



MYASTHENIA GRAVIS
FOUNDATION OF AMERICA, INC.

Foundation Focus

SPRING 2016

Highlights in This Issue:

- 8 Transforming Your Life to Manage MG Challenges
- 10 2015 Scientific Sessions
- 13 Clinical Trials in MG
- 16 MG Volunteers
- 18 A Survey on the Impact of MG on Australia

For full contents turn to page 2

Upcoming MG Walk

- New Orleans – 3/5/2016
- Tampa Bay Area – 3/12/2016
- South Florida – 3/13/2016
- Tallahassee – 3/13/2016
- Orlando – 3/19
- Georgia – 4/2/2016
- North Carolina – 4/30/16
- South Carolina – 4/30/16
- Southern Wisconsin – 5/7/16
- Northern Wisconsin – 5/7/16
- Connecticut (Meriden) – 5/14/16 (tentative)
- Spring Northern California – April/May
- Spring Southern California – April/May
- TriState – May/June
- New England – 6/11/16 (tentative)



- Facebook.com/MGWalks
- Twitter.com/MG_Walk

June is MG Awareness Month

Tommy Santora, New Orleans, LA



Richard Whitney has MG and is one face of MG. See his story and others on www.myasthenia.org/CommunitySupport/PatientStories.aspx

You are the face of MG and a key to building MG Awareness. This coming June's MG Awareness Month, be part of the solution and talk MG wherever, whenever to whomever. How? When you find an opening in a conversation be ready to talk about MG with anyone, but especially with friends and neighbors. Introduce the topic yourself. Explain what Myasthenia Gravis is, how it affects people, and what they can do to help raise awareness of and fundraise for research about MG. Here are some statements that may help you share. You may not be able to use all of them, adjust as appropriate to the person and situation.

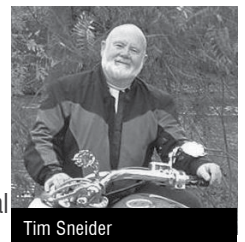
- I'm looking to build awareness about MG, that's myasthenia gravis, it's a rare disease. I'm sharing because many people, even doctors aren't aware of MG. I have MG (or my Dad has MG, etc.).
- Myasthenia Gravis or MG is an autoimmune neuromuscular condition that causes weakness in voluntary muscles.
- MG can affect eyesight; limb strength; and the ability to swallow and breath.
- It can have a profound effect on one's life, although it's usually invisible to other people.
- What others might see are symptoms like droopy eyelids, an inability to smile or an unsteady gait. All of which can be misinterpreted.

Continued on page 7

Tim Sneider – My MG Story

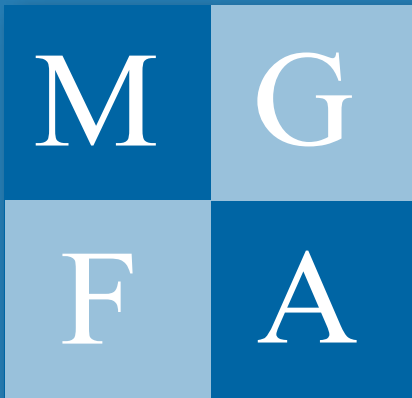
An MG Medical history since January, 2013, Age: 64

Tim Sneider, NYS, shares his story of health challenges -- After having a motorcycle accident in September of the previous year, I lost my job due to family leave running out. I still was not able to work because of a badly torn rotator cup. I decided to apply for early retirement and to try and obtain disability retirement. The surgery on my shoulder and physical therapy would extend into my 65 birthday anyway.



Tim Sneider

Continued on page 2



Cover article continued

Tim Sneider – My MG Story

The shoulder surgery / therapy happened and I was back golfing and riding my motorcycle again. I was seeing a Kidney Doctor for issues with them. The doctor says the kidneys have borderline problems, high blood pressure, and I have to watch them with certain “kidney vitamins.” In August of 2013, while playing golf, I began sweating and breathing with difficulty while walking the course. It happened again after walking the dog. Come to find out I had heart blockages that needed attention. I had a triple by-pass in Albany Medical on September 6th, 2013, I went home for recovery in 4 days, and recovered normally.

About 3 weeks afterward I had a hard time chewing food and swallowing. It was very difficult. I didn't have any energy as yet, and I started slurring my speech as well as feeling tired most of the time. These are similar symptoms as having a stroke. (Note: In the morning I seemed fine but throughout the day, when talking, the slurred speech came on in a few minutes; not immediately. Same with swallowing, which are NOT symptoms of a stroke.) Still recovering from heart surgery I mentioned it to my GP who sent me to an Ear, Nose and Throat doctor (ENT). While checking my throat through my nose the ENT tapped around my vocal cords with his instrument, which would have made a normal person's gag reflex fire and want to throw up; I felt nothing. The ENT thought I had “Pump Head Syndrome” due to

the heart surgery. That's a syndrome developed by patients when left on a ventilator for an extended length of time. The ENT also sent me to a Speech therapist who thought I might have Thrush and thus suggested I take Nystatin 4X a day. I also had blood testing and Barium swallowing x-rays taken, but nothing supported any physical problems. The Nystatin seemed to be working after about 10 days and the swallowing and speech seemed to be stronger. A return visit to the ENT and his exam through my nose had the appearance that I was back to normal. Tapping on my vocal cords with his instrument gagged me quickly. All seemed back close to normal after a month of throat issues.

After a month of swallowing and speech issues, testing for almost anything, I saw a neurologist for the first time. He had me take a blood test, which disclosed I had Myasthenia Gravis. My wife and I thought I was given a death sentence. After internet investigation I found I could last a long time with this issue. I started to attend the monthly local MG Group Meetings in Albany, headed by Barry Levine. I find I am not as bad off as many others. I jokingly tell people I feel like I am one of “Jerry's Kids” now.

My throat issues went away. I am NOT on any MG drug therapy at this time, only heart meds and kidney vitamins. When I am too active

June is MG Awareness Month.....	1
Tim Sneider- My MG Story.....	1
Support Group Updates.....	3
Transforming Your Life to Manage Challenges of MG By Vilija Rasutis, RN & Sally O' Meara.....	8
Scientific Session of the Medical/Scientific Advisory Board (M/SAB) By Robert Ruff, MD, PhD, M/SAB Chairman	10
MGFA National Conference	12
Clinical Trials in Myasthenia Gravis By Michael Hehir M.D & Nicholas Silvestri MD.....	13
MG Walk Campaign expected to stage its most events to date in 2016!.....	14
MG Volunteers	16
What's Hot off the Press in Neuromuscular Junction Disorders? By Nicholas J. Silvestri, MD & Gil I. Wolfe, MD	17
Perspective: A Survey on the Impact of MG on Australia By Henry J. Kaminski MD & Richard J. Nowak MD	18

I become very tired, almost to exhaustion when I cannot rise from a chair easily. After rest I am fine. I have occasional double vision when looking to the side. I become short of breath at times, especially when walking the golf course. I wonder if the shortness of breath is the MG or heart issues. Oh well, I stop, catch my breath, and keep playing. Some mornings I feel like I have a pill caught in my throat, but I do not slur my speech or have a hard time eating, and the feeling goes away in an hour or so.

It's been 2+ years since my heart attack to the day, I am 67, and I am feeling very good. I work in the yard, swim, golf, ride motorcycles with no issues. BUT, when I become tired, I become very tired. Knowing where that threshold is proves difficult. Sometimes I am good for

4-6 hours, sometimes 1-2 hours. After some sleep I am fine. Long distance driving (500+ miles) will tire me out for 24-36 hours and brings on physical weakness. I haven't been going to the Fitness club because of it, but this fall I am going to return. The heat bothers me more and I sweat considerably. I have lost 6 pounds and need to lose more, more through diet than exercise since exercise tires me out so.

I sometimes wonder if my issues were brought about by disturbing the thymus gland during heart surgery or I really do have MG. The MG blood testing proved I do. I can have a life with MG. I will have a life with MG. I do NOT want to be strapped to medications and will do everything I can to stay off them.

Support Group Updates



Evan Greene, Support Group Leader

Los Angeles, California Support Group

This past January, the earth moved in Los Angeles, but it wasn't an earthquake. It was the premiere of the MGFA MG Support Group of Los Angeles.

Years in the making, new facilitator and MG patient Evan Greene, MG Walk Director Rich Mauch and others worked on the ground in LA to build partnerships with neurologists and hospitals. It was at an LA MG Walk that Evan first met Rich.

Finally, in December and January, volunteers and MGFA staff in NYC called LA patients that we have helped in the past and sent announcements via email to many more patients. LA neurologists on our Physician Referral List were enlisted into service to spread the word.

The result was a sizable audience with MG patients and their caregivers delighted to find a local place where they could get MG information and talk with others whose lives are being changed and challenged by this rare, incurable, unpredictable and often disabling disease.

Neurologists Dr. Richard A. Lewis MD, from Cedars-Sinai Medical Center in LA, and Dr. Shalani Mahajan MD, from Good Samaritan Hospital, answered questions and led discussions.

For one 14-year-old patient named Brandon, being in the same room with other MG patients was seismically important.

"Brandon felt so connected to know that he can share his illness with others who are going through the same thing as he is," reported David, Brandon's father. "He felt so alone prior to the meeting."

Enthusiastic and hopeful, David called the premiere "eye opening."

"We are looking forward to our future gatherings," the father said. "We think meetings that range every 4-6 weeks would be an ample amount of time to prepare ourselves to attend. We would be able to gage travel time, reach out to others with MG and talk to our neurologists who might like the idea of attending our meetings," he said.

