

Sixth conference links families, researchers at NBIA organization's 15th anniversary

By Patricia Wood



Participants at the Sixth International NBIA Disorders Association Family Conference held in St. Charles, Mo., May 13-15.

Thirty-five families and seven researchers descended on St. Charles, Mo., May 13 to 15 for our Sixth International Family Conference, and nearly a third of the families — 11 of them — were first-timers. In all, 117 participants from the United States, Canada, Australia, Denmark, England, Austria and the Dominican Republic were represented, including 25 people affected with NBIA. The families got what they came for — and more — based on the feedback we received. Of the 26 evaluations turned in, 23 said the conference exceeded their expectations and three said it somewhat exceeded them. None said, "Not at all."

Families said they enjoyed connecting with others, and seized the opportunity to meet with scientists and doctors for medical appointments on Thursday and Friday. We invited neurologists and researchers attending the conference to sit in with our NBIA experts during the medical appointments to gain valuable experience in seeing large numbers of NBIA patients with varying symptoms and medical histories. We plan to build on this at future conferences.

We are grateful to our conference sponsors who donated a record \$17,500 to help us defray our conference costs. We also brought in \$6,100 in registration fees. With conference expenses totaling

(see conference on pg. 6)

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What is NBIA?

Neurodegeneration with Brain Iron Accumulation (NBIA) is a group of rare, inherited, neurological disorders.

The common feature among all individuals with NBIA is iron accumulation in the brain, along with the progressive movement disorder. Patients can plateau for long periods of time and then rapidly deteriorate. The most common symptom is involuntary muscle cramping, called dystonia.

Symptoms vary greatly from one person to the next, partly because the gene affecting them can differ. Different mutations within a gene also can cause a more or less severe form of the disease.

The movement disorders can result in clumsiness, difficulty controlling the body and speech problems. Also common is a degeneration of the retina, which causes night blindness and a loss of peripheral vision.

Some individuals eventually lose the ability to walk, talk or chew food and become totally dependent on others for all their needs.

Our sister non-profits in Germany and Italy who work with us in the promotion of research and treatment of NBIA, can be contacted at the following addresses:

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Disclaimer

The views expressed in the NBIA Disorders Association newsletter do not necessarily represent the views of the Board of Trustees or the Scientific & Medical Advisory Board. Check with your doctor before trying anything new.

Researchers seeking approval, funding for two different iron-chelation studies

Families of individuals with NBIA and researchers have expressed intense interest in learning whether the iron-chelating drug deferiprone can help NBIA patients get better.

To that end, researchers in California and an international collaborative are seeking approval and funding to launch two different iron-chelation studies. Both trials were described at the Sixth International Family Conference in May.



Nancy Sweeters, study coordinator at Children's Hospital and Research Center in Oakland, Calif.

"Deferiprone is not the answer to everything, but it's a piece of the puzzle," said Nancy Sweeters, study coordinator at Children's Hospital and Research Center in Oakland, Calif., where Dr. Elliott Vichinsky wants to lead a trial of the drug, in pill form.

Federal officials have turned down the study previously for NIH funding, and Sweeters said the Oakland group reapplied for a FDA grant with some study changes that were recommended in February and expects to hear back soon. The plan is to do a yearlong, placebo-controlled trial with two patients getting the drug for every patient getting a placebo, or sugar pill. The trial would be open to PKAN individuals who would come to the Oakland hospital three times during the year for testing. The remaining lab work would be done in the patients' home cities.

One of Vichinsky's patients who received the drug as a compassionate use in Oakland did well and started talking again, Sweeters said. That patient also had a baclofen pump implanted first, although nothing changed until he received deferiprone, she said.

The international collaborative, known as TIRCON, or Treat Iron-Related Childhood Onset Neurodegeneration, would start its trial in 2012 if it receives funding. That project plans to enroll adults and children, 4 and older, with PKAN and would last 18 months.

That worldwide effort to test deferiprone would use a central NBIA disease registry with collaborators adding NBIA individuals to the registry. That will help increase the number of people taking part, said Dr. Penny Hogarth, a neurologist at the Oregon Health and Science University and part of the TIRCON collaboration. Researchers can use the registries to determine how many patients have NBIA, their genetic mutation, symptoms and personal demographic information.

"It will enormously hasten the path to treatments," Hogarth said.

Studies to date on deferiprone have been small. Italian researchers, for example, examined 10 patients over six months and were able to decrease the patients' brain iron by 30 percent. But the patients did not get better, Hogarth said, adding that it's possible they weren't followed long enough for the results to be fully measured.

"We should not be too discouraged by this result," she said.

Researchers hope the TIRCON trial will answer a question that Hogarth mentioned several times at the conference: Is it really iron that's causing the problem in NBIA patients? "Some people with a brain full of iron are fine," Hogarth said. "Sucking it out may not benefit" a person with NBIA.

Another problem to consider: If doctors see improvement, can they say it's because of the deferiprone or could it be "just the natural peaks and valleys of PKAN?" Hogarth asked. On the other hand, is it ethical to do a placebo-controlled study in which patients are denied access to deferiprone? Hogarth asked. Some in the rare disease community don't believe it is ethical, but Hogarth said the questions are too important not to do it that way. "There is a risk of very serious side effects, and we can't take them too lightly," Hogarth said.

