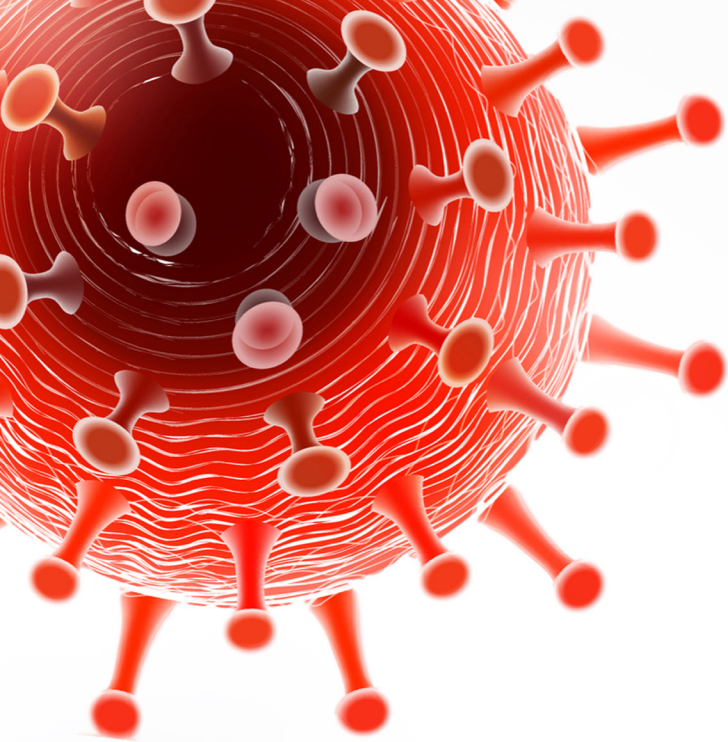
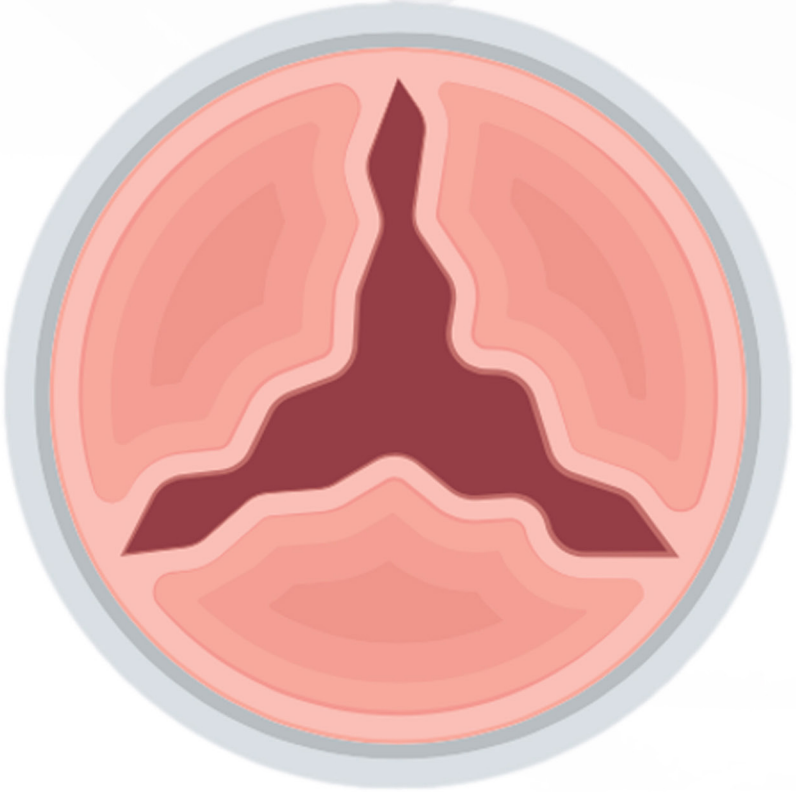
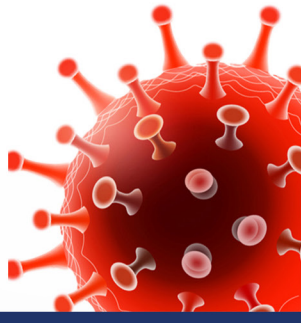




ADVANCES IN COVID-19 & HEART VALVE THERAPY



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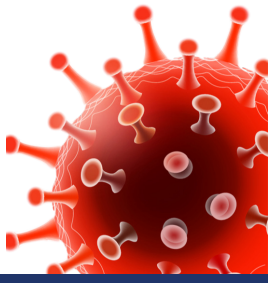

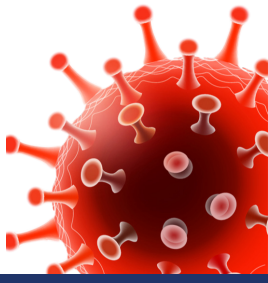

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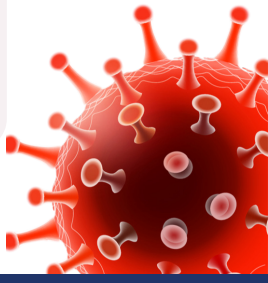
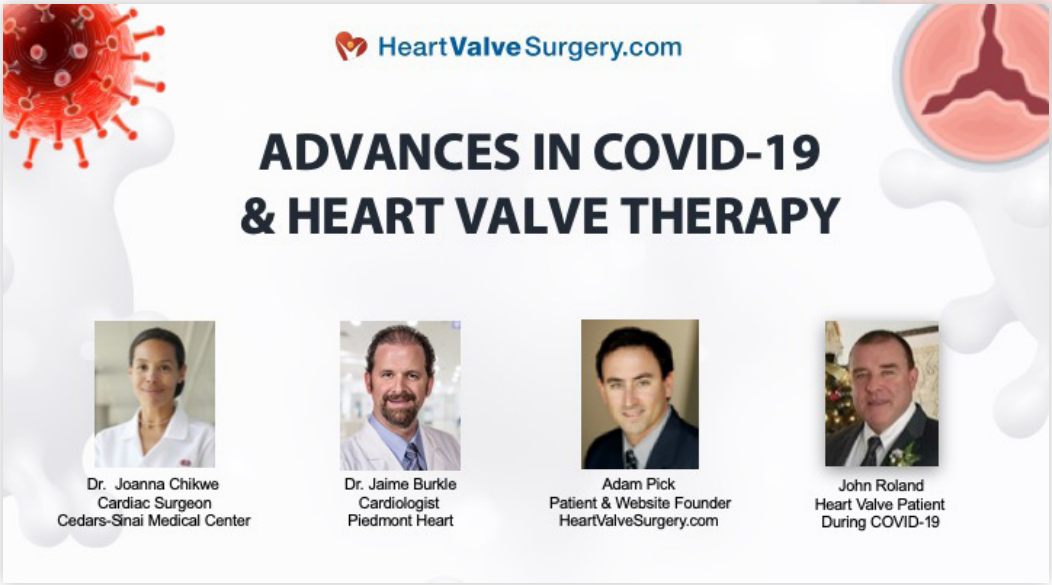
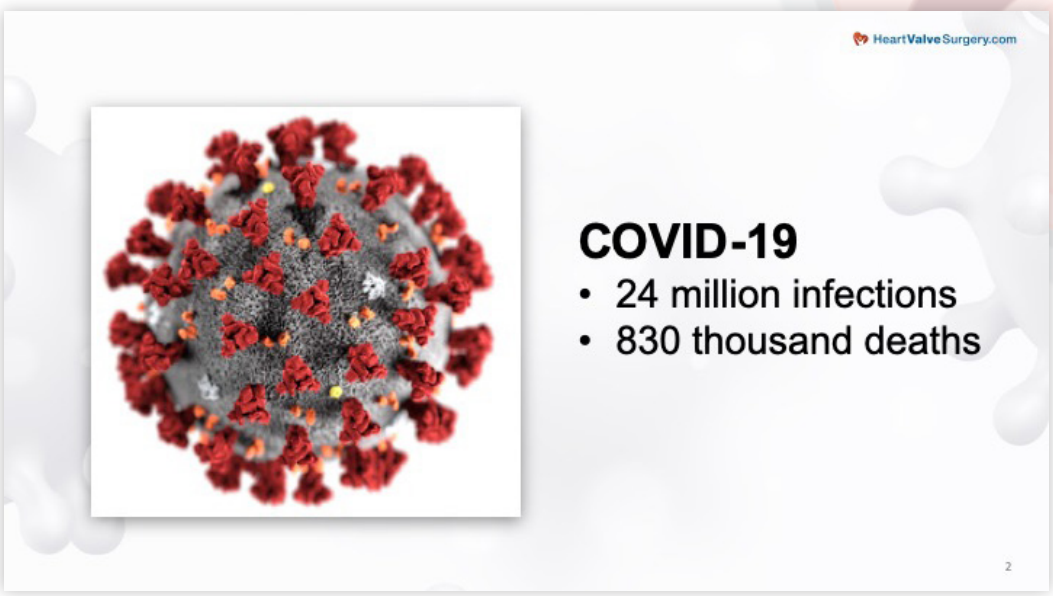


Introduction



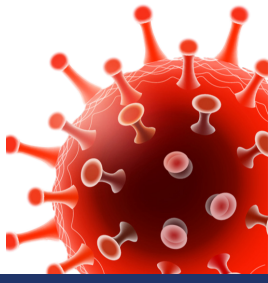
Adam Pick: Hi, everybody. My name is Adam Pick. I'd like to welcome you to the webinar titled, "Advances in COVID-19 & Heart Valve Therapy". If I have yet to meet you, I'm a patient and the founder of HeartValveSurgery.com. Our mission is simple. We want to educate and empower patients with heart valve disease.

This webinar, which has had over 630 registrations from patients in countries all over the world, is designed to support that mission. During the webinar, all attendees will be in listen-only mode. However, you may submit questions during the webinar. Simply post your questions in the control panel on your screen. We'll do our best to address your questions during the "Q&A" section of the webinar. Lastly, at the end of the webinar, we're going to ask you to complete a very quick five-question survey.



Adam Pick: Before I introduce the featured speakers of this event, I'd like to take a moment to address the fact that this webinar comes at a very difficult and very trying time in our lives. With over 24 million infections and 830,000 deaths attributed to COVID-19, an unimaginable darkness has covered our planet and our health system.

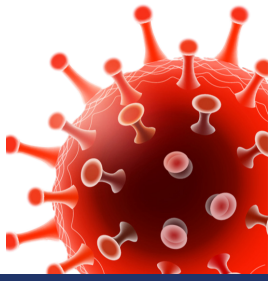
I have personally struggled with many uncomfortable moments of sadness, confusion, and loss during this pandemic. In these difficult times I am reminded of one of my favorite quotes by Mahatma Gandhi. That quote is, "In darkness, there is light."

