



---

Multiple Sclerosis  
Association of America **Webinar Transcript**

**Program Title:** “What You Need to Know About COVID-19 and MS: Program 7”  
**Recorded On:** October 19, 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 7.

I'm Peter Damiri, Vice President of Programs and Services for MSAA and your host for tonight's program. On behalf of MSAA and our presenters, we greatly appreciate the opportunity to keep you updated on this very important topic, and please know we hope you and your family are staying safe and healthy in these challenging times.

MSAA is extremely honored to welcome back our two MS expert advisors who will update us about the coronavirus pandemic and its impact on MS and answer your questions during our expanded Q&A session. At this time, I would like to introduce our special guest presenters, Dr. Barry Hendin and Dr. Carrie Hersh.

Dr. Barry Hendin is a practicing neurologist, MSAA's Chief Medical Officer, and Director of the MS Center of Arizona. 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 a practicing neurologist and the Chair of MSAA's Healthcare Advisory Council. She's an assistant professor of neurology for the Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Nevada.

Thank you both again for being here tonight and keeping us updated on this very important and ever-changing topic.

Before we begin, I want to take this opportunity to thank our supporters, Bristol Myers Squibb, EMD Serono, Genentech, Novartis and Sanofi Genzyme, for making this webinar series possible.

As you may know, MSAA is a national nonprofit organization dedicated to improving lives today for the MS community. In fact, this year marks MSAA's 50th anniversary as an MS advocacy organization.

Listed here are just some of the many free programs available to the MS community along with our new COVID-19 and MS Pathfinder tool, which provides ongoing updates and resources on the coronavirus.

Also, please note MSAA has expanded our helpline hours to 8:00 pm eastern between Mondays and Thursdays. To learn more, please visit my [MSAA.org](https://www.msaa.org) or give us a call at 1-800-532-7667.

And lastly, please note tonight's webinar will be archived to our website within a few days.

For the Q&A session, please type your questions into the chat box on the screen, and we'll address them at the end of the presentation. Also, if you're having any technical issues, please type your concerns into the chat box as well.

So, at this time, I am very honored to turn the program over to Dr. Barry Hendin, who will kick off tonight's presentation.

Dr. Barry Hendin: Peter, first of all, thank you, and I'm sure I speak for Dr. Hersh as well as myself in saying how happy we are to be back again with the MS community through MSAA to talk about what is such an important current topic to people across the world, across the United States, and in particular, at this moment, people with MS.

I would sort of like to re-emphasize the MS Pathfinder that's on the MSAA website because I think it is such a useful tool. A reference for people were who were asking some of the same questions for which the answers also exist on the MS Pathfinder.

But to go back over, I suspect that some of you on the telephone are listening to this new on the web are listening to this new and that some of you have been through the series with Dr. Hersh and me previously, but just the briefest of summaries.

So, we know that coronavirus disease 2019, the contraction COVID-19, is a highly contagious and potentially serious inflammatory disorder that targets first the respiratory system, but it is multi-systemic and affects heart and kidneys and in multiple other parts of the body, the bloodstream, clotting, etc.

There have been neurological complications in people who don't have MS, and those included strokes and seizures, transverse myelitis, alteration in sense of smell and taste. So, there are things that have occurred neurologically in the general population before we even consider what might occur in someone with MS.

I think, the very first talk we gave months ago, Dr. Hersh, and I emphasize the things that are unchanging. And that is, we know that we can reduce risk by wearing a mask that protects you to some degree and protects others more importantly.

That handwashing and, and being fastidious about washing your hands, and washing your hands adequately remains one of the fundamentals. And then social distancing where possible.

So, things that we also think people should do is something that I've been calling pre-habilitation. And that is if there was ever a time to concentrate on good health, in general, it's now. Making sure you have an exercise program, stopping smoking, getting your weight down to where you want it to be, dealing with your general health to try to optimize that. Your diabetes, blood pressure, et cetera. It's time to really watch over your general medical health.

It will be good for you, in general, it will be good for your MS in general, and it will be good if, as I hope, will not happen, you become one of the people who gets COVID-19.

We know that having MS itself does not put your greater risk for COVID-19. It's all the other things that a person with MS might have. So, the older you get with or without MS, the greater the risk. The more frail you are, the greater the risk.

In MS, if you are highly mobile, you have less risk than if you are having a great deal of problems with mobility, wheelchair, etc. But in general, we say the risk of MS itself is not greater than the general population. It really is about comorbidities in age.

And we say as a final caution, if you're on a disease-modifying therapy, do not stop or change that agent without discussing this with your healthcare provider. In general, we believe that you should continue on your medication, particularly since stopping some disease-modifying therapies can increase risk of recurrent disease activity.