Among the side effects: 21 in 1,000 patients will develop very low white blood counts and will need to be taken off the deferiprone immediately because of the risk of infection. Four in 1,000 will stop making white blood cells altogether, which is life-threatening, she said. "It's why we mandate weekly blood draws," Hogarth said.

In addition to monitoring blood cell counts, zinc and other nutrients need to be monitored when a patient is receiving deferiprone, Sweeters said. The most common side effects are nausea and vomiting. Joint pain is next, Sweeters said.

Dr. Susan Hayflick of the Oregon Health and Science University said she is optimistic the TIRCON study will be funded. A final determination should be known by the end of July.

Sweeters said that while the Oakland group remains hopeful about conducting the FDA trial, the Oakland team is part of the TIRCON collaboration and will be involved in the deferiprone trial that is part of that international grant.

NBIA research pressing ahead with collaborators worldwide

After more than 20 years of research into NBIA, a disorder few researchers had heard of, Dr. Susan Hayflick said the scientific community studying NBIA is now worldwide, collaborative and poised for progress.

"There is too much work for us to be competing," said Hayflick, NBIA's premier researcher and a professor at the Oregon Health and Science University. "Collaboration and open sharing will move this field forward faster."



Dr. Susan Hayflick of OHSU discussed her research work in a session at the conference and participated in a memorial tribute at the picnic afterward.

Hayflick was among 7 doctors and scientists who spoke at the Sixth International Family Conference in St. Charles, Mo., about research to advance NBIA knowledge and potential treatments. Front and center is an international research collaborative, TIRCON, which stands for Treat Iron-related Childhood Onset Neurodegeneration, a partnership between scientists and family groups in Europe and the United States, including the NBIA Disorders Association and its sister group in Germany. TIRCON is being lead by Professor Thomas Klopstock in Munich.

Hayflick said TIRCON, which she expects to be funded, will take on a variety of NBIA research projects and clinical trials, including one with the iron chelator deferiprone. TIRCON's goal is to find ways to improve the lives of NBIA patients, Hayflick said. It will involve creating a worldwide registry of NBIA patients so that data can be shared more easily among researchers, she said.

TIRCON partners plan to focus on a variety of key areas that hold promise for discovery, Hayflick said. In partnership with TIRCON members as well as other collaborators worldwide, Hayflick's team is pursuing a wide range of projects. They include examining

biochemical changes in PKAN; unraveling pantethine pharmacology; using mice and PKAN cells to test drugs that halt or reverse the disease; understanding the disease process in Infantile Neuroaxonal Dystrophy, or INAD; discovering new NBIA genes; nurturing a new-found partnership with doctors and researchers in the Dominican Republic (see story pg. 9); and developing best practices for caring for patients with NBIA.

The National Institutes of Health has a drug library that can help researchers find promising drugs to test on mice, and then on patients, Hayflick said.

Researchers are interested in developing a good mouse model for PKAN. European collaborators have identified three or four drugs that make sick flies better, and those drugs need to be tested in mice before humans, Hayflick said.

Studies have shown that fruit flies do better swimming in a pantethine soup, but when a mouse eats pantethine, it doesn't go to the brain. Is there a way to deliver that to the brain, like there is with baclofen? Hayflick asked.

Other researchers are using mice to pursue other enticing avenues of inquiry.

Dr. Paul Kotzbauer, who spoke at the conference, is studying a mouse model for NBIA to better understand how enzymes function when genes are mutated by the disorder. He is examining fatty acid metabolism.

Kotzbauer, an assistant professor of neurology at Washington University School of Medicine in St. Louis, has produced a knock-out mouse model with neuroaxonal spheroids that looks very similar to the human form of the disorder. So far, he has found that mutations associated with INAD and NBIA disrupt PLA2G6 catalytic activity, causing an accumulation of phospholipids and



Dr. Paul Kotzbauer from Washington University in St. Louis and Dr. Penny Hogarth from OHSU at family conference in May.

(see research on pg. 5)

Research

(continued from pg. 4)

lysophospholipids and a deficiency of fatty acid production.

He has also observed that when a protein, alpha-synuclein, is overproduced, it unexpectedly improves the neurological impairment in mice with the gene mutation.

"Their coordination and balance is better," he said. Results from the PLA2G6 mouse model and enzyme studies "give us some initial information about approaches that might be helpful — drug approaches to improve production or synthesis of fatty acids. We think if you could improve fatty acid production, it could be helpful."

His aim is to test this approach in mice.

Hayflick said fatty acid metabolism is an interesting area. INAD patients helped NBIA researchers start paying attention to fatty acids, Hayflick said.

People with PKAN are burning more calories than the average person, she said. She recommends a healthy, high fiber, complex carbohydrate diet that avoids high fat. She welcomes fish oil in the diet.

Some new avenues of thinking about NBIA are opening up, researchers indicated. Perhaps some cases are not genetic. Maybe there are lots and lots of NBIA genes, Hayflick said. Gene testing is getting cheaper and perhaps it will be possible to put all of the genes on a computer chip so a person can be tested all at once for the various forms of NBIA. "When it will be available, I don't know," Hayflick said. "I hope to convince you your return on your investment is hope."



Dr. Claudia Roos, a researcher from the Medical University of Vienna in Austria spoke at the conference about her work with acanthocytes.