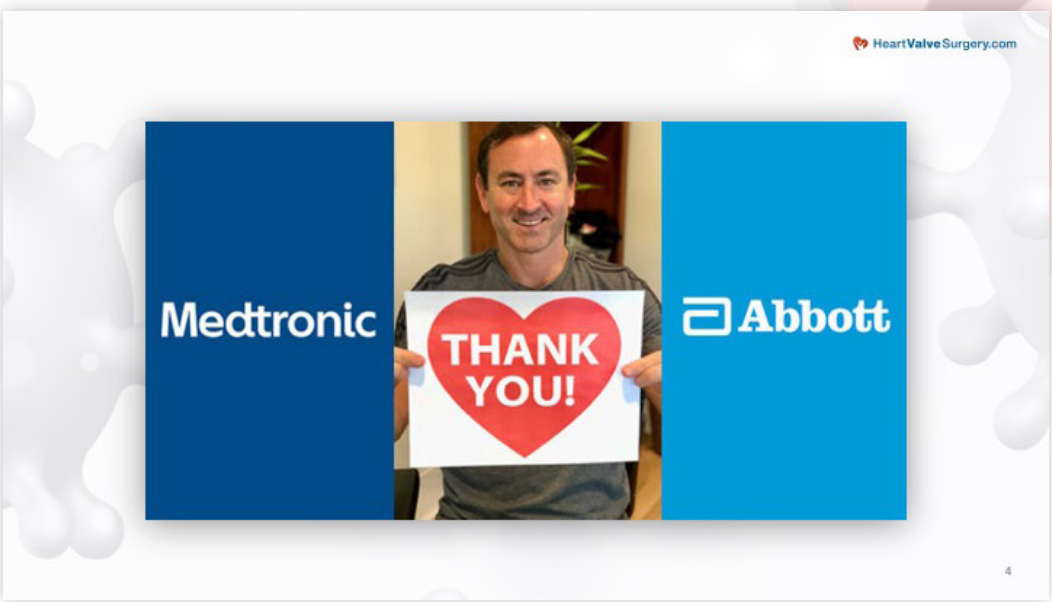


I would submit to you that the HeartValveSurgery.com community has been part of the light revealed to me during COVID. Together we have shared information, together we have shared stories, together we have shared our challenges, and together we have shared our triumphs.

As we connect here today, this webinar is another testament of that light. This webinar is a result of two, almost simultaneous conversations about the educational gap of COVID-19 and heart valve disease.

Those conversations were with Medtronic and Abbott, two very large medical companies that specialize in heart valve devices.

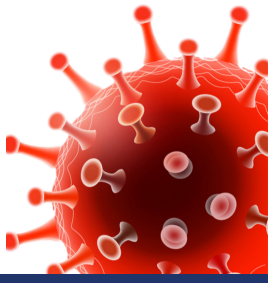




When the idea of hosting an educational webinar about COVID-19 for heart valve patients came up, both companies said, “This sounds great, Adam. How can we help?”

For that reason and more, I would like to extend a tremendous thank you to Medtronic and Abbott for co-sponsoring this event.

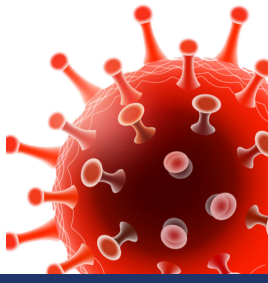
Without their support and without their encouragement, we would not be here today.

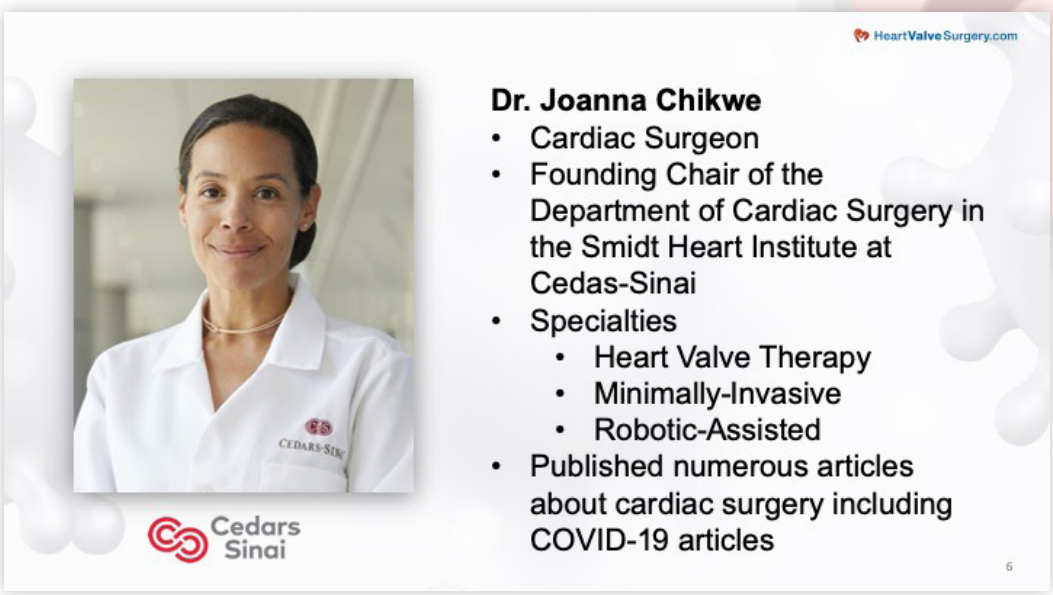


Featured Speakers

Adam Pick: I am honored to introduce the featured speakers of this webinar. Dr. Jaime Burkle is a cardiologist and one of the founders of Piedmont Heart Institute in Atlanta, Georgia. Dr. Burkle doesn't hold just one, but six board certifications.

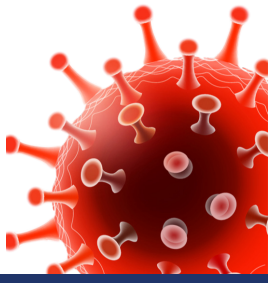
He specializes in cardiac prevention, lipid disorders, and cardiac imaging. He is a fellow of the American College of Cardiology, and he has published numerous articles.



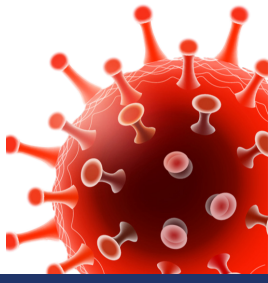


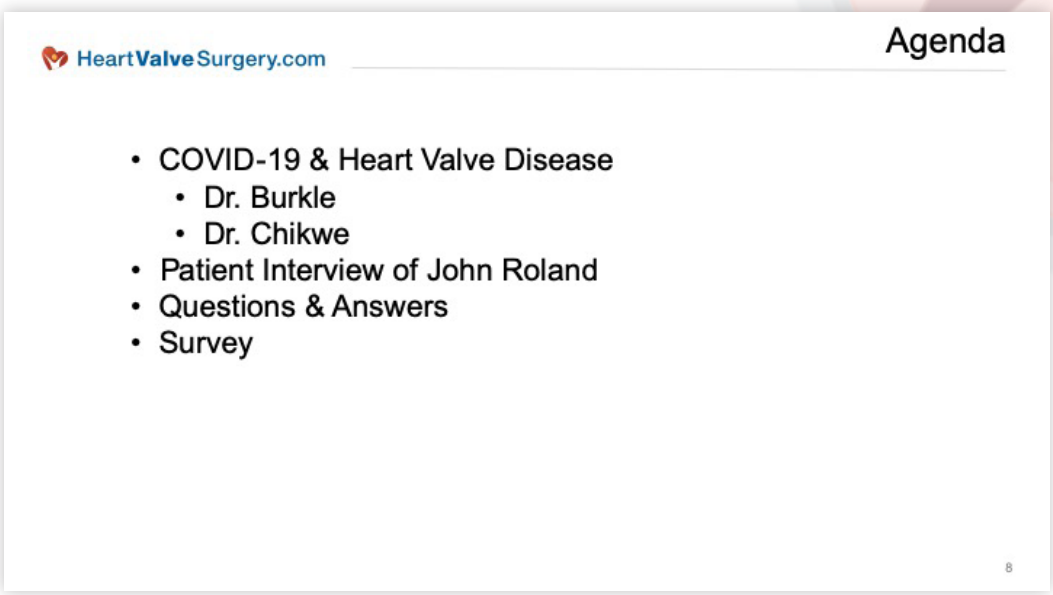
Adam Pick: Dr. Joanna Chikwe is a cardiac surgeon and founding chair of the Department of Cardiac Surgery in the Smidt Heart Institute at Cedars-Sinai in Los Angeles, California.

Her specialty is heart valve therapy using minimally-invasive techniques, including robot assistance. Dr. Chikwe has published numerous articles and research papers, most recently about COVID-19.



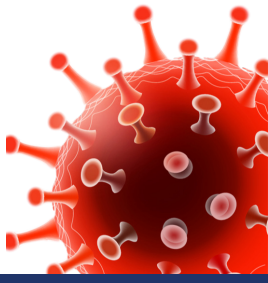
Adam Pick: In addition to these leading physicians, I'm thrilled to share that we are going to hear from John Roland. John is a heart valve patient and member of HeartValveSurgery.com. John, who is a retired police officer from New Jersey, is going to share his experience having heart valve surgery during COVID-19.



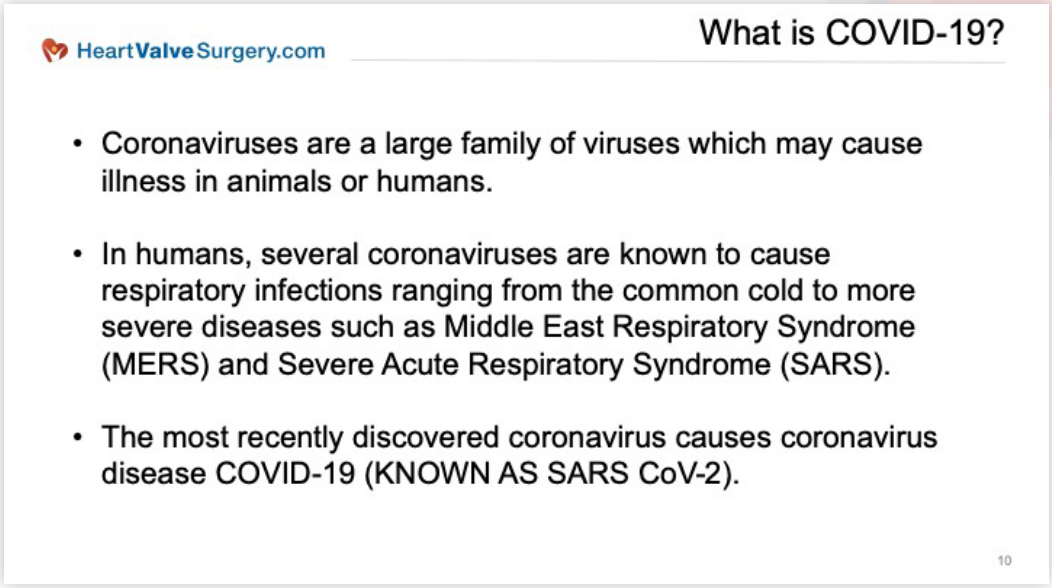


Adam Pick: As for the agenda, it's very simple. First we are going to hear from Dr. Burkle and Dr. Chikwe about COVID-19, heart valve disease management, and treatment during the pandemic. Next we're going to talk to John.