"We as parents want to contribute as much time and effort as possible to raise awareness and support for others as well," he said.

When you get an MG diagnosis, finding someone else with MG is difficult, even in a city of nearly 4 million people that is home to Hollywood and serves as a national hub for television and every other telecommunication medium that science has invented.

MGFA facilitator Evan Greene said it succinctly: "This can be a lonely disease."

The group brings benefits to the facilitator, too. "I can't tell you how much it meant for me personally to have a forum to share my story and listen to yours," Evan said.

"After all, that is what a support group is all about: Supporting each other." "We are all part of starting something meaningful, and I look forward to continuing," Evan said.

Contact MGFA Home Office at 1-800-541-5454, or at mgfa@myasthenia.org

Manassas, Virginia Support Group

The Manassas Virginia MG Support group wants to report that we have a booming support group with a member list ranging in age from the early 20s to the 90s! As the only support group in Virginia we have had people travel several hours from both Chesapeake and Richmond. It is a testimonial to the importance of support groups!

Our group was proud to host Dr. Ted Burns from UVA in Charlottesville as our guest

speaker last May. He provided information on types of MG, treatment options, and clinical trials as well as initiating a discussion on the importance of the MG registry and the myMG app that is free to download. A delicious pot luck was held after his presentation where he took time to mingle and talk with individuals and to hopefully actually get something to eat!

During the summer our discussion turned to diet, partly by our own interests and partly as an inquiry from Dr. Burns. Although not scientific, it was found that just as MG is a snowflake disease, so is the approach to diet. Everything from Paleo, to gluten free, to low sugar has been tried. The common theme seemed to be caring where the food comes from and trying to eat less processed and packaged foods. Our full report was sent to Dr. Burns. Thank you Phil Aitken-Cade for not only arranging Dr. Burns' visit, but organizing the information from the discussion and passing it on.

We were very disappointed this past October to have our DC Metro MG Walk cancelled. Torrential rains and the decision of the park to put safety first overrode our enthusiasm. BUT...our very own Tom Larsen of Tom's Rockets fame was not deterred! He has, as of January, raised \$10, 017 (8th highest in the nation), with two more donations promised! Tom, your dedication and perseverance amazes us all!

As we go into 2016 we have more speakers and events to plan and arrange. However, in our month to month meetings we continue to do what we do best and that is provide support. We not only support each other with MG issues but with other life issues as well. There have been tears and there have been amazing triumphs. Together we have found strength, and together our support group will stay strong. As the facilitator I often hear "thank you for your dedication and for keeping the group going." But I want to tell everyone, it's the members that keep the group strong and the reason it's successful. Please know how special you all are!

Anita Steele, Manassas Virginia MG Support Group
agsteele@hughes.net

Low Country, South Carolina Support Group Speakers

The facilitators in Low Country Support Group in South Carolina are great examples of successfully finding and keeping partnerships with medical centers in their catchment area. Facilitators Julian Carnes and Janet Myder are fortunate to live in an area with 3 large medical centers. But it takes a panache and a persistent knock on the medical center's doors and good follow-through to get them to meetings, as Julian and Janet have.

"Many experts from these centers as well as the community at large graciously accept our invitations to speak to our group, Janet said, "Their presentations are learning experiences for us as well as opportunities for us to educate them about MG. Some have asked to be kept up-to-date with our group and we have added them to our e-mail list," she said.

Their list of speakers, month after month, is impressive. In October, Jayne Quinn, R.N. Pain Resource Program Coordinator in the department of Specialty Nursing of the Medical University of South Carolina (MUSC) taught participants about how people feel and interpret pain and led discussion of the compatibility of pain drugs with various drugs and treatments for MG. In January's guest speaker presented an informative program on how to recognize and avoid scams, identity theft (including theft of medical information), and elder abuse. "We've scheduled a dietitian for our February meeting who will give us advice on good nutrition and adaptations for people who have swallowing difficulties. We have invited a neurologist to speak in March about living with chronic illness and approaches to patient care," reports Janet.

If you are an MGFA support group facilitator looking for tips to have an active, helpful and informative schedule throughout 2016, give Julian Carnes (843-388-1683) or Janet Myder (843-216-6174) a call. Or email them at mgsupport11@comcast.net.

The support group continues to welcome new members who are recently diagnosed with MG seeking information and support from others who have MG.

Tucson, Arizona Support Group -- A Brief History 1997-2015

By Jan LoVecchio

The Tucson Arizona Support Group was led for many years by Jan LoVecchio. Recently Jan wrote to tell us about the Tucson group's many accomplishments.

Jan reports: "We had regular meetings devoted to round robin group discussions led by a support group member. As you will see, it's quite a list and I'm very proud of what we did in Tucson during the past nineteen years. With the exception of the physical therapists, occupational therapists, nutritionists, community agency speakers, and lawyers, the majority of the presenters were from the University of Arizona either at the College of Nursing, College of Pharmacy, or College of Medicine. Tucson is very fortunate to have these resources available for speakers.

Most of the speakers were residents although some were College of Medicine professors – usually the neurologists and rheumatologist speakers. Inviting medical residents to speak at support groups really sets up a win-win situation because it provides the residents an opportunity to connect with this disease population and enhance their medical education and provides a good quality speaker for the support group. Residents are usually extremely interested in these opportunities and do a very thorough presentation.

The best way to schedule a speaker like this is to search the medical school's electronic directory on the Internet. Then identify the name of the resident program director (ophthalmology, neurology, etc.) for the topic you are seeking a speaker for. Then contact the program director and ask for a speaker. I have always had a very positive response from residency program directors in response to my e-mail queries.

Here is a tip on what to do if you talk to someone (like a physician) and they say they can't meet at the time of the support group meeting. I always countered this by saying that we understood their busy schedule and were willing to be flexible and schedule the meeting at a time convenient to their schedule. This ploy always worked very well because then what could they say? I never had anyone say no to this offer and I always got my speaker. Of course, it would play havoc with trying to maintain a regular meeting time/location. However, the payoff is that if it was a topic that was really valuable, like current myasthenia gravis research, I would usually get a good response from the support group members, even if it wasn't on the regular time/date.

At the end of every year, I would always distribute survey forms to the support group members asking for their input on future topics, meeting times, meeting locations, and suggestions for topics or other things to improve the support group meetings. Then I would use the survey results to determine the level of interest in various topics and decide which speakers to schedule.

Social meetings were never very successful. We tried a Christmas party for three years, which was poorly attended and we gave it up. We tried a picnic one time, which was attended by 3 people and gave that up. A lot of the activities depend on what the members want to do and it's a trial and error process. During our first year we met from September to May. Over time, we quit meeting in December because it's such a busy month with Christmas. We also left off meeting in May due to the heat in Tucson. So our calendar year for meetings ended up being September to November and January to April.

The Tucson libraries provide free meeting rooms but access to these facilities in the spring is a challenge because most of the libraries reserve all of their weekend rooms for free income tax preparation services for seniors.

Finally, I'm a strong believer that support group meetings are not about numbers. The attendance may be low but if you help one person at a meeting, then that's what counts. And, in my experience most speakers don't expect an attendance of more than 12 people."

Topics Presented at Tucson Myasthenia Gravis Support Group – 1997-2015

NOTE: Many of these topics were presented multiple times

Attorney Topics

- Living wills, medical directives, and power of attorneys - lawyer

Breathing Issues

- Alternatives to respirators (presentation on B-paps and C-paps) – College of Nursing faculty member
- Maintaining healthy lungs – College of Nursing faculty member

Caregiver Skills

- Support for care givers – social worker
- Transfer/lifting skills for caregivers – physical therapist presentation

Community Resources

- Tucson Center for Independence, Sun Sounds radio, Pima Council on Aging, Pima County Caregiver Program, Muscular Dystrophy Association

Dental Health

- Dentist procedures and myasthenia gravis – dentist
- TMJ dental issues and myasthenia gravis – dentist

Emotional Health

- Coping with depression – psychiatrist
- Psychological effects of chronic illness – psychiatrist
- Relaxation techniques – nurse
- Stress management techniques for chronic illness – psychiatrist

Inviting medical residents to speak at support groups really sets up a win-win situation because it provides the residents an opportunity to connect with this disease population and enhance their medical education and provides a good quality speaker for the support group.