Obviously, there are times when anybody during the pandemic or not during the pandemic will have reasons to change their medication, breakthrough disease, intolerance of medication, or other side effects from the medication. Those things remain true today. But we're not changing people solely due to the pandemic. These are always considerations with your clinician.

So, with that, I think, Peter, I think that there were some questions that you have had that were mailed in or put on the email or web in advance. And so, it's my pleasure to turn the first question over to Dr. Hersh.

Dr. Carrie Hersh: Thank you so much Dr. Hendin. And first of all, I would like to, again, thank the MSAA for their continuing support in these important programs. You know, on behalf of Dr. Hendin, we certainly acknowledge, appreciate, and respect the very challenging and tumultuous time that 2020 has brought for all of us. And especially folks who are living with MS and trying to navigate the healthcare system.

And we hope that this program this evening will be able to help answer some hot topic questions that not only were provided to the MSAA before this program, but these are very common questions that we are seeing in clinic and are certainly relative or relevant to how folks are living with MS. And of course, you know how they are being treated with their disease-modifying therapies.

I do anticipate that there are actually going to be a lot of questions surrounding disease-modifying therapies. So, I'm going to first speak quite generally about treatment with disease-modifying therapies. And then, as we start to see some questions coming in through the participant feedback, we can try to address more specific questions.

But with the first one, does being on a disease-modifying therapy or DMT for short make a person more susceptible contracting the virus? And, you know, this is a very common and relevant question. And there has actually been a lot of research going on to try to answer this question.

And there are various registries that are being developed and are currently in process worldwide. So, there are North American registries, there's a large Italian registry, and other European registries that are looking at the prevalence of COVID-19 folks living with MS and stratifying that by other relevant factors.

Some of those factors include other comorbidities, and so what I mean by comorbidity is another coexisting condition or disease state. So, that can include uncontrolled high blood pressure, uncontrolled diabetes, poorly controlled cardiovascular disease, chronic lung disease, and tobacco smoking.

And we have been able to see through these registries and data coming through that they do have an impact on increasing the susceptibility of individuals contracting the COVID-19 virus. And then, as Dr. Hendin mentioned, those who are more frail, those who are more disabled, have trouble mobilizing, and therefore may have increased risk of developing on pneumonia because they have trouble clearing secretions.

So, those things we do understand make folks more susceptible to contracting the virus, and also older age. In terms of the disease-modifying therapies, we have not been able to identify DMT to date that specifically increases the risk of actually getting the virus.

Now there are new data that have been advertised, that were discussed and presented at the annual ACTRIMS-ECTRIMS meeting, that there are certain classes of disease-modifying therapies called the B-cell depleting therapies, which include rituximab, and ocrelizumab, that actually may increase the risk of having more severe COVID-19 if one is exposed.

But in terms of making one more susceptible to contracting the virus, we currently do not have the data to date. But as everyone is aware, this is a highly mobile time for us in terms of collecting more data and more information in a standardized way. So, that way, we can answer those questions.

So, at this point, what we are generally recommending to our patients who are on DMT's is really going over that individual's risk of being exposed to the virus and therefore contracting the virus. So, again, that includes older age. That includes uncontrolled comorbidities. It also may be increased if you are living in environments where the prevalence of COVID-19 is going up.

So, as Dr. Hendin has mentioned before, really abiding by the CDC guidelines, in terms of social distancing, wearing a facial mask correctly, I did see someone's very astute point in the participant feedback, yes, they need to be worn correctly. There are many people who do not wear them correctly, where they wear them down around their chin or right below their nose.

That is the incorrect way to wear a mask. The correct way to wear a mask is over the nose to disallow secretions from sitting on the mask and thereby having risk of being aerosolized. So, thank you to that comment. I did want to go ahead and make sure that that it was heard and to acknowledge it. And then, of course, it tries to decrease your exposure as much as possible.

And everything needs to be done in a risk-benefit format with the clinician to make sure that the overall benefit of that particular treatment still outweighs the potential risks.

The next part of that question, does being on a DMT impact recovery if a person has COVID-19? And again, we don't have the data showing that being on a particular class of DMT or particular DMT itself is going to prolong the recovery of the COVID-19 infection itself. We just don't have the cumulative data to make a conclusive statement on that.

You know, right now, you know, things can be individualized cases, and there can be other variables that are associated with it. But, you know, again, as we continue to collect more information, more standardized data, we'll be able to answer that question more definitively.

So, simple answer to that question, you know, please make sure that you're following up with your MS clinician or care provider to go over the individualized risks.

And I will ask Dr. Hendin to ask the second question.

