Mitzi: Good afternoon and welcome to today's webinar titled Updates in Transplantation at MGTI During COVID-19, What To Expect for Patients and Providers. The phone lines will be muted during today's presentation, but you will have an opportunity to submit questions and comments using the chat function in your WebEx player. We will address as many questions and comments as time will allow at the end of the presentation. Also, please note that we will be recording today's webinar and it will be posted on the Quality Insights Renal Network 5 website within the next few days. So, again, welcome to today's webinar and I'll turn this over to Brandy Vinson, the executive director of Quality Insights Renal Network 5. Brandy?

Brandy Vinson: Thank you, Mitzi. Good afternoon everyone. It is my pleasure to introduce one of our distinguished guests, Dr. Matthew Cooper, who I would like to thank for the leadership and guidance he has provided as a Network 5 board member, especially during this pandemic. Dr. Cooper is the Director of Kidney and Pancreas Transplantation at the MedStar Georgetown Transplant Institute and Professor of Surgery at Georgetown University School of Medicine. Additionally, he serves as the president elect for UNOS board of directors and surgical director and chair of the surgical committee for the National Kidney Registry.

Dr. Cooper, thank you so much for your time and pulling your team together for this presentation. I will now turn the floor over to you.

Dr. Matthew Coo...: Brandy, thank you very much. It is an absolute pleasure to be asked to do this. As Brandy mentioned, whenever asked for the opportunity to share ideas about transplants, our team is always very much invested in and excited about the opportunity. I think we're working on getting our slides put up, so I will I guess continue to chat about what the plan is for today. Our hope is that this is valuable to you. Uncertain exactly what folks' roles are within the network and your place, both in the care of folks with chronic kidney disease and end-stage renal disease. We at the Transplant Institute certainly have, and have always had, the plan and the intent to partner with our colleagues that care for patients with chronic kidney disease and certainly with our partners in the dialysis units, and we hope that during this very challenging time there continues to be the appreciation of open communication and the desire to answer your questions, and really the desire to just be there to listen if that's all that in fact is necessary.

As mentioned, I'm the Direct of the Transplant Program and the Transplant Institute and have never been more proud to be associated and to be partners with this group. I think that the true character of an individual is on display during an emergency and certainly the pandemic is a true emergency. The courage that the team has demonstrated and the compassion that they've shown for everyone that's either walked through the door or has been on the other end of a telephone or has sat before an individual on a video screen has been nothing short of inspiration, and I hope at the end of the day you continue to appreciate that our team wishes to continue to be partners with you and

your program and that we'll provide some valuable insights into how MGTI is working in, around and through this pandemic. Next slide, please.

Sadly, I think it's important to recognize that really no conversation currently goes on without mentioning COVID in some fashion, and I'd also then like to take this opportunity to recognize that we not only recognize this happens professionally, but certainly occurs in your personal lives and your private lives and it would be nice to think about normalcy at some time coming soon. So, on behalf of MGTI, we thank you for the sacrifices you've made including especially staying healthy and being able to provide the ongoing care for patients with chronic kidney disease and end-stage renal disease. Next slide.

What we are currently doing at MedStar and MGTI, hopefully not surprisingly, all of our decisions, all of our paths moving forward, the top focus has been on assuring safety for everybody that interacts with our program and with our patients, of course including our staff as well. We have followed, as many have, the CDC Guidelines for protection. In fact, I think we're very proud to say that many of the decisions made by the CDC were ones that we had already instituted at our program and we continue to update our practices and continue to be on the forefront of providing a safe environment, as safe as possible, for patients, providers, visitors and guests when they enter our facilities.

All of our folks that do come through the doors of MedStar are expected to wear a face mask. I'm sure that's not surprising. It is somewhat surreal working in a hospital that in the past security practices were probably as strict they currently are now, but all patients unable to bring one with them will be provided a face mask. Visitor restrictions do exist at all locations, including and especially in the operating room. All visitors must check in at the front desk in outpatient settings. Visitors are only permitted a single visitor. The operating room is maybe a little bit of a challenge. We ask patients who are undergoing surgery, once dropped off, their loved ones are told it's best to go home and then we communicate with them by phone afterwards. Next slide.

My purpose is to really the smarter people around me. Many of our nephrologists, our surgeons and importantly our social worker is going to help wrap up the presentation today. We're going to talk about the program overall, how we are changing our practice and seeing our patients, continuing to perform even living donor transplants and Dr. Verbesey is going to talk to us about that specifically. Dr. Thomas will talk more about how to reduce wait times, safety of transplant. Dr. Gilbert will spend more time speaking specifically about how we have looked at the calculus of the risk of transplants versus the risk of decisions such as remaining on dialysis and, importantly, Alex Radomsky, one of our outstanding social workers, is going to talk about psychosocial support throughout all this and it's going to help round out and leave some time for questions at the end.

I certainly hope at the end as well there's the appreciation that again, safety is our top priority, but we continue to recognize that there is risk associated with being a patient on dialysis, and that's why we continue to think about transplantation throughout the course of this pandemic. Next slide.

When we look at some of the data, again, not surprising that living donor transplant activity ... Excuse me, transplant in general activity has decreased significantly over the course of the last at least two months. Interestingly, when you look at the overall numbers of transplants in the green over on the left, you can see that, in fact, more deceased donor transplants were performed during the initial stages of this pandemic. Some may suggest that was because of fewer programs, less allocation challenges, but overall the numbers have essentially caught up to the 2019 numbers, and you can see week by week, and this is readily available data on the UNOS website, that the number of deceased donor transplants has slightly decreased. That last date of April 12th, that 242, that's been about the same amount of kidney transplants the following week as well.

