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## Multiple Sclerosis Association of America **Webinar Transcript**

**Program Title:** “What You Need to Know About COVID-19 and MS: Program 2”  
**Recorded On:** April 13, 2020  
**Presenters:** Barry Hendin, MD and Carrie Hersh, DO, MSC  
**MSAA Host:** Peter Damiri

Peter Damiri: Hello, and welcome to the Multiple Sclerosis Association of America’s live webinar, “What You Need to Know About COVID-19 and MS, Program 2. I am Peter Damiri, Vice President of Programs and Services for MSAA and your host for tonight’s program. This second webinar is part of an ongoing series designed to help you stay as informed and updated as possible on the constantly changing news around COVID-19 and how best to manage your MS. On behalf of MSAA and our presenters, we greatly appreciate the opportunity to be back here tonight and continue providing you with timely and urgently needed information. Also, please note that we are thinking of the entire MS community and hope your family can stay safe and healthy in these uncertain times

MSAA is extremely honored to welcome back our two MS expert advisors who will once again educate and update us about the coronavirus pandemic and its impact on MS, and answer your questions during our expanded Q&A session at the end of this program.

At this time, I would like to provide introductions to our special guest presenters. Dr. Barry Hendin and Dr. Carrie Hersh. Dr. Barry Hendin is MSAA’s Chief Medical Officer and a practicing neurologist at Phoenix Neurological Associates. He is also the Director of the Multiple Sclerosis Clinic at Banner University Medical Center and Clinical Professor of Neurology at the University of Arizona Medical School.

Dr. Carrie Hersh is our chair of the MSAA Healthcare Advisory Counsel. She is a practicing neurologist and Assistant Professor of Neurology for the Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Nevada.

Dr. Hendin and Dr. Hersh, thank you both so much for being here tonight and continuing with our ongoing series on this very important issue.

Dr. Hendin: Peter, thank you very much for bringing us together again. I'm pleased, not only to regather with Dr. Hersh, but also to regather with the MS community to talk about what I agree of the extremely important issue for people who don't have MS, but also, particularly for individuals with MS, and that is how do we deal uniquely and how do we deal - like the rest of the community - with the issues of this pandemic. And so I will begin by thanking those people who also participate and sponsored our program and let you know that - as Peter probably alluded - this is the second in a series. We will have at least one more presentation two weeks from now and potentially one two weeks thereafter.

The question is, why would we have this as a series rather than a one-time once? And I think the answer is very clear, and that is, this is a moving target. We - this pandemic began, really, in December, and as such we are really learning on the fly. What we know today is more than we knew two weeks ago, what we hope to know in the weeks ahead is an increasing base - an increasing database. Sometimes we talk about the evidence that we use in medicine and we recognize that sometimes we are talking in what we call a fictitiously - an evidence-free zone; and that means, we have opinions. We're working hard, we're trying to understand, but some things we're still learning.

With that in mind, with that construct, let me begin with what we do know. So, you can - the first slide really talks about the coronavirus and what is, I think, basic information. COVID-19 is a disease which is caused by a coronavirus. This isn't the only disorder caused by the coronavirus. There was a prior SARS, respiratory syndrome, that we had as an epidemic. Often these coronaviruses are simple upper-respiratory infections with little serious consequence.

But coronavirus disease 2019, COVID-19, is really a potentially serious disorder affecting, most substantially the respiratory tract - not exclusively the respiratory tract but most importantly the respiratory tract. And it spreads from person to person through coughing or sneezing, but in droplets, basically. But it need not be coughing or sneezing.

We now know that symptomatic and asymptomatic individuals or non-symptomatic individuals can spread this. So if you're not coughing or sneezing, how might you spread this? You might spread this by talking, because droplets are really expelled when talking as well as when coughing and sneezing.

So it's helpful to understand increasingly that the population at risk is the population in contact with people who are obviously overtly ill with COVID-19, but also people who look well and who have not yet expressed symptoms. That's why there is increasing requests that you cover your nose or mouth when sneezing or coughing, obviously. Avoid touching your mouth, nose and eyes, if you wash your hands on clean surfaces where the droplets may have landed; but also, it conforms with ideas that when we are in public to protect others, we wear a face cloth.

