HEREDITARY NEUROPATHY FOUNDATION

SPRING 2022

cmtupdate

"WHEN PATIENT REGISTRIES GO VISUAL" – HNF'S CMT MOBILE APP FEATURED AT MDA'S CLINICAL & SCIENTIFIC CONFERENCE

Pg. 2

Pharnext Announces On-Schedule Completion of Patient Enrollment

Pg. 4

CMT UPDATE
SPRING 2022

Allison T. Moore
Founder and CEO
Hereditary Neuropathy Foundation

Dear Friends,

I am so proud of the work we are doing as a team at HNF to support people living with CMT and their families. In this edition of our *CMT Update*, we would like to share a lot of our efforts with you and share how you, as people living with CMT, have influenced and driven so much of this work. From the development and beta testing of the CMT Mobile App, to the successful recruitment goals met for the Pharnext PXT3003 PREMIER clinical trial and insights from the CMT&Me mobile app, to our new collaboration with Rarebase to quickly test existing drugs against specific CMT types, and addressing previously unrecognized correlations between CMT subtype and specific symptoms…HNF is listening to YOU!

With the invaluable information gained from the years of listening to your patient voice – through HNF's Patient-Centered CMT Summits™, the Externally-led Patient Focused Drug Development Meeting for the FDA hosted by HNF, our Inspire on-line discussion and support community, our GRIN patient registry, all of our social media platforms and direct conversations with you – HNF is engaging in collaborations with industry leaders that are interested in designing clinical trials for CMT with the goal of implementing **your** voices and **your** priorities in treatment development.

Most recently, I was honored to present "When Patient Registries Go Visual: HNF's CMT Mobile App" in the opening session of the MDA's Clinical and Scientific conference. As a result of the years of "listening", HNF developed the app to capture the challenges of daily living with CMT visually and @home. The ability to walk unaided, without the fear of falling, is consistently the #1 concern. With the CMT Mobile App, you are empowered to capture videos of your gait, in order to not only tell, but SHOW how challenging walking can be. This can be used for surgical consultation, orthotics evaluation, or physical therapy assessment. And in the future, with the application of AI, the app may be used to objectively show improvement in your gait during a clinical trial. This is just one example of how the CMT Mobile App will change how CMT treatments are developed – and the 800+ attendees at the conference saw our vision, as well! If you'd like to become a beta tester for the CMT Mobile App, you can read more about it in our Feature Article and then please email registrycoordinator@hnf-cure.org for more information.

We could not do the important work we are doing without YOU – the people living day in and day out with CMT. We appreciate and rely on your continued financial support to advance research for all types of CMT and to support you and create content for summits and webinars. We humbly ask for your donations, employer matches, Facebook birthday fundraisers, Team CMT activities, amazon smile, etc. And, for your participation in research – Patient-centered CMT Summits™, GRIN registry, Rarebase sample collection, CMT Mobile App beta testing, etc. If you aren't doing any of these things, please consider participating in one way or another TODAY.

I hope you'll find this newsletter useful and be inspired by HNF's accomplishments. I'd be happy to chat with you about how you can participate, just email me at allison@hnf-cure.org. I look forward to hearing from you!

Best,

Allison T. Moore

WHEN PATIENT REGISTRIES GO VISUAL– HNF'S CMT MOBILE APP FEATURED AT MDA'S CLINICAL & SCIENTIFIC CONFERENCE

On Monday, March 14, 2022 Allison Moore, Founder/CEO of HNF presented **HNF's NEW CMT Mobile App** during the opening session of the **MDA Clinical & Scientific Conference: *"The Latest Developments Across the NMD Registry Data Landscape"***. The focus of the session was the use of real-world data in neuromuscular disease and its application to therapy development.

Allison introduced the CMT Mobile App and shared her vision of the role it will play in capturing Activities of Daily Living (ADLs) @home and improving outcomes by identifying clinical endpoints for future drug trials.

The CMT Mobile App was developed to remove the barriers that burden patients.

What delays diagnosis, patient care and research?

1. Lack of access to expert care – Travel, cost, language, COVID
2. Lack of Natural History Studies – Patient fatigue, retention & recruitment
3. Existing Methods – Not capturing real-word data (@home)

The CMT Mobile App Solution

What value do we aim to provide?

1. Empower patients to show & tell the daily challenges of CMT & provide access to expert care @home in the post-pandemic era
2. Provide investigators access to de-identified natural history study data

The CMT Mobile App Protocol – Applicable for people with ALL types of CMT

Ages 8-65 (weight-bearing)

Instruments & Measures

- CMTPedS
- Time Up & Go
- Hand Tremors & Dexterity
- Foot Calculator (arch & deformities)

Patient Reported Surveys

- ONLS
- pCMTQoL

Beta-Testing

- All types of CMT
- Developing AI
- Providing tech support
- Comparing scoring methods

What's next?

- Beta testing – Added check-ins with equipment, optional in-office check-in
- Steering Committee developing methodology of research study to publish preliminary results in the near future
- Optimizing methodology & validation

BETA-TESTERS & PARTNERS NEEDED!

Please reach out to allison@hnf-cure.org if you would like to become a beta-tester or participate in this study.

TRIAD
THERAPEUTIC RESEARCH IN ACCELERATED DISCOVERY

BREAKING NEWS

PHAR NEXT

Pharnext Announces On-Schedule Completion of Patient Enrollment in its Pivotal Phase III Trial of PXT3003, the PREMIER Trial, for the Treatment of Charcot-Marie-Tooth Disease Type 1A (CMT1A)

Pharnext, an advanced late-clinical stage biopharmaceutical company and one of HNF Therapeutic Research In Accelerated Discovery (TRIAD) partners, has just announced its PREMIER trial for CMT1A has reached and has exceeded its enrollment goal of 350 randomized patients at 52 centers across the US, Canada, Europe and Israel for their novel therapeutic - PXT3003 - in Phase III clinical trial to treat CMT1A, the most common type of CMT. The top-line data results are expected to be announced in Q4 2023.

If approved, this will be the first therapeutic to treat any type of CMT.