The bottom, a number of folks have already printed exactly some of the decision making when it comes specifically to deceased donor transplants and we at MGTI have chosen similar data variables in deciding to continue to move forward with kidney transplant. Our recipients are those that are in in-center dialysis programs, using high quality organs, particularly looking to avoid delayed graft function. We, of course, are transplanting our highly sensitized patients. And as I mentioned, those decisions and those variables continue to evolve over the course of this pandemic, as we have increased the safety parameters both available to patients at home and within the hospital proper. Next slide.

What also is important and what has probably demonstrated the steepest decline is living donor transplants, you can see on the graphic on the left the number of living donors since the beginning of this pandemic in March, dropped very significantly. We've continued to do some living donor transplants. I'll show those numbers briefly and then Dr. Verbesey will speak to the specifics of how we've done that safely. On the right, you can see the numbers of activations and inactivations, the blue bars being some programs that have decided to completely inactivate all of their recipients on their transplant list so that no offers are coming to patients for transplantation during this period of time. Next slide.

So, what have we done specifically? We've continued evaluations for both donors and recipients through our virtual platform. Dr. Vranic, who will speak next, will give us more specifics on that. We continue to look and review our policies, again prioritizing safety has the forefront of all our decision making. From a clinical perspective, we screen all deceased donors from OPO practices. If a donor has not undergone really stringent COVID testing, we are rejecting those deceased donors, again out of safety. We are able to perform rapid CCR nasopharyngeal swabs for our recipients who are candidates for deceased

donor transplant. We are actually able to perform those tests at the individual's home, rather than having them come into the hospital at all prior to the assurance that this is a transplantable organ.

We'll demonstrate our transplant rates over the last two months. We continue to have regular inpatient rounding. We are minimizing the time with which patients stay in the hospital and performing a lot of that followup through telehealth as well, including outpatient laboratories. So we are not minimizing the clinical care of these patients. We are looking to minimize the risk of long hospital stays and frequent exposures in that hospital environment. In terms of prioritizing, like I said, in terms of deceased donors. We have continued, I think, to carefully choose the appropriate donors or recipients and on the living donor we have, again, chosen to transplant patients that again are either on dialysis or are approaching dialysis needs and then again on an individual basis. For a period of time, when the surge was expected to be worse in the D.C. area, we actually held on living donor transplants. Next slide.

In terms of our COVID free environment, this is just one example of how it is mandatory for any patient that is to enter the transplant unit, either the ICU or the transplant floor, they must have testing before they're actually allowed onto the unit so that, again, the safety of either newly or past transplanted patients could be best assured by minimizing potential exposure to anyone who's been effected by this virus. We think that's very important. In fact, the definition of a COVID free floor is practiced by demonstrated by this pneumonic. Next slide.

In terms of our volumes, you can see over the course of the last two months, the blue bar and the bubbles demonstrating on a weekly basis the cumulative number of kidney transplants, both living and deceased donors, that were performed during the course of this pandemic, and the red bar is the numbers of living donor transplants. You can see through the month of ... sort of beginning of April until the end of that month, we actually held on living donor transplants, as we instituted some additional safety priorities for those living donors and for the recipients of those living donors. We've re-instituted living donation and living donor transplant last week with many cases to follow in the month of May. Next slide.

Finally, when looking at those numbers of transplants, we're very proud of this. We think this demonstrates, again, MGTI's significant contribution and dedication to transplantation, as we'll talk about later in the presentation, the risks of dialysis being what they may, that there is in fact, we think, an improvement and a decrease in the potential risk for those patients who have undergone safe transplant at MGTI when looking at some of the regional programs, it is certain that our activities have stood head and shoulders above others in regions who ... Next slide.

So, that's the conclusion of my introduction. Again, I want to thank you for the time you've taken to be a part of this. I think this is a very valuable opportunity

and the opportunity for us to continue to partner with our friends in the community. I'm going to hand the next part of the presentation over to Dr. Vranic, one of our outstanding transplant nephrologists, who is going to talk about how in the COVID period we have transitioned over to telehealth, which prior was thought to be something of need in the future. But when push came to shove, it's impressive to me how quickly we've begun the transition over to the use of telehealth. So, thank you, Dr. Vranic.

Dr. Gayle Vrani...: Hi. Thank you, Dr. Cooper. It's a pleasure to talk to you all this afternoon. As Dr. Cooper mentioned, we are evolving frequently and often now to meet the needs of our patients and nowhere is that more evident than in our clinic. Next slide, please.

Many of us have wanted to do more telemedicine previously, but there were some barriers in place that have now quickly been removed, most of those being our technology that we have and also insurance coverage for these telemedicine visits. Now, MedStar Georgetown Transplant Institute has a number of facilities available where patients can be evaluated for transplant. We have eight spread throughout the D.C., Maryland and Virginia area. All eight of those are available for patients to come in to be evaluated and three of those in the D.C. area and also Fairfax, Virginia are also now fully operational for post transplant care. In the course of the last eight weeks, we have now provided the services of all of those facilities to patients from the comfort of their home. Next slide, please.

We've been able to do that using telehealth. This is now the new normal, not just for our clinic, but most clinics out there for patient visits. We are doing evaluations for transplants and we're seeing patients for the first time to talk about getting on the transplant list. We're also doing followups after transplant in these virtual tele-clinics. Also, doing transplant consults and evaluations for people who want to donate kidneys. The referral process is the same, so you can send us your patients and their referrals and they'll be expedited if a patient needs to be seen and listed quickly or continue to do a preemptive transplant where someone goes on dialysis. We now have full capacity to do evaluations. We are able to do 32 transplant evaluations per week at MedStar Georgetown and we also are able to do as many or more wait list evaluations for patients who are already listed for transplant. Next slide, please.