Some people may think that, that is a protection for self, but really that is a way of trying to mind our social obligations and protect our community. So if we're coughing or sneezing, or non-symptomatic, but still have the virus in us, that cloth will protect others, an important social responsibility. What are the initial symptoms? Well the most common symptoms that you know of already, from having watched enough television, is fever, cough, shortness of breath, but you are increasing hearing, I suspect the other symptoms. It could be headache; it could be just feeling ill, malaise; it could be an early loss of the sense of smell of taste; and it could be a gastrointestinal upset, loss of appetite, diarrhea. So, although the most common symptom may be the one you expect, cough and fever, shortness of breath, other symptoms may herald COVID-19.

If a person has symptoms that they suspect may be COVID-19 - for example, a fever that could be COVID-19 but could be another upper-respiratory infection, non-COVID-19, first thing to do is to isolate themselves from others so that they don't contaminate others. The reason that this has become a serious health disorder, is that it's highly contagious. It's, I think, among the most contagious illnesses of my lifetime.

So, if this were not so contagious, and - but was - created a lot of mortality and morbidity, we'd pay attention. It's the fact that it in combination has serious outcomes in terms of illness and mortality, and that it's very, very easily contracted. It's very contagious.

So the first question is, who is primarily at risk for COVID-19? It's pretty clear that having MS specifically does not make you a greater risk. So individuals with MS are not inherently at any greater risk of COVID-19 than the general population. The most important risk factors are age. Greater than 60 increases risk - greater than 70 increases risk further - greater than 80 increases risk tremendously. So age is a tremendous risk factor. And then the other comorbidities which may or may not come with age. Heart disease - lung disease - diabetes - cancer - smoking, all of those things create risk.

We think that in the hypothetical, lowering the immune system and those people with MS are an agent which at least alter the immune system, may increase risk, but it's not clearly established that the agents we're using, or a particular agent, is a specific, unique risk factor. So, "A", MS is not, in and of itself, a risk factor. "B", the agents which we're using are hypothetically a risk factor, but we have not yet determined that to be absolutely true or true for a unique disease-modifying therapy - and Dr. Hersh will talk about that in greater detail.

So, what are the - kind of the general rules that the MS societies and the MS community really should be following? First, that, as always, decisions that you make about your specific agent, are individualized. The decisions I make in a 70-year-old, aren't the same decisions I make in 17-year-old. The decisions I make with highly active disease, are not the same as the decisions I make with people with more quiescent, less active, less active inflammatory MS. And so, these are conversations between people with MS and

their clinician, not to be made individually, independently by the patient, but collaboratively, between the caregiver or the healthcare provider and the patient.

The second, disease modifying therapies shouldn't be stopped and shouldn't be changed, unless through a really considered dialogue with their healthcare provider. In fact, some of our disease modifying therapies - and I'm thinking now of natalizumab or fingolimod or Siponimod. We know that stopping those agents abruptly may lead to what we call rebound or a greater MS flair of activity because the agent was stopped. So the caution is, you don't stop your agent, you continue it. You don't change your agent without a specific reason to do so collaboratively with your clinician. And then again, the idea that that not everybody is uniquely vulnerable to the hazards of COVID-19.

Age is a primary factor. The comorbidities which may or may not come with age are the most substantial risk factors of not MS. And so far as we yet know, not the ways we're treating MS or the agents that we're using. You're going to hear more from Dr. Hersh and then we both look forward to answering the questions which you may have about COVID-19. Dr. Hersh.

Dr. Hersh: Thank you so much. And I would also like to echo my gratitude for being invited to be here this evening to provide some engaging information that is up to date and of course timely during these uncertain times with the COVID-19 healthcare crisis.

I'd really like to thank the MSAA and, of course, my colleague -- my well-respected colleague Dr. Barry Hendin and I - look forward to having an engaging conversation when we are answering questions after we get through the remainder of the slide deck, which we should be able to get through pretty quickly.

