Social Determinants of Health Patient Education Webinar Transcription-June 3, 2024

Becky Strong: Welcome everyone. This webinar is now being recorded. I'm Becky Strong, IPPF Outreach Director, and I'll be your host for today's webinar. I'd like to thank you for being here with us, and before I begin, I want to remind everyone that information is a key factor in treating and living with any condition. However, everybody's situation is unique and the IPPF reminds you that information found here or anywhere on the internet should be discussed with your doctor or healthcare team to determine if it applies to your specific situation. Today we're excited to have Dr. Animesh Sinha with us to discuss social determinants of health and pemphigus. Before I hand it over to him, let me introduce you. Dr. Sinha is a professor in the Department of Dermatology at the University of Buffalo in Buffalo, New York. Following the completion of his medical degree in 1982 from the University of Alberta, Dr. Sinha received his PhD degree in Medical Sciences Immunology in 1986 from the same institution. Subsequently, he pursued postdoctoral research at Stanford University in the department of Microbiology and Immunology. Dr. Sinha's subspecialty training in dermatology was completed at Yale University and Yale New Haven Hospital. Prior to his appointment in 2011 as chair of the Department of Dermatology at SUNY Buffalo/ Roswell Park Cancer Institute, Dr. Sinha held faculty appointments at the Department of Dermatology, Weill Medical College of Cornell University and at Michigan State University, where he was the Chief of the Division of Dermatology and Cutaneous Sciences. Dr. Sinha is a board-certified dermatologist whose professional goals are aimed at bridging the bench to the bedside. His research is focused on understanding the genetic and immunologic basis of complex skin disorders. He has published extensively, over 165 peer-reviewed articles, including 4 in the journal Science, and received numerous honors and awards for his academic activities. Before we begin, I would like to review a few housekeeping items… (Reviews Housekeeping Slides). Now, please join me in welcoming Dr. Sinha.

Dr. Sinha: Becky, thank you very much. I hope you can all hear me and we'll shortly share my screen. Let me just do that and I think, are we good there, Becky?

Becky Strong: Yeah, we can see you and the screen.

Dr. Sinha: Okay, so well again, thank you to Becky and Amethyst and the rest of the people at the IPPF. It's really a pleasure to have the chance to speak to you all again. I've been a Medical Advisory board member for the IPPF for a couple decades, probably by now, and they're a fantastic organization, as you all know. They do tremendous outreach and support, research and support the community from the patients to the physicians and investigators, and really a wealth of resources and support for these sometimes difficult diseases. But in any case, once again, I'm Animesh Sinha or Ani Sinha. As Becky said, I'm here at the medical school in Buffalo, sunny SUNY Buffalo. It's a beautiful day today. I think the snow melted last week, so we're good here in Buffalo. And again, happy to be here. I'm going to be talking today about the social determinants of health and in particular the role of these in health, disease and autoimmune disease. So let's get started with that.

Dr. Sinha: Okay, so let's just go back to basics. We know that pemphigus is part of a group of autoimmune conditions in the skin, but let's go even further back with basics. What is autoimmunity? Well, as many of you already know, it is the failure of an organism to recognize its own constituents parts or which we might define as self, which then results in an immune response that's misdirected against their own tissues and cells. And so normally the basic tenet of the immune system is that we exist in a state of relative self tolerance, so we don't attack our own tissues. Our immune system is incredibly diverse and complex and adaptive and able to respond to and help clear out all the pathogens that we might encounter, at least collectively as a species. It's incredibly diverse and complex and counterbalanced, but sometimes that balance is upset for reasons that we don't fully know. Some genetic and environmental factors that we'll talk about a bit more. And then we breach self tolerance, that state of balance and go into a dysregulation where we attack our own tissues. And this is more common than we might think. It's not a fail safe sort of fidelity between tolerance and non-self tolerance. In fact, we have a lot of immune responses that are directed to self tissues, but even if we do, they're often held in check by other mechanisms and somehow we don't go on to disease. But in some people we do and in certain conditions and situations. We're still trying to figure all that out as we'll talk about. But just some factoids, there are over 80 human autoimmune diseases reported and increasing awareness of this. The prevalence of autoimmunity is increasing for reasons we don't know. It affects about 5% to 10% of the population with some sort of autoimmune phenomenon or frank autoimmune disease. And actually it's the second or third leading cause of morbidity or mortality of all conditions. So I think heart disease and cardiovascular conditions are number one and then followed by cancer, neoplastic diseases and autoimmunity is right up there right along with cancer. So these are really big important conditions that affect the health burden and economic burden to our society. And it's estimated there's cost related to caring for autoimmunity and people with autoimmune conditions is clear as a hundred billion dollars annually to just the U.S. healthcare system. So these are really an important sector of disease burden. We realize that pemphigus and the autoimmune blistering disorders are relatively rare, quite rare in themselves, but they are part of this collective of autoimmune disease. They share some common causes and we'll talk about common ways to approach diagnosis, treatment and management. So really just like when we think about cancer, there are many, many different types of cancer depending on the cell type or the organ, but we think of cancer as an overall umbrella of a class of diseases. We should be thinking about autoimmunity as well as a group of diseases that are really impactful for our society. So as I mentioned, we're going to focus mostly on pemphigus vulgaris but what I say here also applies to the other autoimmune blistering disorders such as pemphigus foliaceus and the other blistering disorders, the pemphigoid group, like bullous pemphigoid and those related conditions, which are also problems of blistering in the skin. Pemphigus vulgaris is the prototypical pemphigus group blistering disorder, and it's characterized by an intraepithelial or within the top layer of the epidermis or the skin, acantholysis, which is a term for the loss of cell to cell adhesion. So the skin cells or keratinocytes are attacked and they fall apart. They lose their normal adhesive properties that help maintain the integrity of the skin. And that's a process called acantholysis, in this case caused in ways we don't fully understand by the attack of the immune system, and particularly the autoantibodies that are misdirected towards some of the self proteins and components that are important for holding skin cells together and then you get a blister in the top layer of the