Dr. Barry Hendin: Thank you. So, thank you, doctor Hersh. So, the next question is, is there a difference in how relapsing-remitting MS, secondary progressive MS, and primary progressive MS are affected by COVID?

The answer is a kind of a common sense answer. And Dr. Hersh alluded to that already, and that is, there's nothing about the designation relapse-remitting or secondary progressive or primary progressive, that in and of itself, affects the either getting COVID-19 or the course of COVID-19. But the population of people with primary progressive MS, or secondary progressive MS, for example, are generally older than those with relapse-remitting MS.

And so, if you start to look at it not as disease categories, or MS categories, but rather as kind of a common-sense approach to the thoughts that Dr. Hersh has already expressed. If you've got MS of any sort, it's not the designation of that MS, but rather, how old are you? How long have you had MS? How have you fared with your MS? And that is, are you still mobile, etc., or have you become frail?

And then all the other things which may occur as any individual ages. That is, has - now that you're 60 or 70 years old, and your risk has gone up just by age alone, have you also collected some of the other comorbidities of aging? Are you smoking? Or have you stopped? Have you put on weight? Or have you gotten your weight back down? Have you developed diabetes? If so, have you gotten it under control? Have you developed hypertension or heart disease, or lung disease, or renal disease? And if you do, have you gotten those under control?

My summary is the categories here are not relevant. It really is the old concepts that we've been stating, and that is, how old are you? And what comorbidities do you have? Those will drive outcomes. Dr. Hersh.

Dr. Carrie Hersh: Thank you. And I just wanted to clarify because I just saw one question come up in the participant feedback that has to do with the first question.

Yes, it was ublituximab would fall in the same category as rituximab and ocrelizumab. So, that is another B-cell depleting therapy. So, I just wanted to make that clear for the individual just so we don't skip over the question later.

Okay, so, moving on to the next question. How can one tell the difference between MS symptoms, seasonal allergy symptoms, flu-like symptoms, and COVID-19 symptoms? So, I will go ahead, and I will start with seasonal allergy. So, with seasonal allergies, you know, usually when folks are complaining of either seasonal or environmental allergies, you know, folks typically have nasal congestion. They have a runny nose, itchy nose, itchy eyes, watery eyes, red eyes. Those tend to be more common symptoms of seasonal allergy symptoms.

Whereas with flu-like symptoms and COVID-19 symptoms, you know, we tend to hear more about your fevers, your high fevers, chills, feeling rundown, muscle aches, and pains.

Admittedly it is a little bit more difficult to differentiate flu-like symptoms from COVID-19 symptoms. And when in doubt, it might be a good idea to follow-up with your primary care provider to discuss the symptoms and whether or not a COVID-19 test is warranted.

For instance, if you feel that you have been exposed to an individual who tested positive or know someone who tested positive, and that's where the purpose of contact tracing comes in.

Dr. Hendin will talk a little bit more about flu vaccines, but this is one of the reasons why we have been recommending flu vaccines, the seasonal flu vaccine, for our patients with MS just because this is probably going to be a difficult fall/winter in trying to differentiate someone having your typical flu-like symptoms versus COVID-19.

So, that would be one thing that I would recommend as a preventative measure until a safe and effective COVID-19 vaccine is approved. And we'll talk about vaccines and MS and disease-modifying therapies coming up because I know they're going to be a lot of questions regarding that.

But, you know, just to give you some information about differentiating flu and COVID 19. So, with COVID-19, we also are becoming more familiarized that other organ systems can be involved, cardiovascular system, peripheral vascular system, like with clotting, there have been neurological symptoms, loss of taste, and smell.

And that either might be related to nasal congestion or actual infiltration of the SARS-CoV-2 virus into the cribriform plate, which actually sits up in the nasal passage and then into the brain. So, that might actually either be a respiratory system or neurological symptom. But loss of taste and smell is not common with flu-like symptoms.

MS symptoms, so, you know, these could either be worsening of previous, you know, MS symptoms in the form of a relapse, or it could be new symptoms, such as numbness, tingling, vision loss, dizziness, trouble with walking, and, you know, it can be difficult to differentiate at times from other things that are going on. But typically, with a patient who is developing neurological symptoms related to COVID-19, they're usually having other types of symptoms going on, like fevers or chills or a cough or shortness of breath to go along with it.

But again, when in doubt, best to approach your primary care physician and your MS clinician team.

So, how can these be managed? Well, it depends on you, know what we are talking about. So, MS symptoms, if it's a relapse, we have ways of treating relapses with acute therapies. If they are symptoms of pain, tingling, muscle spasms, there are medicines that we can use for those. And of course, physical therapy, rehabilitation when necessary.