So I'm going to take you through some specific recommendations to individuals who are living with MS and how this applies to the current COVID-19 healthcare pandemic that we're currently facing.

So I'd first like to preface that there are no consistent guidelines currently for how we can manage disease-modifying therapies. And our recommendations are largely based on expert opinion, and our best clinical judgement based on our expert opinion, that are further based on early evidence and speculation.

Currently we do have some anecdotal data that are crossing through to some of our healthcare institutions that we can share with you, but this is anecdotal. We don't have consensus guidelines at this point because we just have very limited data to report. I will talk a little bit about some of the measures that the healthcare community in the MS field are currently undertaking in order to try to provide information as quickly as possible.

So let's talk about some of the disease-modifying therapies in terms of their overall risk to persons living with MS during the COVID-19 outbreak. So the risks and benefits of each therapy need to be discussed with a MS healthcare provider in a shared decision-making format with the patient and the caregiver. So, it really is highly encouraged that specific questions and concerns regarding disease-modifying therapy need to be individualized because there are other potential risk factors and exposures that may further increase one's risk of having susceptibility to COVID-19 that supersede that of the disease-modifying therapy itself.

Overall, based on expert opinion, we consider low-risk, disease-modifying therapies to be the self-injectable disease-modifying therapies including glatiramer acetate, interferon beta-1a, interferon beta-1b, and then Pegylated interferon beta. We also include teriflunomide as a low-risk disease modifying therapy, natalizumab and fumarate. And with the fumarates, dimethyl fumarate, diroximel fumarate, this really does depend on the overall lymphocyte counts.

So if there's an individual who was on dimethyl fumarate and has a concerning absolute lymphocyte count, that person may be considered to be at a certain level, maybe increased risk compared to someone else who was on dimethyl fumarate and has normal absolute lymphocyte count. So this really does need to be individualized to that particular individual.

Natalizumab - this is very interesting. So, in terms of the susceptibility and severity of a respiratory illness for which Dr. Hendin had already commented, is predominantly a respiratory illness. We do consider the natalizumab to be lower risk, however there are growing data to suggest that COVID-19 not only impacts respiratory structures but can also impact the gastrointestinal system, cardiac structures, and now there are growing data to suggest that COVID-19 can also result in neurological symptoms, some of those being Guillain-Barre syndrome, stroke, acute disseminated encephalomyelitis, which is a concerning white matter disease that can cause quite a bit of morbidity.

And for a medication like natalizumab where - the way that it works is it impedes in central system surveillance because it blocks trafficking lymphocytes from traversing into the central nervous system. This potential therapy may impact that person's central system from being able to detect the presence of virus; however, at this stage we are not making any recommendations in terms of suspending or halting natalizumab therapy because there are certainly concerns regarding rebound disease. And as Dr. Hendin had already mentioned, this is increased MS disease activity that may be even worse than prior to starting natalizumab. So we're currently not using that as an explanation to suspend or change natalizumab dosing, but it is something to consider if someone does develop coronavirus while on this medication.

Intermediate risk therapies include the S1P modulators, including fingolimod and Siponimod, especially when there are concerning absolute lymphocyte counts that's determined by the healthcare provider, ocreliz and margetuximab and cladribine. And with all these medications the risks and benefits certainly need to be weighed, again, on an individualized basis with the healthcare provider. But, again, we also run into the possibility of rebound disease, especially with the S1P modulators that Dr. Hendin had already discussed. And we really have to be careful about delaying medication if there is the concern regarding MS disease activity coming back. And in terms of infusion therapies, it really just depends on the risk and benefit weighing on an individualized level.

Overall, it is the condition of the MS healthcare provider to determine if someone's risk of MS disease activity coming back, if medication is delayed or suspended, is at a greater risk than the possibility of developing the COVID-19 virus itself. And some of these concerns might be related to potential exposure if they - if the patient is going to an infusion facility that is not currently undergoing proper hygienic and screening protocol. So, again, this really does need to be on an individualized level. But overall any DNT decision change needs to be done at the level of the MS provider, along with the patient in a shared decision-making format.