skin. But it really is just the prototypical blistering disorder. PV is the prototypical pemphigus group blistering disorder. But remember, it serves as a good model, even though it's a rare condition, it serves as an excellent model for understanding autoimmune blistering disease, autoimmunity in the skin and autoimmunity in humans in general. But here's the problem, there is no known cure for any autoimmune disease, and this is because these diseases are complex in etiology or in their origin and their nature. By that I mean multifactorial. So there are genetic components and environmental components as well, most of which we haven't figured out yet. In terms of the genetic component, we know some genes that are very important in predisposing risk to certain individuals and to autoimmunity and these are linked to certain master regulators of the immune system called HLA or human leukocyte antigen genes and certain alleles or variants of these genes, they function normally in their immune system, they initiate immune responses, they're master regulators, but they also for some reason are associated with propensity to get certain autoimmune disease. And many years ago when I was at Stanford, I sequenced two very important alleles or genes, HLA alleles that are linked to susceptibility to pemphigus. These genes may be necessary, but they're not sufficient. There are other genes that are important so these conditions are polygenic. That's what makes this etiology complex. And we don't know what these other genes are. We're searching for them and it's complex because probably there's multiple genes with small effects and they may be a bit different in different individuals, but somehow they work together to set the stage for an immune dysregulation. But there are not only genetic factors, remember it's not just one gene, a certain genetic disease, you have one gene that's knocked out and maybe it corrupts a certain enzyme or protein, and you get the disease. In most human diseases, including autoimmune conditions, there are multiple genes. But genes themselves and genetic predisposition are not enough, there are environmental factors broadly speaking. This is anything an individual might encounter in their environment and we'll talk about this in more detail. We know this because if you look at twin studies in patients with autoimmune diseases, even genetically identical twins or monozygotic twins carrying the same genes do not have a very high concordance of getting autoimmune disease. In other words, if one twin identical twin has an autoimmune disease, the chances of the other twin, the genetically identical sibling, to get disease is only 20% to 50% at best, depending on the disease condition. There are no twin studies that have been done in pemphigus. We're launching a study to do that, which I'll talk about at the end. You'll be hopefully getting a flyer for that. But keep in mind that the etiology is complex, there's genes, multiple genes, there are environmental factors, and again, we don't know what these environmental factors. We are starting to study these and I'll talk about that in a little bit and also how social determinants of health come into play. But somehow these genes and these environmental factors conspire together to take individuals who are at risk and tip them over into autoimmunity by dysregulating the immune system. So it's a complex process. We're trying to unravel this, but it makes it difficult. It confounds our efforts to understand disease mechanisms and what exactly happens when you get pemphigus or some other autoimmune disease. And confounds their ability to manage patients because the course of disease, the level of activity, frequency of flares and the exact treatments that might work for particular individuals are quite variable, and that makes management difficult. And ultimately all that complexity impacts on our health outcomes. How do we manage these diseases and improve health across the spectrum of patients with autoimmune disease?