Dr. Claudia Roos, a research scientist at the Medical University of Vienna, is studying oddly shaped red cells, called acanthocytes, which could give a hint to what is causing neurodegeneration in patients. About 8 percent of NBIA patients show evidence of acanthocytes, and Roos took blood samples from NBIA affected individuals and others who are not affected at the conference to further her studies into red blood cells.

Hayflick indicated that with so much going on in NBIA research, there is reason for optimism. "We're after the same thing," she said, "to cure NBIA."

NBIA teen gives speech to his graduating class

As students yelled his name and applauded, Brent Bonfiglio spoke in a slightly halting but strong, clear voice to his high school graduating class June 15 as one of nine valedictorians of Washington High School in Fremont, Calif.

Diagnosed with NBIA eight years ago, Brent did not hesitate when his mother, Veronica, asked whether he would say yes to an invitation to try out for giving the speech at commencement.



Brent Bonfiglio, 19, graduates from Washington High School in Fremont, Calif.

"Of course I am," was his response.

"This is one of the many things I love about Brent — his courage and self-confidence," his mother said. "Giving a speech in front of 500 students with their friends and family? No problem! He practiced very hard and on graduation day, he captured the audience with a wonderful delivery."

Brent was one of two valedictorians who spoke that day.

He urged students to pursue their passions, be unafraid of failure and remember that education is lifelong.

"One thing I know is we are all different in our own special way," Brent said, noting that some students had to overcome challenges. "May we all continue to grow... and especially talk to people who have different ideas because education is a learning experience that will last a lifetime."

Quoting Tom Brokaw, he added: "Think of it as your ticket to change the world."

"Listening to him was so moving," his mother said. She sat in the audience remembering how Brent had struggled with speaking, sometimes slurring words, other times repeating words or phrases uncontrollably, she said.

(see Brent on pg. 12)

Conference

(continued from pg. 1)

\$23,000, we did not have to dip into our general fund as we have in years past. Our generous supporters also donated \$3,650, enabling us to provide scholarships that helped seven families attend the conference.

Our keynote speaker Joyce Kullman, executive director of the Vasculitis Foundation, spoke of the importance of setting priorities for research, collaborating with other groups and social networking. Her organization has 4,000 members in 58 countries, Kullman said.

Ron Stretter led his popular "Getting to Know You" session by having everyone play NBIA Bingo. Participants each had a Bingo card with specific questions about others at the conference. Each time they matched the correct person to the question, they got closer to Bingo.



Martha Nell Richards from Texarkana, Texas, Kindy Flyholm from Denmark and Donna Stretter from Angwin, Calif. play NBIA Bingo during the "Getting to Know You" session.

Families also received valuable information about research into NBIA, leading off with Allison Gregory, a genetic counselor at the Oregon Health and Science University. She described new genes and disorders now under the NBIA umbrella (see article on pg. 8).

A panel of doctors, including Penny Hogarth of OHSU, Steven Frucht of Mt. Sinai School of Medicine and Tamara Zagustin of The Children's Healthcare of Atlanta, tackled dystonia management (see article on pg. 13 on dystonic storms).

Luann Rein, our communications and outreach director, led a session on our first countrywide fundraising event to be held in the fall. Families are being asked to hold 5K's or other events so that we can raise funds for research. More details are available on pg. 10.



Milke Cohn from St. Paul, Minn. and Aiden Arzate from Santa Ana, Calif. become pals at the family conference.

Three researchers who have never been to a NBIA family conference described their work. Among them was Dr. Claudia Roos of Vienna, Austria, who organized a blood draw on Thursday for a study of acanthocytes, a type of red blood cell, she discussed in a talk on Friday. We are grateful to volunteers from Quest Diagnostics in St. Louis who drew the samples.

Drs. Pedro Roa and Peter Stoeter from the Dominican Republic shared their findings about a cluster of PKAN individuals in their country from a small village in Cabral. More information about this important research and what it could mean for all those with PKAN can be found on pg. 9.

Dr. Paul Kotzbauer from Washington University discussed his efforts to create an NBIA mouse model. Nancy Sweeters from Children's Hospital and Research Center in Oakland, Calif., gave an update on a planned deferiprone clinical trial as did Hogarth (see article on pg. 3).

Dr. Susan Hayflick from OHSU gave a sweeping review of various research projects that are part of an anticipated grant from the European Union, called TIRCON, Treat Iron-related Childhood Onset Neurodegeneration. (see article on pg. 4).

Sheila Moeschel, director of HerSelf First, an initiative of Parent Project Muscular Dystrophy that focuses on caring for oneself and relieving stress, offered tips to caregivers, while NBIA-affected adults had a session with Brian Coady, a social worker in the St. Louis area who volunteered his time to help them.

Karen Bone, a certified therapeutic recreation specialist from Saint Francis Medical Center in Ill., gave families tips on how to enjoy activities with disabled family members and how to make traveling easier when a loved one is handicapped.

Families had plenty of time to meet, compare notes and enjoy each

(see conference on pg. 7)

NBIA Disorders Association is extremely grateful for the wonderful response in our request for sponsors to help us finance the Sixth International NBIA Disorders Association Family Conference. With their help, we were able to provide a forum where individuals, families, caregivers, educational and professionals join to share experiences, learn from experts, and discover new resources

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Randy Mills

Conference

(continued from pg. 6)

others' company. In the Families Information Sharing session, they discussed topics including diet and exercise. Even a ferocious downpour on Saturday that forced us inside for our conference picnic provided by Hope's Hope with the help of the local Kiwanis club, could not dampen our spirits. We took a group picture out on the deck during a brief break in the storm and released balloons in memory of those who are no longer with us.