When it comes to alemtuzumab in hematopoietic stem cell therapy, these are considered higher risk therapies, traditionally because of the rate of immunosuppression that the patient undergo when they are receiving these therapies. In terms of suspending or halting treatment, again, this needs to be weighed individually at the level of the MS healthcare provider. But these are certainly disease-modifying therapies that need to be heavily considered during the COVID-19 outbreak.

As I had alluded to before, there are some registries that are currently being developed and are underway in some instances in order to better understand overall how MS is being impacted by COVID-19 and to provide understanding on the use of disease-modifying therapies in terms of safety.

So currently there is a registry called COViMS that has been developed in cooperation between the North American - I'm sorry, the National MS Society and the consortium with MS centers that is covering all of North America. This registry was activated about a week or two ago and is currently in the beginning stages. I do not have any data to report on COViMS currently, but hopefully with one of our reiterations coming up, I'll be able to report on some data, but currently I do not have data to report on right away.

There are other international registries in Europe that are also being developed and are currently underway, and institutions are also developing their own registries. And at the Cleveland Clinic Melon Center, we recently started our own registry in order to collect more granular data, so that way we'll be able to comment



on the distribution of COVID-19 among MS patients, the severity of their disease and how it was impacted by potential interactions with disease-modifying therapies.

So what can folks do in order to try to prevent susceptibility of the coronavirus? Well, in addition to understanding how disease-modifying therapies may or may not play a role in increased susceptibility, it is important to understand what folks can do to take back some control and try to prevent increased risk all together. So, it really comes down to staying physically and emotionally well, in addition to the CDC recommendations that Dr. Hendin had previously discussed.

So we do advocate - just like we usually do - for overall long-term MS care, to get plenty of sleep, be physically active, manage stress, drink plenty of fluids and eat nutritious food, because we do understand that living well may ultimately, not only decrease the risk of developing this virus, but may also have a more long-term impact in terms of the severity of the disease. And as we have been understanding, especially over the last weeks or so, you know, there are - there are certain risk factors that do increase the severity of the disease in increased hospitalizations and worse outcomes.

So overall living well, we understand that these things put into practice can decrease one's susceptibility. Taking a walk outside while abiding by social distancing recommendations is really a great way to get fresh air and exercise, and as it is warming up throughout the country, now is the time to try to get outside - even if it's just for a few minutes - and enjoy the weather.

I know that there have been some concerns in regards to folks being asymptomatic and still being able to transmit the virus from person to person, so this is where social distancing is still important. If you are unable to go outside and feel comfortable that you are still able to maintain at least 6' away from someone else, so that way aerosols are not being shared from person to person. This is where using protective measures, like wearing a cloth covering, proper hand hygiene can be helpful. But as Dr. Barry Hendin also alluded to, the cloth covers are predominantly to protect the community from you and the other way around.

So overall it's social distancing that really plays the key role here, but it does not equal social disengagement. So this is not a time to feel that you are cooped up in your house and unable to get together with other people and other formats. So virtual chats are becoming a very popular way for us to remain connected with our loved ones, and it's certainly important for maintaining mental health during this time. We certainly have seen an uptick in the number of different virtual visit platforms that have become available and that are free, so please use these in a safe way so that you can remain connected to loved ones.

And, as I've been stressing, specifically on the slide, mental health is really important. So in addition to remaining socially engaged, other things like meditation, self-reflection, guided imagery, deep breathing techniques and mindfulness, they're all great ways to manage stress. I know that there are several apps that are available on smart phones for stress management and deep breathing techniques. There have actually been quite a few commercials for the app Calm, where the commercial shows a 30-second clip of falling rain in a rain forest. But these are certainly some things that can be put into place in order to try to manage some of the anxiety that is afflicting a great proportion of our population.

And if at all available, social workers or caseworkers or counselors or psychologists, if they are available at your institution, either through your primary care provider or through your MS center. Certainly they'll be able to weigh in on some of these measures to help manage stress during this uncertain time.