We are now at pre COVID clinic volumes, so we're seeing as many patients now as we were before the pandemic. And as of last week, 75% of our visits are now done virtually. This has been amazing to watch our team pull together to do this. Eight weeks ago, 1% of our visits were done via telemedicine and those visits were done by patients who were at another MedStar facility, who needed to see a MedStar Georgetown Transplant Institute doctor who was at Georgetown. So these virtual visits are now done with the doctor, who is often in their own home, with a patient who's in their home. It's surprisingly easy for patients to access this technology. All they need is a smartphone or a computer

with a camera, they need a quiet place to talk and they need time for a visit. So, for patients, all they have to do is download a Zoom link and then on the day of the visit click it and they have access to our virtual clinic. Next slide, please.

What does this look like? Well, here you can see Dr. Verbesey, who you're about to meet, who's one of our amazing living donor surgeons, talking to a patient at home. In this case, this is actually [Shawndelle 00:18:09], one of the members of our living donor team. And you can see that with these Zoom visits, we get a great view of the patient, the audio is great, patients are able to talk to us, discuss their medicines. We can even do a basic physical exam through this technology and it's worked extremely well for our patients. We have seen patients into their 80s who have been able to make this technology work. And I think our patients have adapted quite quickly to this new paradigm, and actually I think a lot of them really like it, so we're pleased to be able to offer this to our patients so that we can continue their care as safely as possible. We are seeing patients fresh out from transplant for the first few weeks in the clinic, but once a patient is four or five weeks out from their transplant surgery, if they are stable and they want to switch to these visits, we are offering some of our patients to switch to virtual visits four weeks out from their transplant surgery.

Now, obviously we still need labs, and so our patients are going locally to usually a lab [inaudible 00:19:22] or a collect facility to get their labs one to two days before their visit and then we do their visits virtually. Any time a patient has a need, if they have a complication, if they need to be seen in the office, if they need to followup from a hospitalization, we are still doing those visits in our physical clinic. So, we're able to offer both of those types of clinic visits to our patients. Any patient that cannot make a virtual clinic visit from the camera, we are also able to talk to them over the phone and do a clinic visit that way. So, we are here to meet the needs of our patients. Next slide, please.

I am now going to hand this off to Dr. Jennifer Verbesey. She is one of our living donor surgeons, Jen, do you want to take it away?

Dr. Jennifer Ve...: Okay. Hi, everyone. I'm also glad to be here. I'm really happy to talk to you a little bit about living donation. As you may know, we always advocate for living donation because the kidneys tend to work faster and last longer. So, for most patients, we're trying to very much encourage them to look for a living donor. In addition, it can allow people to get a transplant before they ever go on dialysis, so they get a preemptive transplant, which studies have shown actually works better in the long run. You can go to the next slide.

I'm going to just go through ... I'm not going to talk to you today about really what living donation is. Hopefully some of you have some background in that. I'm more going to talk about the most current questions that have come up about living donation. The first thing is, of course, people are anxious about traveling and just about staying in the hospital. So, there's two things that we can talk about in regards to that. One is that we are very active in the National

Kidney Registry and so we are part of a program that's called Remote Donation, meaning that we will do donors who come and present to Georgetown and get worked up at Georgetown, we can do their donations surgery and then send the kidney basically anywhere in the country where the recipient is located. So, we do that and many other centers within the NKR do that. So people in this time ... it was available before this, but now especially in the time of COVID this is becoming a more useful program. So we really encourage people if they have a donor who's not located right near them that they still have that donor come in and be worked because there's many, many different ways we can make this happen.

At Georgetown, as mentioned, we did have a couple of weeks where we did not do many living donors, just out of great precaution for donor safety. In addition, when we're talking about this, we always have to think about hospital resources, whether anesthesiologists are being called to the ICU to cover the ICUs and less are available in the OR. Many different things go into our decision making, but we really had a short break in living donor transplants. We view transplants as a life saving surgery, not as an elective surgery, and that includes living donation. We have continued to do most living donor transplants, particularly people who are about to go on dialysis or people who are on dialysis. We really have let both of those groups go forward with their living donors. We try to maximize donor surgery, mostly by getting the donors in and out of the hospital as quick as possible. Our donors get all their surgeries done laparoscopy. The surgery takes three or four hours. And then 95% of donors leave by the next morning.

We are continuing to participate in the donor exchange program, which is called the National Kidney Registry. For that, the ... Sorry, this new slide shows you a little bit about the National Kidney Registry. Basically, you can think of it as a pool of all the different pairs across the country who have a donor that doesn't match with their recipient. So there's basically a couple of different pairs that you'll find in the NKR. It can be a recipient who has a donor of a different blood type, a recipient that has a positive cross match with their donor, or we do have compatible pairs, so a pair where the donor can donate to that recipient, yet they still opt to go to the exchange program because they know that it can make more transplants happen. Like we always say, get more bang for your buck out of that one gift of a kidney. And also sometimes the recipient will get a younger or better immunological match by going into the exchange. Okay, move on to the next slide.