Dr. Sinha: So to get better outcomes, we got to manage patients better. So let's work backwards. But to manage patients better, we need to understand the mechanisms that lead to the immune dysregulation and we are doing that in our lab. We have a huge effort to understand various components of the immune system, various pathways and cell types and cytokines, which are the soluble messengers of the immune system, the autoantibodies and the cell types that ultimately initiate and then ultimately cause tissue destruction. And this is complex in itself, and there are a number of intersecting immune pathways, and we're trying to unravel that. I won't talk about that so much today, but we have a huge effort into that, and that's been a big part of my career. And other labs around the world are of course working on this as well. So we're still trying to figure it out. But before we can understand how the immune system is dysregulated and the mechanisms of disease, we need to understand what causes all that to begin with. And again, as we talked about, this is multifactorial. So to reiterate there are genetic factors, the HLA genes I talked about, the human leukocyte antigen genes are very powerful regulators in the immune system. We know that there are a couple alleles or variants of these genes that are linked to susceptibility to pemphigus, but there are other non HLA genes as well, which we're still trying to work out actively in my lab in particular. But beyond that, as I talked about, there are all these environmental factors, and I call them, part of the overall umwelt the German term for the all environmental factors that an individual or an organism might experience. This is a little bit semantic, but I break the umwelt or the overall environmental factors into two kind of layers or ways of thinking about this. Exposome factors, which are maybe more directed at the individual. So what does the individual experience themselves? And we are studying these, we're beginning to say this, we have very little knowledge about these things. We know the environment is important in tipping over genetically susceptible individuals into a state of disease, but there's little work and limited information on this. It's just been hard to study. But we in the lab have been in my group, have been breaking this down into medications, infections, vaccinations, sleep, smoking, and stress as some of the major categories that impact an individual and contribute to factors that cause autoimmunity. But on top of that, we are not just individuals, we live in communities and our environment that are also part of the larger environment or umwelt that we have to deal with. These have a huge impact on our health as well. Also perhaps underappreciated and understudied because it's just been difficult to do so. But I'm going to talk about what these are and how we might start approaching our understanding of the social determinants of health in particular as part of the umwelt, environmental factors that together work with other environmental or exposome factors in the context of genetic predisposition to cause ultimately a dysregulation in the immune system that we need to figure out in order to come up with better treatments and specific treatments to manage disease and improve health outcomes.

Dr. Sinha: Okay, so let's talk about what are social determinants of health. We can define this as the non-medical factors that influence health outcomes. In other words, the conditions in which people are born into grow, work, live, age, and the wider set of forces and systems that are shaping the conditions of our daily life.

Dr. Sinha: Different people and organizations have tried to organize their thoughts and

categorize what types of these factors might be important. There have been a number of ways to codify this or attempts to codify this through the World Health Organization, the Kaiser Family Foundation, which runs large healthcare organizations in big parts of the country, especially California and out west. People have been trying, they're all kind of talking around the same language. I won't go through all this, but you can see that it has to do with a lot of socioeconomic and healthcare access, education, et cetera. And again, some other attempts by other organizations have been put forth to try and categorize and codify these social factors into some sort of groups that could make sense.

Dr. Sinha: But we've kind of settled on I think maybe the best way that we've thought about going forward with it is to take what the U.S. The Department of Health and Human Services has put into the five major categories of social determinants of health. One is education, access and quality. Early childhood development, education, enrollment in higher education, the level of high school graduation and language and literacy rates. Second, healthcare access and the quality of this access. So who has access to healthcare, access to primary care, literacy to resources that educate people about health conditions and diseases. Thirdly, economic stability, employment, food stability, housing stability, poverty levels. Fourth, the neighborhood and built environment. So where do you live, the access to healthy food, education, the role of crime and violence, other environmental factors and the quality of housing. And then finally, social and community context. Who's around you? Is there civic participation? Are there discrimination at racial or other minority groups that have to deal with that. Incarceration and the social fabric and cohesion. So these are the five social determinants of health categories that I think we might want to settle on or focus on to organize our thoughts and our approaches to understanding, investigating, and dealing with the social determinants of health.

Dr. Sinha: Now, it's not like people have just been thinking about this as far back as a couple hundred years ago, Rudolph Virchow the famous German pathologist and the father of modern pathology in our understanding of viruses and things like that and pathogens talked about the link between environment and social determinants of health. Maybe they weren't called that at the time and disease. And so he understood that to really take care of people we must understand and intervene in the political and social life of the population and that these are hindrances that impede the overall healthcare of a community and society.

Dr. Sinha: Okay, so we've talked a little bit about what are social determinants of health, a little bit about how we got there, their overall importance, but let's take a little more dive into how they might impact health. So traditionally, in western medicine in particular, we've been thinking about identifying specific risk factors. We like to really be reductive in western medicine and come down to individual factors or an individual cell or molecule or enzyme. And that's all well and good, but everything is in a context, a larger context of the organism in general, their genetic basis, their immune functioning and their environmental exposures and their social factors as well. We have to keep this perspective in mind. But let's think about cardiovascular disease. It's something we've all dealt with somehow in ourselves or our families, and it's so prevalent. But if you think about certain factors just to make it simple, we can think about smoking or obesity, physical activity or inactivity. These are individual risk factors.