The PREMIER trial is an international, randomized, double-blind, two-arm placebo-controlled, pivotal Phase III study, where the primary objective is to evaluate the efficacy and safety of PXT3003 versus placebo in mild-to-moderate CMT1A patients, over a 15-month period. The dose of PXT3003 tested in the PREMIER trial corresponds to the high dose ('HD') tested in the prior Phase III clinical study, the PLEO-CMT trial, and the ongoing open-label extension Phase III study, the PLEOCMT-FU trial. As agreed with regulatory agencies, the primary efficacy endpoint will be the Overall Neuropathy Limitations Scale ('ONLS') which measures functional motor disability.

Allison Moore, founder & CEO of HNF ***congratulates Pharnext on reaching this major milestone and continues to applaud Pharnext*** *for their innovation and dedication to supporting patient focused research with their CMT&Me app and the importance of documenting the impact CMT has on quality of life.*

The CMT&Me real-world digital lifestyle study self-reports data from patients with all types of CMT and is collected on a regular basis in both US and Europe. The objective of the study is to better understand the impact of the disease on patients' daily lives and help them manage their condition and treatment, as well as raise awareness and assess the value of potential new treatments. This study is managed by the company Vitaccess in collaboration with HNF and other patient advocacy groups and key opinion leaders in the field, with the support of Pharnext.

The recent findings presented at the annual Peripheral Nerve Society Meeting represent the impact CMT has on quality of life and the importance of addressing the needs of patients.

Depression in Patients with Charcot-Marie-Tooth Disease Type 1A (CMT1A)

Participants were asked questions on demographic and employment variables. This interim analysis examined 937 participants from France, Germany, Italy, Spain, UK, and the US.

Of the participants who responded to this question, 38% of the participants reported having been diagnosed with depression in addition to CMT1A; higher than in the general population. Of these, 54% and 35% reported moderate or severe CMT1A symptom severity, respectively. And 43% of participants diagnosed with depression reported that they used, or had previously used antidepressants.

Reported diagnosis of depression varied considerably by country. The highest rates were among participants in the US and UK (48% and 40% respectively), while lowest rates were among participants in France and Italy (29% and 18% respectively). Of participants who responded to the EuroQol 5 Dimensions 5 Levels (EQ-5D-5L) instrument, 62% reported concerns with anxiety/depression.

CONCLUSION:

Over a third of participants reported a diagnosis of depression in addition to CMT1A. This is not surprising for a disease with this symptom burden; however, depression itself as a comorbid condition represents a significant disease burden and can affect treatment and outcomes for CMT1A.

***This warrants further analysis and exploration.

Work Impacts in Patients with Charcot-Marie-Tooth Disease Type 1A (CMT1A)

Participants were asked questions on demographic and employment variables. This interim analysis examined 937 participants from France, Germany, Italy, Spain, the UK and the US.

Of participants who responded to this question, 54% reported working for pay; this was similar across countries with the lowest being France. Twenty percent reported not working due to disability; this was highest in the US (27%) and lowest in Italy (10%).

Of those working for pay, 74% reported their work-life was affected by CMT1A. The highest rates were in Spain (96%), while the lowest were in Italy (65%). Frequently reported ways that CMT1A affected work-life were the type of job (54%) who specified ways in which work-life was affected, number of sick days (30%), and working part-time (30%). Participants reported missing a mean of 1.4 workdays in the past two weeks due to CMT1A, equivalent to approximately 36 days per year.

Of those unemployed (7%), 71% reported that CMT1A was a contributing factor. The highest rates were in Italy (91%), while the lowest were in Germany (0%).

CONCLUSION:
CMT1A has a substantial impact on patients' ability to work, which is comparable across European countries and the US. Patients are absent from work approximately 36 days per year due to CMT1A.

***Further research is needed to explore indirect costs associated with these losses and to better manage the impact on patients' work lives.

Patient-Reported Symptom Burden of Charcot-Marie-Tooth Disease Type 1A (CMT1A)

INTRODUCTION
This analysis aimed to examine patient-reported symptom burden for Charcot-Marie-Tooth disease type 1A (CMT1A) in European and US real-world practice. CMT1A patients were recruited and asked questions via patient-reported outcome measures. This interim analysis examined 937 participants from France, Germany, Italy, Spain, the UK, and the US.

RESULTS
The CMT1A symptoms ranked with the highest importance by participants were weakness in hands and fingers (most important, 32%), difficulty walking (15.5%), weakness in the feet (13.0%), fatigue (8.7%), weakness in the legs (5.7%), and problems with balance (sixth most important, 4.2%). The majority of participants reported the severity of their symptoms to be moderate (58.5%) or severe (24.4%), with almost half of participants (48%) experiencing a worsening of CMT1A symptom severity from initial diagnosis.

Anxiety and depression were each reported by over a third of participants (39.3%, and 37.9%, respectively), higher than the prevalence in the general global population.

There was a high recorded use of rehabilitative interventions (86.5% reported using physical therapy), medications (72.5% reported using painkillers), and orthotics/walking aids (48.6% reported using off-the-shelf insoles). There was a similar reported use of these across all countries.

CONCLUSIONS
Patients with CMT1A experience a high level of symptom burden, aligned with clinical observations and literature describing a wide variety of symptoms. Patients first suffer from using limbs, fatigue, pain symptoms, and depression, causing impairment to quality of life.

***It is apparent that there remains a high unmet need in CMT1A caused by the burden on patients.

Be part of patient-focused research and Join CMT&Me Study.

Click here!

A study of the correlation between gait abnormalities, activity monitoring parameters, CMTPedS and a biomarker in children with Charcot-Marie-Tooth disease.

STUDY INVESTIGATORS: **SYLVIA OUNPUU MSC, GUYLA ACSADI, MD, PHD, AND KRISTAN PIERZ, MD.**

BACKGROUND:

The overall goal of our research is to improve treatment outcomes that address gait dysfunction for children with Charcot-Marie-Tooth disease (CMT), since gait is one of the most important elements for quality of life for persons with CMT. To achieve this goal, a better understanding of the relationship between gait function, activity levels in the community and how these measures change over time is important. Identifying biomarkers for disease state and progression is also important for determining the efficacy of emerging new treatments for which the goal is to improve walking. Because of the generous funding by the Penn Medicine Orphan Disease Center we were able to add an additional 15 patient tests (some repeat and some new) to our existing study cohort which currently includes 68 patients.