In terms of seasonal allergy symptoms, either that can be conservative care, or decongestions, or antihistamines, can be used. And then, you know, either with flu-like symptoms and COVID-19 symptoms, you know, if it's not too severe, conventional conservative care, you know, fluids, rest, making sure hydration is key, plenty of sleep and rest. If they become more severe, there are flu treatments that are available. And there have been some COVID-19 treatments that are that that have been used on an emergency use authorization format.

However, these really need to be used within the context of the clinical provider because some of the data are just not coming through that they have been overly effective.

So, that really is going to depend on the severity of the COVID-19 for the most part at this point, it's really conservative care. And Dr. Hendin.

Dr. Barry Hendin: Thank you. So, there are two questions that relate that I've got on the chat line that relate to the question or the bullet point, which is, will COVID-19 treatments and or vaccines work for people with MS? Second part, is the flu vaccine recommended for people with MS?

And so, speaking to Jackie and Janice, who both have kind of asked the second part of this question, and that is, what's our recommendation regarding flu? I think that if you speak to various clinicians, you'll come to various conclusions because I know that not everybody makes the same recommendation.

But Dr. Hersh and I believe are on the same page, and I think we both recommend that people with MS get the flu vaccine. Dosage is a bit higher if you're older and a bit lower if you're younger because older people mount a less powerful immune response to the vaccine.

So, although you will hear various messages, depending upon the clinician, my recommendation for all of my patients, or for most all of my patients with MS, is yes, I would like you to get the flu vaccine, particularly during a difficult - what we believe will be a difficult flu season.

There may be some minimal risk with flu vaccine. But there is, I think, a greater risk for the flu. And I would choose to avoid the greater risk.

So, that is an area which I have a current and strong opinion, though I recognize that there is a difference of opinion, potentially out there.

The first part of the question is more difficult. It says, will COVID-19 treatments and/or vaccines work for people with MS?

Here it is best for us to recognize the limitations and what we know and what we don't know. So, we have to take into account; first, we don't know what vaccine or vaccines will be available.

Second, in order to understand the response to the vaccination, we will have to wait for the trials in people with MS and in people with MS on the various medications. So, there is no way of answering this question definitively at this point in time.

I will tell you that it is my hope that the vaccine will be a vaccine which will be useful in the majority of people. I'm hoping that we will see it in wide use in the coming year. And that that will create a level of herd immunity that we don't need to achieve by people getting sick with COVID-19.

The questions will be, how many people will it benefit? And will everybody be benefited equally? I think the older you get, the less likely you are to mount a big response. So, we'll have to have that as a separate strategy.

Number two; for how long will that immunization be in effect? Will it be a year or more? Will the virus mutate in such a way that requires us to have a second round at some later point in time? And then the last part of the question is, will people on various medications have a less robust response?

I think there is no immune - there's no disease-modifying therapy that totally wipes out the ability to mount an immune response to a vaccine. So, everybody, I think we'll be able to get some kind of response. But we do know that depleting B-cells may result in a less powerful response.

And I think that each of the companies is waiting for the vaccine to come out to understand which vaccines will be most compatible, and which patients will be the best responders and how we wind up filling a need for the MS community.

So, this is one of those times when I've told you with flu shots, yes, the definitive answer, at least from me, but not a definitive answer in the community. And for the vaccines, we'll need to wait to see what the vaccine is. And then what its real-world effectiveness is before we opine, it's a stay tuned.

So, I can't remember whether Dr. Hersh and I are on our seventh or eighth discussions with MSAA on the topic of COVID-19 but stay tuned. We will remain a part of the students of COVID-19. And hopefully, teachers as best we can. Dr. Hersh.

Dr. Barry Hendin: ...I'll refer this one to me. So, it says, what advice do you have on ways to stay safe during the upcoming holidays? I want to be around family and friends, but I'm very concerned.

And this is really kind of common sense. No - everybody's going to answer this question individually. So, there are things that we know, we know that it's really important to maintain community and that means community, with friends, community more widely, but especially our families.

I would not say that a person is precluded from getting together, but the techniques of getting together will probably change. So, some people will be getting together via Zoom, rather than face to face. Some people will choose to get together, but in smaller family groups with social distancing.

I think that what one will be avoiding, and I hope will be avoiding, is the very large gatherings without social distancing, without masks. So, if you said to me, what's my advice, it is to stay connected as best we can, but to consider strategies that reduce risk.

If it's because - if it's virtual, then let it be virtual. If it's face to face, let it be with greater social distancing, smaller groups. But I do think that people still need to get together to celebrate family and friends and holidays. So, try to figure out as best you can the strategy that works for you and your family and friends.

Now, Dr. Hersh.