Then we're going to have a Q&A session. Lastly, we'll end with an interactive survey. To get started, I'd like to introduce our first speaker, Dr. Jaime Burkle.



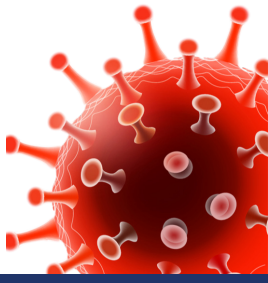
What Is COVID-19?



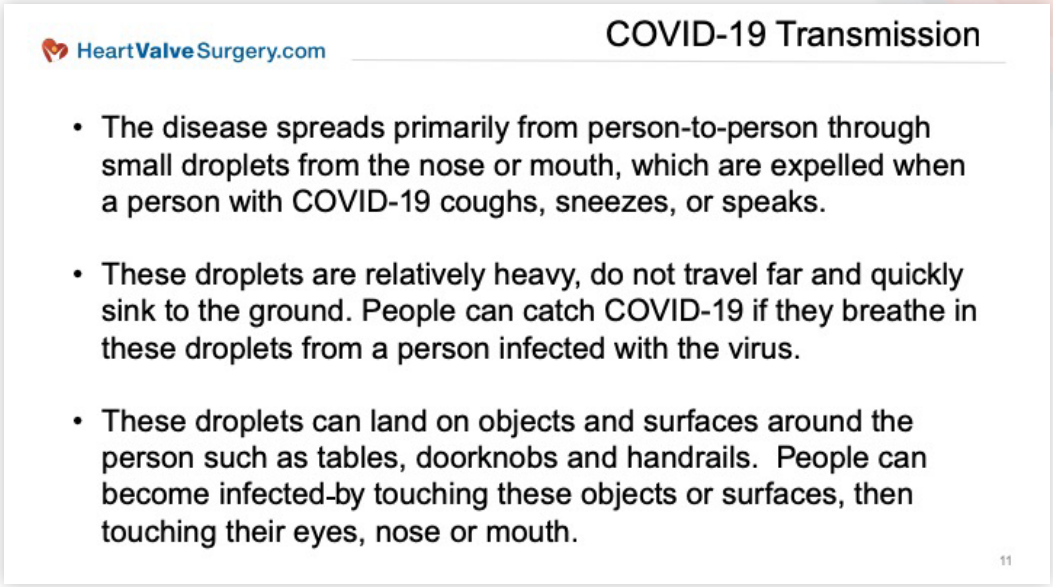
Dr. Jaime Burkle: Thank you for the invitation, Adam. I'm excited to participate in this webcast.

What is COVID-19? Coronaviruses are a large family of viruses which make up illness both in animals and humans.

In humans, several coronaviruses are known to cause respiratory infections, ranging from the common cold to more severe diseases such as MERS or SARS. In fact, most of us probably suffered from coronavirus infection as children growing up and getting common colds, which is a very common cause of colds. The most recently discovered coronavirus causing coronavirus disease is called COVID-19, also known as SARS CoV-2.

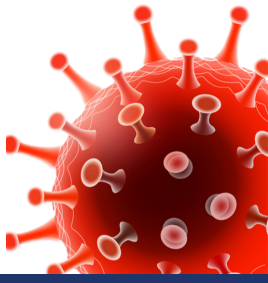


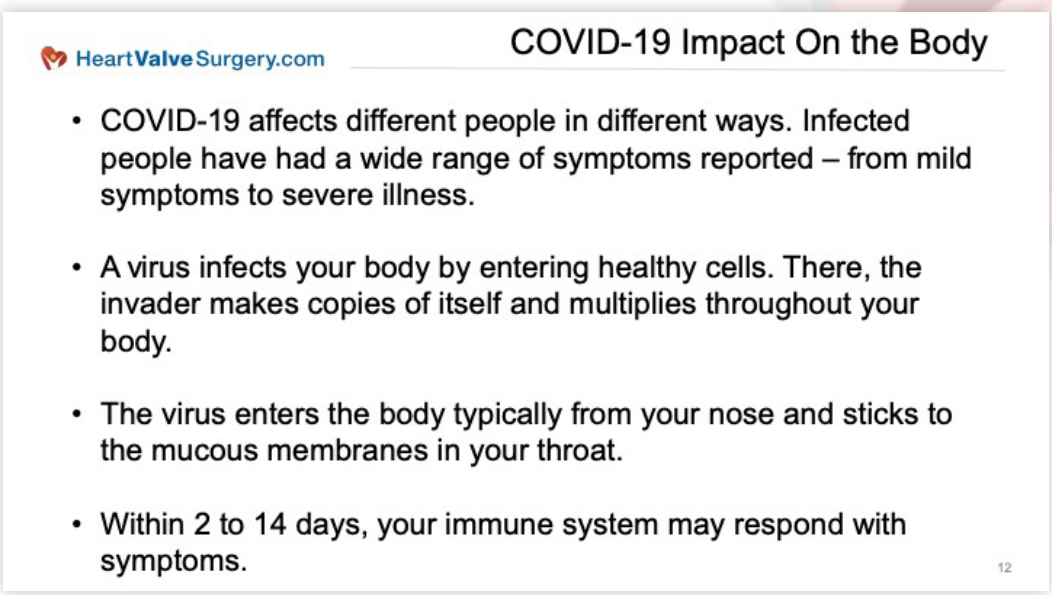
COVID-19 Transmission



Dr. Jaime Burkle: How is COVID-19 transmitted? The disease spreads primarily from person to person through small droplets from the nose or mouth, which are expelled when a person with COVID-19 coughs, sneezes, or speaks. These droplets are relatively heavy, do not travel far, and quickly sink to the ground, hence the importance of social distancing and wearing face masks.

People can catch COVID-19 if they breathe in these droplets from a person infected with the virus. These droplets can land on objects and surfaces around persons such as tables, doorknobs, or handrails. People can become infected by touching these objects or surfaces, then touching their eyes, nose, or mouth; hence, the importance of not touching your face.

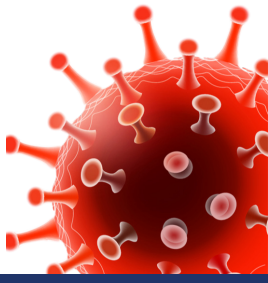




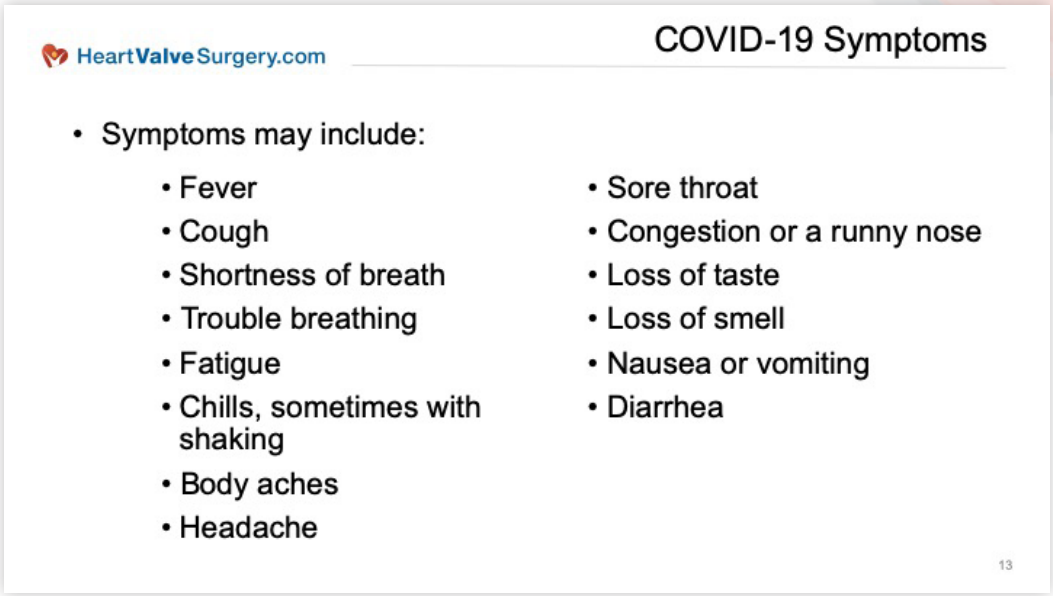
Dr. Jaime Burkle: What is the impact of the COVID-19 virus on the body? It turns out that COVID-19 affects different people in many different ways. Infected people can have a wide range of symptoms reported from mild symptoms to very severe illness.

The virus infects your body by entering healthy cells and just like any other virus, the invader makes copies of itself inside the normal cell of the body, multiplies throughout your body, and goes on to infect other cells. This virus enters the body typically from your nose and sticks to the mucous membranes in the throat.

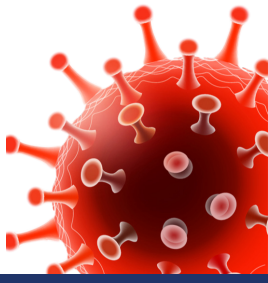
Within 2 to 14 days, the immune system may respond with symptoms.



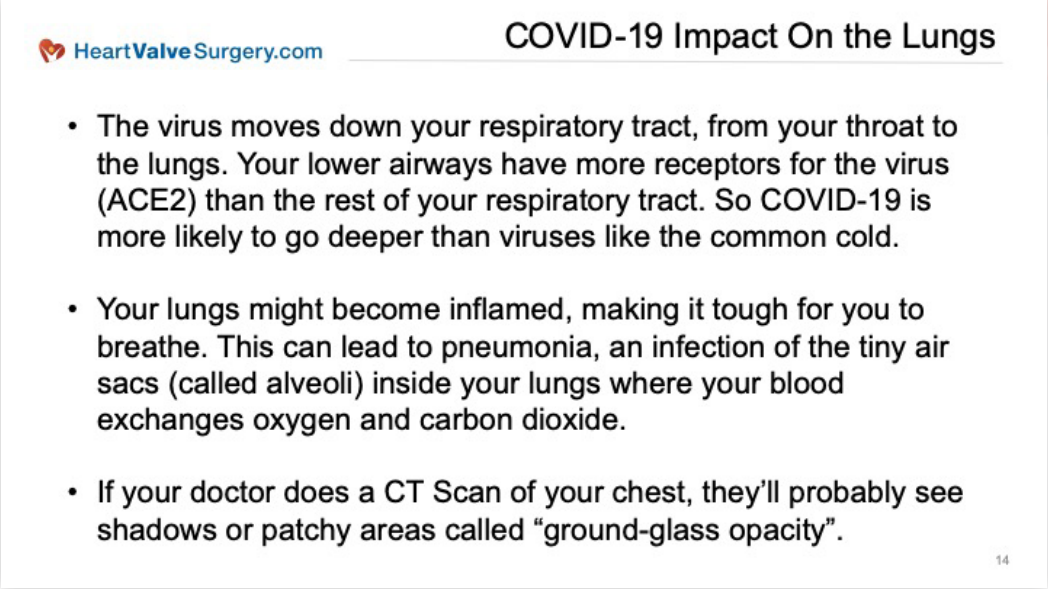
COVID-19 Symptoms



Dr. Jaime Burkle: Some of the most common symptoms with COVID-19 include fever; cough, which is typically a dry cough, shortness of breath; trouble breathing; fatigue; chills, sometimes with shaking, body aches, especially large muscle groups like back, shoulders, thighs; headaches; sore throat; congestion or runny nose; a loss of taste is a common first symptom of COVID; loss of smell is also a frequent of COVID in the initial phases; nausea; vomiting; or diarrhea.