Financial Topics

- Aging, Medicare and Managed HMO's – Pima Council on Aging
- Effect of Social Security reform on disability benefits – Pima Council on Aging speaker
- Financial legal planning for the disabled – lawyer
- Social security and disability benefits

Immune System

- Herbs to strengthen the immune system – Integrative Medicine Fellow, College of Medicine
- Herbs for the immune system – naturopathic physician
- Immune system and how it works – immunologist physician

History

- History of myasthenia gravis – neurologist physician

Naturopath Topics

- Mind-body connection in healing – neurosurgeon physician
- Naturopathic medicine, the immune system and myasthenia gravis – naturopathic physician
- Optimal health with myasthenia gravis – naturopathic physician

Nutrition

- Nutrition for swallowing problems - nutritionist
- Nutrition for myasthenia gravis/prednisone - nutritionist
- Nutrition for myasthenia gravis and prednisone – neurologist physician

Ocular MG Topics

- Ocular problems related to myasthenia gravis – ophthalmologist physician

Pharmaceutical Topics

- Antibiotics and other drugs for myasthenia gravis – College of Pharmacy faculty – this was a discussion of all the drugs on the “forbidden” list for myasthenia gravis patients
- College of Pharmacy students would meet one-on-one with the support group members and discuss all of their over the counter and prescription drugs side effects and interactions.
- Diabetes, prednisone and myasthenia gravis – endocrinologist physician
- Drug interaction evaluation – College of Pharmacy students – perhaps the most valuable topic
- GI problems and mestinon – gastroenterologist physician
- Imuran and how it affects the liver – College of Pharmacy faculty
- Myasthenia gravis drugs: prednisone, cellcept and imuran – rheumatologist physician
- Osteoporosis and prednisone – Arizona osteoporosis coalition
- Vaccinations, West Nile Virus and myasthenia gravis – College of Pharmacy faculty

Quality of Life

- Computer technology for disabled – muscular dystrophy caregiver
- Daily living skills – physical therapist
- Exercises for myasthenia gravis – yoga instructor
- Healthy backs, joints, and good balance – physical therapist
- Keeping the heart healthy – cardiologist physician

- Living with myasthenia gravis – group discussion
- Music therapy for chronic diseases – music professor
- Nutrition and exercise – Canyon Ranch physiologist
- Self-defense techniques for disabled people
- Traveling with disabilities – disabled travel agent she had a MDA disease)

Research

- Current research on myasthenia gravis – neurologist physician

Speech and Swallowing Issues

- Nutrition for swallowing problems – nutritionist
- Speech problems with myasthenia gravis – speech therapist
- Swallowing problems, anatomy, and techniques – speech ther

Working with Physicians and Surgeons

- Anesthetics, surgery and myasthenia gravis - anesthesiology physician
- How to communicate with physicians – College of medicine faculty
- Preventing hospital errors in patient care – Patient Care Advocate staff member



DOUBLE YOUR MONEY!

That's right increase your impact through your company's charitable match program. Many companies have a matching gift program, find out and when next you make a donation to the Myasthenia Gravis Foundation of America (MGFA) get it matched and make that much more of a difference toward overcoming MG.

June is MG Awareness Month

- There's no cure although there are therapies that help to some degree depending on the person, but not without side effects. Some individuals are still not helped by current therapies.
- Many sufferers find it hard to get a diagnosis – often being told they are depressed among other misdiagnoses. Some go years without a good diagnosis.
- The big danger for MG sufferers is going into crisis when they can't breathe. If EMTs aren't familiar with MG, they may think the person is on drugs or has some other kind of illness. Frequently MG patients are given wrong or even dangerous therapies.
- To learn more about MG visit www.myasthenia.org.
- Thank you for listening.

Reaching Out

- What are some opportunities to talk about MG? Social media – Use Facebook, Twitter and Instagram to spread the word about Myasthenia Gravis. Get your friends and family members to share your message, and then get their friends and families to share your posts as well to increase awareness numbers.
- Contact your local representatives - While calling or emailing your Member of Congress' office can be a great way to discuss your cause. Make sure you prep in advance! Your Member of Congress and their staff have busy schedules, but that doesn't mean they don't have time to hear from you. Make the most of both your time and theirs by preparing a two minute "elevator pitch" that gets to the core of your issue. If they're still interested, prepare to discuss your cause in more detail. Consider contacting a member of the House of Representatives first. You can access your Representative's telephone number by calling the US Capitol Switchboard at (202) 224-3121. A staff member will typically transfer calls directly to the office, where a legislative assistant will answer.
- Reach out to friends and acquaintances at your house of worship – include your religious leader. You might consider asking him or her to address MG and/or rare diseases in a sermon. A related topic could be making assumptions about others without knowing what or why a person looks or acts a certain way.
- When someone, say a sales clerk, receptionist, teacher or other person you encounter casually looks at you doubtfully perhaps because of eyelid ptosis or your inability to smile, take this as a teachable moment. Try to explain succinctly. You might say, "I see you are wondering why my eyelids seem so droopy (or why I'm wearing an eye patch, etc.). I have MG. It's an autoimmune disease that causes muscle weakness. This is one symptom. If you are curious you can learn more at www.myasthenia.org."
- You may think it's asking a lot to ask you, who are suffering from MG, to become the "teacher." But no one but you and fellow MGers have the motivation, the need, and the knowledge to share. The "receptionist" certainly doesn't, but maybe you can help make that person more knowledgeable and more sensitive.
- Perhaps you have challenges helping family understand your MG. Some may not even know you have it. Take the time to share. If you are met with disbelief, share information from the Myasthenia Gravis Foundation of America. You can print out from the website, the What is MG page has frequently asked questions which can help you and which you can share with others, go to <http://www.myasthenia.org/WhatisMG/FAQs.aspx> .
- Do you have an especially disbelieving cousin or brother – "Oh it couldn't be that bad you look fine!" Don't let that person put you off of making your point. You have something to share—share it. Consider offering some more personal information/experience or share stories such as those on the MGFA website, <http://www.myasthenia.org/CommunitySupport/PatientStories.aspx> or visit You Tube where you can find short videos telling MG stories. For instance, here's one that's short and effective, Life with Myasthenia Gravis on You Tube: https://www.youtube.com/watch?v=VJZm4r7_r3k
- Consider creating your own MG video for You Tube. Talk about what MG is, how it affects you, how you cope, and how you "overcome." If you do, mention Myasthenia Gravis Foundation of America and send us a link to your video—we'll post the link on the MGFA website.
- Co-workers – you may want to be careful what you share in the workplace but if your boss knows about your MG, you may also feel comfortable sharing with others in your place of work. Keep it simple and factual.
- Neighbors – if you are friendly with your neighbors you may choose to share with one or more of them when appropriate opportunities arise. You can create the opportunity yourself. For instance, if you always meet the guy down the hall on the way home from work perhaps you always make a habit of asking how he is. When he responds in turn you might say,
 - "Thankfully my MG hasn't acted up in a while."
 - "MG? What's that?"
 - "It's an autoimmune disease – not catching at all by the way – that affects muscle strength. Sometimes you might see that I don't smile – it's not because I'm unfriendly, I just can't smile sometimes! It's a real pain!"
 - Of course, not everyone will be responsive or become engaged, but half the time, you'll have shared a little bit of education and maybe even make a new friend.
 - Recognize that other people may have their own health challenges and sharing may bring out stories from others. As you seek support from others, you may also be asked to show support and sensitivity in turn.

Transforming your life to manage challenges of MG

By Viliija Rasutis, RN & Sally O'Meara, MSN, RN

Nobody says "I want to be chronically ill when I grow up." Nobody hopes for a future that revolves around doctor appointments, expensive medications and debilitating fatigue/weakness. Patients with MG didn't choose to have the disease but thankfully they definitely have options about how to deal with it.

Myasthenia Gravis (MG) is a disease of the neuromuscular junction, which causes muscle weakness in the face, limbs and/or chest (1). Acquired MG is due to an autoimmune attack on the neuromuscular junction(2). Congenital MG is the result of a genetic defect of the neuromuscular junction itself. Both types of MG cause insufficient transmission of acetylcholine across the nerve ending to the muscle, causing impaired muscle contraction and weakness (3).

The diagnosis of Myasthenia gravis is determined from both clinical symptoms and specific muscle testing. Approximately two thirds of patients first notice weakness of eye muscles leading to double vision or ptosis (droopy eyelid) but the symptoms remain limited to this area in only 10% of patients. The disease commonly spreads first to the face, followed by the neck, arms, legs, trunk and finally the respiratory muscles although presentation may vary widely. The non-specific, fluctuating symptoms characteristic of MG often lead to delays in diagnosis. If left untreated, MG can cause permanent damage to nerve endings (4).

Some patients with MG are severely affected while others have mild symptoms. Studies have shown a relationship between disease severity and quality of life in patients with MG (5). MG patients present with various combinations of symptoms such as high-pitched or slurred speech, double vision, difficulty chewing and swallowing, shortness of breath, and/or unsteady gait. Each person faces a different set of challenges based on the specific areas of muscle weakness. Droopy eyelids may make the person look sleepy, apathetic or depressed. Weak muscles around the mouth may mimic a

smirk or look of sadness. People with MG may withdraw from activities, family and friends due to their debilitating fatigue, changed appearance, or inability to speak clearly. Limited social contact can worsen feelings of helplessness and lower self-esteem, so management of symptoms is essential (6).

It is all too easy for patients to focus on limitations caused by MG rather than the talents, skills and abilities that still remain.

It is all too easy for patients to focus on limitations caused by MG rather than the talents, skills and abilities that still remain. MGers should not try to deny that they have a chronic illness but instead aspire to reach their highest potential in spite of it. Working or holding down a busy career may not be an option for MG patients with severe symptoms but many still find ways to be productive and make a positive mark on the world through volunteering, mentoring, and reaching out to others. MG patients who are home bound can stay active and connected through social media, Skype or online support groups and classes.

It is important for MG people to play to their strengths and set realistic goals for themselves so they do not set themselves up for failure. Priorities must be set and goals may need to be adjusted or limited in order to avoid a myasthenic flare or crisis. Some with MG may have to decide between having a spotless house and keeping a job. Others may have to work part time or change careers. Telecommuting, flexible hours, working from home and job sharing are options for MG patients who are still working.

Students with MG can contact the disability support services department available at most K-12 schools and universities. Schools may provide note takers, scribes for written tests, enlarged fonts for written materials, or adjustable lighting depending on the student's needs. MG people should make their needs

known rather than assume that schools or workplaces will anticipate and plan for their needs. Arranging for and accepting help is an intelligent decision for MG patients to make their lives easier, safer and more productive.