RESULTS:

A preliminary analysis with a focus on the sagittal plane ankle motion during walking from a cohort of 45 patients with CMT1 and 2 showed differences in changes with age depending on CMT type. In children with CMT1, peak dorsiflexion in terminal stance (TST) increased with age through 13 years ($p=0.004$) and then plateaued in the normal range ($p=0.73$). The peak ankle angle in mid-swing and TST were closely related ($p<0.001$) following a similar change with age. In children with CMT2, there was no significant change in peak dorsiflexion in TST with age ($p=0.19$) and peak ankle angle in mid-swing was not related to peak dorsiflexion in TST ($p=0.43$) or age ($p=0.88$). There were also no consistent trends with age for individual patients with multiple tests.

SUMMARY:

Patients with CMT1 show beneficial changes in ankle function during both the stance and swing phases of gait with age, reaching a plateau around age 13 years. Patients with CMT2, however, do not show any systematic changes in ankle function during gait with age. Future studies with more repeat assessments for individual patients are needed to gain further understanding of gait changes with age in children with CMT. The heterogeneity of gait and joint level impairments point to the importance of a better understand the disease severity and progression for each individual. This knowledge will enable more informed treatment decisions and better understanding of treatment outcomes in the context of disease progression.

HNF was pleased to fund this promising research at the prestigious Connecticut Children's Gait Lab.

The project was overseen by Director of Research and Education, Sylvia Ounpuu, MSC, and Gyula Acsadi, MD, PhD, Division Head of Neurology. Both investigators are a part of the Inherited Neuropathy Consortium, as is HNF.

HNPP MATCH

$16,000 x 2 = $32,000

THANK YOU, WESTERKAMP FAMILY, FOR YOUR GENEROUS DONATION TO HNPP RESEARCH!

What will it fund?
HNF is leading the charge in HNPP research by creating cell-based models (IPSc) from patients' samples to test potential therapeutic drugs already FDA-approved. In partnership with **RAREBASE**, HNF will screen a compound library of thousands of FDA-approved drugs and novel drugs, for HNPP.

Why are we doing this?
Our aggressive approach will enable us to immediately test any hits found with our HNPP cell-based models.

TO DONATE: CLICK HERE!

About the Westerkamp Family
HNF met the Westerkamp family at the Patient-Centered CMT / HNPP Pain Summit. Michiel (dad) and Andy (son) Westerkamp both have HNPP and own Real Isolates, a leader in the cannabinoid industry. Their team has developed a commercially viable method to harvest cannabinoids and terpenes from cannabis smoke. These patent-pending formulations are called Smokenol and are rich in common and rare cannabinoids and enable a new category of oral, topical, and inhaled cannabis therapies.

WHAT IS HNPP?

Hereditary Neuropathy With Liability To Pressure Palsies (HNPP) is a peripheral nerve disorder inherited in an autosomal dominant pattern. Affecting 2 to 5 per 100,000 individuals. HNPP affects the nerves connecting the brain and spinal cord to the muscles, as well as sensory cells that detect temperature, touch, and pain. Hereditary Neuropathy With Liability To Pressure Palsies is also known as:

- **Compression Neuropathy**
- **Entrapment Neuropathy**
- **Familial Pressure Sensitive Neuropathy**
- **Hereditary Pressure Sensitive Neuropathy**

The peripheral nerves of people affected with HNPP are highly sensitive to pressure. This hereditary neuropathy is caused by mutations in the PMP22 gene. Mutations in this gene most likely affect myelin, the substance that protects nerve cells. Increased nerve sensitivity to pressure can occur when the myelin covering is disrupted.

COMMON HNPP SYMPTOMS:

Symptoms of Hereditary Neuropathy With Liability To Pressure Palsies usually begin during adolescence or early adulthood, with some individuals developing symptoms in late adulthood. Severity of symptoms vary. Some people never experience symptoms, while other sustain enduring disability. Patients can experience:

- **Recurrent episodes of numbness, tingling, and/or loss of muscle function.**
- **Pain in the limbs, especially the hands.**
- **Carpal tunnel syndrome.**
- **Permanent muscle weakness or loss of sensation.**
- **Difficulty writing, opening jars, and fastening buttons.**
- **Difficulty walking, climbing stairs, and driving.**

An HNPP episode results from disturbances in a single peripheral nerve, but any peripheral nerve can be affected. These episodes can last from several minutes to several months, with most patients experiencing complete recovery. However, repeated episodes can predispose a patient to permanent muscle weakness or loss of sensation. The most common sites for episodes involve nerves in wrists, elbows, and knees. Fingers, shoulders, hands, feet, and the scalp can also be involved in an HNPP episode. Currently, there is no cure for HNPP. While the disease does not affect life expectancy, it can greatly diminish quality of life.

If you or a family member have been diagnosed with HNPP, please consider joining the Global Registry For Inherited Neuropathies (GRIN). HNF's registry collects essential clinical and genetic information on patients diagnosed with the various forms of hereditary neuropathies in order to advance therapy development for HNPP. By completing your profile, your information will be utilized to advance research and clinical trials that could lead to future treatments and cures for HNPP.

For more information on HNPP, visit the **Genetics Home Reference:** a service of the U.S. National Library of Medicine.

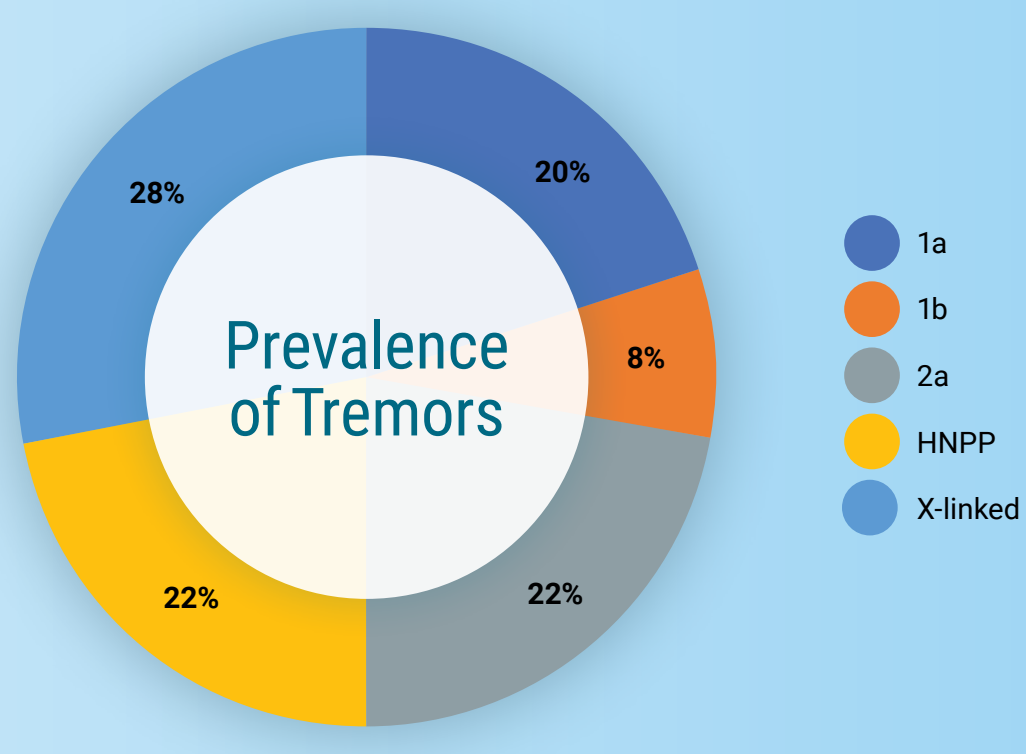
GLOBAL REGISTRY
FOR INHERITED NEUROPATHIES

