
That’s a tough one since there are so many awesome things about being a genetic counselor here, but I especially love helping to empower patients and their families through education. It is so important to be able to advocate for your/your children’s health, especially in the context of a rare genetic diagnosis that may be unfamiliar to many people. Providing families with the information and tools to advocate for themselves is so very rewarding. I also love the connections that I’m able to form with families, and that I get to continue to work with them as their families grow. Lastly, I love that there are no two identical days at the Clinic – every day I learn something new!

Tell us a little bit more about yourself!
I love cooking, reading, working on any type of DIY project, and spending time with my two cats. My favorite place to travel would have to be anywhere with a beach – I love to swim!

Susan Walther, MS, CGC

Susan joined the Clinic team in 2022. She brings experience in genetic counseling, research, patient advocacy, and sales. She graduated from Alvernia University with her Master of Science degree in Genetic Counseling.

Why did you choose to study Genetic Counseling?
I was working as a lab technician in an academic research lab in 1989. I saw an announcement about the field of genetic counseling, and I thought that a job where I could apply my genetic knowledge in a healthcare setting would be interesting and challenging. I carried the announcement with me for 10 years until a move placed my family within three miles of a university with a genetic counseling program. I applied, was accepted, and my new career choice turned out to be quite a rewarding decision.

What is something that you enjoy most about your job?
I enjoy speaking with families to learn about their concerns for their children and then guiding them through decision-making when genetic testing might provide a diagnostic answer. Also, I thoroughly enjoy working with my colleagues at the Clinic.

What is a typical day like for you at the Clinic?
I see new patients with our physicians to determine if genetic testing is recommended to provide insight to the patient’s clinical symptoms. This process involves explaining the process of genetic testing, which includes education and blood draw, followed by ordering the test, obtaining the result, and likely researching the genetic findings as to their implications for contributing to the patient’s clinical symptoms. I review results from Plain Insight Panel™ (PIP) testing with couples who usually have the test ordered to determine genetic inheritance risks to their children. Also I provide consultation to outside clinicians who call into the Clinic to discuss their patient cases.

Tell us a little more about yourself!
My husband, Tom, and I have two sons who are now adults living in St. Louis and Manhattan. Our main pastime for many years was watching our sons play ice hockey and baseball. Now that they are older, we have enjoyed traveling as a way to spend time together as a family. We have a trip planned for Italy in the fall.
The Clinic’s Mission
“"To serve children and adults who suffer from genetic and other complex medical disorders by providing comprehensive medical, laboratory, and consultative services, and by increasing and disseminating knowledge of science and medicine.”"