People with MG need to budget their energy as well as budgeting their finances to protect their health. It is a wise idea for those with MG to work smart so that they are able to do more. This includes self-care as well as work and other activities. MG people must learn to say no in order to protect their health in spite of disappointing family /friends. Careful planning of schedules to allow for rest periods especially after busy or physically demanding activities is crucial for those with MG. A small oasis at home to rest and relax can be very helpful, even if it is very small like a corner of a favorite couch.

A small oasis at home to rest and relax can be very helpful, even if it is very small like a corner of a favorite couch.

Patients may find it helpful to schedule appointments for the morning hours before muscle weakness worsens later in the day and try to rest before and after activities. The Internet is an important resource for on-line shopping and checking out e-books to avoid trips to the library. Enlisting the help of family and friends to assist with housework and chores may be needed. Time spent resting weak muscles can be made productive by learning a language or writing a blog or made more enjoyable by crafting, working puzzles or meditating. Those with double vision may enjoy listening to audiobooks or podcasts.

Tools and support systems through adaptive technologies can help patients use computers more effectively, including voice-to-text apps, large print, headsets, etc. Handicapped parking placards are extremely valuable for MG patients with leg weakness, especially in snowy or slippery parking lots. Push-button automatic door openers make life much easier for those who use walkers or

wheelchairs. A variety of assistive devices are available for use to compensate for specific areas of muscle weakness including hair dryer stands, hand-held shower heads, shower seats, car assist grab bars, shoe horns, magnifiers, and reachers. Small electric appliances like lightweight cordless vacuums and can openers can reduce the physical work required for household chores and allow MG patients to conserve energy. Those with MG who live in multi-story homes should plan ahead to minimize trips up and down the stairs. It is important for MG patients to stay organized to minimize the stress of running late and searching for lost items.

Many people can't appreciate the challenges of living with a chronic illness, especially when patients are diagnosed at a young age. Those with MG should not expect people to understand or take it personally when they

are stared at or treated rudely. Getting upset or taking it personally isn't a good approach to dealing with ignorance about disabilities and chronic illness. Instead, MGers can use humor to cope and deflect while making the most of teachable moments to spread awareness of MG. Some patients find it helpful to have responses prepared such as "If I need to use a walking stick, I'm going to make it look fabulous." It is important for MG patients to treasure supportive friends, co-workers and family members and turn to them as needed.

CONCLUSION. There is no cure for myasthenia gravis but with ongoing research and improvements in treatment modalities, the symptoms and side effects of the disease can be, to a large extent controlled. To date, we are gaining knowledge of more effective treatments and hoping for a cure for MG, however, the focus remains on identifying

strategies to optimize living with this illness and embracing each person's quality of life.

References

1. Chen, Y.T., Shih F.J., Hayter, M., Hou, C. C., Yeh, J.H. (2013). Experiences of living with myasthenia gravis: A qualitative study with Taiwanese people. *Journal of Neuroscience Nursing*, 45(2) E3-E10.
2. Silvestri N.J., & Wolfe, G.I. (2012). Myasthenia gravis. *Seminars in Neurology*, 32(3), 215-226.
3. Lennon, V.A. & Lambert, E.H. (1980). Myasthenia gravis induced by monoclonal antibodies to acetylcholine receptors. *Nature*, 285, 238-40.
4. Engel, A.G. (2012). Current status of the congenital myasthenic syndromes. *Neuromuscular Disorders*, 22(2), 99-111.
5. Raggi, A.,Leonardi, M., Antozzi, C., Confaloneri, P, Maggi, L., Cornelio, F., et al. (2010). Concordance between severity of disease, disability and health-related quality of life in myasthenia gravis. *Neurological Sciences*, 31,41-45.
6. Chen, Y.T., Shih F.J., Hayter, M., Hou, C. C., Yeh, J.H. (2013). Experiences of living with myasthenia gravis: A qualitative study with Taiwanese people. *Journal of Neuroscience Nursing*, 45(2) E3-E10.

Coping skills
 Facebook.com/FibroColors

Do what you can for your body
 Grieve for what you have lost
 Live for today
 Set reasonable goals for yourself
 Realize that you have limits
 Remember you still have choices
 Be energy efficient
 SET PRIORITIES
 Keep your sense of humor
 Schedule rest periods
 Don't blame yourself
 Dont ignore your sexuality
 Let yourself feel your feelings
 Keep a journal
 Be aware of yourself
 Have fun
 Learn to adapt
 Find support
 Keep work and home schedules on same calendar
 Spend your energy wisely
 Establish a partnership with your health-care team

Scientific Session of the Medical/Scientific Advisory Board (M/SAB)

Robert Ruff, MD, PhD, M/SAB Chairman



The Scientific Session of the Medical/Scientific Advisory Board (M/SAB) was held at the American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) Annual Meeting in Honolulu, Hawaii on October 28, 2015. The Meeting Hall was packed with more than 200 attendees. There were 11 platform presentations (formal talks) and 5 posters (note that in my summary below I discuss one of the posters from China with the initial keynote talk from China).

The location was particularly convenient to attendees from Asia. Keynote talks were given by MG clinicians from China (Dr. W-B Liu and colleagues) and Japan (Dr. Utsugisawa). The session co-chairs, Drs. Jeffrey Guptill and Michael Hehir are rising stars in the MG research community and the MGFA M/SAB. Dr. Guptill received a coveted MGFA/American Academy of Neurology Fellowship for MG research. The abstracts of the talks will be published in the professional journal *Muscle & Nerve*. What is presented below are the talks including the titles, authors, the locations of the work and brief comments about why I felt the talks were important.

Background information for people who are new to MG – The most common forms of MG are autoimmune disorders in which a person's body produces antibodies against specific proteins in the region where nerves that control muscles contact the muscle fibers. The contact regions are called neuromuscular junctions (NMJs). The most prevalent class of antibodies is directed against the acetylcholine receptor (AChR). A smaller number of people have MG that is caused by antibodies that are directed against a protein called muscle specific kinase (MUSK). MG can also result from genetic alteration (mutations) of specific components of the NMJ. Genetic forms of MG often manifest early in life and are referred to as congenital MG or congenital disorders of neuromuscular transmission.

1st Keynote Presentation

This meeting provided a forum for the leaders in MG care in China to present to an audience from the US. This talk was broken into three parts.

- **A cohort study on the quality of life of Myasthenia Gravis patients using short form-36 health survey** - L Qiu (Guangzhou, China), W Fang (Brookville, NY), C-Y Ou, J Deng, Y-F Luo, P Chen, H Feng, Y Li, R Mo, W-B Liu (Guangzhou, China)
- **Epidemiology and Clinical Characteristics of Myasthenia Gravis patients in China**
W-B Liu (Guangzhou, China), W Fang (Brookville, NY), Y Li, R Mo, X Huang (Guangzhou, China)

- **Clinical features of Juvenile Myasthenia Gravis in southern China** -- X Huang, H Huang (Guangzhou, China), W Fang (Brookville, NY), L Qiu, J Deng, Y-F Luo, Y Li, H Feng, Z Chen, W-B Liu (Guangzhou, China)
- **Summary** –The speakers from China were from the Dept. of Neurology at Sun Yat-Sen University in Guanzhou, China. This University Hospital was established by an American missionary, Dr. Parker. Data for the presentations were obtained from 17 hospitals in Guangzhou (southern western China), 4 hospitals in Harbin (northern western China) and two healthcare insurance systems in Guangzhou. I was surprised that in spite of China being a major producer of laptop and desktop computers, electronic medical records are not widely used in China. Medical information is stored in paper records.

The first two parts of the presentation dealt with the Chinese application of MGFA quality of life measures and the prevalence of MG. The third was a study of clinical characteristics of juvenile MG (JMG) in China. It was pleasing that the clinical standards for assessing MG developed by the M/SAB of the MGFA are used in China as standards. The patterns of treatment closely follow US care with good results. Crisis survival rate was reported to be 99%.

It was pleasing that the clinical standards for assessing MG developed by the M/SAB of the MGFA are used in China as standards.

Prevalence was based upon data obtained from Northwest and Southwest China. The prevalence of MG for hospitalized patients varied from about 40.5/100,000 in southern China compared with 12.8 in northern China. The large difference between the prevalence in northern and southern China may partially reflect a true difference in the MG prevalence between the north and south of western China. Alternatively, other factors likely contribute including differences in MG recognition, differences in access to health care and cultural differences affecting people who seek medical care. Among all hospitalized patients the prevalence was 10.93/100,000. The overall prevalence figures are similar to those reported in other parts of the world. The MGFA reports a prevalence in the US as 12 to 20/100,000 (see also Phillips LH (M/SAB member), *Ann NY Acad Sci* 998:407-12, 2003). Studies in Europe indicate prevalence values of 8-15/100,000 (Cooper et al. *J Autoimmune* 33:197-207, 2009). The Chinese physicians did not see a large gender difference in MG prevalence.

Country/Region	Prevalence per 100,000 people
US	12 to 20
Europe	8 to 15
Southwestern China	40.5
Northwestern China	12.8

The third presentation addressed juvenile MG (JMG) in China. Chinese patients had a fraction of patients presenting with Juvenile onset MG about 50% compared to about 15% in US. Patients come for assessment every 2 weeks. In part due to the 1 child policy, parents are very attentive to children and bring them for care when they are sick. About half of patients had MG onset at 0-6 years of age. 48.8% were AChR antibody negative and all of the AChR Ab negative cases were also MUSK negative. 2% of cases of JMG were familial MG. More than 90% of JMG had ocular onset. The number of Chinese patients with JMG seen per year increased to 12,000 in 2014, with about 100-200 new patients per year. A relatively high percent >40 percent of new patients treated by this group had JMG. These presentations were important because they opened communication about MG between China and the rest of the world. The MGFA is already connected to sister organizations in Europe, South America, Japan and Australia and now we have opened communications with China.