That night we held our traditional ice cream social and silent auction of baskets families donated. We raised \$1,500 for the organization, and Kindy Flyvholm from Denmark won a 32-inch Sony flat screen television that was raffled off. We bought the TV for our care room during the conference, rather than rent one from the hotel at a higher cost than buying it. We raised about \$50 more than the cost of the TV so it was a win-win situation, with Kindy determined to take her prize home on the plane.

The closing ceremony celebrated the organization's 15 years, and conference photographer Tom Ford prepared a video and slide show marking the milestones. He included photos from the times shared at the conference, which ended on a high note as participants discussed the possibility of heading to San Antonio, Texas, in 2013, with a visit to Morgan's World, an amusement park designed for individuals with disabilities. Things are looking promising, so stay tuned, and we'll update you later.

Go to our website home page at www.NBIAdisorders.org to watch the closing ceremony video celebrating our 15 year anniversary and ending with a slideshow of conference pictures.



Drew Karakourtis and his mother Amy from Austin, Texas.



Casey Kincy, Ginger Vita and Ronnie Kincy from Megargel, Texas.



Terri Bruns, president of Hope's Hope, Maria Strause, board member from Hope's Hope in Apex, N.C. with Cara Solis from Chicago Heights, Ill., Rachelle Chrimer from Jordan, Minn. and Emily Thompson from Crowley, La.

Family Conference Pictures



Mary Ann Roser, board member from Austin, Texas shows off her raffle prize.

New disorders now under NBIA's evolving umbrella



Allison Gregory, Genetic Counselor at OHSU in Portland, Ore..

The NBIA umbrella is getting wider and more diverse.

What started out as a single, momentous discovery of the *PANK2* gene that causes PKAN, pantothenate kinase-associated neurodegeneration, in 2001, has turned into a family of disorders that today make up NBIA, according to Allison Gregory, a genetic counselor at the Oregon Health and Science University.

Half of all NBIA cases are PKAN, and there are related disorders that make up the other half, with more yet to be discovered, Gregory told participants of NBIA's Sixth International Family Conference in May.

Today's umbrella includes both early and late onset forms of NBIA. Not all of the disorders fit neatly under the NBIA heading, but they have been grouped with NBIA because they share some characteristics, such as high brain iron and dystonia, Gregory said.

"It's an evolutionary process," she explained. "There's not a guru in charge of this."

Scientists suspect a genetic link to the disorders, but that is not certain for all of them, Gregory said. Environmental factors could be at play in some conditions.

Also, some disorders now under the umbrella could be removed later as researchers learn more about them.

Gregory provided a mini-profile of the disorders that are now part of the NBIA family. In addition to PKAN with both early and later onset forms, we now have:

*PLAN, or PLA2G6-Associated Neurodegeneration, named for the responsible gene: *PLA2G6*. The group includes INAD, or Infantile Neuroaxonal Dystrophy, NAD, or atypical neuroaxonal dystrophy which starts a few years later, and an adult form of dystonia-parkinsonism, where onset occurs in the second to third decade with patients experiencing dystonia, neuropsychiatric changes, slowness, poor balance and rigidity.

*MPAN, or Mitochondrial-membrane Protein-Associated Neurodegeneration, caused by the autosomal recessive gene, *MMIN*. Onset occurs in childhood to early adulthood with dystonia, spasticity, weakness, optic atrophy, psychiatric changes, ADHD-like behavior, depression and mood swings. Discovered by German researchers, a scientific paper on this disorder has not yet been published. However, testing for the gene is now available at OHSU in Portland.

*FAHN, or Fatty Acid Hydroxylase-associated Neurodegeneration, caused by a mutation in the *FA2H* gene. At present, only two families have been identified with this rare form of NBIA. Onset occurs in childhood featuring leg dystonia, weakness and falling. Affected individuals also experience optic atrophy, profound cerebellar atrophy and white matter changes in the brain, in addition to high brain iron. Testing for the gene also is available at OHSU.

*Woodhouse-Sakati Syndrome. Described in 12 Saudi Arabian families, it's one of the disorders that doesn't easily fit under the NBIA umbrella, but Gregory said, there are compelling reasons for including it, such as key symptoms. "I hope it may tie some of the pieces together," she said. Affected individuals have high brain iron and dystonia in addition to hair loss, diabetes, hearing loss, gonadal dysfunction and mental retardation. The gene responsible is *C2orf37*.

*SENDA, or Static encephalopathy of childhood with neurodegeneration in adulthood. Researchers are looking for the gene responsible, which causes mild to moderate cognitive impairment in childhood and in later life, a sudden onset of dystonia, spasticity, balance problems and rigidity.

(see disorders on pg. 13)

World's largest NBIA cluster found in Dominican Republic

One of the most exciting NBIA discoveries in years has occurred in one of the most unlikely places: An impoverished community in the Dominican Republic.

In Cabral, which has a population of about 16,000, the world's largest cluster of NBIA patients recently was identified. Researchers speculate that a lack of migration and the sharing of some common ancestors four or five generations ago could be reasons for the cluster.

No other inherited disorder is as frequent as PKAN in Cabral, said Dr. Pedro Roa, an attending neurologist at CEDIMAT, a private hospital supporting research into the cluster.