Dr. Sinha: But if we think about the social determinants of health, let's think about it like this, what puts people at risk of those risks? And so if we think about our model with cardiovascular disease, we can think about what contributes to those individual risks for a person to get cardiovascular disease, that we know are important in cardiovascular disease. But there are other risks that maybe we need to think about as well that impact in this case, smoking, obesity, physical inactivity. They're these five social determinants of health: education, healthcare, economic stability, the neighborhood and environment and social context. So that's the perspective that we should think about and we're going from individualism to a social or collectivism. And what's more important? Well, they're both important because we don't live in isolation in our genes or immune system and even within our own bodies. And certainly we live in the environment that we face in the specific environmental factors that impact us, but also those are again overlaid by impact through the social environment and factors that impact us.

Dr. Sinha: If we think about health outcomes, it's been estimated that 80% of health outcomes are really driven by these socioeconomic factors. So we might call those the social determinants of health factors that affect that. And only 20% is actually related to the actual medical care a person receives. So that's part of the social determinants of health too. So you can slice and dice these things in a little different ways, but the point is that it is not just that if you get to the right doctor and they can treat you, that's great, that's important. But a lot of other factors we need to keep in mind as healthcare professionals and as individuals and patients aware of our own health, what might be affecting our health at a broader level.

Dr. Sinha: We can see this in a couple interesting examples. So just really broadly looking, you can see that the life expectancy even in the United States is significantly different in different parts of the country. Why is that? It's probably not due to genetics because we haven't had enough time to evolve our HLA genetics that quickly, probably across the population of the states but maybe it's related to their overall environment and socioeconomic factors. It's just an illustration that it's not just likely genes and your internal things that affect your health and life expectancy.

Dr. Sinha: Even in neighboring counties in California, we can see that in Kern County, the rates for cardiovascular death are much higher than in California overall or neighboring San Luis Obispo county. And it seems to be linked to the paucity of physicians in that county compared to the neighboring county.

Dr. Sinha: So let's talk about, in the last few minutes, social determinants of health and autoimmune disease. So again, to take you back to one of the earlier slides. To have better health outcomes, we need to manage patients' better. To do that, we need to understand the mechanisms of disease better. To understand that, we need to understand the causes or etiology of disease better from the genetic factors to the environmental factors. And I like to break down the environmental factors into the individual exposome factors and then the social in terms of health that are kind of this overarching level. We need to have a better and fuller understanding of the social determinants of health. Even though I've been a geneticist and immunologist my whole career and have focused on these things, I've always realized that environmental factors are important, but it's been difficult to study them. But it's important that

we now start to put more focus on this. And I realize that even the immune system dysregulation, these are all impacted by these overarching effects of the environment. And so I think we need to now take a much more serious and detailed and granular look into these factors if we're going to understand even how genetics and the immune system factors ultimately conspire to cause disease.

Dr. Sinha: But there hasn't been a lot of work on social determinants in autoimmune disease. Just a couple examples. We see in multiple sclerosis (MS), that people of color generally have worse clinical outcomes in MS. And this varies by county and region. Therefore it suggests that this isn't just the individual's race that's important, but perhaps the racism or the individual or discriminatory factors or the stress that people of color feel that they encounter that may be even more pronounced than other populations. So that's one interpretation of these types of studies, but I think it's important to look at this data and say, okay, what could be causing it? Is this just an inherent thing or are there other factors? And I think the data is showing us that there are other factors that we need to start paying attention to.

Dr. Sinha: Similarly in lupus, the prevalence of systemic lupus erythematosus is highest among Black, Hispanic, and women in particular, it's not just related to their race, without getting into all the detail of the data, that a lot of poverty and lower socioeconomic status seems to affect this. So it's not just that maybe the biology of genetics of black individuals and black women are the issues, it's the stresses and the social factors and maybe healthcare access, et cetera, that they have to face that we have not been considering as much as critically as perhaps we should have been. It's been documented that emotional or physical abuse has been linked to higher risk of autoimmunity in certain populations, in this case, in lupus among women. So again, data suggesting that these social factors are important.

Dr. Sinha: In pemphigus, there's been even less research done. A colleague of mine, we published together that there was a higher risk for hospitalization for pemphigus in the Hispanic or Latinx population, suggesting that that was linked to lower socioeconomic status and higher comorbidity with other diseases. So again, sort of illuminating or shedding light on a poorly illuminated areas of importance for health and disease.