Dr. Carrie Hersh: All right, thank you. So, I think that we'll probably be able to answer the last few questions pretty quickly because I see that there are a lot of questions coming through on the chat box. And I want to make sure that we respond to as many questions as possible.

So, my next question, can you recommend some vitamins we can take to help our immune system. So, I would go ahead and say this. Very simply, I am - I do not typically recommend immune boosters. Immune boosters tend to be pro-inflammatory, and because MS is a pro-inflammatory, autoimmune condition, that's usually not something that I'm generally recommending.

I think that being on vitamin D3 is beneficial for multiple reasons. One, we do understand that vitamin D is potentially neuroprotective in folks who are living with MS, and we do have some nice data to show that. And this is generally a recommendation that many providers have in caring for MS long term.

Two, it tends to be good for overall health in terms of reducing cancer risk. It's also good for bone health, along with calcium.

And three, there are also some studies suggesting that there may be some antiviral properties of vitamin D. Those data are still not quite conclusive, but because vitamin D is a relatively safe vitamin to be taking

-- and it's something that we generally recommend for our patient population anyway -- I see no harm in taking vitamin D.

I do ask, however, that if folks are going to be on a vitamin D3 supplement to treat this as you would treat any medication and that you are getting at least annual vitamin D 25 hydroxy levels either through your primary care doctor or your MS clinician to make sure that you are being properly supplemented and you are not taking too much.

So, that would be my general recommendation on the vitamins. Multivitamins should be okay. But I'm usually not recommending additional supplements or vitamins unless there is proof that there is a vitamin deficiency to go along with that.

And Dr. Hendin, next question.

Dr. Barry Hendin: Sure. Next question is it safe for me to access medical care, such as doctor visits, MRI, bloodwork, infusions, et cetera. So, in general, we would recommend continuing your medical care in a manner that was similar to the kind of frequency that you might have in the past, but with some - part of the reason is, we are aware that there has been an increase in other medical problems for people who have been reluctant to go to their doctor, go to the hospital, go to the emergency room, leading to other negative outcomes.

But having said that, if we begin with the idea of a doctor's visit, we're adjusting the whole society is adjusting to COVID-19. And that means the doctor's visit may be face to face; the doctor's visit may be virtual.

And so, one of the ways that we learn to reduce risk is just to say for patients who are particularly vulnerable, for patients who don't need to be seen face to face, that virtual visits become one of the

current, and I think, for the future, a long-standing way to get a doctor visit, without having to have the potential of risks associated.

When I think of a doctor's visit, I think not only of the doctor's office or the clinician's office itself, but how do you get there? If you get there in your own car, easier; if you need to get on public transportation to get there, greater risk.

So, it's a simple question, but with various answers. The general answer is, you still need to make the properly scheduled visits, be it virtual or be that face to face.

The same thing with MRI. I think if you need a MRI for either check-up for possible side effects of medication, like PML, if you need a MRI, to see if there's been breakthrough disease subclinical, and a lot of new activity is not associated with relapse but rather with MRI changes alone - it's the way that Dr. Hersh and I monitor whether our therapies are actually efficacious, whether our therapies are performing optimally.

So, I do not recommend we stop our regular MRI. I do want to make sure that the place where my patients are going observes a proper distancing, hygiene, etc. But with that caveat, I do want them to be done.

But with MRI and bloodwork. I think, though, it is necessary to get these done on a routine basis. I can ask the question each time, and that is, does this - that which I was doing routine, is it still required?

For example, I think that MRI scans become, which are - we do on a yearly scheduled basis when patients are newly diagnosed, and newly on their therapies, we do less frequently as patients age. And so, we can ask the question, was this test really necessary? When necessary, it should be done.

Infusions, the same; I think there was a time when we were pausing some infusions, initially, when COVID-19 came out, to make sure people were safe. My habit, for the time being, is to - when patients need their infusions, they get their infusions. It is infrequent that I am pausing or creating longer intervals between therapies solely based on COVID-19. And more likely that I am currently having them done fairly much as scheduled.

Now, that may mean for an agent, such as natalizumab, that we are moving many patients toward extended interval dosing like every six weeks instead of every four. But for our infusions, they're still generally at a six-month interval if they're one of the B-cell depleting therapies.

So, answer is use your common sense, take advantage of the new technology, but get done the things that need to get done. Dr. Hersh.

Dr. Carrie Hersh: Alright. Wonderful. Actually, I just wanted to address one question from Jackie. To clarify, taking a probiotic supplement is not recommended? You know, actually, I did not include this in my repertoire of recommendations.

I think taking a probiotic is fine. Whether or not you want to actually take a probiotic over the counter versus using dietary methods, such as Greek yogurt. I think that that would be fine. I don't find that it would be harmful. So, yes, a probiotic should be okay.