So far, Roa and his colleagues, including Dr. Peter Stoeter, who spoke of the discovery at the Sixth International Family Conference in St. Charles, Mo., have identified 21 affected individuals with PKAN in 19 families. That is a rate of 1 to 2 patients per 1,000 with NBIA, compared with 1 to 3 per million worldwide. It is believed that the town of Cabral has 2,240 PKAN carriers, Roa said.

Roa, Stoeter and other doctors at CEDIMAT are working with Dr. Susan Hayflick and her team to help the patients and their families.

"Helping the people of Cabral is really important," Hayflick said. "Also important is the opportunity for this community to help people with NBIA and PKAN around the world."

...have identified 21 affected individuals with PKAN in 19 families. That is a rate of 1 to 2 patients per 1,000 with NBIA, compared with 1 to 3 per million worldwide. It is believed that the town of Cabral has 2,240 PKAN carriers.

Stoeter reported at the conference that all of the patients they identified with PKAN had a high accumulation of iron in their globus pallidus but not all showed the telltale "eye of the tiger" sign on the MRI scans of their brains. It remains to be seen what the significance of that finding is, Stoeter said.

Patients also showed a marked reduction of gray matter in the frontal lobe of the brain, although carriers do not show significant differences from normal volunteers, he said.

Fortunately, Stoeter said, PKAN patients do not show severe damage to the brain. Consequently, he believes that such treatments as deep brain stimulation and chelation therapy hold promise for affected individuals.



Dr. Pedro Roa, from CEDIMAT hospital in the Dominican Republic.

Roa began investigating reports 10 years ago of a debilitating illness in Cabral, Barahona, where 63 percent of the people live in poverty. Last year, he learned that the patients were affected by PKAN after collaborating with Arndt Rolfs at the University of Rostock in Germany, who led the genetic analysis.

PKAN onset in the patients is about 8 to 10 years of age, with patients surviving to be about 20 or 30 years old, on average, Roa said. With only one hospital in the area, testing is generally done elsewhere. Stoeter, an expert in neuroradiology at the Center for Diagnosis, Advanced Medicine and Telemedicine, called CEDIMAT, in Santo Domingo, performed MRIs of the patients to assist in diagnosing them.



Dr. Peter Stoeter, from CEDIMAT hospital in the Dominican Republic with board member Mark Karakourtis from Austin, Texas.

NBIA families galvanized to fund research grants in the fall

Fall fundraisers are underway for many NBIA families and friends (see list on pg.11) From 5K's to golf marathons to Bingo and dinners.

Why the flurry of activity?

This December we hope to fund as many of the 2011 research grant applications that our Scientific & Medical Advisory Board believes will advance our search for treatments and a cure. Because of our past efforts, we have increased the number of researchers interested in working on NBIA.

Thirteen researchers are looking to us for grants this fall. The average request is \$40,000. If all are deemed worthy, we would need more than \$500,000 in our Research Fund. What we actually have is about \$160,000, so you can see we have our work cut out for us.

Grants from the National Institutes of Health are at an all-time low, and it has always been tough for rare diseases like NBIA to get those dollars. If we are to keep the hope for a cure alive in this climate, it is important that the NBIA Disorders Association take a lead role in funding research.

We are doing our best to keep and attract new researchers to study NBIA disorders. You can make a difference by supporting our efforts.

Fun 5K for NBIA celebrates October as NBIA awareness month

By Patricia Wood



The organization is celebrating its 15-year anniversary by declaring October NBIA awareness month and holding our first countrywide fundraising event.

NBIA families and friends from around the U.S. are planning 5K Run/Walks in October and asking their communities to support their efforts and learn more about NBIA disorders.

We are inviting everyone who lives in or near one of our 5K sites to join us either by participating in the 5K and getting pledges, being a sponsor, or donating goods

and services for the event. We are asking all registered participants to try and raise \$150 or greater.

To assist us in our efforts, we are using FirstGiving, a site specifically designed for these types of non-profit events. Registration can be done online for each event, and participants can easily create a personal fundraising page with a link that can be e-mailed to your family and friends, sent to a Facebook account and shared on Twitter. This is a far more effective way to get pledges easily, reach a wider audience than doing it offline and markedly increases the number of donations. If you prefer to register and get pledges offline — or do a combination of both — that is possible also.

FirstGiving keeps costs low, charging 5 percent of each donation, plus the usual credit card service charge of 2.5 percent. Donors can even cover the costs of the fees if they wish, so that the organization gets 100 percent.

In addition, FirstGiving provides the organization with many benefits such as acknowledgements to donors, automatic weekly bank deposits, reports on all activities and a database of donors. This will save us valuable time and money currently spent doing these services in-house.

(see 5K on pg. 11)

Fun 5K for NBIA Events
www.firstgiving.com/NBIAdisorders

Oct. 1 - San Diego, CA
 Crown Point, Mission Bay

Oct. 2 - Coon Rapids, MN
 Coon Rapids Dam & Regional Park

Oct. 29 - Orange, CA
 Irvine Regional Park

5K planned, but dates not yet confirmed
 when we went to print:

Diamondhead, MI
 Plainsboro, NJ
 Cincinnati, OH
 Miami University, OH
 Portland, OR
 Bethel University, TN
 Megargel, TX

Sept. 26 - Haymarket, VA
 Queen Bee Golf Tournament
 Piedmont Country Club

There will be a marathon for those avid golfers, but a nine-hole putting contest has been added for those who would like to participate, but aren't up for a marathon. For more information contact Rich or Sandy Leap at rsleaper@hotmail.com.