So I think that concludes the session where we're just going over some updated information, certainly overlapping on some of the information we presented a couple weeks ago, but adding to it as we continue to gather some more information. But I certainly wanted, again, thank MSAA and Dr. Hendin for organizing this webinar. And I believe that we have plenty of time now to answer questions from the audience. So, Peter, if you want to go ahead and take it away with the first question, we'll be happy to get started.

Peter Damiri: Sure. Thank you so much Dr. Hersh, and thank you as well Dr. Hendin. Excellent presentation, very good insights and updates, so we really appreciate that. And also just to mention about physically and staying physically and emotionally well, a couple points you had mentioned about connecting with others.

So MSAA has our national toll-free helpline. We have actually extended the hours from Monday to Friday to 8:00 pm Eastern, 5:00 pm Pacific, to allow people to have more opportunities to connect with us and talk to our social workers, and get information and resources.

And we actually also have an online community called My MSAA Community, that's been out for a couple years and it's a great source of information and peer support for people to check in and connect, again, that virtual connection that you were mentioning. So just wanted to throw those two options out to people and all of that. Our 800 number is 1-800-532-7667 and our Web site is [mysaa.org](http://mysaa.org).

So, as you mentioned, we have quite a number of questions that have come in and they're piling in as I speak. One question was, "Are individuals with MS concerned immunocompromised?"

Dr. Hendin: So, maybe I'll start out and Dr. Hersh, Carrie, will join in. People with MS are not immunocompromised, but the agent that they use to treat their MS may change their immune status. There is a long discussion about medications which are considered more immune modulators, and we think of those of being the injectable medications, for example, which don't suppress the immune system so much as they change the reaction to MS or the MS component. There are agents which decrease or remove some of the immune cells, either the T cells or the B cells or both, and those do create some degree of immunosuppression.

Number one, MS is not a state of immunosuppression. "B", some of the agents we use - but not all of them can create immunosuppression. And the "C", it's not yet clear to what extent that will influence the course of MS in people, or the course of COVID-19 people with MS. The gratifying information we have so far, coming out of Italy and England and the US, is that people, in the US, it appears -- people in Italy, people in Europe - are - who have MS are tending to do well through this pandemic.

But as Dr. Hersh really so clearly said, we don't know enough about how people are going to respond individually, and that's why we have registries, and the most important one, I think, for us right now, in the US, is COViMS -- out of Washington University -- Saint Louis, which will be trying to gather information on

people with MS who do get COVID-19 and how they do individually, how they do on medications - how they do off medications. As the weeks go by we'll actually know a lot more. it's a long answer. The short answer is, having MS in and of itself does not make you immunocompromised. Carrie, your thoughts?

Dr. Hersh: I absolutely agree.

Peter Damiri: Great.

Dr. Hersh: I have nothing further to add.

Peter Damiri: Thank you both. Next question, "If affected with COVID-19, will symptoms cause a flare and/or will the symptoms be more difficult to manage due to MS?"

Dr. Hersh: Yes. If you would like, I'll take - I'll take...

Dr. Hendin: Sure.

Dr. Hersh: So, the question of whether or not - if someone with MS does develop COVID-19, whether or not they are at a risk of having an MS flare-up. So just like with any other infection, urinary tract infection, upper-respiratory tract infection and fever, there is the possibility of someone having what we call a pseudo relapse or a pseudo flare, meaning that it is not necessarily multiple sclerosis developing a newly inflamed lesion in the brain of the spinal cord, but it is simply a manifestation of increase in preexisting MS symptoms because of a current stressor on the body, such as a change in core body temperature, like a fever or an upper-respiratory illness.

So, right now we have, again, limited data to share on the rate of pseudo relapses and folks who have MS who develop COVID-19, but I would imagine that there is still the same susceptibility of having an MS

pseudo relapse, just like we would experience with any other infection or fever. And, Peter, was there a second part to that question?

Peter Damiri: Not that I saw. Thank you for that. Here's a question from a healthcare professional. "I have patients who are on MS medications of concern and they work in the hospital. Their HR does not recognize that this is a reason to work from home. What would you recommend?"