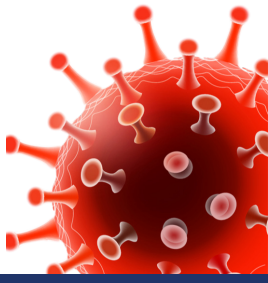


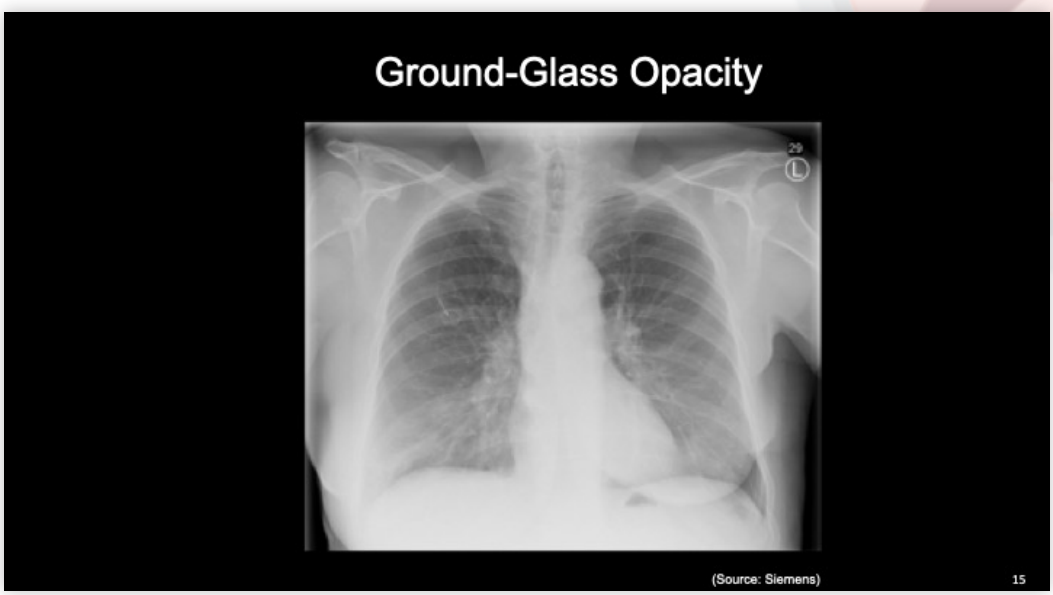
COVID-19 Impact On The Lungs



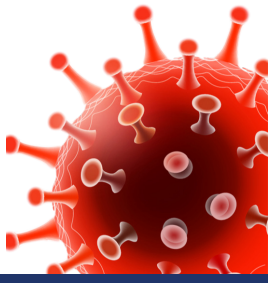
Dr. Jaime Burkle: How does COVID-19 affect the lungs? The virus moves down your respiratory tract from your throat to the lungs. The virus recognizes a receptor called ACE2, angiotensin converting enzyme 2, which exists in more abundance in the lower respiratory tract than the upper respiratory tract. That's why this virus tends to be deeper than the viruses that cause the common cold.

The lungs then become inflamed, making it difficult for you to breathe. This can lead to pneumonia, which is an infection of the tiny air sacs called alveoli inside the lungs where your blood exchanges oxygen and carbon dioxide. If your doctor does a CT scan of your chest, they will probably see shadows or patchy areas called "ground-glass opacity".

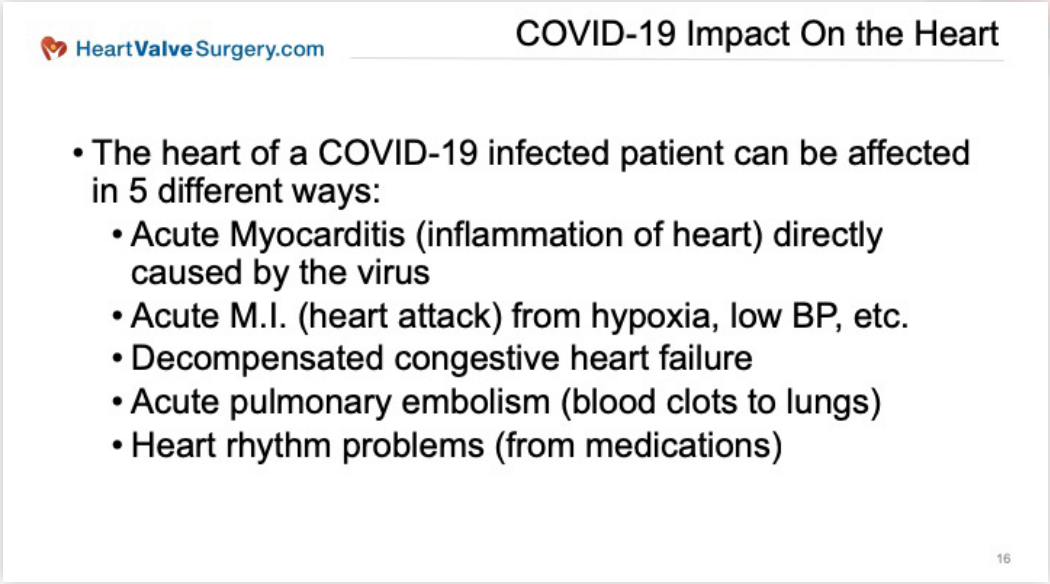




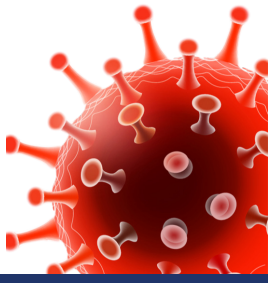
What I'm going to show you now is a chest x-ray of a patient infected with COVID-19 and has COVID-19 pneumonia with classic bilateral infiltrates and bilateral opacities. These ground glass-opacities are very common in patients with COVID pneumonia.



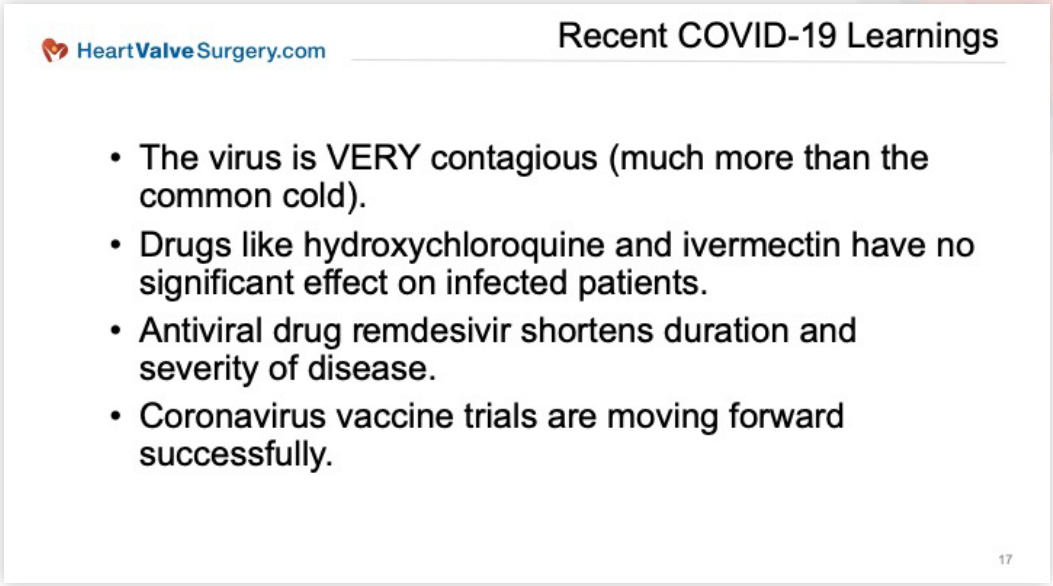
COVID-19 Impact On The Heart



Dr. Jaime Burkle: How about the heart? COVID-19 virus can affect the heart in five different ways. The virus itself can cause direct inflammation of the heart muscle, causing a condition called acute myocarditis, where patients experience chest pains, tachycardia, fast heart rate. In patients that have blockages in the coronary arteries, the virus can trigger acute myocardial infarction (or heart attacks) as a result of the hypoxia, low blood pressure, and other circulatory affects of the virus. It can also cause decompensated congestive heart failure. Patients with COVID-19 are also prone to blood clots in the legs traveling to the lungs, causing what is called pulmonary embolism. Finally, you can see heart rhythm disorders from medications that are administered to patients with COVID-19. As you can see, there's a wide variety of ways the heart can be affected in a patient with COVID-19.



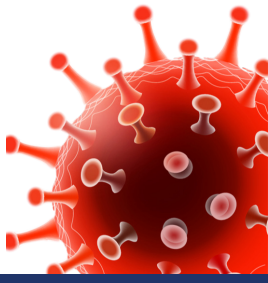
COVID-19 Learnings



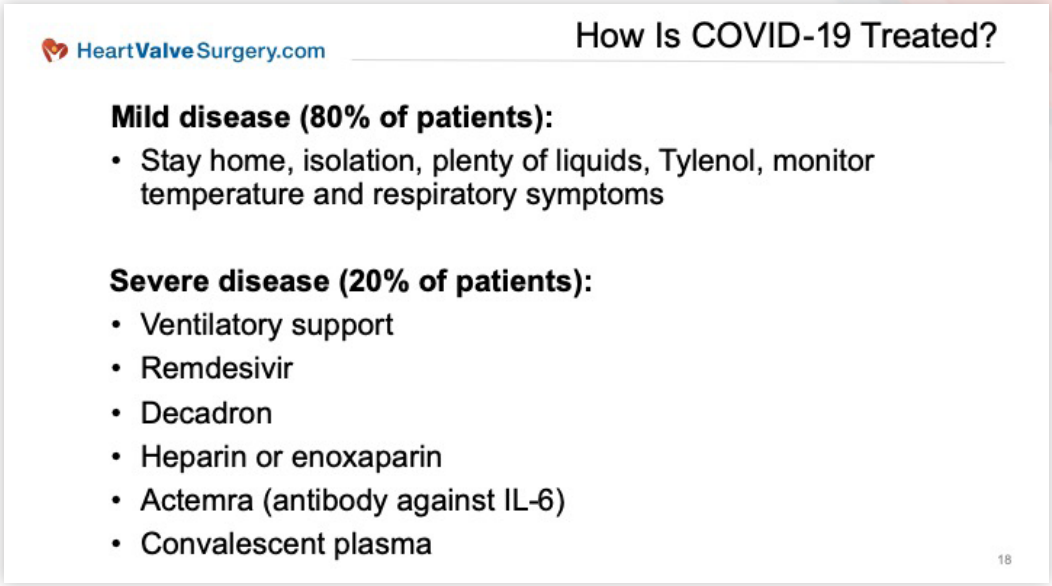
Dr. Jaime Burkle: What have we learned over the past few months? We have learned that this is a very contagious virus, much more than the common cold. It requires a much lower viral load for you to get sick.