We're always encouraging people, as I mentioned, to look for living donors. A lot of people struggle with how to make that happen, so we call it The Big Ask and that's also a term that's used by the National Kidney Foundation. At MGTI, we actually have workshops that help recipients learn how to find these donors and mostly it comes down to the fact that we encourage recipients to talk about their situation, whether it's at work or at church or just with their community. You don't have to ask for a kidney, but once you make your situation know to

people around you, that can really bring unexpected results. So, a lot of times when people start talking about what's going on, they find that someone volunteers that might be very unexpected. We also have something called the NKR microsites, which is basically websites that our recipients can set up and we help them to do this and they can set up a website that talks about their situation and there's easy links that help them share it on Facebook or Instagram, whatever their social media site is and it helps them to find a donor. As I mentioned, we always encourage people to talk at their churches, their temples, their social groups, anywhere around them, because many, many times, that yields very positive results.

So I think the take home message for living donation is that we are continuing to do that at Georgetown. We are actively evaluating donors. I think one is that were very, very flexible and understanding. We do remote donor evaluations and if they're not comfortable going to get their labs or studies right now, that's perfectly fine. We're trying to do it in a stepwise fashion so that when things clear up a little bit we have people all ready to go and then we're just ready to schedule the surgeries. So, we're continuing to do online evaluations. There's a lot of people who do go get their labs and studies and then we can complete their workup and move forward with surgery. As Dr. Cooper mentioned, we have a transplant COVID free floor, meaning that everybody on that board has been tested and proven negative, so both our donors and recipients go to that floor so we can try to maximize their safety. Donor safety is of absolute paramount importance to use, and so we continue to test all donors and recipients within 48 hours of surgery and put them on that floor. Any questions about living donor later, I am happy to talk about that and for now we'll move to the next slide and the next presenter. Dr. Thomas.

Dr. Beje Thomas: Thanks, Dr. Verbesey. Hi, everybody. My name is Beje Thomas. Thanks for taking the time to meet today and talk a little bit. Next slide.

I'm going to talk a little bit about opportunities to reduce wait times. Primarily we'll talk about really hepatitis C positive organs for hepatitis C negative patients. Before I jump to that, I do want to say a couple things that are really easy to not necessarily shorten the wait time, but make sure we optimize the patient's wait. One is listing a patient when their estimated GFR reaches 20, not waiting until they're on dialysis or have reduced kidney function to 50% or less. Many times in our evaluation clinics, we see patients that are maybe 70 years old that have had chronic kidney disease for several years and would probably be in line for transplant, but now they're just getting on the wait list. So, that's an opportunity that we can miss. It's a golden time to get them for referral. And honestly, even if a patient is not ideal and really wants to come to be seen, we're okay to see them and give them some advice on moving forward or not moving forward with transplant.

The other thing, of course, is pursuing living donation. Dr. Verbesey just talked about that. We are obviously a large pancreas transplant center, so the

appropriate patient with diabetes we would consider for a simultaneous pancreas transplant or other options like a kidney transplant first and a pancreas transplant afterwards. HIV. Now the HOPE trial is doing HIV positive to HIV positive patients, so that is underway now. And I'm going to move more towards the hepatitis C virus, using that as well as using high risk [inaudible 00:28:54] high risk patients for your patients with [inaudible 00:28:58] or that are on dialysis. Let's jump into hep C. Next slide.

I hope you can see the graphs okay, but the summary take home point of this slide is, number one, in the last 10 years, mostly due to the opioid crisis, our rates of hepatitis C have gone up considerably. It used to be the Baby Boomer generation had a lot more hepatitis C than other population, but now we see a lot of people with hep C in their 20s or 30s, due to the opioid crisis. So it used to be these kidneys would be discarded unless you had someone who had hepatitis C that they were able to give this organ to. You can see on the top right, the black line is the number of the hepatitis C nucleic acid testing positive, so these donors have hep C, to recipients that are negative. You can see that line just going up, up and up. So across the country they're doing more and more of these transplants. And the same thing on the bottom slide, the same idea. We're doing more and more throughout the country of these hep C transplants. Next slide.

The reason for this is because there was a huge change in the modality of treatment. When I was a resident in the 2000s, my first GI clinic I went in, the patients were on peg interferon and carloads of people were unfortunately trying to commit suicide, they could not tolerate the medicine. It was IV. It was painful almost in every way. And the cure rate was not even that great, response rate was only 40 to 80%. So, now, in the last five to seven years or so, even sooner, we've come up with these ... The drugs that have come up are the direct-acting antiviral agents. And what about these treatments? Number one, they're p.o. or they're oral, so that's much easier than having to get IV shots. You take basically two or three pills a day for 12 weeks or so, whatever drug you're using, and then you're done with the treatment and hopefully you ... 98% plus of patients have sustained viral response [inaudible 00:30:50]. That means there's no virus in them when it's checked 12 weeks after treatment is done. So it's pretty easy to tolerate. It's easy to take. And this has changed how we treat hepatitis C, including a lot of the previous treatments for hepatitis C you could not give to people who had transplant or kidney function was not great.

We can start hepatitis C treatment on a newly transplanted patient, even if their GFR is not necessarily well above 30. So, the newer drugs you can use for that. The other item that I used to remember when we were in GI clinic, is what's the genotype of hepatitis? Well, now we have drugs that are pangenotypic, so one drug treats all the genotypes. And there are more and more drugs coming. Next slide.

I always remember the Star Trek movie on the right. It's from the one where I think they're saving the humpback whales and he gives this pill to this lady in the hospital and they're trying to find Spock, and suddenly she's grown a kidney. So that's always really funny to me to see that episode or that sequel movie. But it's true. What we're doing is we're trying to do different things to reduce wait time. No, we don't have the ability to grow a kidney, but we do have mechanisms and ways to reduce wait time, to optimize wait time.