Juvenile MG in China	
Percentage of Patients with Juvenile MG	50% (Note in the U.S. it's 15%)
Number of patients seen per year	12,000
Age of MG Onset	Approximately 50% are 0-6 years of age
Presentation	90% had Ocular onset
AChR antibody negative	48%
AChR negative cases also MUSK negative	100%

2nd Keynote Presentation

An Example of treatment based on new Japanese clinical guidelines for MG: what should we target? -- Kimiaki Utsugisawa, Hanamaki General Hospital, Hanamaki, Japan (colleagues in Nagasaki, Sendai, and Tokyo, Japan)

Background – Dr. Utsugisawa is a distinguished MG physician in Japan. He adopted the MG QOL (quality of life) instrument developed by members of the M/SAB of the MGFA especially Drs. Ted Burns and Don Sanders for use in Japan (Masuda and Utsugisawa et al. Muscle Nerve 46: 166–173, 2012). He also led studies of the utility of calcineurin inhibitors in the treatment of MG (Utsugisawa, Clinical and Experimental Neuroimmunology 6 (2):195–200, 2015). Calcineurin inhibitors are a class of agents including imuran, cyclosporine and a drug developed in Japan, tacrolimus. The study of the calcineurin inhibitor tacrolimus found, for elderly patients and patients with severe MG, that tacrolimus needed to be combined with prednisone for best clinical outcomes.

The current presentation suggested a new treatment strategy based on using prednisone and calcineurin inhibitors, particularly tacrolimus to treat patients who had generalized autoimmune MG. The suggestion

was to use calcineurin inhibitors combined with prednisone, but to aim for a lower peak dose of prednisone than previously aimed for, to achieve initial clinical stabilization and then to taper the dose of prednisone to a dose of 10 mg per day or less as tolerated by the patient. Dr. Utsugisawa suggested the flares of MG should be treated with plasma exchange or IVIG in preference to increasing the prednisone dosing. The treatment strategy described by Dr. Utsugisawa will be evaluated in Japan and the results will likely be reported in a future meeting. This presentation is important because it examines another approach to treating MG that could be explored in the US. In the US tacrolimus is not heavily used, but other calcineurin inhibitors are used, particularly imuran and to a lesser extent cyclosporine. An interesting aspect of the Japanese approach is to use lower doses of prednisone in order to avoid several unwanted side effects of prednisone such as osteoporosis, skin fragility and muscle wasting. If lower dose prednisone is effective in Japan, this strategy may be considered in the US.

Background for the 3rd and 4th platform presentations addressing myasthenic syndrome aka Lambert-Eaton Myasthenic Syndrome (LEMS) – LEMS is a disorder of the neuromuscular junction caused by insufficient release of acetylcholine (ACh) from the nerve terminal. The result is that the muscle AChRs are incompletely stimulated producing weakness. Treatment is directed toward enhancing the release of ACh.

Make A Difference For MG



Participate in the

Go to mgregistry.coph.uab.edu/MGRegistry/SignUP.aspx

The MG Patient Registry is designed to help build data on the real world of MG -- real patients, real information. To participate, plan to gather your medical records, such as prescriptions, and set aside some time to enter your information. Your investment of time will make a major difference in our knowledge base and ability to conduct meaningful MG research.

Results From The Dapper Study: Inpatient Double-Blind Placebo-Controlled Withdrawal Study of 3, 4-Diaminopyridine Base (3,4-Dap) in Subjects with Lambert-Eaton Myasthenic Syndrome (LEMS).

DB Sanders, VC Juel (Durham, NC), Y Harati (Houston, Texas), AG Smith (Salt Lake City, UT), A Peltier (Nashville, TN), T Marburger (Portland, Oregon), J-S Lou (Fargo, ND), RM Pascuzzi (Indianapolis, IN), DP Richman (Davis, CA), T Xie (Somerset, NJ), LR Jacobus, KL Aleš, DP Jacobus (Princeton, NJ), and The DAPPER Study Team

The 3rd talk focused on the efficacy of a drug 3,4 DAP used to treat LEMS and some forms of genetic or congenital MG. At the present time, Jacobus pharmaceutical company (JPC) has been providing 3,4 DAP on a compassionate use basis free to physicians to treat patients with LEMS. In order to be able to continue to supply 3,4 DAP, JPC wants to be able to obtain licensure to enable it to produce enough medication to meet the anticipated need. Therefore, JPC sponsored this study as a step to obtain licensure to produce the agent for clinical use treating LEMS. The primary inclusion criterion was that patients with LEMS had to have a large response to 3,4 DAP. In the study subjects were hospitalized to determine that symptoms worsened after withdrawal of DAP. Subjects were randomized to taper to placebo or continue DAP. Clinical measures assessed strength

To me the Scientific Sessions of the M/SAB and the International Conferences on Myasthenia Gravis, both of which are sponsored by the MGFA, are the most important international meetings that are devoted to MG. – Robert Ruff, MD, PhD, Chairman, Medical/Scientific Advisory Board

changes. Patients in the taper to placebo group had deterioration in motor function and recovered when DAP was restored. More people in the placebo group needed rescue than the subjects who maintained their DAP. The study will be used to obtain licensure for JPC to provide 3,4 DAP for patients with LEMS.

Effect of 3,4-diaminopyridine and its acetylated metabolite at the murine neuromuscular junction

RA Maselli, F Ng, DC Lee (Davis, CA)

The 4th talk looked at the effect on 3,4 DAP on NMJ and also looked at primary metabolite (3-Ac) of the agent. The drug enhances the release of ACh by increasing the entry of Ca²⁺ into the nerve terminal. The experimenter simulated the low ACh release of LEMS by increasing the concentration of Mg²⁺ in the bathing solution. Mg²⁺ competes with Ca²⁺. 3,4 DAP produced a marked increase in the electrical response of the muscle membrane, 3-Ac had no effect. 3,4 DAP did not appear to increase the resting level of Ca²⁺ inside the nerve terminal suggesting that 3,4 DAP should not induce Ca²⁺ associated nerve terminal degeneration.

Rituximab In Resistant Myasthenia Gravis

D Anderson, Z Siddiqi (Edmonton, Canada)

The 5th presentation evaluated the utility of a monoclonal antibody Rituximab for treating the 15-20% of MG patients who did not respond to traditional treatment protocols. Rituximab targets CD20 B-cells. Half of patients 6/12 were MUSK MG. Peak response to Rituximab was about 4-6 months after a single dose. The benefits of Rituximab were to reduce the average daily prednisone dose by 15 mg/day and the need for PLEX or IVIG dropped about 4-fold. Some patients needed repeat infusions of Rituximab. During Q&A session, the folks from China indicated that in their patients Rituximab was not effective. Perhaps reflecting that Rituximab is better for MUSK positive MG, which was more common in the subjects in this study than in the patients described by the Chinese MG care providers.

Effect of Therapeutic Plasma Exchange on Immunoglobulins

JT Guptill, VC Juel, JM Massey, AC Anderson, JS Yi (Durham, NC), M Chopra, JF Howard Jr (Chapel Hill, NC)

Talk #6 focused on the action of plasma exchange (PLEX). The specific issue was how much does PLEX stimulate immunoglobulin (Ig) production and elevate Ig levels. They studied 10 patients, who

TOGETHER WE ARE STRONGER

MGFA National Conference
**An Education and
Networking Program
for Patients**

**May 1-3, 2016, Raleigh, NC
Sheraton Raleigh Hotel**

MGFA's National Conference is an ideal opportunity for patients and caregivers to learn and share in a friendly open atmosphere with lots of expert speakers, compelling presentations, sharing time, exhibits and more in a jam packed program. Enjoy this special opportunity to join with others in the MG community.

To learn more about Raleigh, NC as a destination visit www.visitraleigh.com

For more about the National Conference and to register go to <http://myasthenia.org/CommunitySupport/NationalConference.aspx>

were mostly older. The median age was 73 yrs. Most patients were grade III or higher (moderately severe). PLEX produced 70% drop in all classes of Ig. PLEX cut AChR binding levels by about 60-70%. Ig drop was most at 1.5 wks and recovered about halfway by 3 weeks. The researchers did not see an overshoot in Ig levels and specifically not in AChR antibody levels.

Hope, Well-being, Coping, and Quality of Life in Adults with Myasthenia Gravis

WJ Koopman, N LeBlanc (London, Canada), S Fowler (New Brunswick, NJ), D Hulley, MW Nicolle (London, Canada)

Wilma Koopman is an MG nurse who has devoted her professional life to addressing the needs of people with MG. Wilma is a former member of the MGFA Board of Directors. She is an active member of the MGFA Nurses Advisory Board. This poster addressed the importance of a person's mood on their perceived quality of life and on their ability to cope with life challenges. This poster demonstrated that hope and an optimistic outlook can alter the lives of people with MG for the better.

Super resolution microscopy analysis of NMJ active zones in adult and aged mice

H Nishimune (Kansas City, MO), S Mori (Tokyo, Japan), Y Badawi (Kansas City, MO), K Shigemoto (Tokyo, Japan)

This poster presented fascinating images of how the NMJ changes with age. The study focused on the region of the nerve terminal where ACh is released from nerve endings to stimulate the AChRs on the muscle membrane. Ion channels that conduct calcium ions (Ca²⁺) play a critical role in the release of ACh from nerve terminals. With age the distribution and character of the Ca²⁺ channels change. The importance of the changes in the distribution of Ca²⁺ channels is a

topic for future research. The work in this poster was a cooperative program between the US and Japan.