Oct. 7 - Butler, PA
 Golf Marathon 2011
 Lake Arthur Country Club
www.clearcoursesec.com
 contact Rick Tifone at
rtifone@clearcoursesec.com

Oct. 7 - Austin, TX
 Bingo Night/Dinner
 contact Amy Karakourtis at
amyinaustin@austin.rr.com

5K

(continued from pg. 10)

Our website at FirstGiving is www.firstgiving.com/NBIAdisorders. This will take you to our home page and then you will see a list of the various cities where events are being held on the right hand side. New sites and confirmed dates will be added after the newsletter is printed, so keep checking for updates.

In addition to the 5Ks being held in our communities, we also are offering a Virtual 5K for those who can't otherwise participate. You can go to our site at www.firstgiving.com/NBIAdisorders/5K-Virtual and start a personal fundraising page, join a team, or make a donation to someone who is seeking pledges. We are asking NBIA individuals, friends and family to use this creative way to get involved.

Other fall fundraisers also are being planned and you can see a list of those confirmed on this page. They, too, can use your support so see if one is near you and join the fun.

Spring 2011 fundraising nets more than \$23,500 for NBIA

By Luann Rein

From kids' lemonade stands, to CD sales to golf tournaments, NBIA individuals, families and friends raised over \$23,500 for NBIA research this spring.

Mike Cohn of St. Louis Park, Minn. has enjoyed success promoting and selling the "Music from the Heart for NBIA," a compilation CD that took many months to complete. Thanks to Chris Hawkey, Tim Mahoney, Fergie Frederiksen, Jacob Martin, Shane Wyatt, Sterns County 17, B.G. Leighton, Stacy B, Patty Mattson, Over Easy and Bill Hartwell who donated 16 songs for the CD. Mike still has CDs left for sale at \$10 plus shipping; contact him at mikecohn2226@comcast.net to purchase.



On May 20, the first CD release party was held at Toby Keith's "I Love This Bar & Grill" in St. Louis Park, Minn. A guitar signed by

(see fundraising on pg. 12)

Fundraising

(continued from pg. 11)

the CD's artists was raffled off. Mike joined Jacob Martin on stage for the song "Frozen." Tim Mahoney signed autographs and sang four songs. Vince Corbin brought the race car with the NBIA logo on it. People were allowed to sign the car for a \$5 donation to NBIA. A total of \$1,083 was raised. On June 25 at Chops Bar in Hanover, Minn. the second release party was held. Sterns County 17 performed.

Alejandro and Paula Dauguet of San Jose, Calif. came up with a creative way to raise money to help their friend, Brent Bonfiglio, who has NBIA: recycle. Alejandro asked some of his high school teachers for permission to set up recycling bins in their classrooms over the last two years, and when the bins were full, he and his sister cashed the material in at the recycling center. Neighbors also contributed their recyclables to the effort. After he graduated last year and left for Brown University, his sister Paula kept it up. Their efforts have currently raised \$515.

The Leap family and friends of Haymarket, Va., have been busy honoring Brittany, their "Queen Bee."

Heather Porter again demonstrated her dedication and caring running the Boston Marathon in April and raising \$6,000 for NBIA in honor of Brittany.

Victoria Wheeler, 9, sold lemonade in honor of Brittany during a garage sale in her neighborhood in April. She made \$9 and gave it all to NBIA and said, "Brittany ROCKS." Victoria added that she can't wait to do it again next year!

On May 14, Brittany's physical therapist Colleen Wood and her family donated the proceeds of a community yard sale to NBIA. They raised \$400.

The Haymarket Masonic Lodge's Ride to the Wall May 30 brought in \$5,000. The group has been supporting Brittany and NBIA since her diagnosis in 2006. The annual Ride to the Wall Breakfast also honors veterans.

On June 4, a "Queen of Hearts Casino Night" held at St. Raphael's of Brooklyn Orthodox Church brought in \$3,000 for NBIA. Special thanks to event committee members Mervat Olds, Jayelene Betonti, Eva Meston, Lisa Najjar, Joyce Najjar and Jennifer Wilkinson.

Another lemonade stand June 21 also raised \$9. This one was set up by Brittany's friends Cierra, Zariah, Olivia, and Leila.

On June 22, Mike Leap, Brittany's uncle, participated in the annual Hill District Golf Tournament in Pittsburgh, Penn. He and his fellow police officers enjoyed a great day of golfing. In addition, a putting contest and raffle was held with proceeds going to NBIA and raised

\$1,500.

Finally, on June 24, Quest Diagnostics in Chantilly, Va., helped celebrate Brittany's 16th birthday, with a bake sale, raffle and a performance by the Gar-Field Dance Team. Just under \$3,000 was raised, plus matching from Quest, for a total of nearly \$6,000.



Brittany Leap, center, with the Gar-Field Dance Team celebrating her 16th birthday.

Held an event and don't see it here? Make sure I know about it by sending details and a picture to Lrein@NBIAdisorders.org.

Brent

(continued from pg. 5)

"We are so thankful to all the wonderful people who have contributed to Brent's success — his teachers; his friends; his aide, Mark; his speech therapist, Brigitte; and all his doctors, especially Dr. Vichinsky and his team," Veronica said. "Without them, things would be very different."