Dr. Sinha: Another colleague of mine, Ron Feldman at Emory in Atlanta, showed that having the type of insurance can affect the risk and disease course of pemphigus. So those with Medicaid had more problems than people in the same ethnicity than those with private insurance. So all these factors affect your health too. It's not just your genetics and your immune system.

Dr. Sinha: So I just wanted to in this talk, give this overarching perspective of what autoimmune disease is, how pemphigus is a prototypical autoimmune disease that we can learn not just about this specific disease, but what it can teach us about autoimmunity in general, which affects so many people. And the importance of not only understanding the genetic factors and the immune dysregulation, but understanding how the environment and individual exposures as well as all the factors that affect the way we live, interact, and are affected by our community are so important to our biology of health and disease in ways that are completely intertwined. And

we need to start to take a more critical eye to these factors, try and understand them. We have started to do this more in my research group. You may have seen this, this flyer went out on the IPPF blast that we're doing a survey we've already got over, I think close to or over a hundred responses, and we're very grateful for your time in filling this out. So look on the IPPF website to answer just a few questions only takes a few minutes to help us start to get a better understanding of the social determinants of health.

Dr. Sinha: What are our goals here? We want to understand, first of all, we want to categorize the burden of social determinants of health in patients with autoimmune blistering disorders and in subgroups, especially those from diverse geographic, racial, or ethnic backgrounds. So how much are the factors, how important and prevalent are these factors of social determinants of health in patients with pemphigus and other autoimmune blistering disorders? Secondly, we want to start to understand from that documentation of the burden from what is the impact of this burden on the etiology or disease development, the disease mechanisms, management, as well as healthcare outcomes because these social determinants of health will have an impact from everything to your biology, to the immune system, to how your access to healthcare and how you're managed and ultimately the overall outcome of your condition. And then through this, understanding then, okay, what are the barriers? What do we need to overcome to do better? And help us inform areas for future investigation, convince granting agencies and the NIH and other governmental and private organizations to help fund this research. Then ultimately help formulate interventions directed at the public health level and at the social determinant of health barriers to improve autoimmune conditions, including the blistering disorders.

Dr. Sinha: So again, please, if you haven't done so, we'd really appreciate your time in taking the survey and I think what we'll do is leave it open to questions. I want to thank my lab. There have been a number of wonderful lab members and students that have worked on all aspects of autoimmunity with me over the years and at Buffalo for the last 12-13 years in particular. A number of students have worked on environmental factors and now social determinants of health and race. I won't mention all of them but I'll mention Justin Baroukhian who's a medical student, a very talented medical student who's taking a couple years off and is really sinking his teeth into this. He's driving this survey and f you participate, you might interact with them, but I want to thank Justin and the numerous lab members past and present. We've got some new ones coming in even today I believe, I'm meeting with a few new students today. I can't do this work without my team and we can't do it without your help and participation. I hope I've been able to give you an overview and just open the door to the discussion about these social determinants of health and continue along this journey to understand these complex diseases. So I'll stop there and I’m happy to open it up for further discussion. So thank you very much.

Becky Strong: Thanks Dr. Sinha. That was really informational for us and we've gotten quite a few questions in. You had mentioned about Dr. Feldman's study out of Emory with Medicaid having an effect on developing disease and contributing to that. Has he studied the effect specifically on pemphigus and pemphigoid?

Dr. Sinha: To be honest with you, I am not sure. As I was reading some of the questions that came in pre that were forwarded to me, there's not been a ton of work. But I think in that study, and I'll have to look more closely, I think he has looked at that and there are some direct links. So I think people are starting to understand the importance of all these factors that relate to healthcare access, insurance, all things that you might, if you take a second to think about, oh yeah, it makes sense, but we haven't been thinking about this because we've been so focused on the genetics and biology, which absolutely has to be done. But even the genetics and the biology of the immune system are ultimately part of the context of the larger individual and the individual's environment. So I think what Dr. Feldman's study helped with putting a little bit of lens on these issues that we have to look at and that we're starting to. There's going to be a theme here, I'm not going to have a lot of specific answers because the truth is, we just don't know and we're really starting this. It's not just pemphigus though. We have very little understanding of all these things in autoimmunity in general. It's just because it's very, very difficult to get that information and to then understand even more so. We're starting to do that with these surveys and a little more focus that folks are doing around the scientific community, the medical community in autoimmunity and beyond like cardiovascular disease, diabetes, et cetera. But as I said, I think it's a staged approach, if we understand we need to document what these are, what's the burden here, and then how does that impact. That's going to be difficult. We have to start to think about how we then go from understanding the importance of these factors to then seeing how they're really affecting disease management and outcomes.

Becky Strong: Great. Thank you. Dr. Sinha, how did you become interested and start looking at the social determinants of health?