We've learned also that drugs like hydroxychloroquine or ivermectin initially showed promise in short, small case reports, but have really no significant affect on infected patients based on large prospective randomized trials.

We've also learned that the recently approved antiviral drug, remdesivir, shortens the duration and the severity of disease. We administer that to patients with moderate-to-severe disease that are in the hospital. We've also learned that coronavirus vaccine trials are moving forward very successfully.

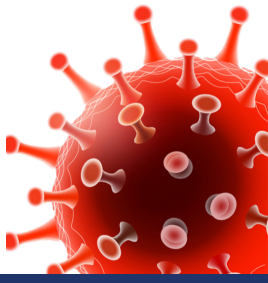


COVID-19 Treatment



Dr. Jaime Burkle: Let's talk about treatment. How do we treat patients with COVID-19? It turns out that 80% to 85% of patients infected with the virus will have a mild disease. These patients will have typically low-grade fever, muscle aches, cough, but they will not experience severe shortness of breath or hypoxia. These patients can stay home.

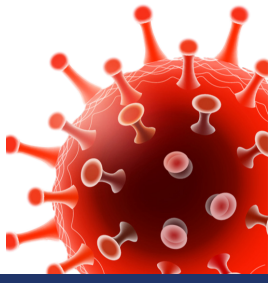
They need to be isolated. They need to drink plenty of liquids. They may take Tylenol or ibuprofen for fever and muscle aches. The key is monitor temperature and respiratory symptoms. These patients do not belong in the hospital. You don't want to keep them in the hospital unnecessarily if they are stable to go home.



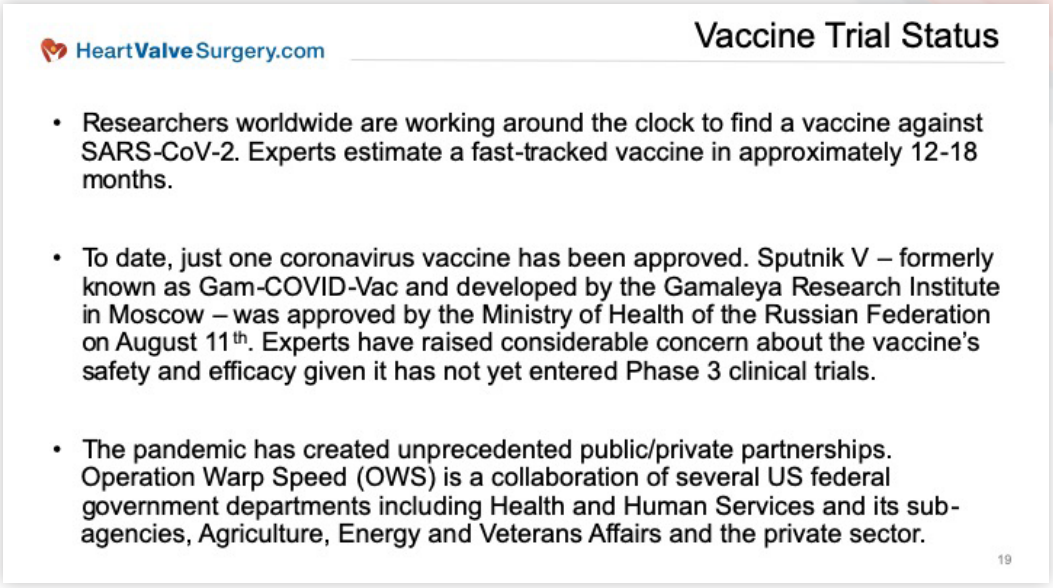
The other 15% to 20% of patients for reasons that we still don't understand will most typically have comorbid conditions like obesity, chronic lung disease, hypertension, diabetes, etc. Some other young patients without any of these comorbidities can still get sick for genetic predisposition. These patients will present to the hospital in acute respiratory failure. These patients will look toxic, will be hypotensive, and in shock. These patients need to be treated in intensive care units with ventilator support.

We give them remdesivir, which is the recently approved antiviral. They get high-dose steroids, Decadron being the most commonly used, to decrease the inflammation in the lungs. They will get treated with heparin or enoxaparin, which is an intravenous or subcutaneous blood thinner to prevent blood clots. They may get a drug called Actemra, which is an antibody against interleukin-6, a very potent anti-inflammatory substance that is produced by the body. If it's released in large amounts, it can actually be detrimental to the body.

Plasma from convalescent patients has actually been used as well and has been approved as recently as this past Monday for patients who are extremely sick in intensive care units.

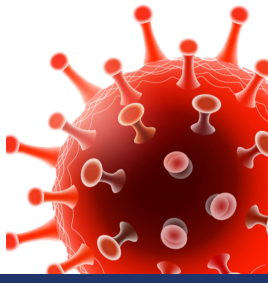


COVID-19 Vaccine Trials

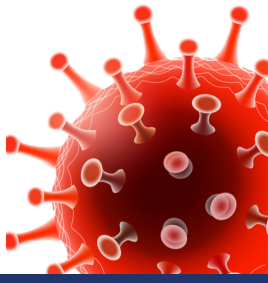


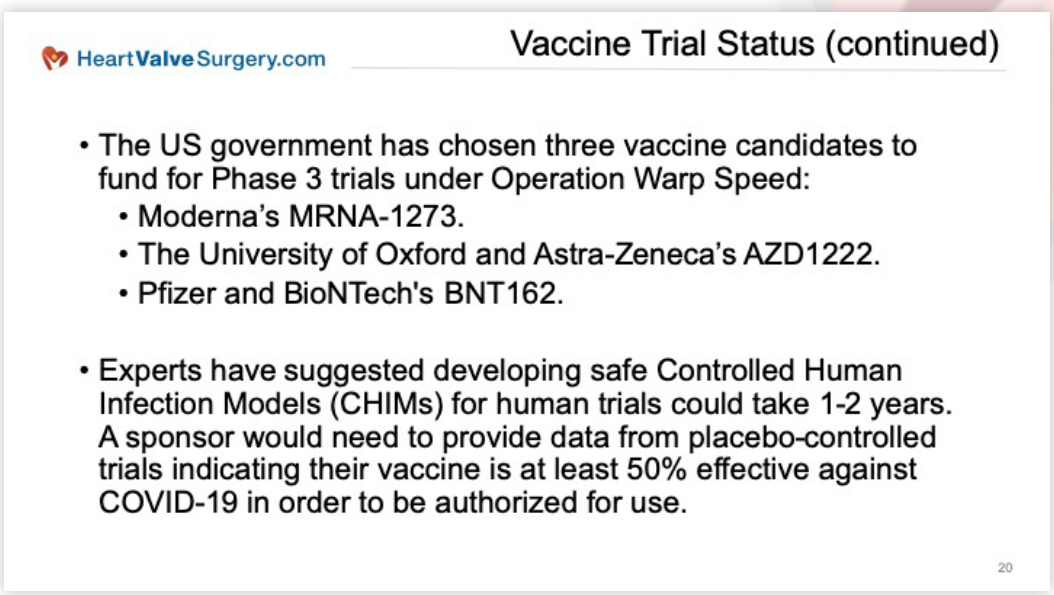
Dr. Jaime Burkle: Let's talk about the vaccine trials. We know that researchers worldwide are working around the clock to find a vaccine against SARS CoV-2. Experts estimate a fast track vaccine in approximately 12 to 18 months.

Today, just one coronavirus vaccine has been approved. That's the Sputnik V, formerly known as Gam-COVID-Vac, and developed by the Gamaleya Research Institute in Moscow, Russia. It was approved by the Ministry of Health of the Russian Federation on August 11th of this year. Experts have raised considerable concern because the vaccine has not entered Phase 3 clinical trials. We're not sure of the safety and efficacy of this drug.



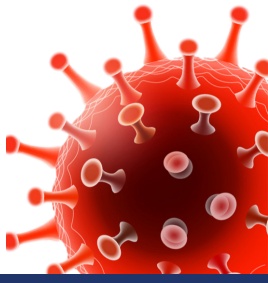
However, the Russian Institute in Moscow felt that it was important to release the vaccine and start immunizing the population. This pandemic has created unprecedented public and private partnerships. The Operation Warp Speed, OWS, is a collaboration of several US federal government departments, including the Health and Human Services and its sub agencies, Agriculture, Energy, and Veterans Affairs in the private



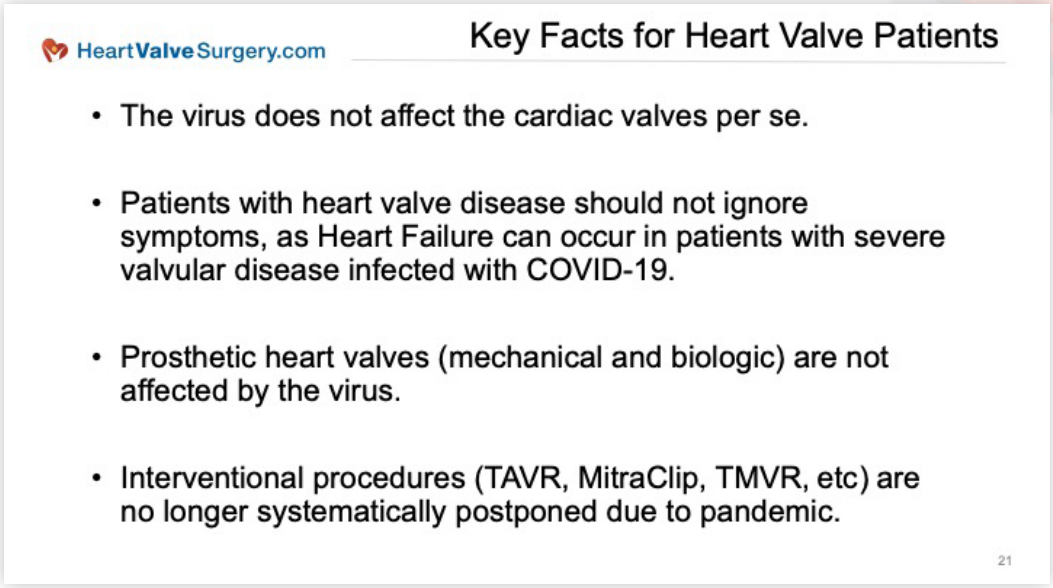


Dr. Jaime Burkle: The US government has chosen three vaccine candidates to fund the Phase 3 clinical trials that are under Operation Warp Speed. These are the Moderna's MRNA-1273 vaccine, the University of Oxford Astra-Zeneca AZD1222, and the Pfizer and BioNTech's BNT162. Experts have suggested developing safe controlled human infection models for human trials could take one to two years.