Dr. Hendin: So, again, I'll answer from my own perspective and, Carrie, I think will probably have some thoughts of her own. I came across this today. The last patient I talked to is a nurse and - actually two of the people I talked to today. One is a nurse working, not in the COVID unit. One is a nurse working in a COVID unit. My sense is, first, that by and large these people, "A", need to stay on their medications. And "B", I've written letters in their behalf today, of stating that I want a job modification, and that is that they can continue to nurses but I think that they are potentially immunocompromised and would prefer that they not be in the - be working in the COVID unit if possible.

But having said that, I really think it is about maintaining the same good habits that expect of everybody else. The primary risk factors out there are not having MS and not primarily being on MS agents, but age and comorbidities, things like smoking and hypertension - cancer - diabetes, lung disease - heart disease, so that - there are many people who would be at increased risks. For all of them I would prefer that they receive job modifications. And if they could not, that they be particularly mindful of handwashing - not face touching - using protective equipment, et cetera.

Dr. Hersh: Yes, I absolutely agree with you, Dr. Hendin. It's a very difficult time, because - I know that I have patients, myself, who are also healthcare workers who are working, if not the frontlines, they are working in hospitals where there have been COVID-19 positive patients that come through. And it's a very sensitive balance between our patients wanting to be able to be part of the proverbial fight and help where they can, but also to the point where they want to feel protected on themselves. And it's really not just unique to folks

with MS, like you had mentioned, but to - also to have preexisting conditions, like diabetes and chronic heart and lung disease, who are also in similar positions.

So I certainly advocate for my patients to the best of my ability in providing letters where - I find it's appropriate based on their current work environment. And disease-modifying therapy does play a role to an extent. It really does depend on what they're on. If I feel that they're on a disease-modifying therapy that are low risk and the patients are - they feel that they are protected - they have a PCE - they're able to wash their hands and practice social distancing outside of the work area, then they may be okay to continue with work.

But if they're on a higher risk disease-modifying therapy and 'm concerned about their lymphocyte counts or specifically the medication itself and what it might be doing on a more prolonged level -- such as some of our infusion therapies that have long term effects, we certainly want to advocate for our patients and provide our work letters when we feel it's appropriate.

Peter Damiri: Great, appreciate that. Next question, "Is it okay for MS patients to donate blood and plasma?"

Dr. Hendin: Carrie?

Dr. Hersh: So, is this question just folks with MS or folks who have had COVID-19?

Peter Damiri: It doesn't specify, but perhaps you could answer for both.

Dr. Hersh: Okay. So to answer the question about COVID-19. So this actually brings up a very interesting potential treatment. And there have been some data coming out about convalescent plasma, which essentially is the plasma of patients who have developed COVID-19 and recovered. And theoretically they have built up an immune system, antibodies, that may help protect from a future infection.

Now, how long - how and when consistently perfected immunity develops and how we can test for it and how long that immunity lasts and if and under what circumstances reinfection can occur if there's a new strain that comes out, those questions have yet to be answered. But theoretically in a patient who has MS who did test positive for COVID-19, developed the infection and then cleared it, there is a possibility that using their plasma, being a blood donor may help another individual who is sick. Now currently we don't have deficient evidence to show to what extent and in what situations this would be recommend, but some of these measures are currently being used for compassionate care.

For MS in general, I don't see a problem with donating blood.

Peter Damiri: Okay, thank you for that. "Will hot weather slow the virus down?"

Dr. Hendin: I think that's a fast one. I think there was hope that hot weather would slow this down, but we've seen this pandemic in areas of high humidity, low humidity, and areas of cold and warmth, and I think that what will slow this pandemic down is really the things that have already been put in place. It is social distancing. It is isolation of individuals who have the virus and are all. It is handwashing and bloody face touching and wearing protective clothing when needed and facial protection for others when out.

It's possible that there will be some benefit with warmer weather but I don't count it. I really count on good health measures that are currently being created across our country and the world.