Dr. Sinha: Sure. Well, it's been an evolution really. I was interested in medical school. I think the thing that jumped out at me from the first lecture of immunology in my second year of medical school, it was the one that was the most interesting, maybe the only one that was interesting to me, to be honest with you at that time. At that time we were sitting in classrooms eight hours a day for months, but the immunology lecture really jumped out at me. I was fascinated right from the beginning about the complexity of the immune system and how it impacts all our organs and that we still haven't figured out even now how the immune system balances the self non-self tolerance. And then I started getting interested in that and then starting to understanding, well, what can we learn? Maybe there's some genetic factors that predispose people. I started to investigate that as I went on in my career. We were sequencing genes important to the immune system. But I also wanted to learn about and I started to understand quickly that it's not just the genes that dysregulate the immune system, there are environmental factors, but little has been done. But we were so busy studying which genes, how they're affecting the immune system specifically that we just didn't have a focus or the tools to study the environmental factors, let alone the social factors and community factors but I've always kept it in mind over the years. As we've studied autoimmune blistering disorder in particular, we've developed a very large sample, biorepository and tissue bank and of DNA and RNA, serum blood cells, but also clinical database. And we started to ask some questions and I realized that have started, but we need a bigger and more specific focus on these other factors if we're going to try and understand the disease from a 360 degree viewpoint. And like I said, they're not unlinked, these are not separate things. So understanding the social determinants of health, these things ultimately filter

down to how your genes and environmental factors work to dysregulate your immune system. So it's been a long process, one I've appreciated, but as time has gone on, I've started to increasingly be interested in studying their importance, and now we're starting to develop a better awareness and maybe some better tools to document and investigate the social determinants of health.

Becky Strong: Great, thank you. We've got a few questions that came in and I'm going to kind of group them together. In the beginning you had mentioned different factors that can contribute to autoimmunity, and there have been a bunch of questions that came in about how vaccines cause autoimmune disease? Things like the covid vaccine or the pneumonia vaccine or anything like that?

Dr. Sinha: Yeah, it's a great question and I don't have a great answer for you of course, because when you're in the thick of these things. I'll say this, the immune system is incredibly but precariously balanced, right? Overall, most of us function in the state of relative self tolerance. So even if we have some autoimmune recognition in our immune system, we don't tip over into disease. And the reason we have some autoimmunity and that sometimes tips over disease, why do we have this at all? Why don't we have a complete firewall? Is because it's the price you pay for having such an immense and diverse and adaptive immune system. Just think about all the pathogens out there and the potential pathogens. It's remarkable that the immune system has evolved so that it can, in most cases, quickly adapt and counter those pathogens. But it's got to be so diverse, it's got to have receptors and cell types that can recognize and respond to all sorts of things it's never even been exposed to. So it makes all these different specificities, some of those are probably going to overlap with some of our own molecules that make up our own constituent parts. So you're in this balance and the immune system has developed mechanisms to mitigate the potential for autoimmunity, but it's not clear exactly how that happens. So the point is that how these other factors tip the balance one way or the other, environmental exposures, other social factors that you deal with clearly happens, but it's unclear how that happens. We have to, as I said, try and document what are those factors? What factors play a particular role in a particular disease, what factors play a particular role in particular groups of individuals or individuals? And then how does that impact exactly the immune system? And that's the million dollar question of course, how that happens. Now, that's not going to be a simple answer. Everything in the body in the immune system is the perfect example of that complexity because there are balances, counterbalances and all sorts of redundancies that are making this incredible network of complex interactions with the immune system that are precariously balanced. Different environmental exposures will tip it one way or the other, and we need to still figure that out. So it is a tremendous conundrum and we've got a lot of work to do with that, but I think once we start documenting things, we can maybe start to categorize and then start to study individual factors and how they might be working. So I don't know.

Becky Strong: Great. What practices have you personally put into practice to understand the needs of your patients in your community to understand how these social determinants of health are impacting your patients?

Dr. Sinha: Yeah, absolutely. We're just starting to be honest with you. I mean, as I said, it's not escaped me or others that these things are very important environmental factors and social factors, but just getting more awareness, I've noticed in the last few years. What we've done is that over the years we've developed a very robust questionnaire. I think it's been the basis of the IPPF questionnaire. We really worked together on that. In our own group, we're starting to incorporate these questions more about environmental factors like medications, viruses, vaccines, smoking history, stress levels, and now we're starting to incorporate other community factors into this, this has been more recent. We've had an effort in documenting individual environmental factors, as I said, things like stress, medications, et cetera. But now we're starting to put into our own survey these other social determinant of health questions related to education, socioeconomic status, your environment, your racial and discriminatory factors that we're starting to integrate that into our surveys, and we're doing this of course in collaboration with you now very recently, that we can work together to start to tackle these issues.