Spotlight on… Tremors and CMT.

Did you know that approximately 7 million Americans suffer from “Essential Tremors”, which is defined as “a nervous system (neurological) disorder that causes involuntary and rhythmic shaking”? That's about 2.2% of the total population.

Unfortunately, CMT patients experience tremors at a much higher rate. We queried GRIN and found that on average, 24% of GRIN respondents noted tremors as a symptom or condition associated with their disease – that’s 10 times the national average!

Tremors can be debilitating, resulting in discomfort, dropped items or even social embarrassment. It is our hope that therapeutics like PXT-3003, if approved, will help alleviate or eliminate these adjunct symptoms that those with CMT have to deal with on a daily basis.



MEET AMY BOIS
FUNctional Ambassador

TO REGISTER FOR AMY'S CLASS CLICK HERE: ➜

Amy Bois is a titan in the fitness industry and in the adapted fitness world. She lives in Greenland, New Hampshire, where she not only trains individuals of all abilities under her Fit For Life banner, but is also the chair of the Spina Bifida Association of Greater New England.

Amy is an avid fitness enthusiast and loves being able to teach others what she has grown to love. You can find her posting free workouts DAILY on @fitwithamyb on Instagram!!

Amy got involved in accessible and inclusive fitness through her son Tyler who is 15, has Spina Bifida, and is a wheelchair user. She said, "I decided long ago that his independence would increase through strength training!" Amy is her son's primary caregiver, and as people who are caregivers know, it can be very easy to lose yourself in that person.

Amy stated, "that is what happened to me, until one day I realized in order for me to be THE BEST mom, I needed to make myself a PRIORITY TOO. I needed to take back my WELLNESS, so I could be the very best mother to my children. I did it day by day loving myself and making a commitment to working out and eating right. It wasn't easy, no magic pill, but I surrounded myself with supportive people that lifted me up and helped me to stay on track. I am forever grateful for my wellness and I want to help you all as you walk on your path!"

LINK FOR MY BIO: CLICK HERE!

SORD Deficiency

HNF, in partnership with Applied Therapeutics, is seeking to increase awareness of the newly discovered SORD Deficiency in order to identify candidates for the Phase 2/3 clinical trial for AT007. **People with SORD Deficiency are missing a key enzyme** needed to process a substance called sorbitol, a sugar naturally created in the body. Without this necessary enzyme, sorbitol builds up and is toxic – **resulting in weakness and disability**. AT-007 is an investigational drug being studied in those living with SORD Deficiency, specifically designed to inhibit (or "turn off") the enzyme Aldose Reductase. Aldose Reductase converts glucose, a type of sugar you get from foods you eat, into sorbitol in the body.

If you meet the following criteria, you may be eligible for the free Screening program:

- Living in the US
- Age 16 and older
- Have CMT unknown type or dHMN – distal hereditary motor neuropathy with no known genetic cause,
- Have an EMG confirming neuropathy and neither one of your parents have CMT.

Contact: Please email registrycoordinator@hnf-cure.org if you meet the criteria and we will share the details to initiate the screening process.

Together, HNF and Applied Therapeutics have conducted an informational webinar and focus groups with the goal of beginning to define the burden of living with SORD Deficiency. Most recently, Applied Therapeutics released these two informational brochures.

If you already have a confirmed SORD Deficiency diagnosis, please join our private FaceBook group:
"SORD DEFICIENCY"

Watch webinar on SORD Deficiency

Click here!

Thanks to our Team CMT riders

Team CMT participated in the TD Bank Five Boro Bike Tour on Sunday, May 1, 2022.

Meet **Michael Watkins** – Team CMT Member

Michael Watkins will participate for the 2nd time in the Leadville Trail 100 MTB race on August 14, 2022, in Leadville, CO. The trail race is widely considered one of the toughest mountain biking races in the country.

My name is Michael Watkins and I'm a cyclist...check that...I'm a cycling para-athlete, a para cyclist.

It has taken me a long, long time to come to grips with that reality, but that is what I am. I have ridden and raced bicycles for over 40 years. You can say it's kinda my thing — it is what I love to do and it often defines who I am, where I go on vacation, who I hang out with, and what I watch on TV. We are a very small portion of society, cyclists, there are tons of people who ride bikes, but not all of them are cyclists. Of that small piece of society, a smaller sliver of that piece is where I fit into the picture, a para cyclist.

I have a disease called Charcot-Marie-Tooth Disease (CMT), a hereditary peripheral neuropathy, which in layman's terms is a hereditary nerve disease in my arms, hands, legs, and feet. When you have CMT, your nerves lose almost all of their ability to transmit signals from the brain to the muscles in your limbs which in most cases (like mine) leads to severe muscle weakness and atrophy. CMT has mostly affected my legs and feet, but in the past 4 to 5 years I started to have symptoms in my hands and my legs have gotten noticeably weaker...not exactly great news if you consider yourself a cyclist, I mean a para cyclist.

Please support me in reaching my fundraising goal. All donations will go directly to fund research for this disease.

TO DONATE: CLICK HERE!