A sponsor would need to provide data from placebo-controlled trials indicating their vaccine is at least 50% effective against COVID-19 in order to be authorized for use.

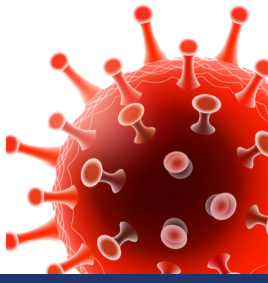


Key Facts for Heart Valve Patients

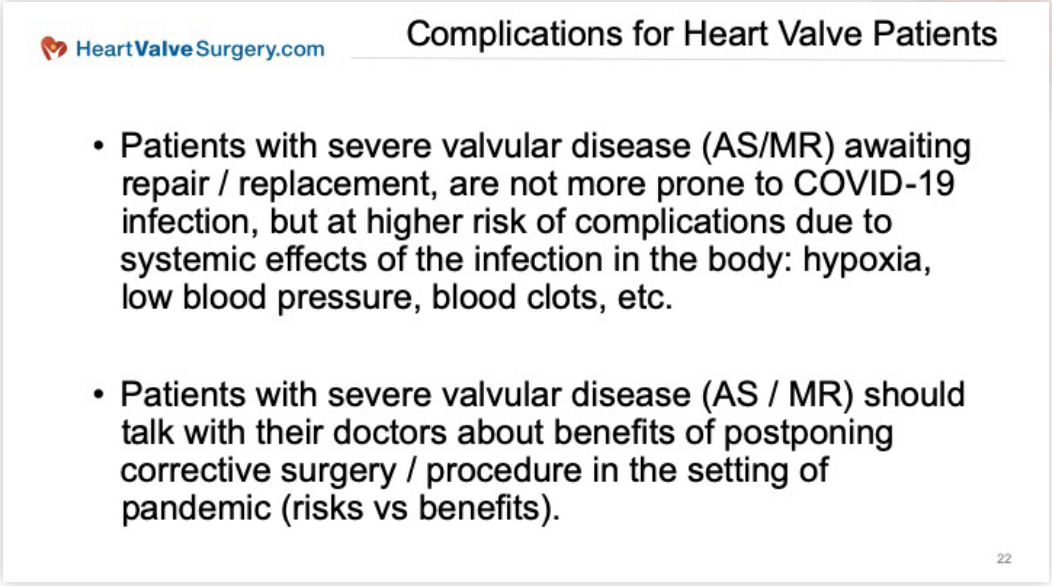


Dr. Jaime Burkle: How about heart valve patients? The virus does not affect the heart valves per se. The heart valves are not a target for the virus. Like we said, the ACE2 receptor is in the lungs. Patients with heart valve disease should not ignore symptoms, as heart failure can occur in patients with severe valvular disease infected with COVID-19.

Prosthetic heart valves like mechanical and biological valves are not affected by the virus. Interventional procedures like transcatheter aortic valve replacements, MitraClips, transcatheter mitral valve replacements, etc. are no longer systematically postponed due to the pandemic.

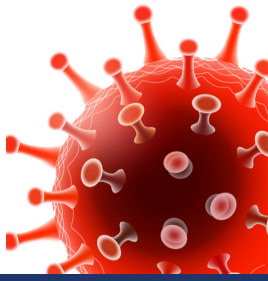


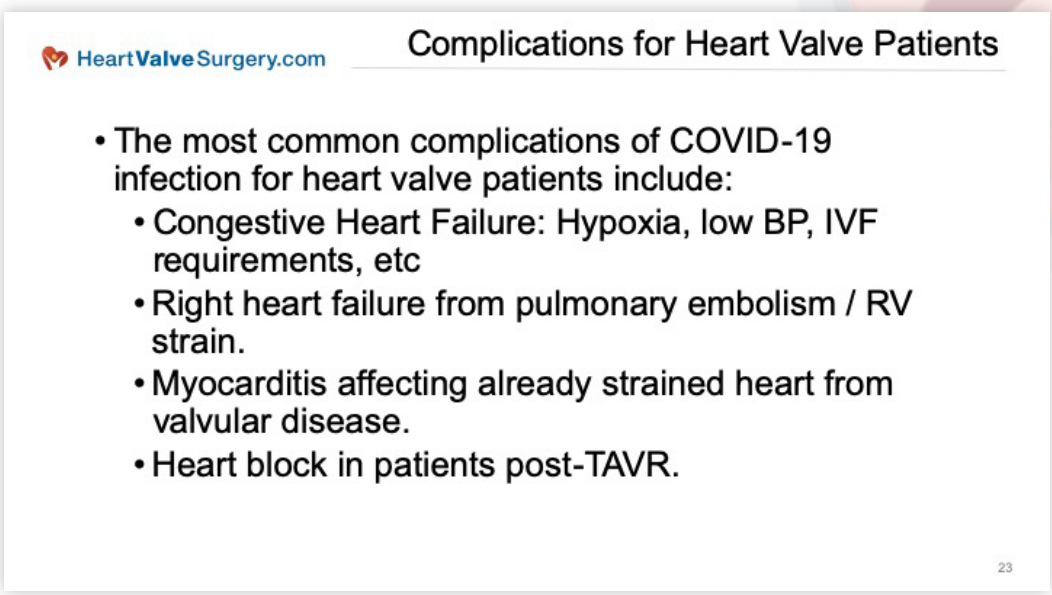
Complications for Heart Valve Patients



Dr. Jaime Burkle: Patients with severe valvular disease awaiting repair or replacement are not more prone to COVID-19 infection. They are at a higher risk of complications due to the systemic affects of infection in the body. The hypoxia, the low blood pressure, the blood clots that result from the viral infection can make these patients very sick.

Patients with severe valvular disease, especially aortic stenosis and mitral regurgitation, should talk with their doctors about the benefits of postponing corrective surgery or procedures in the setting of the pandemic. In other words, discuss the risk versus benefits.

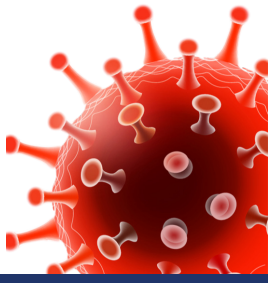




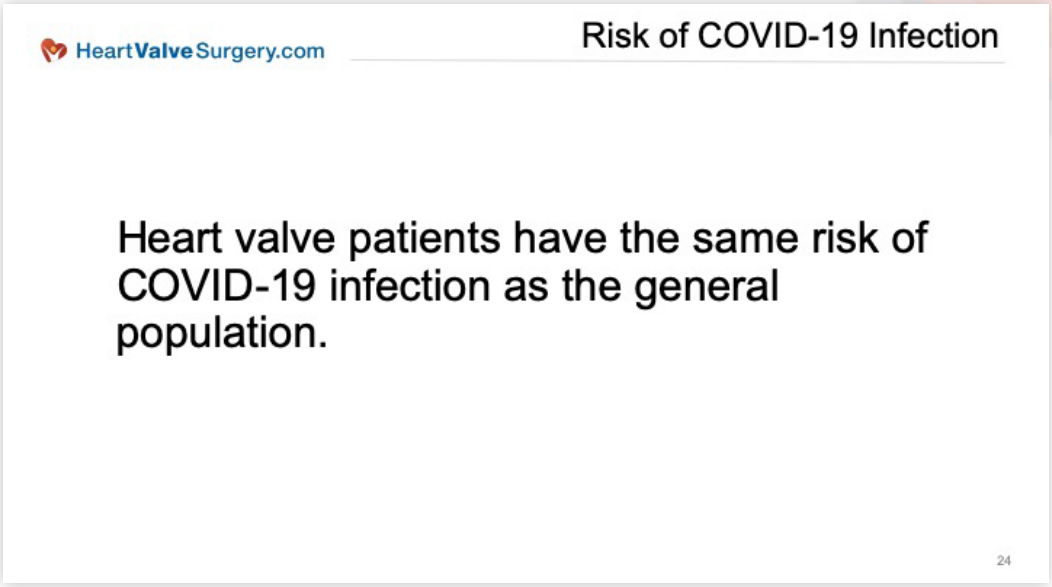
Dr. Jaime Burkle: The most common complications of COVID-19 infection for heart valve patients include congestive heart failure. Again, this is the result of hypoxia, low blood pressure, etc.

Right heart failure from pulmonary embolism; this causes a significant strain on the right ventricle that pumps blood to the lung and right heart failure can occur as a result. Myocarditis affecting an already strained heart from valvular disease can also be a significant complication of COVID-19 in patients with heart valves.

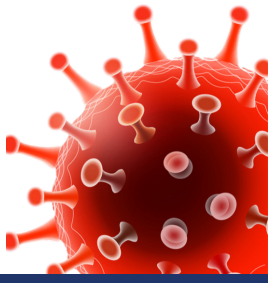
Finally, in patients post-TAVR, heart block can be seen, especially in the setting of COVID-19 infection.



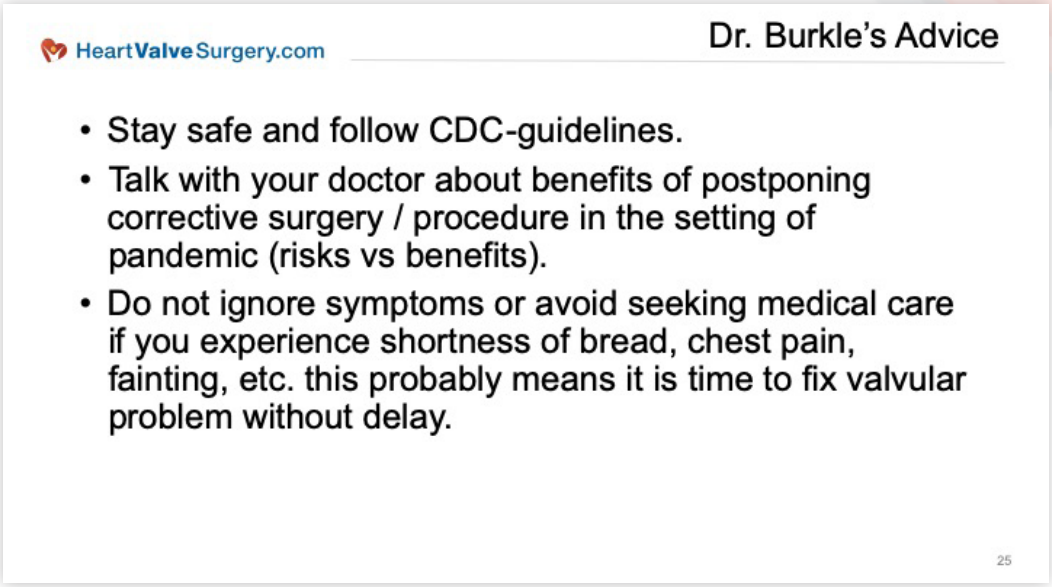
Risk of COVID-19 Infection



Dr. Jaime Burkle: Something that is important and I stress to my patients is that heart valve patients have the same risk of COVID-19 infection as the general population. Just because you have a heart valve problem doesn't mean that you are more prone to getting infected with a virus. You may be more prone to complications if you catch the virus.