Dr. Hersh: Yes, that's right and I believe that I heard a statement from Dr. Anthony Fauci late last week from the CDC, that it doesn't look like this is going to devolve during the warm summer months like a typical flu, that we're still going to see cases. So, I absolutely agree with Dr. Hendin, that the current measures that the CDC is putting out are going to be the best in order to help mitigate the spread.

Peter Damiri: Okay, thank you. This next question is specific but I do think it also applies to a lot of people who have relatives that they want to see or possibly people in the house as well. So the person has secondary

progressive MS. "My college-age son is out of state. He's healthy but maybe asymptomatic. When can I see him before he goes back to college in August?"

Dr. Hendin: So, Carrie, do you want to answer that one. I - either one of us, I think, could answer that.

Carrie Hersh: So I'm hearing that there's an individual with secondary progressive MS and there is a child who is coming in to visit, and whether or not it would be safe for that individual to be in direct contact with the child?

Peter Damiri: Correct.

Dr. Hersh: That's a great question. I think that, one, we do have to consider the age and the comorbidities of the individual, whether or not this is someone who is younger versus someone who is older in years. In terms of transmission we understand that this can be passed on asymptotically. So having family members come to visit and stay in a household where he or she has not been in, technically there may be a risk of bringing an asymptomatic carrier and potentially transmitting the virus, especially if the individual has other risk factors, including age and other comorbidities.

I personally would probably be very careful in recommending someone coming into the household who hasn't already been there, especially as we're starting to reach the peak of the coronavirus - as much of a pain for me to say.

Peter Damiri: Yes.

Dr. Hendin: And I was going to say, it's interesting - this is an idea of - and first of all, I agree entirely, Carrie, I would have to think it through and, I think, involving a certain amount of common sense. So, we've all been through a week in which in which there was Passover, and Easter and are approaching a week in which there will be Ramadan, in which we are mindful the fact that it's not about one individual which creates such risk in general, but about large gatherings.



And so, a lot of us have gotten around the issue of large gatherings by virtual interaction -- and I think you alluded to the earlier, Carrie, that we're getting together. And the question really is, did that person - did the visitor come from a dorm in which there was COVID? I would say in that situation common sense would say no, even if asymptomatic, or was it one which there was no such clear-cut risk and the person to be visited, the parent or grandparent, I guess, was pretty healthy. Then I think that you could come in with proper social distancing and handwashing et cetera, et cetera.

But I think that these one-to-one things are going to be answered on individual basis -- just as you said - what are the - what are the risks of the - of the person to be visited? Is it a single visitor and can they maintain a protective distance that's set? We're feeling our way around how to stay connected but still safe.

Peter Damiri: Right, exactly. And a lot still is unknown, as you mentioned.

Dr. Hendin: Yes.

Peter Damiri: Here's a question that's certainly been in the news lately about hydroxychloroquine -- I'm trying to see if I pronounced that correctly - and is that an effective treatment for this?

Dr. Hendin: So, Carrie and I talked about that earlier. Dr. Hersh and I talked about that earlier. And I think that we both agreed that we may both want to make a comment. And that is, right now there are multiple agents being investigating, but they're really - the notes of their possible benefit are anecdotal. They're not based on sufficient science. There are reports of benefit and reports of no benefit, for hydroxychloroquine. And it's not - we don't yet have enough information gathered.

With these modifying therapies that so many of the people listening are taking, came onto the market because they were proven to be beneficial and the benefit was proven to be greater than the risk. And so

studies were done, phase one, two, three; trials were done to show that the benefit exceeded the risk and that they really did have a significant benefit for the population to be treated. We know that hydroxychloroquine and chloroquine have risk, particularly cardiac risk in some vulnerable individuals. We also know that there are people in society who need these medications, who have lupus for example and need them for autopneumoniosis.