Becky Strong: Great. Another question that has come in, what is currently known about the impact of psychosocial support resources and a peer community in mitigating the impact of dermatologic and autoimmune diseases?

Dr. Sinha: Yeah, so it's a great question. So once we know the burden, even if we don't, we know social determinants of health are important even if we don't fully understand their impact or exactly how they impact the individual to make their immune system more disrupted and worsen their disease. We do know that these are important factors and I think we don't have to wait until we figure everything out to start some interventions. I do think that's very clear and I think it's very intuitive to anybody that if you have more support in your community in terms of mental health resources to lessen your stress in your daily life personally or in your family or your work environment or your just daily life, no doubt that gives you the best chance to battle your disease. Even in terms of the biology of it, but also the management of it and getting the proper care. Psychosocial issues are hugely important. We want to get a handle of that through our surveys. At another level there has been work over the years on the connections between stress, the nervous system and the immune system, and a lot of people have worked on specific molecules and so forth to figure out those connections. It's a tough subject, but clearly the immune system and the nervous system are connected. They inform each other and they do impact immunity, health and disease in ways we're trying to figure out. I think we can work from both ends, understanding those sort of molecular and biological connections, but also understanding at the social and personal level how we can get resources to people. I think this is a societal issue. Can we improve the lives of our communities and patients suffering from autoimmune disease by giving them better access to care, by giving them resources to have a state of better wellbeing in terms of their mental health and their social stresses and family stresses. This is a societal issue that I think we have to work at many different levels from physicians and biologists to social workers, to governmental agencies and programs. Patient support groups like yourself, do a tremendous job of offering all sorts of resources, including specifically on I think social and psychological, I think resources. I know you've had seminars and resources for that, so I think we have to work from all ends on that.

Becky Strong: Great. Thank you for that answer. There's another question that came in. Is there a good way for us to track? Is there a best practice or way for us to organize factors that may be impacting our health and if we want to bring our doctor into that conversation, which of our doctors is probably the best one to reach out to?

Dr. Sinha: Yeah, it's a great question and I don't think there are any formal ways to do this yet. You can take the survey. You can take the survey. It's a good start. So go to the IPPF website and take the survey so we can start along this track. I think it's a conversation. Right now I'm not aware of any very widely or broadly adopted programs for this in autoimmunity or in pemphigus at least. I think we can start by the survey and we can hopefully incorporate this and educate people and through awareness, through our physicians and our outreach through Becky, yourself actually, and the outreach and awareness program that you pioneer and lead through the IPPF, that we need to make our community from the providers to the patients more aware of these issues. Patients should advocate and ask these issues yourself. Maybe the survey will help prompt some questions and issues that are important that you can bring up to your providers and just advocate for yourself to begin with. I hope in the future that we will be able to integrate these questions as part of the medical history and part of our medical care in terms of disease management. It's not there yet, but I think we have to start and I think we're making an attempt to head down that road.

Becky Strong: Great, thank you. Another question that has come in is, you had mentioned environmental factors and ethnic factors and all these factors that play into our health. How do we determine, is there a resource out there to see if our health trends are following what's in our city or state, even in the country, or if we're even an outlier with that as well?

Dr. Sinha: Yeah, that's a great question. I have to confess a little ignorance on that. I bet there are resources through human health and services, et cetera, that might track some of these things. For example, I'm just looking at the example about mortality rates or life expectancy rates in different regions and different counties even. And I suspect that there may be this documentation and there may be of some with autoimmunity rates. I doubt since pemphigus is pretty rare, I don't know if anybody's done within the state's survey of where the prevalence of disease is and what factors might impact it? Now worldwide, we know that a disease like pemphigus is a little more common, actually significantly more common in certain countries and regions. We had assumed that these are mostly due to genetics, the HLA genes that are particularly linked to pemphigus are particularly prominent in certain Middle Eastern regions, the Indian subcontinent, et cetera. But it also could be that there are, and there's sure to be other environmental and social factors that affect these things. It would be interesting to see where the cases of pemphigus are happening in the states? Is there a trend and what could be the cause of the trend? It's just a bit of a rare disease, but I do think through the IPPF, it's perhaps something we can think about and see and may already have data somewhere within what's already been collected to see if that makes a difference. But I think in terms of statistics, I would say maybe dig into or contact your county health or organization at the governmental level and see if there's stats on autoimmunity and or the blistering disorders, which might be tough, but autoimmunity in general in your region and how it compares to other parts of the U.S.

Becky Strong: Great, thank you. One last question, and there may or may not be an answer. What health disparities have either been caused or discovered because of covid?