Educate. Empower. Connect.

HNF is dedicated to supporting educational and enriched online webinars along with in-person workshops to support **CMT patients**, **families**, **caregivers and the stakeholder community**.

CMT-Connect is an interactive series designed to shed light on our communities' most important topics. We seek out wellness experts, thought leaders, medical professionals, adaptive programs, emerging technologies, disability advocates, and so much more!

We are inspired by our entire CMT community and are here to support them. As patients, we understand firsthand how difficult it can sometimes be to cope with the complexities of disease diagnosis and progression. **Our program addresses the emotional, social, economic and physical effects of CMT as it aims for a holistic approach towards self advocacy and wellness.**

Do you have a topic that you would like HNF to cover in a webinar?

EMAIL: CMTCONNECT@HNF-CURE.ORG

CMT-CONNECT

Past Webinars

Guided Meditation

Work From Home Job Training & Placement

CMT & Telemedicine

Align with Happiness

CMT & Capture Proof

CMT & Genetic Testing

CMT & Covid-19

Healing from the Inside Out

CMT Resources with Inspire

Dating & CMT

How to Exercise in the Pool with Bernadette Scarduzio

accessibleGO.com: A New Way to Travel with Disabilities

Bemer Technology

Panetta Physical Therapy

CMT & Balance

CMT & Your Nutrition

CMT&Me App

CMT & Exercise

Mobi Mats

Surgery & CMT

CMT & Finances

Ability360 Sports & Fitness Center

Active Hands

Jamal Hill ~ Paralympic Swimmer

CMT & Microcirculation

Cannabis & CBD for CMT

CMT & Canine Companion

Mental Health & CMT

Pain Series:
Part 1 - Do I need Surgery?

Pain Series:
Part 2 - Nutrition

Accessible College

Family Planning #1: IVF

AFOs for CMT

SORD Deficiency

View Past Webinars:

CLICK HERE!

THRIVE PATIENT-CENTERED CMT SUMMIT | RECAP

On March 5th & 6th HNF held its annual Patient-Centered CMT Summit. This year we focused on **THRIVE**. HNF's stellar line-up of speakers and sessions uplifted the CMT community in ALL areas of their lives! Sessions included hand-selected speakers who are THRIVING with disabilities & spoke from first-hand expertise and experience on their subject matter.

Our Goal was to have attendees come away with a new and brighter perspective on disability and empowered with a plethora of tools to help navigate their journeys towards a more fulfilling life with CMT. Thank you again to our THRIVE Summit sponsors: Taysha Gene Therapies, Friendly Shoes & Equation Orthotics. If you have not yet checked out their products and websites we encourage you to click below to learn more!

Below is some feedback from summit participants:

"I'm so happy that I found this group, or that it found me. I feel so alone in this journey, and connecting with "family" dealing with the same challenges, and learning all kinds of new things will really help.

"Living with Charcot-Marie-Tooth disease can be frustrating, as something like 98% of those affected agree (unscientific survey). **Logging on to the HNF's THRIVE Summit brought my personal frustration factor down at least 50%.** Allison and staff pulled together a terrific program, combining practical tips on where to find AFO-friendly shoes with news of breakthroughs in the scientific community. **Well done, all!**

"I enjoyed this experience and I **have not experienced this level of efficiency in an online forum such as this.** I would love to have participated by speaking, however the sessions were so informative, I'm glad that there were no interruptions. **I will look forward to having more experiences like this.**

"**I found the summit to be incredibly educational and the resources to be useful—many nagging questions I had pondered over the years were answered.** Beyond that, being able to spend two whole days in an environment where everyone there was speaking the language of CMT, and **connecting with others who share my disease, brought me to tears of gratitude.**

"**THRIVE summit was very good, informative, and interesting.** It was definitely worthwhile spending the time.

Thank you to all the individuals that participated and our sponsors!

CMT & Hearing Loss

Susan Kinney has Charcot-Marie-Tooth (CMT) disease, type 1E (CMT1E). Susan suspected a link between her CMT and the hearing loss she was experiencing in her adult years, but doctors told her there was no connection. It took years to discover her type of CMT and that CMT1E symptoms include hearing loss.

When she was about 15 years old, Susan started hearing a rushing sound in her ears, like putting a shell to her ear and hearing the ocean. At the time, she shared a bed with her sister and blamed her sister for always having her elbow in Susan's ear. By 21 years old, the noise changed into a roaring sound, making it hard to hear people talking. She went to the doctor and was told she had hearing loss. She was in disbelief, thinking people were born deaf or it was only older people who had hearing loss. She was too young. She didn't follow up with treatment.

What Susan heard is called tinnitus. People hear different sounds; high-pitched rings, tea kettles, crickets, cicadas, etc. The American Tinnitus Association (ata.org) shows that 50 million adults have some sort of tinnitus. Visit their website for basic facts, news and research. Click on Understanding the Fact menu and then "Symptoms," scroll down to find some familiar tinnitus sounds. Share it with family members so that they can better understand tinnitus. Unfortunately, there is no cure, but various strategies have helped people habituate (be able to put into the background of their thinking) tinnitus.

She waited until she was 27 to go back to the audiologist. By then, "everyone was mad at me for the TV being too loud, and I was mad at them for mumbling." Her tinnitus also ramped up with bells, whistling, sirens, and other sounds. The audiologist told Susan she had a significant hearing loss and must be a good lipreader. She realized she was concentrating on people's faces while talking.

Those with a significant hearing loss use lipreading naturally to some degree. However, it's a common misconception to think lipreading is all lip shapes; this is a myth. The average lipreader gets about 30% of what's on the lips; the rest is filling in the gaps with other strategies such as watching facial expressions and body language to make sure it matches what they can hear and then filling in the gaps with logic. This is why it's critical to face someone with hearing loss to ensure better communication.

The audiologist was only able to give Susan one hearing aid. Her health insurance determined she didn't need two just being a housewife. That one hearing aid made a difference! She could hear birds again and was amazed by the sound of water! She could also hear the voices of her two kids (Gina, who also had CMT, and her son Levi) from another room. "I heard that," she would yell, and they, too, were amazed.

People often think hearing aids 'cure' hearing loss. While they help a great deal, certain speech sounds may be missing. Also, even with hearing aids, it's essential to have people facing each other because lipreading is still used to fill in blanks.