If there any specific questions regarding your care obviously, that's best to address either with your PCP or your MS, but generally speaking, you know, a probiotic should be fine.

Okay, last question. Living through this pandemic is so stressful and exhausting. How can I stay physically and emotionally well, especially as the winter is approaching and more time is spent indoors?

And so, you know, this is a very important question. A lot of folks are having COVID-19 fatigue. There has been a lot of mitigation fatigue, you know, just because folks are just tired of having to deal with COVID-19, and they are desperate to go back to normal.

But unfortunately, we do have to, you know, you know, admit and be aware that, you know, we are still in the middle of a pandemic, and it is so important to continue the mitigation strategies that the CDC have put forth, even more carefully now.

You know, during this time, there have been, like, a lot of questions about traveling for the holidays, and, you know, again, everything is risk and benefit. You know, if one wants to reduce the overall risks of exposures, especially on airline flights, where folks might be sitting very closely together, you know, you can't know what other people's exposures are.

And, you know, as someone had already mentioned, in the questions, people are wearing their masks incorrectly. You know, airline travel, it really has to be done on a strictly as-needed basis.

I would say, you know, for this holiday season, you know, best recommendation is to try to stay put, celebrate with the folks who are living in your household. You know, if for whatever reason, you know, there are folks who are coming in, you have college students coming home, or you have other family members who just can't wait and are coming home.

If you live in a climate where you can actually eat outdoors, you know, having Thanksgiving outdoors might be a nice alternative. Otherwise, you know, wearing masks and really trying to keep distance in the household, which would be recommended.

You know, there are certain parts of the country, I live in Las Vegas, so, right now, the weather is actually beautiful. So, I've been recommending to my patients to go out and take a walk, get some fresh air, breathe some fresh air, get some sunlight and sunshine.

If that is not possible because you live in an environment where it's actually starting to get pretty cold and going outside is not optimal, trying to find other ways, you know, with family members and friends with virtual conversations, you know, just to make sure that you are remaining engaged and connected, trying to find physical activity, alternatives that you can do in the safety of your home. There are lots of available programs through YouTube and other virtual platforms that are free and easily available.

And, you know, really just to try to push through as best as we can, you know, through this holiday season. I am hopefully optimistic that the next holiday season will be a little bit easier.

But you know, really just to applaud people for doing what they're doing and being responsible. And really to keep at it, try not to get too fatigued with this, and you're not alone. We are all living in this together.

So, I think with that, Peter, just because there are a lot of questions that have come through, maybe we can start tackling some of the questions that Dr. Hendin and I have not already answered in some format. Why don't we go ahead and do that?

Peter Damiri: Yes, absolutely. And thank you both so much for a great presentation, excellent information, and insights for sure.

So, as you mentioned, we did get a number of questions. So, there were additional questions about vaccinations, in addition to the flu vaccine, not directly related to COVID. But is it safe for someone with MS to get pneumonia and shingles vaccine as well as the flu shot?

Dr, Carrie Hersh: Yes, I can take that. So, yes, generally speaking, inactivated vaccines are typically safe in folks who are living with MS who are on disease-modifying therapies. The pneumonia vaccine is inactivated vaccine, the seasonal flu vaccine as long as it's the shot and not the aerosolized, you know, breathing in

vaccine, that is also an inactivated vaccine. And there is an inactivated vaccine for shingles called Shingrix.

What I would preface is that for those who are on a certain class of disease-modifying therapy called B-cell depleting therapies, so that includes for rituximab, ocrelizumab, opicinumab, and if you're in a clinical trial for ublituximab, all of those medications are called B-cell depleting therapies.

If you are on one of those therapies, it is typically recommended that one gets the vaccine - the inactivated vaccine about four to six weeks before your next infusion. That is with rituximab, ocrelizumab, and ublituximab. Opicinumab is a self-injectable once a month medication.

The reason why at least for rituximab and ocrelizumab, we're recommending four to six weeks before your next infusion is to allow some time for your immune system to mount a proper immune system - immune response to the vaccine before you are given your next B-cell depleting their therapy.

If you get the vaccine too close to the infusion, it's not necessarily that it's going to be a safety issue in terms of an adverse response. But you may not mount as good as a immunological response to that vaccine if you take it too close to that infusion.

So, we already know that there may be a blunted immune response with those medicines. So, we want to make sure that we're finding the ideal time to get those vaccines in preparation for those infusion therapies.

In terms of opicinumab, which is a new B-cell depleting therapy that was recently approved, it's a once a month injection. We really have not been able to definitively say when is the best time to get that vaccine. Whether or not it's in the middle of the injection, so, two weeks after your first injection two weeks before your next one. But that would be certainly a question to address with your MS care provider if they have another recommendation for you.