So coming back to hepatitis C, what have we done here at Georgetown. We've been doing this for about a year now. We've done 35 hepatitis C NAT or nucleic acid C positive. What that means again is that the donors definitely have hep C, to patients that were hepatitis C naïve or negative, they don't have hepatitis C. We also did 12 donor hepatitis C antibody positive, so we're not sure if they had active hepatitis C or not, to again hepatitis C naïve. So a total of 47 patients. And I'm happy to say that those that have completed treatment are doing very well off dialysis. Others are on treatment, of course, and doing well. The other thing to think about. This is about 50 patients. [inaudible 00:32:43] patients were thankfully treated and got a transplant, meaning potentially another 40 to 50 patients, they don't move up the list per se but they have more opportunity to have a transplant. So it helps the community as a whole.

Some of the common questions people ask is the tolerability. Again, the drugs are well-tolerated. Are there sometimes issues with insurance? We evaluate all the patients prior to transplant. After transplant, most of the patients have to turn positive, unless they have certain insurance. Once they turn positive, which usually basically all the patients turn positive within two or three days if they get a hepatitis C NAC positive organ, and then we start treatment within about roughly two to three weeks, and we monitor liver function and we monitor obviously the viral load. We do have our liver team on board in case someone gets sick or there are any subsequent issues. But again, overall, there are many ways to help decrease or optimize the weight, even as simple as sending them to a transplant center when their GFR is 20, as well as the other modalities that we talked about.

So, I'll finish up there and let the next speaker go. Next slide. Dr. Gilbert, one of my colleagues, transplant nephrologist.

Dr. Alexander G...: Thank you. What I want to talk about is I think things that everybody is interested in and everybody wants this answer, which is what the safety of transplant patients in the COVID-19 era? Before we even get into this, what I will say is this not the presentation that I would have given three weeks ago, because our knowledge has evolved since then. And it's not the presentation that I would give three weeks in the future, because again this is an ongoing process. We are dealing with imperfect information and so that's something I want to keep in mind as we talk about this. These are questions that are good, they're important to ask, but they're also questions where the answers are going to change as we learn more and more about this. Next slide.

So, when we're thinking about ... or when I should patients are considering safety concerns raised by this COVID-19 virus, I think that with transplant you have to raise the concern for the patient as the recipient and also raise concern for the patient who is the donor, if we're talking about living donor transplants. In addition, as a center, when we have discussions about this, while these are our first two topics, we're also considering concerns for staff safety and also concerns for the proper use of resources in the hospital. But I don't think those should be concerns for the patients coming in. Those are things for us to worry about as doctors, and so we're going to table those last two and not talk about those today. Next slide.

When you're thinking is it safe to receive a transplant, is it safe to go on immunosuppression in the midst of this viral pandemic, I think that the first kind of reaction would be, well how could it possibly be? We're dealing with the risks of contracting an infection when you're in the hospital. We're concerned with the risks of contracting infection from the donor, whether they are a living donor or deceased donor. We're concerned, obviously, about the risk of immunosuppression. Your first thought is my God, putting patients on immunosuppression in the midst of when we're worried about getting infection from the virus can't be a good idea, can it? And then we're also concerned about the risk of followup visits, of further and ongoing exposure. I hope at least the last part of this has already been addressed to a large extent by my colleagues. Next slide.

Really, what we have to do is not only consider those, but there are also risks on the other side. Back when I took an economics course, they would talk about opportunity costs. What you have to weigh against the risks that are inherent to transplant are going to be the risks of what happens if you don't get the transplant? And that includes the risks of COVID infection while on dialysis, as well as the health risks from prolonged dialysis. Next slide.

For those of you who were at the meeting last April, this is a slide that I had put in that talk and the data still hasn't changed. That's to say that patients who are on dialysis longer, when they get a transplant, they don't do as well. So there is a cost to remaining on dialysis. The reason that we push patients to find living donors, the reason that we are exploring new and expanded ways of finding donors, as Dr. Thomas was talking about, is that we want to get people transplanted as soon as possible. Not for our benefit and not because it's convenient and not because it's nice, but because we know that medically it's the best possible option for the patients to get off of dialysis as soon as possible. Again, that being said, I'll put in a caveat that I put in last year as well, which is to say there is a never time when someone has been on dialysis too long to get a transplant. We will always consider patients who are on dialysis. Next slide.

So, how do we weigh the infectious risks of transplant versus dialysis? Well, again, with imperfect data there is a national registry that is being collected currently on transplant patients who have developed COVID-19. Currently, there

are somewhere between 150 and 200 case reports that have been submitted to the registry. And if you consider that there are roughly 200,000 patients who have a transplant in this country, that means that there has been one case of COVID reported for every 1100 or so patients who have a transplant. And again, I would use this number very, very loosely. It may be as much as 50% of the true measure of reported cases, because it was a voluntary registry. One case out of 1100 patients is about the same risk as a person living in Idaho. Currently in Idaho about one out of every 1200 patients have been COVID positive.

As we've already talked about, MGTI provides testing at admission and we are very lucky and fortunate that our institution provides a turnaround time of two to three hours, which allows us to make sure that patients who arrive on the transplant floor have definitely tested COVID negative recently and it allows us to keep that as a clean floor. Because all patients on the transplant floor have tested negative for the virus, we think it lowers tremendously the chance of in-hospital transmission. Compare that transplant risk to what we know dialysis units. There is a registry also for dialysis units to report COVID positive cases. Currently, there have been just under 3000 case reports of dialysis patients with COVID 19. Again, considering that there are somewhere around 550,000 patients or 500,000 patients on dialysis in the country, it means about one case for every 150 dialysis patients. And that's about the same risk as residents of New Jersey, which along with New York are some of the highest rates of COVID that we're seeing in the country. This is not to say that dialysis units are doing a bad job. That's absolutely not what I'm saying. It's to recognize that there are inherent issues with maintaining a safe and infection free site in dialysis units, and it's also to recognize that end-stage renal disease is a state of relative immunosuppression as well, and so there's going to be risks in these populations. Next slide.