We will know - multiple trials are going on about viral or antiviral treatments - vaccination - plasma in the aftermath or serum in the aftermath of - or convalescent serum, as Dr. Hersh noted. So all these things are being looked at. Is convalescent serum potentially beneficial? Yes, potentially. We don't know yet. Is hydroxychloroquine or chloroquine beneficial? That may be, but the proof isn't there yet. Are the various viral, anti-viral agents going to be beneficial? My guess is that somewhere along the line, yes. While we wait for the - what we hope will be the really more helpful agents, and that is a non-live virus vaccination. But that's a year or year-and-a-half away, I think.

At least the work is being done. In the meantime, if you can get yourself into a trial that's done scientifically for the proper reason, all the better. But I would caution against believing or using these agents offhand.

Dr. Hendin: Carrie, any thoughts?

Dr. Hersh: No, I don't have any additional thoughts. I absolutely agree with what you had commented on and certainly reflect the conversation that we had offline earlier. So thank you for that.

Peter Damiri: Great, thank you. And our last question for tonight, and it circles back to the slide we had on wellness and ways that people can stay fit and healthy. What types of food would you suggest to add to your diet to help the immune system?

Dr. Hersh: Yes, so right now we - again, I feel like we're a broken record and I apologize to our audience in regards to this, but there's still so much information that we don't know and as we had alluded to earlier, this really

is based on best clinical practice. Currently we don't have a list of foods that are deemed to be beneficial for this particular virus, but instead we can think of this in terms of what foods are there that are considered nutritious and healthy in order to help protect the immune system to the best of one's ability.

And this isn't specifically just for MS. This is for the general population. But what we can recommend is something along the terms of a Mediterranean diet, and specifically for - not just MS patients but for the general community, is that this is an anti-inflammatory diet that is largely based on fresh fruits and fresh vegetables - lean proteins - making sure that folks are adequately hydrated - healthy carbohydrates - and in some respects can certainly look into this from a cardio protective and diabetic protective diet for those individuals who have potential comorbidities that may increase one's susceptibility to developing the COVID-19 virus to begin with.

So really, it's all about healthy eating, fresh fruits and fresh vegetables - cooking at home as much as possible - avoiding too much sodium in the diet, which tends to be a common problem across the United States anyway.

What I will mention is that with the underlying recommendations of eating fresh food, right now that might be difficult because of concerns regarding proper handling of fruits and vegetables by other individuals and then bringing them into the home. You would say that if and when possible, fresh fruits and fresh vegetables can be delivered to the home, and if you bring them into the home make sure that they are being washed thoroughly before cooking them. These are general practice measures that we really could be recommending for all individuals, but I do believe in the MS community, this is something that we can continue to recommend, is the Mediterranean diet.

Dr. Hendin: And, Carrie, I'd sort of would comment, you and I have both been great advocates for wellness with MS, and that is that with or without the COVID-19 pandemic, we've both been advocating all the things you've just got done saying, and that you've said in your last slide and that is, you can't separate MS health from good health. And that is, dealing with comorbidities, diabetes and blood pressure - and maintaining

exercise - stop smoking - avoid obesity - eat a healthy diet - socialize, maintain intellectual activity. We've had that discussion on multiple occasions, and we both are firm believers in wellness and good health -- especially in people with MS -- but also, just in general.

So is that - Peter, that may be our last question. Was that our last?

Peter Damiri: I think it is. That was great information and advice and an excellent presentation. So thank you so much. Well, we have reached the end of our program tonight and I want to thank everyone for joining us, and I especially want to thank Dr. Berry Hendin and Dr. Carrie Hersh for providing us with this very important information, timely updates and great answers to your questions. So thank you once again.

I also want to thank our funding partners, Bristol Myers Squibb, EMD Serono and Genentech for supporting this webinar series. And as a reminder, it is a series so our next webinar is going to be on Monday, April 27 at 8:00 pm Eastern, and you can go to MSAA's Web site, [mysaa.org/coronavirus](https://mysaa.org/coronavirus) and see information on the next registration. We should have that link up within a couple days and we'll get an email out to everybody as well. And this program, once again, will be archived and placed on our Web site very soon. And finally, please consider completing a very brief evaluation that is coming up next. So on behalf of MSAA, Dr. Hendin, Dr. Hersh and everyone who was listening, thank you once again and please stay safe