Dr. Sinha: Well, I think covid continues to be confounding and the conundrum from where the origin is, there's a lot of talk about that to the effectiveness and the consequences of the vaccine. I think that's all interesting. Sometimes hotly, sometimes I think in my opinion, wrongly debated, but still these things are important. I think the one thing covid did was put a real extra focus on how viruses and pathogens can affect and tip the balance of the immune system. So again, we have a very delicately balanced immune system. When something impactful like a major pathogen affects us. Then we try and protect ourselves with vaccines, no doubt that there is a push and pull on that apple cart and it may tip one way or the other. And I think my guess is that it depends on the individual and the other and multiple factors, which way that apple cart tips. And so in some cases there might be adverse events. In most people the vaccine is going to be very beneficial, but there's always some cost or price to that. I think we're still working out how the virus itself and the vaccine might impact the immune system specifically and how it might autoimmune diseases. There have been reports linking autoimmunity to the virus itself and the vaccine, and maybe that's a little frustrating or confounding, but also maybe not surprising. As I said, if you've got this balanced apple cart and you push one way or the other, and depending on the other factors that are impacting a given individual or patient, it might tip one way or the other. And right now we just don't have enough hard data on what those consequences might be.

Becky Strong: Great, I sincerely and I know our community does too appreciate the time that you've spent with us today and giving us insight into research that's being done in our disease space and looking at us as a whole person. So thank you Dr. Sinha, for coming and sharing with us today.

Dr. Sinha: Thank you so much. Thank you everybody listening, I really appreciate the opportunity to speak with you, and we really appreciate your continued support of the IPPF and our medical community and my research group and research interests in particular. These are really fascinating and difficult diseases. It's been my honor and privilege to have a chance to work on these tough conditions and hopefully improve them as best we can with our efforts. So we appreciate the blistering disease community's involvement very much. I commend the community for being so engaged and it's really necessarily, really important and really appreciated. Thank you.

Becky Strong: Thank you. Before we go to today, I have a few announcements. Join us for our next webinar on June 10th where Dr. Rachel Eisenstadt Lipman will be discussing Immunosuppressants for the treatment of Pemphigus and Pemphigoid. You can scan the QR code on the screen or go to our website to register for the webinar.

Becky Strong: If you want to stay updated about upcoming webinars, events and important news in our community you can opt into our mailing list. You can join our mailing list by visiting our website, www.pemphigus.org, scroll to the bottom of the page and enter your email into the “Join Our Email List” box or scan the QR code on the screen.

Becky Strong: We are excited to announce that this year's Patient Education Conference will be held IN PERSON in Newport Beach, CA. We hope to see you all there so we can finally meet you in person! The conference will be held October 26 and 27th. Mark your calendar! Registration will be opening within the next few weeks! Space is limited. See you in October!!

Becky Strong: Have you explored the IPPF's Guide to Pemphigus and Pemphigoid? This guide offers medically reviewed answers to common questions for those newly diagnosed, along with valuable information on managing and treating these conditions. With this guide and other IPPF resources, we aim to empower our community with the essential knowledge needed to make living with pemphigus and pemphigoid more manageable.

Becky Strong: Don't forget to check out our Find a Doctor Directory! This handy tool lets you search for doctors in your area and worldwide who the IPPF believes are experienced with pemphigus and pemphigoid, using a variety of criteria. Simply scan the QR code or visit our website to access the directory.

Becky Strong: Want to help doctors and researchers better understand pemphigus and pemphigoid? Wish there were more and better FDA-approved treatments? Join the IPPF Natural History Study today! Sponsored by NORD and the FDA, this patient registry ensures your information is private and protected. Your participation will help advance research, improve treatments, and move us closer to a cure. Share your journey and make a difference for everyone affected by these diseases. Get involved and visit www.pemphigus.iamrare.org to join today.

Becky Strong: A heartfelt thank you to everyone in our community for your generous support of the IPPF. Your donations make it possible to connect patients with vital support, resources, and experts, and to raise awareness. Thanks to you, we share patient experiences with medical and dental professionals, advocate at the government level, and promote crucial research. To continue making a difference, scan the QR code on your screen or visit www.pemphigus.org/donate to donate today. Your contribution ensures our programs remain available to all who need them now and in the future. Lastly: The IPPF hosts virtual support groups nationwide. If you'd like to join a meeting, please visit our Event Page to register. We're also looking to expand our support network. If you're interested in starting a support group in your area, please contact Becky Strong at becky@pemphigus.org. It's easier than you think and a great way to help others find the peer support they need. A recording of today's presentation, along with a survey, will be sent out after the webinar. Thank you all for joining us! Goodbye.