What about are you going to get COVID-19 from your donor, whether it's a deceased donor or a living donor? And the answer is that we are now currently testing all donors, whether deceased or living, within 48 hours of their donating a kidney and in most cases it's within 24 hours. At this point, if someone can't get the test done or if the test is indeterminate or there's any sort of problem with the test, those are donors that are going to be turned down for transplant. And again, deceased donors we simply won't use the kidney. In the case of living donors, if there's a problem with testing, we will postpone the transplant until they can test negative. Next slide.

What about the risk, and this is really the concern that we're trying to sort through, is what does it mean to be immunosuppressed in the COVID-19 era? Again, this is a difficult question that we're learning, and while the first thought is that if you're immunosuppressed you're going to do more poorly with the virus. That may not be true. With this virus, much of the injury that is caused is caused by the host immune response to the virus. So there's at least a theoretical argument to be made that says that someone who has a less robust immune system may not have all of the significant effects that you get with the

virus. I want to caution people on taking that message too much to heart. This is something that we're still studying, that we're still learning about.

What we have been able to report and there have been reports all over the place, but again going to the transplant registry, which is the largest source of information that we have, the results from the transplant registry thus far have suggested that the transplant patients, the immunosuppressed patients that get the COVID-19 virus do about as well or as poorly as patients who are immunocompetent, that is they have not been able to show a definitely higher rate of death or higher rate of need for ICU care or higher rate of intubation. There is a higher rate of hospitalization that's been seen in this cohort, but that also may be because we are more attuned to our transplant patients and maybe bringing them into the hospital a lot faster than we would bring in someone who is immunocompetent. But again, this is something that definitely in the months to come we're going to be learning more and more about as we gather more data. But at least initially, while I think there's certainly a higher risk of contracting the virus if you are immunosuppressed, I don't think that we have the data to say that you're going to do worse if you get the virus and you are immunosuppressed.

Our approach to our patients who are transplant patients who have gotten the COVID virus is that we do limit their immunosuppression, we do turn down their immunosuppression so that it allows the body to have the best chance to fight off the virus, but we are not stopping immunosuppression, except in the most extreme cases where we feel that it is life-threatening.

I think it is reasonable that if you're talking about a patient that's going to need the very highest levels of immunosuppression, whether these high risk cases should be postponed, and that's something that you should check with your transplant team about. That's certainly something that we have discussions in the transplant team about our patients. Next slide.

What about the risk during followup? A lot of this has already been addressed. We certainly want to limit our patients' exposure to the hospital center. Patients, we are certainly advising, should call with their symptoms before they come to the transplant clinic so that we can address whatever we can without a face-to-face clinic visit. We have done what we can to space out our timing so that we can space out our waiting rooms and don't have people so densely located in the waiting room. And as you've already seen, we've been expanding the use of telehealth technologies to avoid the in person visits when at all we can. We have the advantage at MGTI that we have our very own transplant lab, which is located in the clinic for blood draws. So the patients that do come to us for face-to-face visits that we at least spare them from going to the main lab and we can do the testing right up in our clinic space. For patients who don't require face-to-face visits, we are recommending labs be done in the local communities where there have been various systems set up to limit, again, patient to patient exposure.

It's important to also realize, and I've explained to a number of patients, that there's a risk to missing your clinic visits, and the reason that we have people come in for these visits is because there's a real need to continue to manage these kidneys, that we don't want to lose kidneys during this pandemic. Next slide.

In kind of summary, if you're considering is it safe to receive a transplant, our current answer is yes. We feel like we're doing the best thing medically for our patients if we continue to get them transplants. We think that we can manage their risks for the virus and in some ways reduce their risks for the virus and still provide them all of the benefits that are inherent to getting the transplant. Next slide.

The last question that I raised was what about the safety of our living donors and is it responsible to take a healthy patient and expose them to risk? We think the risk is minimal. Again, our transplant floor, where we put the donors, is a COVID-19 negative floor. The donor's hospital stay is generally less than 48 hours. Exposure to staff is limited. There's little need for followup in our donors. We generally see them at one week after the transplant and that's about it. Does this mean that the risk to them is zero? No. But we do think that it is similar to the risks in the community, and so we still are going forward with living donor transplants at this time. Next slide.

With that, I'll pass it on to Alex Radomsky.

Alexandra Radom...: Hi. Thank you, Dr. Gilbert. I'm happy to be included in this and to talk about one of my very favorite topics, which is social support. Next slide, please.

Despite the visitor restrictions that Dr. Cooper mentioned at the top of the presentation, it's obvious that support is still needed for our patients during transplant right now. It's still important and maybe even more so in light of what's going on with the pandemic. There's probably more of an institute need for support. So, while our patients at the time of transplant, have to come into the hospital by themselves, they're still going to need someone to bring them to the hospital or need a reliable way to get there, and someone really should be available at least by phone, just if needs arise or if there are questions that need to be answered or information provided. I think it's important to have somebody kind of on standby who knows what's going on at the time of transplant.