Increased Frequency of Circulating Follicular Helper T and CD19+ CD27+ IgM-CD38+ Antibody-secreting B Cells in Myasthenia Gravis Patients

Y Li, P Chen (Guangzhou, China), C Luo (Dongguan, China), H Wang (Guangzhou, China), W Fang (Brookville, NY), L Qiu, C Ou, F Yu, J Deng, H Huang, Z Chen, C Su, W-B Liu (Guangzhou, China)

The MG group from China has an active laboratory research program in addition to their strong clinical research program. This poster examined the composition of immune cells in people with MG compared with healthy controls. They reported that classes of antibody secreting B-cell lymphocytes and T-helper cell lymphocytes (cells that amplify an immune response) are present in higher numbers in the blood of people with MG compared to control subjects. The changes in the white blood cell composition of people with MG may potentiate the immune system in MG.

Comment – This was an excellent meeting in which both clinical and scientific studies were presented. As a long-time MG physician and volunteer for the Myasthenia Gravis Foundation of America (30 years), I have attended a variety of clinical and scientific meetings. The Scientific Sessions of the M/SAB have consistently provided excellent studies on MG. There are larger meetings such as the annual meetings of the Society for Neuroscience or the American Academy of Neurology, but these meetings do not focus on MG. To me the Scientific Sessions of the M/SAB and the International Conferences on Myasthenia Gravis, both of which are sponsored by the MGFA, are the most important international meetings that are devoted to MG.

This article can be found on the MGFA Website at www.myasthenia.org, Research/Latest News.

Clinical Trials in Myasthenia Gravis

Michael Hehir M.D.¹ and Nicholas Silvestri M.D.²

1. Assistant Professor of Neurology University of Vermont, 2. Assistant Professor of Neurology S.U.N.Y. Buffalo



What is a Clinical Trial?

A clinical trial is a research study designed to test the safety and utility of potential therapies in human subjects. Trial results are crucial to determine if a proposed treatment should be used in a condition such as myasthenia gravis. Therapies tested in clinical trials include medications, surgical interventions, behavioral modifications, diet, vaccines, and medical devices. Patient volunteers for clinical trials are essential to evaluate new treatments for use in MG. Many clinical trials experience delays or never get off the ground due to a lack of patient volunteers.

Why Do We Need Clinical Trials in MG?

Fortunately, for many patients, MG is treatable with medications that suppress immune system function. The medications have the potential to restore muscle strength, although for some patients improvement is incomplete. These medications can also cause undesirable side effects that can negatively impact quality of life. Scientific research is needed to develop better treatments with fewer side effects.

What Are the Stages of Treatment Development?

Before a new therapy can be tested in human volunteers (known as subjects in research studies), it must show potential benefit and safety in multiple pre-clinical studies conducted in the laboratory and in animals. After a therapy has proven to be promising and safe in animal studies, testing proceeds to human subjects. There are three main phases of clinical trial evaluation.

Phase 1:

Phase 1 studies involve testing a therapy in healthy or patient volunteers to determine safety. These studies are typically smaller and run at only a few centers.

Phase 2:

Phase 2 trials test the therapy in patient volunteers with MG. The goal of a phase 2 study is to establish appropriate medication dose, begin to evaluate the effect of the treatment, and to provide additional proof of safety. These studies are run in more centers and require more patient volunteers.

Phase 3:

Phase 3 trials test a potential therapy in a large group of patient volunteers to establish if the intervention is effective. Phase 3 trials typically involve multiple centers across the United States and internationally.

The U.S. Food and Drug Administration (FDA) uses data from all three phases of clinical trials to determine whether a new therapy will be approved for use in myasthenia gravis.

How Do I Get Involved:

Talk to your doctor if you are interested in clinical trial participation. Participation in a trial may involve taking an experimental medication and more frequent visits to your neurologist for monitoring.

What Trials are Available:

Four large multi-center trials are currently enrolling patients with MG in the U.S. The BeatMG study is evaluating the utility of the biological infusion therapy rituximab, that is currently used to treat other illnesses. There are two studies evaluating the safety and utility of ongoing IVIG therapy for MG. IVIG is currently used to treat MG patients with severe weakness. A final study is evaluating a sub-cutaneous (under the skin) preparation of IG instead of the typical IVIG infusion of this treatment. Multiple other single center and non-medicine trials are also underway.

Information about clinical trials is available on clinicaltrials.gov and the MGFA website (myasthenia.org). Your myasthenia gravis physician can also provide you with information about clinical trials and help you evaluate information obtained from these websites.

BeatMG (Rituximab):

<https://clinicaltrials.gov/ct2/show/NCT02110706?term=myasthenia+gravis&recr=Open&rank=5>

IVIG:

1. <https://clinicaltrials.gov/ct2/show/NCT02473952?term=myasthenia+gravis&recr=Open&rank=8>
2. <https://clinicaltrials.gov/ct2/show/NCT02473965?term=myasthenia+gravis&recr=pen&rank=9>

Sub-Cutaneous IG:

<https://clinicaltrials.gov/ct2/show/NCT02100969?term=myasthenia+gravis&recr=Open&rank=7>



MG Walk Campaign expected to stage its most events to date in 2016!

Since 2011, the MG Walk has enabled extraordinary progress for the Myasthenia Gravis Foundation of America (MGFA) and most importantly, for the MG community around the country! In 5 years, the Campaign has now gathered more than 20,000 MG Walkers

across the US and has raised more than \$3.3 million to date. The dollars raised have been critical in many ways, including: advancing research, providing local and national patient support programs and raising vital MG awareness nationwide.

2016 marks the 6th year of MG Walks and nearly 40 events are expected to take place throughout the country including new MG Walks in Cleveland, Fairfield County, CT and Sacramento. The first MG Walks of the year will kick off in New Orleans, Florida (Tallahassee, Orlando, Tampa Bay & Boca Raton), Georgia and in the Carolinas (Raleigh, NC and Columbia, SC) over the same weekend as the MGFA's National Conference in Raleigh (May 1-3)! Although some locations and dates are still being confirmed, please visit www.MGWalk.org for the most up-to-date listing of 2016 MG Walks.

The MG Walk Community continues to grow through dedicated walker teams, support group leaders and members, partnerships with pharmaceutical representatives and local businesses supporting their local MG Walk. Whether you are a 5-year veteran of the Campaign or you are ready to participate for the first time, we hope you consider registering today as a team captain or team member.

More details will follow but the MG Walk office is excited to launch the new Snowflake Program tied to MG Walk awareness and fundraising in 2016. Its components will include 1) Walkers trying to secure permission from local businesses to sell snowflakes to customers and display within their establishment, 2) Young and adult walkers staging "snowflake making parties" and 3) Each Walk location will include a snowflake station where walkers will create personalized snowflakes to be displayed at the finish line. Visit www.MGWalk.org to learn more about this new initiative as well as tools and resources to maximize your MG Walk efforts and fundraising.

The MG Walk Office is available to assist you and your team to achieve all your goals and enhance your MG Walk experience. Please contact the MG Walk team anytime at 1-855-MG-Walks (1-855-649-2557) or at Info@MGWalk.org.

Together, we will take the necessary steps toward the ultimate goal... a world without myasthenia gravis!

Are YOU up for the CHALLENGE?!

Team ENDurance MG is currently accepting participants for the 2016 season! Team ENDurance gives you the ability to raise funds for the MGFA and spread awareness about myasthenia gravis while training and participating in a "bucket list" activity such as a half or

full marathon, triathlon or even a mud obstacle course! Visit www.TeamENDMG.com for all of the exciting details or contact the Team ENDurance MG office at 1-855-649-2557 or Info@TeamENDMG.org to discuss how we can help you select the best experience for you.



Meet Ronnie Adams, 2016 National MG Walk Hero

"Being diagnosed with MG at the age of 24, I made it my mission that this disease would not get the best of me. I consciously decided that MG and I needed to become friends. However, I would not live with MG; but MG would need to live with me. The MG Walk Campaign raises needed funds for research that will one day allow all of us to leave MG at home for good!"

Follow the MG Walk Campaign:

www.facebook.com/MGWalks

www.twitter.com/MG_Walk

www.instagram.com/MG_Walk



MG Volunteers



Our volunteers are the spirit, heart and hands of the MGFA that extend from the home office in Manhattan to the coasts of California. That local volunteer spirit, courage and expertise has been the driving force of the Community Volunteer Committee (CVC), a specially chosen group of dedicated MG support group facilitators, board members, former chapter chairs, and experts in program development, training, human resources and marketing in both the non-profit and for profit arenas. All are volunteers, all but one, is an MG patient. They have been meeting twice a month since July, to maximize the efficacy of MGFA patient services, and to ensure volunteers can be recruited, trained, supported and retained to form a network of support to the MG community, nationwide.

Thanks to their participation on the CVC – amounting to over one thousand hours in work – 2016 brings the expected launch of programs that will be able to reach any MG patient in any state, even Alaska.

Inspiration from the field inspires MG Friends, a new program to provide peer support to MG patients, nationwide

At press time, CVC members were poised to launch an ambitious, nationwide volunteer-delivered service that hopes to end the loneliness and isolation most newly diagnosed people with MG face. In the friend program, volunteers who are uniquely qualified and empowered by their experience with MG, are trained and supported to provide person-to-person phone support anywhere in the US.