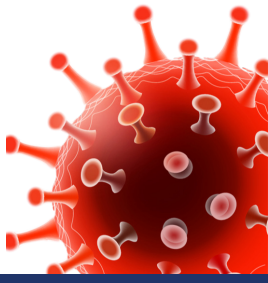


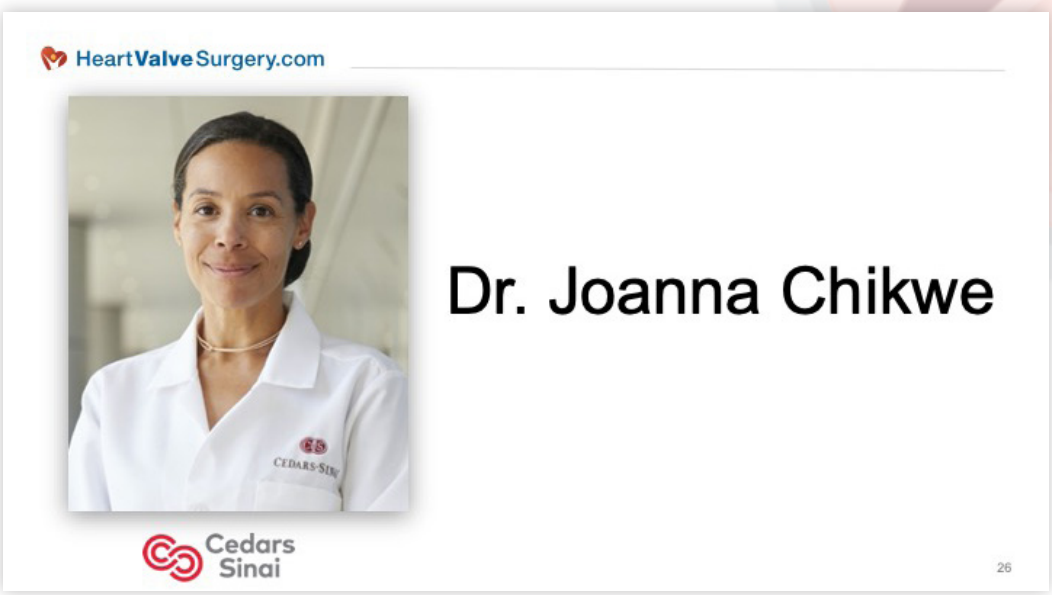
Dr. Burkle's Advice for Patients



Dr. Jaime Burkle: What's my advice to all my patients with valvular disease? Stay safe and follow CDC guidelines. Talk with your doctor about benefits of postponing corrective surgery or procedures in the setting of the pandemic. Analyze risk versus benefits.

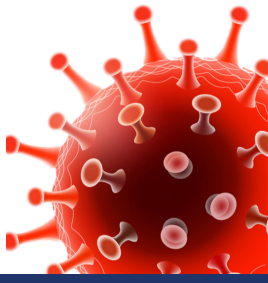
Finally, very important, do not ignore symptoms or avoid seeking medical care if you experience shortness of breath, chest pain, fainting, etc. since this probably means that it is time to fix the valvular problem without delay.



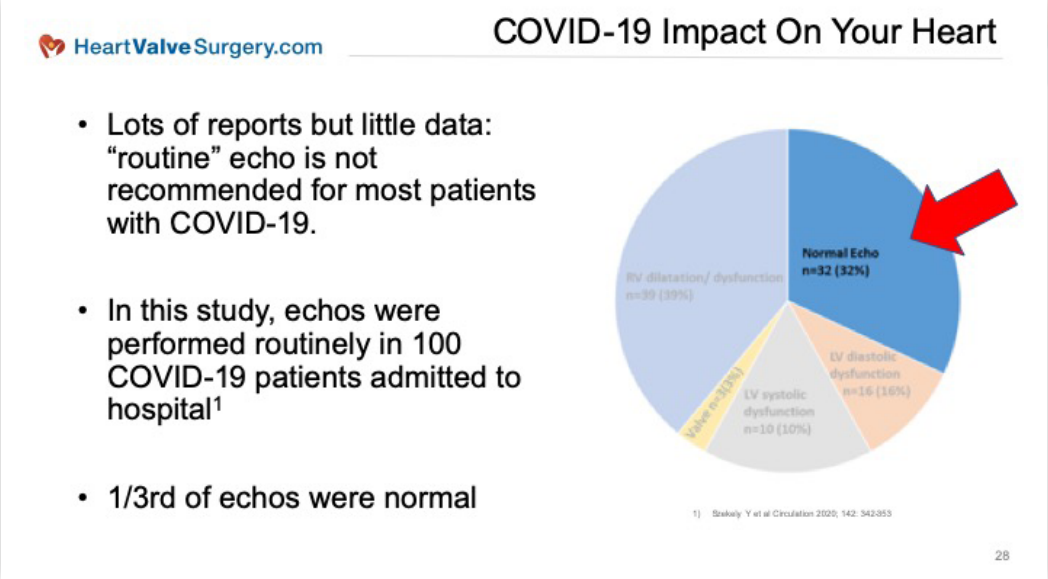


Dr. Joanna Chikwe: My name is Jo Chikwe, and I'm chairman of the Department of Cardiac Surgery at Cedars-Sinai. For those of you who don't know Cedars-Sinai, we're one of the top ranked institutions in the US for cardiology and heart surgery with one of the largest structural heart valve programs, one of the largest robotic mitral programs, and probably the largest heart transplant program in the US.

What I wanted to do today is share with you some of the experience that my institution has with COVID in patients with heart valve disease.

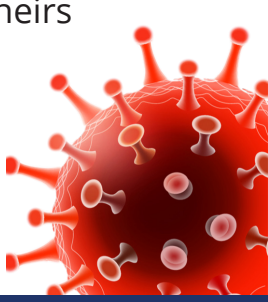


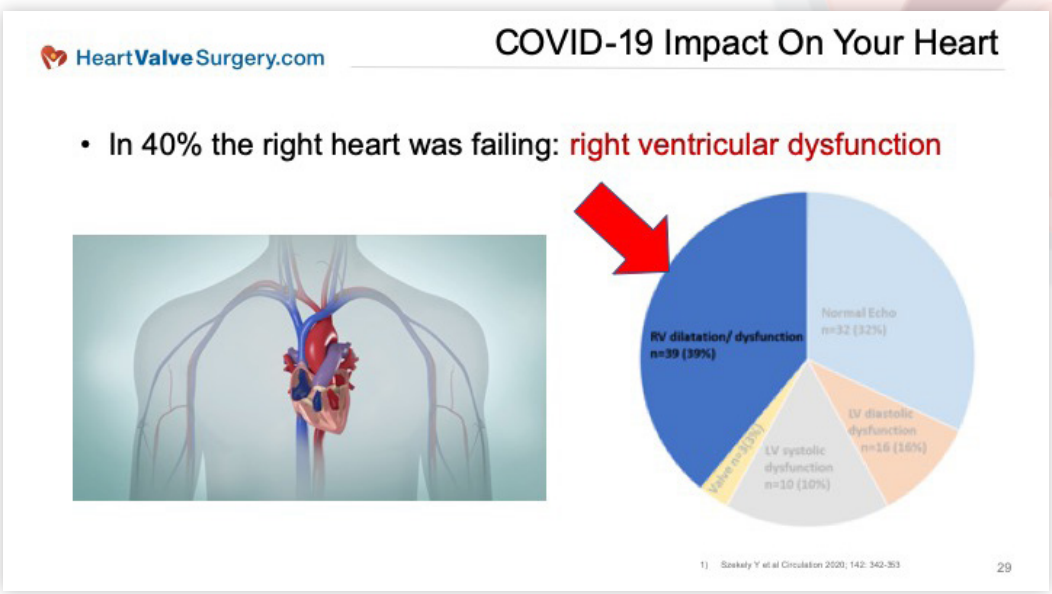
New Research: COVID-19 Heart Impact



Dr. Joanna Chikwe: As you heard from Dr. Burkle's really detailed and fascinating presentation, we know that COVID has an impact on your heart. The challenge is that what we know is based on lots of reports but very little data. One of the reasons for that is because we want to minimize spread of COVID. Routine echos are not recommended for most patients with COVID. We genuinely don't know what's going on in most patients with COVID.

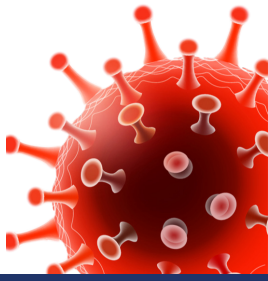
Here's a study from Tel Aviv that did a really interesting thing. They "Echod" 100 patients that came to their hospital with COVID to try and understand what was going on. Only one-third of those patients had normal hearts. We'd expect that patients coming into the hospital, the majority might be normal, but theirs weren't.

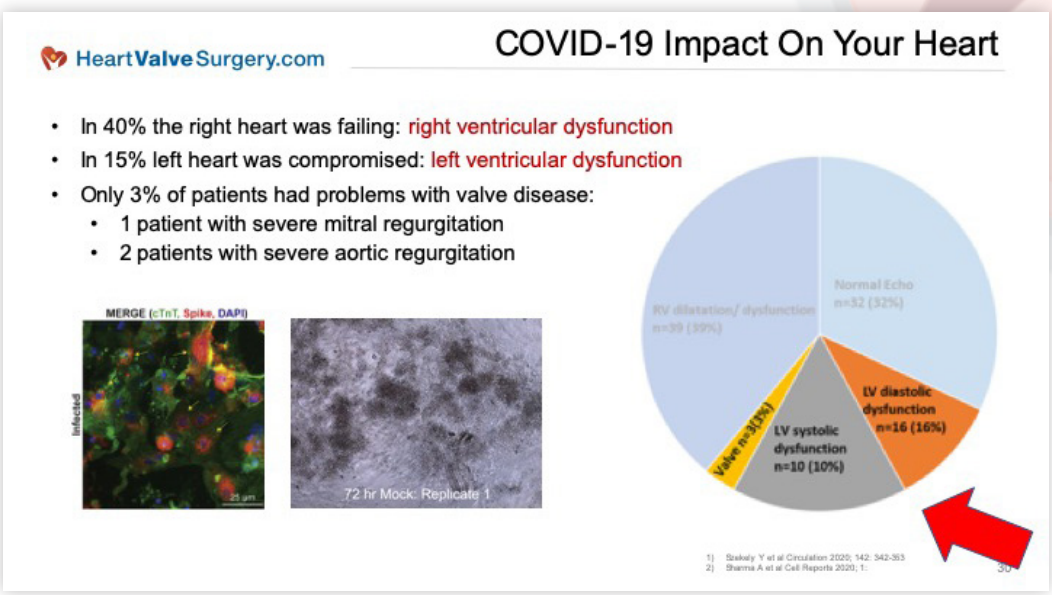




Dr. Joanna Chikwe: This animation shows you the right heart there in blue and tends to be the one that has dysfunction. That's because it's pumping blood to the lungs, which are disproportionately affected by COVID, either by infection or by blood clots. In about 40% of patients that had echos, the right heart was already damaged and failing.