So, in summary, inactivated vaccines are okay. And seasonal flu vaccine is recommended in everyone.

Dr. Barry Hendin: And I will add, Dr. Hersh, I will add because these questions are not only of interest to people with MS but also for the people who make disease-modifying therapies, trials are now initiating to answer just a question that Dr. Hersh asked, and that is what's the proper timing regarding treatment with opicinumab as it relates to vaccination. I can tell you that those studies are, in fact, initiated.

So, each of the companies that make a disease-modifying therapy are intensely interested in the issue of vaccinations, not just for COVID-19 as it evolves, but for the other vaccines, which are a more common usage. We remain very interested, and it's a scenario of current investigation. No one's talking their eyes off this.

Actually, Dr. Hersh and I spoke earlier today, this morning, and kind of wanted to reassure everybody that nobody is gone to sleep with regards to COVID-19. It remains an area in which both the science and the epidemiologist and the manufacturers of disease-modifying therapies and in vaccines remain very interested on very accelerated basis to try to answer all these answers - all these questions that which are partially but not fully answered today.

Peter Damiri: Great, thank you both. And just as a note as well, that MSAA actually just produced a new brochure called Vaccination Safety in MS. And we just posted it to our website, and we will have copies in the office very soon. So, if people are interested, they can go to our website at [mysaa.org](http://mysaa.org) and go to our publications page for that publication.

Next question. I do not do well with heat. Would a fever with COVID affect my body like normal heat? And can COVID kick MS into overdrive with my past problems coming back?

Dr. Barry Hendin: I'll try to answer that one Dr. Hersh. I - so, I think everybody is aware that just temperature elevation in and of itself may cause heightened symptomatology. And that's because demyelinated segments don't conduct as well in heat. So, it's a very physiological explanation.

So, if you do get COVID-19, and a predictable fever with COVID-19, then you will potentially have some increase in symptoms, not a true relapse, but as pseudo relapse. And I think that during a time when, as a common-sense answer, people with MS and people who don't have MS feel really bad, really, more ill during periods of an illness of any sort.

So, yes, you can expect if you get COVID-19, and I hope you don't, to have some potential, pseudo symptomatology, pseudo exacerbation, to the heat alone, and just the effects of the illness on you.

We also know that one of the few things that may predict, or precipitate exacerbation is infection. That one hasn't been well worked out with COVID-19 as a specific, but that's something we'll be watching for.

Peter Damiri: Very good. Thank you. And this question might speak to some of the registries that I believe Dr. Hersh had mentioned earlier. And the question is, is there a higher incidence of the virus among MS patients?

Dr. Carrie Hersh: Right, no, that's a great question. So, you know, overall, we are not seeing that just because someone has MS, it makes them more susceptible to getting COVID-19. And as we had mentioned, you know, earlier today, it's a whole slew of other factors, risk factors, comorbidities, age, and level of disability, that have a greater impact on the susceptibility of actually contracting the virus.

But having MS, by itself, just having a diagnosis of MS does not put someone at increased risk of contracting the virus.

Peter Damiri: Okay, thank you for that. Do MS patients with COVID have a cytokine storm?

Dr. Barry Hendin: So, it's an interesting question. And I think that most people know enough about COVID-19 right now to understand the concept of a cytokine storm, which is there's an initial infection with the virus, and then an immunologic response to that virus in order to try to quell the virus. But that storm can be overdone, and as such, can cause its own damage.

We don't have a clear answer yet, but it's one of the things that may be partially protective with regards to our disease-modifying therapies.

So, on one hand, is hypothetical. People have worried that being on a disease-modifying therapy with immunosuppression could increase risk of a virus, and on the other hand, could reduce risk of a cytokine storm.

The encouraging news in the American study CoviMS, which has now over 1000 people in the United States with MS who had COVID-19, is that people on individual agents do not have yet a particularly increased risk from their COVID-19, and the people who statistically look like they have done the least well are the population who are on no meds. That may be because they're older and are on no meds; because of that, they have been able to dive down.

But it appears that not being on a medication, maybe at least in populations, the greater risk factor than being on medications. The reason is still to be determined.

Dr, Carrie Hirsch: And then, yes. And then Peter, just to tag along to that, because there was another question that was actually posed to patients on interferon beta treatment would be a little bit more protected is it also has antiviral properties. I just wanted to say that that's an excellent question. And actually, one of the interferon beta medications that are used for MS treatment is still being studied as a potential treatment for COVID-19. As is another disease-modifying therapy – teriflunomide.