Many MGFA volunteers have been providing expert phone support locally. They have been invaluable to those in their state. Their

activities have provided the inspiration and expertise to develop a centralized program that can benefit patients, regardless of their locality.

The pilot will consist of 5-10 experienced volunteers, and 5-10 new volunteers. This mixing is to provide on-the-spot mentoring by the established volunteers to the new volunteers. While all the trained friend volunteers will be calling patients from other states as well as their own, recruitment efforts will be made to have volunteers in each time zone.

New support for MG Support Groups

The CVC has ramped up the recruitment, training and support for our MG support group facilitators. In addition to personalized brochures and business cards for each facilitator, the CVC updated the Support Group Facilitator Manual and webinar training, to establish a regular schedule of live webinars to train new facilitators (or to help sharpen the skills of established facilitators). In addition, quarterly round tables, via live webinar, were also being planned at press time for established facilitators to share ideas, discuss challenges they are facing, and seek solutions to better empower and serve MG patients.

The CVC's first new webinar with the updated manual was conducted in early November 2015 and resulted in 11 new volunteers being trained in Utah, Wisconsin, South Carolina, New Jersey, New York and Vermont.

Reaching new communities, building networks, and aiming higher to provide patient support and raise MG awareness

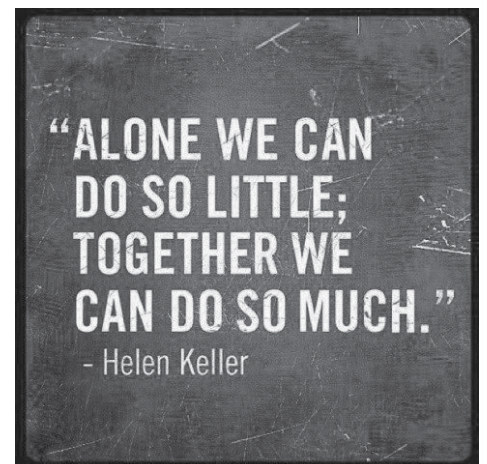
Traditionally MG Volunteers brought MG awareness; advocacy and patient services to their own communities, now many MGFA field volunteers are establishing new ways reach larger audiences. What follows are a few highlights.

- A Social Media Task Force of carefully selected volunteers from Brooklyn and Florida is working to help reach MG patients and further the MG cause via social media.

- In Ohio, MGFA volunteers created a training curriculum and have been teaching EMT workers about how to assist MG patients in their care. The national office will be creating training materials, based on the great work of the Ohio volunteers, and make it into a national program for all MGFA volunteers to use.
- In New Mexico, MG support group facilitator Dale McCan hosted information tables at a two-day KOB-TV health fair.
- Also at press time, Utah SG facilitators Theresa Collins and Kelly Odermott were assembling a multi-state Myasthenia Gravis Health and Wellness Summit. They are reaching out to the MG communities in Wyoming, Montana, Idaho, Nevada, Utah, Arizona and New Mexico.

That strength is made possible only by MGFA volunteers nationwide – most of whom are dealing with their own MG challenges. It is their courage, determination and generosity of time and expertise that makes us hopeful that we will bring about a world without MG.

If you are so moved to join our volunteer efforts, go to our website's volunteer page, it will help you focus on what you would like to do. Once submitted, our National Director of Volunteers will give you a call within 48 hours and help you find a rewarding activity to join the fight.



What's Hot off the Press in Neuromuscular Junction Disorders?

Nicholas J. Silvestri, MD, Gil I. Wolfe, MD

Members of the Medical/Scientific Advisory Board, Department of Neurology, Neuromuscular Division, University of Buffalo, Jacobs School of Medicine and Biomedical Sciences, The State University of New York, Buffalo.



Since our last edition, one group of investigators provided insight into the use of existing, "standard" treatments for myasthenia gravis. Hobson-Webb and colleagues¹ have examined the issue of slowly reducing the dosages of immunosuppressant agents commonly used to treat the disease. In this retrospective study of 92 subjects who had mycophenolate mofetil (MMF) tapered after experiencing a state of disease control, about a third relapsed but subsequently usually responded to an increased MMF dose. Patients had been on MMF for a mean of nearly 6 years and 87% of them were on MMF alone. Relapses tended to occur at a dose of 1000 mg per day and were more likely with faster taper durations (8.4 month taper duration vs. 5 years for successful tapers). In conclusion, a slow and steady taper schedule with MMF dose reductions of only 500 mg/d every year is a successful strategy in MG. The authors also recommended that patients have a stable disease course for as long as 5 years before attempting a taper.

Turning to things that spell trouble for MG, a group of Spanish investigators has analyzed various factors associated with life-threatening events from their nationwide registry.² Of 648 patients in the Spanish registry, 9.5% had a life-threatening event (LTE) between 2000 and 2013, defined as either severe breathing difficulty or severe swallowing difficulty. Infection was the most common trigger, cited in 18 of the 62

LTEs. Only three patients had more than a single LTE episode. If patients required ventilator support or a feeding tube, they were removed on an average of 12 and 13 days, respectively. In 56% of the cases, LTEs had improved within 2 weeks, meaning that patients no longer required ventilatory or swallowing support, but 20% of episodes remained active even at a month. All patients received one to two treatments with IVIg but plasma exchange was needed in six. Corticosteroids were used in every single case, and other immunosuppressants in 46%. Of note, essentially half of the LTEs occurred in newly diagnosed MG patients; in the half with established MG, the LTE occurred at a median of 2 years after diagnosis. In three cases, the LTE did occur more than 20 years after diagnosis; in one case it seemed related to thymoma recurrence. Thymectomy, thymoma, and antibody status were not predictive of patients having an LTE. Finally, four of the LTEs occurred after the patient had been placed on antibiotics. It was a quinolone in each case, an antibiotic class that carries a black box warning for worsening MG.

An often observed and very well-described clinical feature in MG is gender difference, particularly with respect to age of onset.³ Differences in gender and ethnicity have been previously described but largely focus on the difference between Caucasian and African-American patients.⁴ A recent study by Abukhalil and colleagues⁵ looked to identify differences in disease characteristics based on ethnicity in a small cohort of patients. In this study, the authors predicted that symptoms due to MG would vary based on ethnicity, which they assert can act as a surrogate marker for genetic differences between various groups. A total of 44 patients were included in the study, 19 of whom were of Hispanic, 16 of African-American, 6 of Caucasian, and 3 of

Asian heritage. No significant differences were observed between subgroups in terms of the presence of other medical illnesses or the presence of thymoma. Similarly, disease severity did not differ between ethnic groups. There were no significant differences in acetylcholine receptor antibody (AChRAB) subtypes between groups, but there was a trend toward greater frequency of blocking antibody in the Hispanic compared to the other groups. Of the 18 patients tested for MuSK antibodies, 5 were positive including 2 of Hispanic and all 3 of Asian heritage. MuSK antibodies were not detected in any of the patients of African-American or Caucasian descent, in contrast to prior reports. The authors conclude that identification of genetic factors underlying ethnicity-based differences in disease expression and laboratory features may lead to more finely targeted treatments, and suggest larger, prospective studies in this area.

**The State has a plan
for your legacy.**

DO YOU?



Fewer than half of Americans have a will.

Without a will, the state will decide how to distribute your hard-earned money.

Don't lose control of your legacy.

Visit an attorney and prepare a will and when you do, remember the MGFA.

Make part of your legacy

**"A world without
Myasthenia Gravis"**

The age distribution in the prevalence of MG has been long-known.³ An increase in the prevalence of elderly onset MG has been previously reported and diagnosis in these cases is often delayed, as symptoms are often initially attributed to other neurological conditions such as cerebrovascular disease.^{6,7} A recent paper from Japan by Nishikawa and associates⁸ described the disease course in a series of “very elderly” patients, defined as age of onset at or after 80 years. The authors detailed three cases of women whose symptoms developed at the ages of 80, 80, and 81 years. All three patients had positive AChRABs and generalized disease, and were successfully treated with a combination of low-dose prednisolone (5mg per day) and tacrolimus. There was no recurrence of disease in these three patients on this treatment regimen after four years of follow-up. Based on their findings and review of the literature, the authors conclude that MG

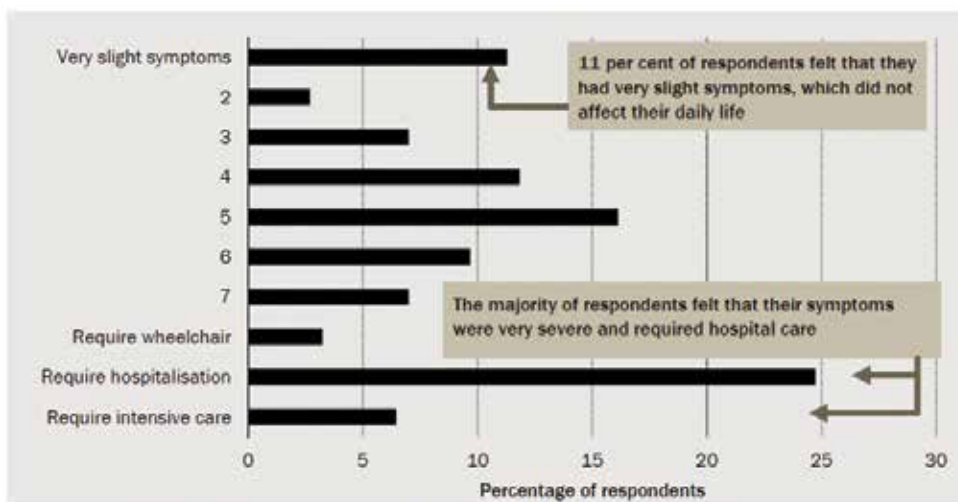
can be successfully treated with low-dose medications to achieve disease remission and avoid adverse drug reactions in this elderly, vulnerable population.