Even with her hearing aid, friends and family were frustrated with her hearing loss. "I didn't have anybody helping me, just people yelling at me the whole time." In addition, hearing loss is isolating; people learn bad habits like 'faking' to avoid anger. Instead, we smile and nod our heads or make a short response based on their tone of voice.

Susan soon came across the SayWhatClub (say.org) and joined their email list, allowing her to connect with others with hearing loss. As a result, she met many people with hearing loss who were knowledgeable and supportive—knowing others who could relate made a difference.

The SayWhatClub (SWC) formed a campout for its members in Rocky Mountain National Park in 1998. Susan from Montana and Chelle from California were on separate email lists, so they did not meet until the campout. Nevertheless, it was magical being with others who understood. After the campout, Susan and Chelle became fast friends via email, where hearing is not an issue.

In 1999, Chelle flew to Montana to tour Yellowstone and the Tetons with Susan and another SWC member who brought her motorhome. All three women had hearing loss to different degrees.

Susan: **"She pushed and pulled me up trails in my wheelchair, so I could go see things. We also went to Wyoming past the Tetons to meet another SWC lady. To this day, it was the best time of my life. Chelle gave me my first sign language book and taught me all the dirty words. Chelle was the wild one, and I was the wallflower."**

Chelle: **"I enjoyed taking Susan four-wheeling on the paths; sometimes, two wheels made her nervous. We went to lookout points that she'd never seen before. Don't let Susan kid you; she's no wallflower."**

Susan suspected her CMT and hearing loss were related when she was going

through a stressful period in her personal life. Her CMT declined, her hearing declined, and she went through new hearing aids every two years. The doctors continued to say it wasn't connected. An MRI showed "benign tumors" on both sides near her ears, and that's what they blamed the hearing loss on. Finally, in her 50's, she was diagnosed with CMT1E. Susan wanted to tell her doctors, "I told you so." With her research, she now believes the benign tumors are "onion bulb nerves."

Susan's hearing loss became worse in her 50's. "My hearing loss was in the severe range. My speech discrimination was so bad; it sounded like everybody was talking in a foreign language." This is typical of those with sensorineural hearing loss. They miss some frequencies while hearing other frequencies commonly, which affects speech discrimination. In addition, certain consonants (or vowels depending on the hearing loss) are missing. Think of these as 'auditory holes.' A visual would be the Wheel of Fortune with some letters showing and others not. It's a lot of work filling in the gaps. When hearing loss reaches a certain point, hearing aids aren't powerful enough.

Susan asked the SWC group about cochlear implants (CI) as several members had one or two. She scheduled a CI surgery but canceled at the last moment with doubts about her CMT.

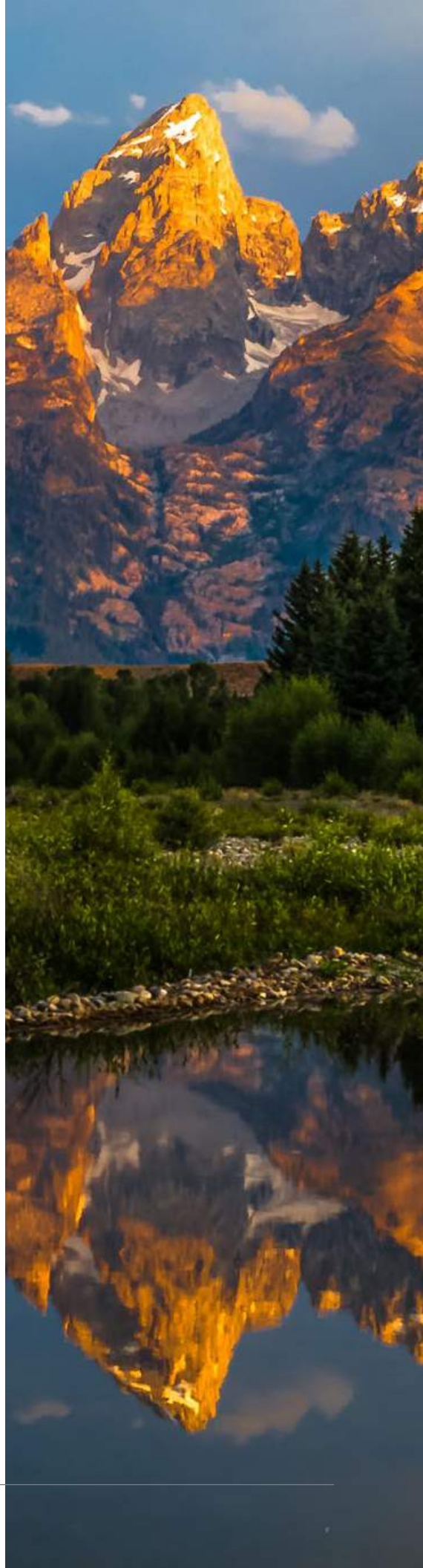
Then, she read an article about someone who had the same CMT symptoms as her and had successful surgery for a CI.

Susan said, "I immediately set up an appointment to see the CI surgeon again. I made a list of about 25 questions, and he answered them all, saying I ask excellent questions. We set up another surgery date, and this time I kept it, getting my left side done." CIs gave her a fuller range of hearing that hearing aids couldn't, eventually. "At first, it sounded like the Charlie Brown teachers, many squawking sounds. I had to retrain my brain to hear. After three months, I was starting to become discouraged then it shifted. I could tell the difference between male and female voices. Within eight months, I had an 80% word discrimination. Two years later, she had the right side implanted. "Having CIs was like the difference between a black and white TV and a color TV. My whole world was suddenly in color."

"I would 100% suggest to others that they get a CI when their word discrimination drops. My advice would be; to be patient and keep listening because eventually, it does get better. Everybody is different with their CI, but it's possible, so keep training your brain."

Susan Kinney can be found in many CMT groups online: HNF for CMT, CMTArtists – being an artist herself, CMTUS, CMT Cafe, CMT stand by Me, Singles with CMT, CMT and Pets, and more. She has donated several art pieces to CMT/MDA and SayWhatClub fundraisers. Tag her in a group, and she'll chat with you.