Brent plans to pursue a career making gelato, the Italian version of ice cream. He went for training to Carpigiani Gelato University in North Carolina, taking along his mother as his assistant. The family hopes to set up an apprenticeship with a gelato maestro in Sicily through an aunt and uncle who live there.

"Judging by his determination so far, watch out, Ben and Jerry, because Brent is coming," Veronica said.

You can view Brent's graduation speech at <http://www.youtube.com/watch?v=j-wqr-GjLck>

New York neurologist describes 'dystonic storms' and treatments

NBIA individuals and their caregivers know that one of the more challenging symptoms is dystonia, a painful movement disorder. Ramp that up several notches and you have a 'dystonic storm' — and a trip to the hospital to stop it.

A dystonic storm consists of continuous, unremitting, severe dystonic movements that last hours to days, and sometimes much longer, causing severe physical and psychological distress, according to Dr. Steven Frucht, a neurologist and movement disorders clinician in New York.

"It's an event a neurologist might see once," Frucht told participants of NBIA's Sixth International Family Conference in St. Charles, Mo.

Dystonia can affect the eyes, face, jaw, neck, vocal cords, arms, legs and almost every area of the body, and is treated by medications and surgery, including the ABCs of dystonia — artane, baclofen and clonazepam; Botox, the treatment of choice for some forms of dystonia; and deep brain stimulation.

Patients at risk for dystonic storms are believed to have a history of dystonia; have their anti-dystonia medications withdrawn or reduced; and possibly be experiencing an infection, fever or even the onset of puberty, Frucht said.

Only six NBIA patients are reported in the world literature as having dystonic storms. All had a past history of dystonia, and just one had a known trigger — a viral infection with a fever, Frucht said. There have been others, but they were not reported in the literature.

Dystonic storms can be managed medically and surgically, he said.

Two NBIA patients were managed with medication. They received Haldol, 15 milligrams; or baclofen, 75 milligrams; diazepam, 50 milligrams; and chlorpromazine, 10 milligrams.

Four other patients had surgery, including a unilateral pallidotomy, the use of heat to destroy a small number of brain cells in the globus pallidus, which controls movement and is overactive during dystonia; a bilateral pallidotomy; and a staged bilateral pallidotomy and thalamotomy, which uses heat to destroy cells in the thalamus part of the brain, he said.

Patients suffering a dystonic storm need to be identified early and treated in an intensive care unit, Frucht said. Caregivers should discuss a timeline for an intervention with a neurosurgeon.

Some questions that need to be answered are if early surgical intervention would be better than waiting and if the physiology of dystonic storm is different from dystonia. A treatment registry might help in answering these questions and provide better data in the future for those in crisis.

"This is a syndrome that can be managed," he said."



Dr. Steven Frucht, at Mt. Sinai School of Medicine in N.Y. with Phil and Alyssa Lueken from Jasper, Ind.

Disorders

(continued from pg. 8)

*Kufor-Rakeb, named for the village in Jordan where it was first described in 1994. In 2010, a mutation in the *ATP13A2* gene was deemed responsible. No U.S. families have yet been found to have it, but there is one in South America and a few in the Middle East. Just two of the individuals have high brain iron. Other symptoms are juvenile parkinsonism, dementia, abnormal eye movements and involuntary jerking of facial and finger muscles.

*Aceruloplasminemia, an unusual form because iron accumulates not just in the brain, but in other organs, including the liver. The gene responsible is *CP*. Onset occurs in adulthood and features neurologic disease, diabetes and retinal degeneration.

*Neuroferritinopathy, which is the only genetically dominant form of NBIA identified so far. It resembles Huntington's disease and is caused by mutations in the *FTL* gene. MRIs are different from those of other NBIA patients.

*Idiopathic NBIA, a type of unknown origin that is suspected to be genetic. It's likely that there are still several additional, less common genes to be found, Gregory said. The search continues.

You can honor the memory of a loved one or a friend through a gift to NBIA Disorders Association. The thoughtful people listed below have made a donation on behalf of their friends and loved ones during the last few months.

In Honor Of

Brent Bonfiglio & Family

Angela Bonfiglio Allen
Sharon Amon
Paula Dauguet & family
Praveen & Reeta Gupta
Nancy Lueder Misra
Alison Mochizuki
June & Gene Mochizuki
Dan & Patricia Perez
Amos Picker

Michael Komenda

Betty Burian
Alfred and Barbara Mattaliano

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Joyce Judd
Jerry Oshiyama

Sahil Goyal

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Drew Karakourtis

Dale & Nancy Thrasher
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Old National Bancorp

Ashley Middendorf

Dale & Delores Bettis

Keri Patton

Paul & Janet Buhay

Jonathan Stretter

Sarah M. Hunter
Patricia Reynolds

Zach West

Megan, Luke & Jillian Taylor

Kimberly Wood
Arnie & Marie Mueller

Brittany Leap

These donations are from various sources including fundraisers in honor of Brittany

Lee & Nicholas Agnos
Steve & Ann Anderson
Joseph & Sara Apke
Mr. & Mrs. Francis Austin
Michael & Francine Barnes
Marinda & Brett Beach
Mark & Jaylene Betonti
Peter & Margaret Briar
Peter & Robyn Candland
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Haymarket Lodge Charitable Foundation, Inc.
Susan Ostermeyer Johnson
Khalsa Integrative Medicine
Thomas & Monique King
Timothy & Elizabeth Kutz
Vincente Ven Bond Lai