Currently, there are no data reported just yet to suggest that there is actually a statistically significant benefit in those patients who are being treated with certain DMTs in either their risk of COVID-19 or maybe having a less severe course of COVID-19. But as Dr. Hendin alluded to before, we are still learning alongside you. So, as soon as we have data to report, you know, we will certainly be happy to discuss that during these iterations of the program.

Peter Damiri: Very good. Thank you. I'm going to ask one last question. And then, if you also want to take a look at the chat box and see if any other particular questions were of importance that you wanted to address, I'll give you that opportunity as well.

My question to you is, what is your advice in starting a new medicine for MS in the midst of this pandemic?

Dr. Barry Hendin: So, I think we'll both answer this if that's okay with you. I think that very early in the course of COVID-19 when we weren't so sure of what was happening, some of the advice that came out of other countries, for example, Italy, did favor certain medications and favored pausing other medications. The early reports out of England had the same advice, stating that some medications were a greater risk than others.

I think, increasingly, it is my view that when I talk to a person, we talk about the risk and benefit of each of the agents. We talk about the possibility of influencing COVID-19, which is now - does not look like it's more serious issue. But I am prescribing the medication that I would have prescribed before COVID-19 in most cases.

I do know that the conversations about which medications I'm going to choose become much longer conversation in the current era than they would have a year ago. So, the conversations are not only about the risk and benefit ratio of each of the agents and the need to treat with the most efficacious agent for a particular person. But now also the second topic of what about COVID?

In the end, I'm prescribing the medications, almost the same as I did prior to COVID-19 because I think that MS is the most important issue that we can deal with, and that is preventing relapses, prevent - reducing progression and trying to make sure that people with MS have the greatest chance of the least disability of their lifetime we can possibly achieve for them. Dr. Hersh, your thoughts?

Dr. Carrie Hersh: No, I would like to say that I actually have the same practice patterns. It's all about shared decision making, individualizing risks and benefits. And I would overall say that generally speaking, my practice is not very different today than it was before COVID.

I would say that we are recommending people to be more cautious and conscientious about environmental exposures that might increase their risk of infection. But we have to remember that MS is a lifelong disease, and we need to treat it early and effectively.

I did want to because someone had a very burning question about fingolimod. I see it's in all caps. It's otherwise known as Gilenya.

So, yes, we did not mention the S1P modulators during this session, and it's just been so chock full of very important questions. I want to make sure that it does get that because we do have a lot of people on S1P modulators.

Overall, S1P modulators, they do decrease the population of circulating lymphocytes. Lymphocytes are our immune cells that are necessary for fighting infections. They are not completely depleted. Actually, they are not depleted. They are just re-trafficked into other lymphoid organ systems.

If the absolute lymphocyte count on a blood study is too low, usually, you know, below 300, below 200, this is when it might be a good time to start talking to your primary care doctor. Or actually, I should say your MS provider about alternative dosing or maybe just monitoring more carefully.

We have not seen an increased risk of more severe COVID-19 disease or susceptibility with the S1P modulators. But again, we all have to be careful about monitoring. So, I just wanted to go ahead and get that in before we ended.

Peter Damiri: Great, thank you. And Dr. Hendin, I didn't know if you saw any other questions that came through that you wanted to address real quick.

Dr. Barry Hendin: Well, interestingly, there are so many questions that still remained unanswered, both in the chat box and also for Dr. Hersh and me, who, as she said, we're still students of this. Not only are the audience questions not fully answered, but our questions continue. But we're, but we're continuing to study this.

And so, the most optimistic thing to know is everybody's interest online is the same as our enthusiasm about being together with the MS community. We don't know all the answers. We know a lot more than we did.

The basics remain. Social distancing, wearing masks, hand washing, staying connected to the knowledge base, and recognizing how much we still have to learn.

In the meantime, continue on your medications if they're effective for you, practice good habits, and we'll look forward to talking again Dr. Hersh, and I with you Peter with what I hope will be another discussion at a later point in time.

Peter Damiri: Absolutely, we will absolutely keep our MS clients informed and provide more of these programs as more news and updates come available, for sure.

And thank you both so much for your presentation, your insights, your comments. Tremendous, helpful information that I know our clients will really appreciate.

Well, that does conclude tonight's webinar, which will be archived as a reminder to our website within a few days. I also want to thank Dr. Barry Hendin and Dr. Carrie Hersh for keeping us updated on this very important issue. And thank our funding partners, Bristol Myers Squibb, EMD Serono, Genentech, Novartis, and Sanofi Genzyme for supporting this webinar series.

Also, we ask you to take a very brief survey that is coming up next. Please know your feedback is very important to us and will help us secure funding for future programs. So, on behalf of MSAA, Dr. Hendin and Dr. Hersh, thank you so much for watching, and please stay safe.