Chelle Wyatt is a co-owner of Hearing Loss LIVE! She has a moderate/severe hearing loss, and her passion is helping others with their hearing loss. Learn more at hearinglosslive.com



Moving Away From Perfectionism

AUTHOR: **RUTH RILEY**

The American Psychological Association (APA) understands perfectionism as the tendency to expect flawless performance from others or oneself over what the situation requires. This condition has potential links with depression, anxiety, eating disorders, and other mental health issues[1].

Moreover, perfectionistic people can also undermine coping and recovery processes when facing chronic health problems[2].

Suppose you have a condition such as Charcot-Marie-Tooth disease that can cause a deformation of specific body parts. In that case, you may experience difficulty developing healthy self-esteem[3], most likely due to perceived physical imperfection.

Individuals with chronic health issues tend to compare themselves to others[4]. This behavior may deepen existing perfectionism.

Several treatments for perfectionism are derivatives of cognitive-behavioral therapy (CBT)[5].

For example, one study suggested that mindfulness-based cognitive behavioral therapy can potentially help students experiencing difficulties due to perfectionism[6]. This research indicates that alternative techniques such as mindfulness may help regulate negative emotions. Visit Motherhoodcommunity.com to know more about this.

Below are several suggestions on how to move away from perfectionism.

How to Move Away From Perfectionism

Practice Being Aware

Chronic stress can negatively affect the part of the brain responsible for memory and learning[7].

You can attenuate perfectionism by being aware that you are stressing too much about being perfect.

It may be helpful to pay extra attention to your thoughts and write these thoughts down, reflect on them, and better understand yourself.

Allow Yourself to Make Mistakes

Understanding that falling into mistakes is a typical life experience may help you see that it is acceptable to fail sometimes.

A study showed that perfectionists base their whole identities on their shortcomings[8]. Perfectionism may cause individuals to label themselves as "losers" or abject failures.

You can practice learning a new skill or taking up a new hobby–something out of your comfort zone. Engaging in an unfamiliar activity may help you increase your patience with yourself whenever you make mistakes.

Focus on the Positive Things

Perfectionism can result from dysfunctional thinking. Faulty, inaccurate thinking may lead to "cognitive distortions" or patterns of erroneous thoughts[9].

Common "cognitive distortions" may include ignoring the positive and only seeing what is problematic in a particular situation.

When you notice yourself behaving in the manner above, pause and challenge yourself to think about at least three positive things you appreciate about the situation.

Set Realistic Goals

Perfectionists usually set unreasonable goals because they set overly high standards for themselves.

Begin setting more achievable goals that are challenging in a good way. Consider objectives that can help you develop more confidence in your abilities rather than place unrealistic burdens on yourself.

You can also practice lowering your self-expectations in certain situations. You may get motivation from accomplishing multiple smaller goals, encouraging you to pursue higher goals.

Learn to Accept Constructive Criticism

Another common trait of perfectionists is having low self-esteem. This characteristic drives them in pursuit of perfection to immunize themselves from criticism.

It is crucial to acknowledge constructive criticism as a positive thing to help you learn and mature. Condition your mind to recognize this kind of criticism and accept that it is normal to receive feedback from others.

Learn to Be Kind to Yourself

Recognize that the person that puts the most pressure on you is yourself.

Learn to ease up on putting too much pressure on yourself.
Be kinder and practice self-acceptance. Stay motivated to do your best but avoid beating yourself up should you fall short of your expectations.

Focus on the Meaning Behind Your Goals

While going after their goals, perfectionists focus on completing their tasks rather than finding meaning behind them.

It can be fulfilling to get to your destination. However, you can also benefit from noticing the joys and surprises along the way.

Appreciating the process or becoming more "process-oriented" can boost your satisfaction and productivity(10).

Examine the Hustle Culture

Hustle culture is the current trend that you can observe on social networking sites, podcasts, and other modern communication channels. However, this culture links with perfectionism, overachieving, and overworking(11).

Practice limiting your time on the media platforms above to help you move away from perfectionism.

Do Your Tasks

Perfectionists may procrastinate if they cannot ensure that they perform their tasks perfectly. These individuals overanalyze the steps they should take to achieve perfection, leading them to take longer than necessary to complete a task.

You can get past the paralysis of inaction by simply doing your tasks.

Create a rough draft or an outline when beginning a task and be consistent in doing it. Even if it is not perfect on your first attempt, be kind to yourself and make room for improvement.

Seek Professional Help

Recognizing that you require help is one of the first steps to overcoming perfectionism.

A cognitive-behavioral approach may help you better understand yourself and find the reason behind wanting to be perfect. Therapy can help reframe your mindset to veer away from a perfectionist's thought patterns.

If you are still struggling after reading this list, seeking professional help may give you more guidance in your quest to move away from perfectionism.

References:

1. Perfectionism
2. Trying to be perfect in an imperfect world: Examining the role of perfectionism in the context of chronic illness.
3. Crabtree, L., Ont, O. Charcot-Marie-Tooth Disease: Sex, Sexuality and Self-Esteem. Sexuality and Disability 15, 293–306 (1997).
4. Comparing yourself to others can have health impacts
5. Beyond perfect? A case illustration of working with perfectionism using cognitive behavior therapy
6. Mindfulness-Based Cognitive Therapy Versus Pure Cognitive Behavioural Self-Help for Perfectionism: a Pilot Randomised Study
7. Learning and memory under stress: implications for the classroom
8. Your Best Life: Perfectionism—The Bane of Happiness
9. Ibid.
10. Ibid.
11. Time to End the Hustle Culture in International Development

Read more articles from Ruth Riley

- w-radiology.com
- cbdclinicals.com
- motherhoodcommunity.com

NEUROTOXIC DRUG CAUTION

CORINNE WEINSTEIN, CLINICAL ONCOLOGY PHARMACIST AT CANCER CENTERS OF COLORADO-GOOD SAMARITAN, DENVER, COLORADO

Brentuximab (Adectris®)

Brentuximab is used to treat various types of lymphoma. Lymphoma cells have proteins on their surface called CD30. Brentuiximab attaches to CD30 and releases chemotherapy medicine into the cancer cell. By targeting only cells with CD30 receptors, fewer normal cells are harmed. However, peripheral neurotoxicity (PN) represents one of the most common brentuximab related toxicities. In fact, brentuximab-induced neurotoxicity accounts for the primary cause of treatment delay, dose modification, and early discontinuation of brentuximab. In one trial, where brentuximab monotherapy was administered for up to 16 cycles[1], PN led to brentuximab dose modification in nearly one-third of patients and to brentuximb discontinuation in 23% of patients. When brentuximab is administered in conjunction with other neurotoxic chemotherapy, the rate of PN is even higher.