That also comes into play when we're getting ready to send our patients home. Because our patients don't typically stay in the hospital for very long, it's important to have the support involved from the beginning and that way we can keep them in the loop throughout the admission and include them when we're about to send people home. Typically, we'll have an education session, we call it, before patients leave the hospital after their transplant admission, where we will go over the general recovery period and any transplant medications. So we

would typically have that in person on the unit but now are doing that virtually or over the phone so that the people who are going to be caring for our patients again have a good understanding of the medications and immediate needs after surgery. Next slide, please.

Support during transplant recovery. One good thing is that in transplant, we're pretty closely attuned to the need for this anyway, so it's something that we've just been continuing to talk about with patients, is that they're going to need some support with certain ADLs while they're recovering, as they normally would. The pandemic considerations make some of them a little bit more tricky. So people are needing to perhaps be a little bit more creative right now in terms of providing this support. That might mean that someone who would normally cook a meal for our patient is bringing it and just leaving it at the door, or getting groceries and medicines and just leaving it there, to really reduce the exposure and to avoid some of that close contact. I think it's also important for the support, of course, to be making sure that they stay healthy and watching themselves and then to have a backup in case for some reason the support falls ill. That's also something that we also talk about with our patients, is to have a secondary support so that if something happens with the primary person that patient still has what they need.

Transportation to and from the in person visits that we still do at the beginning is of course still important. Our patients are asked not to drive for a period of time after surgery. And then when our patients are doing their virtual followup after transplant, it's important to have support available to participate in those, again to go over medication changes and to offer information as needed.

Some of the other things that the supports have helped our patients with is to just access that technology when they're having some challenges using it themselves. That's been something that we've seen, children help their parents [inaudible 00:50:38]. Next slide, please.

During the transplant evaluation, which of course we know is all virtual right now, it's still important for our patients to bring or to have a support person available during this evaluation. It's something I think at the beginning when we first started doing this that some of our patients may not have realized is still important, but really we're asking them to treat this virtual evaluation just as they would an in person evaluation. So we're asking them to either have their support who lives in the house with them available right next to them or, if they're someone who lives outside the home, we want that person to be included but they can join the virtual visit from wherever they live using the same link that we send to the patient. That way, support is still there to hear all of the information from each of the providers and to provide answers to questions and to really have an idea of what to expect in terms of the support that's going to be needed at the time of transplant and while the patient is recovering. We're still requiring that as far as criteria for lifting, that we have that support involvement and support plan is verified. We are doing followup

meetings after the eval if the support for some reason did not attend. That's something we're able to do virtually as well right now. Next slide, please.

I chose to include this because I think it's important to recognize that the physical and the medical implications of COVID are of course very, very important, but the psychosocial effects are perhaps equally so. I think a lot of emphasis right now has been placed on mental health, which is very, very good. In our specific patient population, some of these things are compounded by the fact that our patients have a chronic illness, that they may be feeling pressures related to an impending transplant, hoping to get a transplant. So I think we have to have maybe some extra sensitivity right now for these types of things, that someone who is maybe feeling anxiety or depression on a normal day may be feeling it worse right now because of the COVID. So we are specifically asking about how COVID is affecting patients during our evaluation and making sure that they have coping strategies, talking about stress reduction activities that are available. There are a lot of options right now for teletherapy, if that is a need, making sure patients have opportunity for connection and also communication with our providers. Some of our doctors, Dr. Verbesey and Dr. Thomas, are having some webinars with our patients to give them information and answer questions about COVID specifically.

The NKF has a very good resource guide that I've pointed patients in the direction of. Then something that we're trying to continue is our transplant support group, and we're doing that virtually. That gives patients an opportunity to connect with each other, talk about and discuss their transplant, but also the specific stress of COVID right now from a transplant patient perspective. Next slide, please.

Some of the other psychosocial challenges, of course, that we're all sort of familiar, I think, with hearing about related to COVID are the financial challenges. We've had patients who have lost their jobs or their caregivers have, their hours have been reduced, been furloughed. We want to make sure patients have access to things like food and medication, other items that they need to get through their day-to-day routines, and we're paying particular attention to these things during the evaluation and during our interactions with patients after transplant, and also making sure that they know about a number of resources that are available either locally or through specific kidney disease or transplant organizations which have been put into place specifically for COVID. Next slide, please.

Thank you. I'll be available for some questions.

Dr. Matthew Coo...: Again, so thanks everybody for their time spent, the presenters for their really valuable insights and Mitzi, Brandy, we'd be happy to take any questions.

Mitzi: Okay. It looks [crosstalk 00:55:23] like we ... Go ahead.

Dr. Matthew Coo...: No, please.

Mitzi: It looks like we have a few questions that have come in. The first one I see asks, "Are new KDPI and KDRI processes going to be established due to COVID?"

Dr. Alexander G...: Let me take that. The KDPI is a measure of expected kidney survival. It is updated every year in terms of adjusting for the factors or how the factors are put into the formula to create the KDPI number. I don't think that there's anything specific about COVID that's going to change the formula itself, maybe because we're not using COVID positive kidneys. But if there's a change in overall kidney functions, overall transplant functions, that something that we get factored in on a year by year basis, as we review the formula each year.

In terms of what we're recommending to patients, in terms of do you accept high KDPI kidneys, again our overall recommendations to patients are also not changed at this point. There's just not data to support changing what we're recommending to patients at this point.

Mitzi: Okay. Another question that I see in the chat box says, "Hydroxychloroquine tends to be the go-to medication to treat post kidney transplant recipients that are COVID-19 positive. Why?"