- Hobson-Webb LD, Hehir M, Crum B, et al. Can mycophenolate be tapered safely in myasthenia gravis? A retrospective, multicenter analysis. *Muscle Nerve* 2015;52:211-215.
- Ramos-Fransi A, Rojas-Garcia R, Segovia S, et al. Myasthenia gravis: descriptive analysis of life-threatening events in a recent nationwide registry. *Eur J Neurol* 2015;22:1056-1061.
- Grob D, Brunner M, Namba T, Pagala M. Lifetime course of myasthenia gravis. *Muscle Nerve* 2008;37(2):141-149.
- Oh SJ, Morgan MB, Lu L, et al. Racial differences in myasthenia gravis in Alabama. *Muscle Nerve* 2009;39(3):328-332.

- Abukhalil F, Mehta B, Saito E, et al. Gender and ethnicity based differences in clinical and laboratory features of myasthenia gravis. *Autoimmune Dis* 2015; epub ahead of print.
- Matsuda M, Dohi-Iijima N, Nakamura A, et al. Increase in incidence of elderly-onset patients with myasthenia gravis in Nagano Prefecture, Japan. *Intern Med* 2005;44(6):572-577.
- Vincent A, Clover L, Buckley C, et al. UK Myasthenia Gravis Survey: evidence of underdiagnosis of myasthenia gravis in older people. *J Neurol Neurosurg Psychiatry* 2003;74(8):1105-1108.
- Nishikawa N, Nagai M, Tsujii T, et al. Treatment in myasthenia gravis in patients with elderly onset at advanced age. *Japanese Clin Med* 2015;6:9-13.

Perspective: A Survey on the Impact of MG on Australia

Henry J. Kaminski, George Washington University; Richard J. Nowak, Yale University.



Data source: The CIE analysis of survey data from UQ and MGAQ. (2011), Myasthenia Gravis Survey: 2011

The Myasthenia Gravis Association of Queensland commissioned the Centre for International Economics to produce a report on the economic impact of MG (www.theicie.com.au/wp-content/uploads/2014/06/Final-report_Economic-Impact-of-Myasthenia-Gravis-08112013.pdf). The information collected was through a survey

of 190 respondents to a questionnaire that was originally distributed by the MG Association and neurologists at the University of Queensland to patients. It was also promoted through social media and later expanded to be Australia-wide.

There are a number of observations within the report but we will summarize a few that we found particularly interesting. Respondents indicated a considerable delay from development of MG symptoms to ultimate diagnosis. Almost 2 years for men and close to 4 years on average for women! This is probably not a surprise to our readership from personal experience but critical to quantitate. It underscores the need for education to the health care community as well as the public at large. Many people have never heard of MG prior to their or a loved one's diagnosis. Symptoms at the time of diagnosis varied from very mild to severe,

com.au/wp-content/uploads/2014/06/Final-report_Economic-Impact-of-Myasthenia-Gravis-08112013.pdf). The information collected was through a survey

however, it is notable that about a third (31%) of respondents rated the symptoms as very severe requiring hospitalization. This may in part stem from the delay to diagnosis or not being evaluated by a knowledgeable health care provider until winding up in the hospital.

Respondents reported co-occurrence of several other diseases, such as thyroid problems, asthma, osteoporosis, and depression. Some of these may be related to a predilection to autoimmune disease among MG patients (thyroid disease) while others a reflection of treatment complications (osteoporosis from prednisone) and stress of a chronic disease (depression). The costs of outpatient visits to a specialist were estimated at \$300,000 annually. Sixty-two percent of respondents had required hospitalization and 91 percent received ongoing medication treatment. The annual cost of pyridostigmine was estimated at 1.1 million dollars per year. Regarding other common treatments for MG, such as prednisone, mycophenolate mofetil, and IVIg, treatment costs could not easily be estimated in that there was no database that linked these treatments to MG.

Many responders indicated that they had seen allied health or alternative health

	Female	Male
	Years	Years
Mean age of onset age of symptoms	43.4	53.4
Mean age of diagnosis	47.1	55.3
Average years of delay of diagnosis	3.7	1.9

Source: The CIE

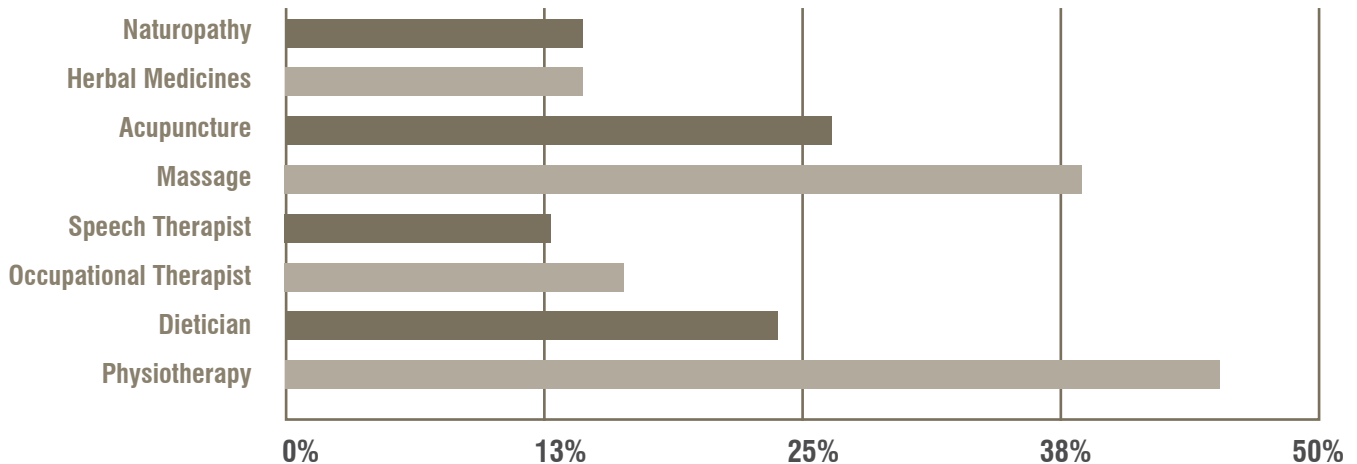
therapists for MG symptoms. Physiotherapy was the most common form of allied therapy (45% of respondents) followed by a dietician (23%), occupational therapist (17%) and speech therapist (13%). Alternative therapies included is massage (39%), acupuncture (27%), herbal medicines (15%) and naturopathy (15%). I think this reflects patient dissatisfaction with standard medical therapy.

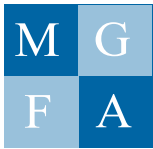
The discussion of MG's impact on work was unique. Almost 60% of respondents stopped working for a period because of MG. The study took a conservative approach and estimated annual income losses of \$19 million. This did not consider the further cost of welfare and disability payments from the Australian government for unemployment. The report further questioned whether MG may lead to a reduction in working hours for a proportion of patients with the consequence of a

reluctance to enter higher paid professions and a compromise in ability to advance in ones' chosen profession.

The report is important given the paucity of studies on the economic impact of MG but it is an extremely small step. For example, the survey is only of 190 responders and largely restricted to Queensland, not all of Australia to date. In contrast, the MG Patient Registry presently has over a thousand registrants and is beginning to cover most of the US. The MG community needs this type of information to educate our legislators on the needs of patients, care givers and their physicians. We do expect the MG Patient Registry to provide this data for the US population of MG patients. This is a critical step in advancing our understanding of MG as well as identification of how best to allocate resources to minimize or reduce its impact.

Allied & Alternative Therapies Used by Patients





MYASTHENIA GRAVIS
FOUNDATION OF AMERICA, INC.

355 Lexington Avenue, 15th Floor

New York, NY 10017-6603

(800) 541-5454

(212) 370-9047 fax

mgfa@myasthenia.org

www.myasthenia.org

Myasthenia gravis is an autoimmune neuromuscular disorder. Symptoms may include double vision, drooping eyelids, slurred speech, difficulty chewing and swallowing, weakness in arms and/or legs.

MGFA is committed to finding a cure for myasthenia gravis and closely related disorders, improving treatment options, and providing information and support to people with myasthenia gravis through research, education, community programs, and advocacy.

Foundation Focus is published by the Myasthenia Gravis Foundation of America, Inc. If this issue was mailed to you, you are on our subscriber list. If you would like to add, remove or update a subscription, or request that you receive future issues by e-mail, please contact the MGFA national office.

If you would like to receive Foundation Focus by email only, please email mgfa@myasthenia.org.

Thank you

...to all of our
wonderful
donors!

*Your generosity
brings us closer to a
world without MG.*

The goal of the MG Walk Campaign is to expand into new markets where we can bring together patients, create a community of active/engaged MG families and raise vital awareness & funding for myasthenia gravis! It is crucial that we go where we know we can garner the support needed to ensure success. If you are interested in seeing the MG Walk come to your area and you are excited to play an active part in its planning, promotion and production, we want to hear from you! Please contact the MG Walk Office at 1-855-MG-WALKS or Info@MGWalk.org or fill out our interest form found online at www.MGWalk.org. Thanks so much!