In Honor Of

**Brittany Leap
(cont.)**

Rich & Sandy Leap
A.L. & L.L. Leightley
Linda & Michael McGraw
Peter & Ingrid Morrison
Janet Nolle
Piedmont Ladies Golf Assoc.
Heather Porter
David & Shawni Pothier

Harold & Nancy Shablom
Frank & Sandra Surface
Gregory & Linda Tennille
Angela & Jonathan Toler
David & Julia Turner
Victoria Wheeler
Colleen & Thom Wood
Celeste Yovetich

In Memory Of

Sabrina & Alyssa Barbiero
Norman & Marisa Barnes

Christina Campbell
Elizabeth & Wayne Campbell

Wendy Devens
Dennis & Judy Devens

Madison Frederick
David & Liz Ruth

Melissa Ann Moore
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Sterling & Doreen Merrigan
Mark & Martha Nell Richards

Ben Patterson
Wen & Christy Grimes
Inetha Lowe

Richie Roberts
Bernie & Judy Roberts

Tony & Jean Venuto
Angela Steinker



*Gone from our sight, but never from our memories,
Gone from our touch, but never our hearts...*

MESSAGE FROM THE PRESIDENT

At 15 years, I look forward with optimism



Patricia Wood

The proudest achievement in my life is being a mother. That is my heart and soul. That led me to my second biggest achievement — founding the NBIA Disorders Association. Helping other mothers and families struggling with this sometimes difficult path yet knowing I am doing my part to help find treatments and, ultimately, a cure for these devastating disorders, is incredibly rewarding.

Officially, Sept. 23 is our organization's 15th anniversary. The federal government recognized us as a non-

profit on that day in 1996, although we didn't get the news until February 1997. And it wasn't until January 1998 after I had sold my share of a business that I dove into the work of the organization.

I remember our first Family Conference and Scientific Workshop in 2000 better than any other, including this last one where some of the days are a bit of a blur! One memory in particular from that first conference stands out. I looked around at the scientists and families gathered together for a session and said to myself, "No one can take this away from me. No matter what else I do with my life, I helped bring all of these people together. I made a difference." That has sustained me through some hard times with the organization, like in 2009.

After our 2009 family conference, the mood was sad. We had fears that our key research site, the Hayflick Lab at the Oregon Health and Science University, would close because of a lack of federal grant support. It seemed like all of our hard work might have been in vain. But we didn't give up even though many said we couldn't raise \$250,000 to keep the lab going. We raised the money, and it paid off. So many people can take credit for helping to make a difference during that difficult time.

What struck me the most about this year's conference was how changed the mood was. Instead of worry and sadness, there was hope and excitement at the progress happening in our NBIA world. New researchers have joined our quest for a cure. New collaborations are being formed and expanding our knowledge in profound ways. Our enthusiasm and optimism have returned. We got our groove back — thanks to all we have learned and achieved these past 15 years.

So this fall we need to raise big bucks to fund all the research grants that will help us continue to move forward in our quest for a cure. And it seems like a reachable goal to me — that if we work together as we did in 2009, we can make things happen.

NBIA Disorders Association is grateful to its supporters for their generosity. We extend our deepest thanks to the contributors listed below who have donated in the past few months.

BAE Systems Matching Gift	Steven Louie
Bank of American Matching Gift	John & Vera McMahon
Lillian Cady	Deepika Meka
Kathleen Coleman	Miami University Genetic Club
Don & Marjorie Cullen	Don Rip Miller II
Arnold Brincks & Brenda Doll	Dana & Randall Mills
Brian Fix	John & Debbie Pitchford
Freddie Mac Employee Funds	Qualcomm Matching Gift
Jyoti Gupta	Dr. Amy Sun
James Hayes	Bernice Wolf
Dennis & Vicki Krafft	

A special thank you to the Glen Wright Donor Advised Fund of the Greater Cincinnati Foundation for their grant award of \$5,000 on 4/12/11.

Donors may also be found in other sections of the newsletter under fundraisers and/or donations made in honor/memory of someone.

Scholarship Contributors

NBIA Disorders Association would like to thank the following individuals, for it is through their generosity that we were able to offer partial scholarships for families and individuals who otherwise would have been unable to participate in the Sixth International NBIA Disorders Association Family Conference.

Mark Botten & Regina Neal	James & Anne O'Hara
Howard Blum	Bill & Kim Patterson
Robert & Cheryl Brolin	Marianne Patton
Dean Brooks	Gary & Sharon Paul
Lillian Cady	Irma Ramirez
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Mike Fry	Clara Smith
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Kuldeep Kalonia & Mabel Moreno	Mike & Tom Trombley
Dee Mackall	Mr. & Mrs. Charles Waniak
Carole Marra	Dave Watson
Steve & Cindy McCawley	
Charles & Elizabeth Morgan	

The theme of our conference was "Collaboration is Key." I am someone who instead of asking, 'Why me?' prefers to ask, 'Why not me?' And, 'Why not you?' Let helping to find a cure for NBIA disorders be a part of your legacy, too.



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Our Mission:

NBIA Disorders Association is a non-profit organization

dedicated to providing emotional support to families affected by NBIA, educating the public about this disease, and monitoring and supporting research and informing others of its progress.

NBIA Disorders Association

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