Dr. Gayle Vrani...: Hi. This is Gayle Vranic. I think I'll take that one. I think, as everyone has touched upon, the situation with COVID-19 is fluid. So, as Dr. Gilbert had talked about, what we would have said three weeks ago is completely different from what I'll tell you today, and may be very different from what I'd tell you three weeks from now. We did early, and by early I mean a month ago, go to hydroxychloroquine and sometimes azithromycin in patients after transplant who were diagnosed with COVID. That was due to some early data that hydroxychloroquine might have some efficacy in treating COVID-19. I think with more data coming out, newer data, perhaps better data coming out, some of it from Michigan, has told us that we probably aren't going to see hydroxychloroquine be an effective treatment for COVID. So we have largely stopped using it due to that data and also some concerns about medication interactions and some cardiac toxicities. I think there are some other drugs that are promising, I'm thinking Remdesivir, that are difficult to get if you're not on a study that we'd like to see but at the time, a month ago, hydroxychloroquine you could get your hands on. We are no longer, I believe, routinely using that on patients. But again, the situation is evolving quickly.

What I will tell you is that patients who are admitted to Georgetown Hospital get high level ICU care and close monitoring, particularly if they are transplant patients. Many of our ... Not many, I'll say a few of our patients who have gone to the ICU have gotten convalescent plasma from patients who have had COVID-19 and recovered. In fact, I will tell you that we've had several MGTI staff members who have thankfully survived COVID and done well who have donated

plasma to this program. We also have drugs like [inaudible 00:58:54] and some other agents like that available to our patients.

What I do find comforting is that in our registry of COVID-19 positive transplant patients, that most of the patients who are getting COVID are far out from transplant, more than a couple of years, and 80% of them are doing well at home and so never need to come into the hospital and certainly never need ICU care. We're fortunate that, as Dr. Gilbert had talked about earlier, most transplant patients who are getting COVID are having courses that are considered mild or moderate and they're recovering. Thank you for that question.

Mitzi: One more question asks, "Can you please confirm that living donor transplants are still permitted during this time and that they are not elective?"

Dr. Jennifer Ve...: We are definitely still evaluating living donors and discussing with them their workup. We're trying to see exactly where the recipients are at in their course and we are definitely still planning living donor transplants. We've done a couple the last week or two. We have two scheduled for this Thursday. So we are definitely doing living donor transplants, as long as we feel that we're in a safe position to go ahead and do so.

Mitzi: Okay. I notice that we are at the one o'clock hour. There are two more questions that have come in through the chat. Would you like to go ahead and answer those or we can go ahead and send out the answers to those to all attendees at a later time?

Dr. Matthew Coo...: I think we have a few more minutes. If we could answer those, it'd be great.

Mitzi: Okay, great. So the question is, "Is there any data on recipient refusals during this period? How would a refusal effect future orders?"

Dr. Matthew Coo...: So, I can briefly start and then ask my colleagues to add on. It's important to recognize that the MGTI team is there to serve patients and providers and patients, when signing consent forms for organs for transplant, have appreciated and are made aware on a regular basis that they have every right to decide the right timing for transplant, the right organ for transplant and during this time of COVID they have no expectation that they must accept an organ. We've decided, as I showed in the past, not to put our program on hold, nor to inactivate our lists and our patients. We still reach out to patients when their name is on a match run and discuss with them again the value of an organ transplant versus remaining on dialysis. But if a patient decides that this is not the right organ, the right time for them, they are not penalized in any way. They do not lose their position on the list. We, again, recognize that for an individual that an individual decision must be made, and if the decision is to wait for a later opportunity, we wish to do that. But we still have, we believe, the opportunity and the obligation to make sure that we are presenting patients

with a potential organ for transplant if their name does rise to the top of a match run.

Mitzi: Okay. We have one last question. It asks, "Do you anticipate that the relaxed regulations with insurance companies for telehealth visits during COVID will last long-term?"

Dr. Alexander G...: Well, since everybody's leaping at that one, I guess I'll take a pass at this. Let me start by saying that I have no insight or knowledge on what insurance companies will do. I suppose my bias is that insurance companies will always make it less easy to get paid for things. But I did hear there has been discussion in terms of general billings through Medicare that the component of the visit that is the physical exam will no longer be part of what they consider in terms of allowing billing, and as the physical exam is the thing that is most affected by the telehealth visits, it may be more possible in the long-term to do telehealth. I'll say as a doctor and one that I guess is considered old school that even if it's allowable, I don't think that it's desirable. So I think that we would always push for face-to-face visits unless, as si the case now, there is a significant health concern.

Dr. Jennifer Ve...: I'll add just a little bit of the opposite. There are certain occasions where telehealth has just been wonderful and I think we will continue. Hopefully the insurance companies will help. For example, we do living donor followup. We see all the donors at one week, six months, one year and two years. And I can tell you by and large, 99 point something percent of people are doing awesome at one and two years and we joke now that we get to save them the effort of driving two hours to come see me, parking, etc. So I think there's been some uses of this that I think that hopefully we'll do in the future and that patients actually love. So I think that remains to be seen. But it will be interesting what things outlast this crisis, because we actually find that they're better for the patients.

Mitzi: Okay. Thank you all. Those are all the questions that are in the chat box at this time. I also just wanted to remind everyone that if you have any suggestions for what the network can do to support transplant centers, dialysis providers and patients, to make sure that patients in the Network 5 area have access to kidney transplantation, please reach out and let Network 5 know. I'll turn this back over to you, Dr. Cooper, for any final comments.

Dr. Gayle Vrani...: This is Dr. Gayle Vranic. I think Dr. Cooper had a one o'clock meeting, but I want to say for the group how incredibly grateful we are for all the hard work you do and here at MGTI we are always available if you have questions or need to talk. So, we wish you all well. Stay safe.