The cause of brentuximab-induced neuropathy is complex, and involves microtubule disruption, similar to other chemotherapy agents. Brentuximab may produce sensory, motor, and/or autonomic nerve dysfunction alone or in combination. Sensory symptoms are most common and include abnormal tactile perception (80%), vibratory sense (80%), numbness (70%), paraesthesia (70%), tingling (60%), and burning (40%), typically in a “sock-and-glove” distribution. Motor symptoms include weakness in the distal limbs, as well as weakness of foot dorsiflexion, steppage gait, and muscle wasting in severe cases. Onset of neurological symptoms varies greatly, with some studies reporting symptoms after just one infusion, and others reporting a median time to onset of ~3 months. Onset is likely to be much shorter in patients with CMT, often occurring after just one infusion.

Similar to vincristine, brentuximab may trigger early and severe neuropathies in patients with underlying hereditary neuropathies (CMT, HSAN etc). Therefore, CMT patients or any patient with an underlying hereditary neuropathy should **avoid** brentuximab whenever possible, and alternative treatments should be discussed with your hematologist/oncologist. As always, it is vital your treatment team is aware and familiar with your CMT diagnosis so appropriate and alternative therapies can be pursued.

[1] A chemotherapy cycle is a period of treatment followed by a period of rest (no treatment) that is repeated on a regular schedule

TAKE AWAY POINTS

- Brentuximab is used to treat various types of lymphoma
- The exact mechanism of brentuximab-induced neuropathy is complex
- Brentuximab therapy is associated with a significant risk of neuropathy both alone and in combination with other chemotherapy
- This risk exists for any patient but can be severe and debilitating in patients with a hereditary neuropathy
- Brentuximab should be avoided whenever possible in patients with CMT
- Always inform your treatment team of your underlying neuropathy before starting any chemotherapy treatments

HNF's CMT Centers of Excellence

The national network of HNF-designated Centers of Excellence (COE) provides patients with resources to find hubs of expertise in caring for and treating CMT, as well as locations where CMT research is being conducted. Our primary goal is to ensure care results in positive outcomes for each individual patient's clinical experience. We are honored to partner with these premier Centers and their leading experts to improve the future for people living with CMT and families with inherited neuropathies.

ARIZONA

Barrow Neurological Institute
602-406-8144
Dr. Shafeeq S. Ladha

ARKANSAS

Arkansas Children's Hospital
*Pediatric Center of Excellence
501-364-1850
Dr. Aravindhan Veerapandiyan

CALIFORNIA

Cedars-Sinai Medical Center
310-423-4268
Dr. Richard Lewis

Stanford Neuroscience Health Center Neuromuscular Clinic
*Pediatric Center of Excellence
650-723-6469
Dr. Robert Fisher (Adults) Dr. Joy Day (Pediatrics)

UCLA Department of Neurology
310-794-1195
Dr. Halabi Anasheh

COLORADO

Children's Hospital Colorado
*Pediatric Center of Excellence
720-777-2806
Dr. Michele Yang

CONNECTICUT

Hospital for Special Care
Charles H. Kaman Neuromuscular Center
860-612-6305
Dr. Kevin Felice

FLORIDA

University of Florida (UF) Health
352-294-5000
Dr. James Wymer

University of Miami
Professional Arts Center (PAC)
305-243-7400
Dr. Mario Saporta

AdventHealth Neurology at Winter Park
407-303-6729
Dr. Nivedita Jerath MD, MS

ILLINOIS

Ann and Robert H. Lurie Children's Hospital of Chicago
*Pediatric Center of Excellence
312-227-4471
Dr. Vamshi Rao

Rush University
312-942-5936
Dr. Ryan Jacobson

UI Health Hospital and Health
Sciences System
Outpatient Care Center
312-996-4780
Dr. Charles Abrams

KANSAS

University of Kansas Medical Center
Landon Center on Aging
913-945-9926
Dr. Jeffrey Statland

MASSACHUSETTS

Brigham and Women's Hospital
Department of Neurology
617-525-6763
Dr. Anthony A. Amato

MICHIGAN

University of Michigan
734-763-2554
Dr. Dustin Nowacek

MISSOURI

St. Louis University Medical Center
314-977-6177
Dr. Jafar Kafaie

MU Health Care
612-624-7745
Dr. Karim Salame and Dr. Vovant Jones

MINNESOTA

M Health Fairview Clinics & Surgery Center – Maple Grove
612-624-7745
Dr. David Walk

NEW JERSEY

Goryeb Children's Hospital
*Pediatric Center of Excellence
973-971-5700
Dr. Jahannaz Dastgir

Hackensack University Medical Center
Neuroscience Institute
551-996-8100
Dr. Florian Thomas

NORTH CAROLINA

University of North Carolina
984-974-4401
Dr. Rebecca Traub

Atrium Health Neurosciences Institute-Charlotte
704-446-1900
Dr. Urvi Desai

NEW YORK

Columbia University
Department of Neurology
212-305-0405
Dr. Thomas Brannigan

TEXAS

Austin Neuromuscular Center
512-920-0140
Dr. Yessar Hussain

OREGON

Oregon Neurology
541-868-9430
Dr. Michael Balm

WASHINGTON

St. Luke's Rehabilitation Institute
509-939-8079
Dr. Gregory Carter

University of Washington Medical Center
206-598-0058
Dr. Nassim Rad

Please visit our Center of Excellence for more information.
www.hnf-cure.org/centersofexcellence

*Pediatric Center of Excellence

HEREDITARY NEUROPATHY FOUNDATION

1641 3rd Avenue
#28K
New York, NY 10128
hnf-cure.org

The Hereditary Neuropaqthy mission is to increase awareness and accurate diagnosis of Charcot-Marie-Tooth (CMT) and related inherited neuropathies, support people living with CMT and their families with critical information to improve quality of life, and fund research that will lead to treatments and cures.

www.hnf-cure.org

HNF
1641 3rd Avenue
#28K
New York, NY 10128
hnf-cure.org

Events

Get Involved and Join us at an Upcoming HNF Event

TCS New York City Marathon

November 6, 2022

Publication of this newsletter was made possible with the financial support of Pharnext.