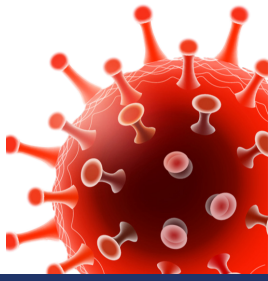
This leads you to ask about the left heart because as we know, the left heart is the "powerhouse pump" of the heart. That's the ventricle that does most of the effort in getting blood to go around the body. In about 10 to 15% of patients the left heart was compromised.

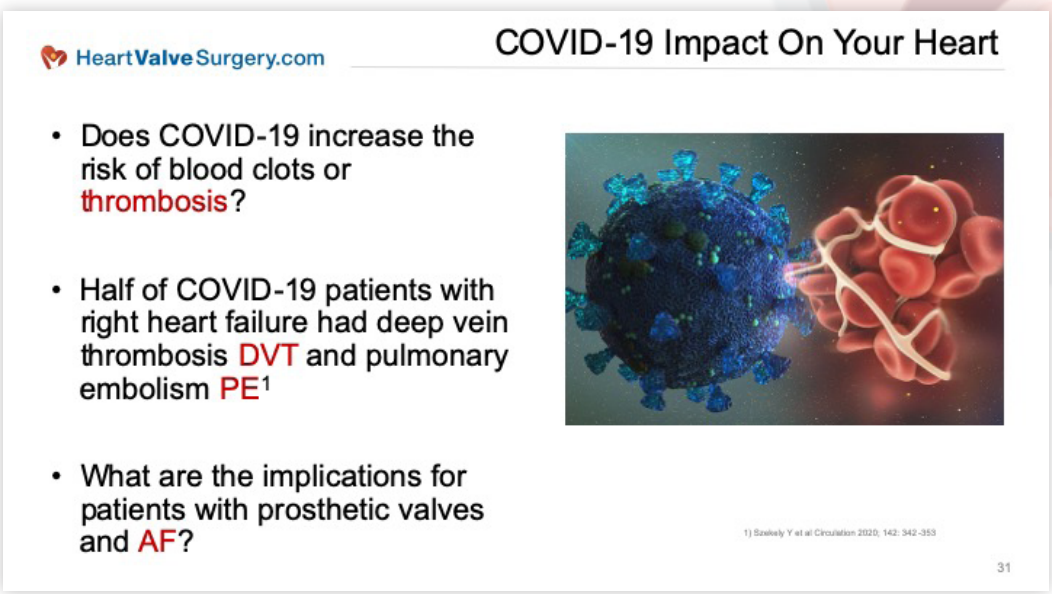




Dr. Joanna Chikwe: In a very small minority of patients, the heart is so compromised that it can't support the body, and we have to put them on ECMO. ECMO is an emergency version of the heart-lung machine that many of you will have had when you had heart surgery. In fact, all of you that had valve surgery will have gone on a heart-lung machine. Only 3% of these patients had echos because they'd come to the hospital with COVID and valve disease.

What I want you to do is squint very hard at that gray video down in the middle of the page. This is a really interesting piece of research that came out of our team here at Cedars-Sinai where they actually took heart cells and grew them in an artificial media. Those little splotches that you can see are heart cells. The difference between the heart cells that didn't have COVID are that they beat. If you look very carefully, you can see that they intermittently beat, whereas the heart cells that were infected with COVID by these researchers stopped beating after 72 hours. Part of the way that we're going to understand how this disease has such an impact on your heart is to work out what the drivers of that are.

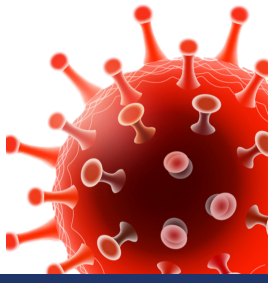




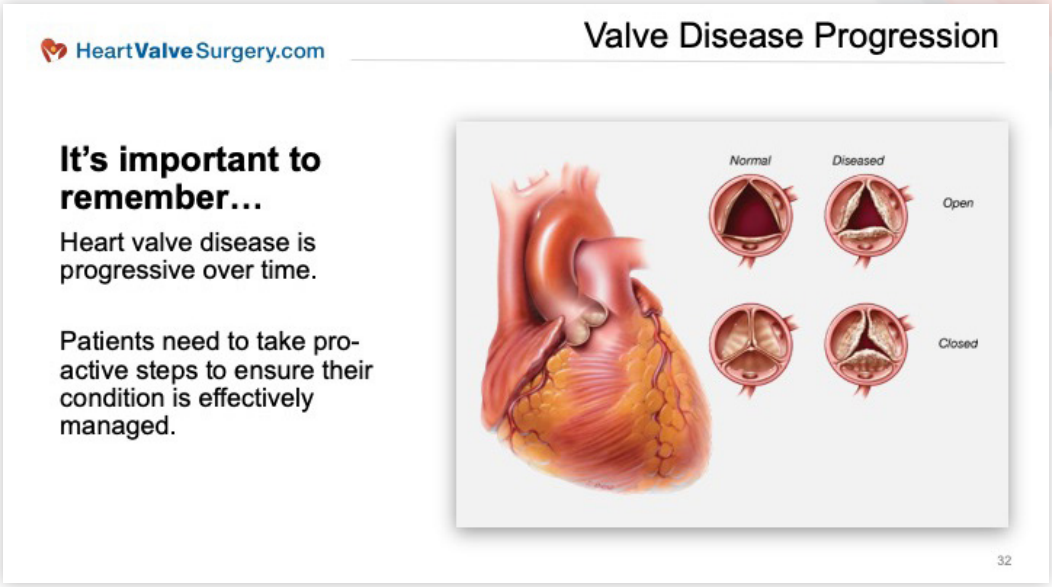
Dr. Joanna Chikwe: We do know that one of the drivers is that COVID accelerates productions of molecules called cytokines that are normally responsible for fighting infection. It takes them into overdrive so they end up fighting your body's own natural mechanisms. That may also explain why we see blood clots more frequently in patients with COVID.

In that Tel Aviv study, when they looked at the patients who came in with right heart failure, almost half of those patients had clots in the veins in their legs, that's DVTs, and pulmonary emboli clots on the lungs. That's really unusual. That's a really high proportion.

We've seen many patients have unusual complications from blood clots because COVID seems to generate a really strong blood clotting reaction in patients. Intuitively, this would make us wonder, "Does this have implications for patients that have prosthetic heart valves? Does this have implications for patients that have atrial fibrillation?"



Valve Disease Progression

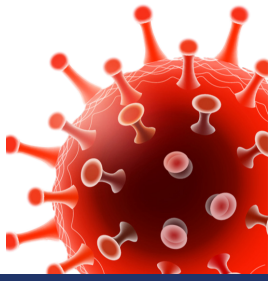


Dr. Joanna Chikwe: We really genuinely would be concerned about blood clots in those patients, and it's possible that COVID may be associated with a higher risk of that. That's why sticking to your anticoagulation therapy, if you're a patient with that kind of valve disease, is more important than ever.

I think it's really worth highlighting valve disease is progressive. It's not static.

At the point we thought COVID might go away in a few months, it seemed very reasonable to give people the advice that it's better to wait to see your doctor and it's better to wait to schedule an appointment than it is to run the risk of getting an infection when you come to visit us in the hospital.

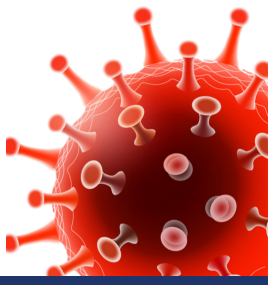
That advice has changed dramatically.



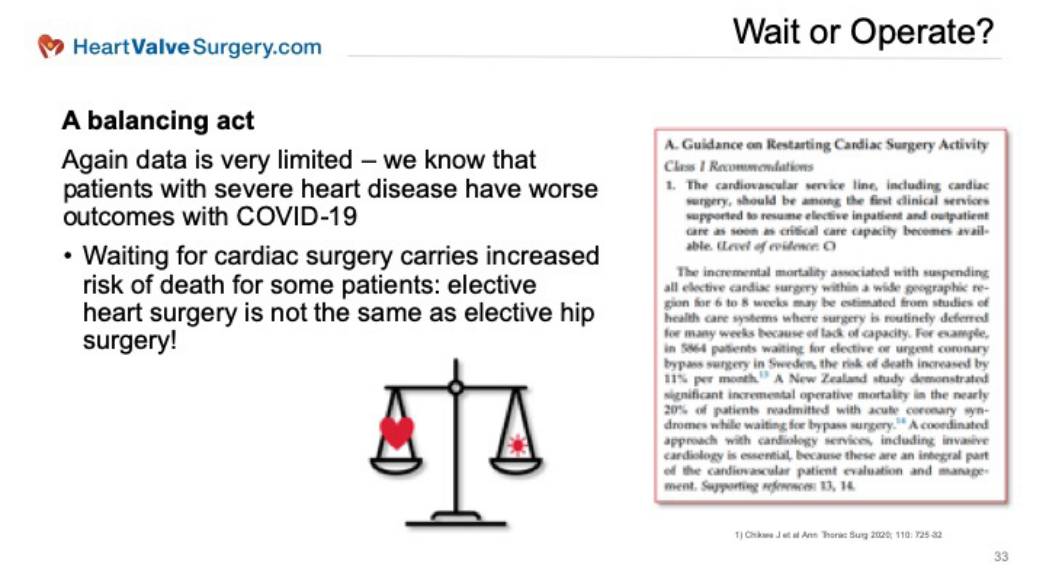
One of the reasons it's changed is because we're no longer dealing with a surge of COVID patients and overwhelming resources.

The other reason it has changed is because we understand much better that COVID, if we take the right precautions, poses relatively low risk to most patients.

Waiting for heart surgery poses a potentially higher risk.

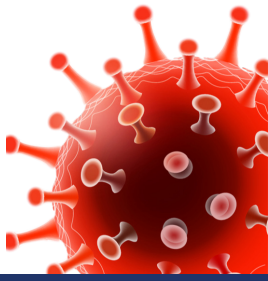


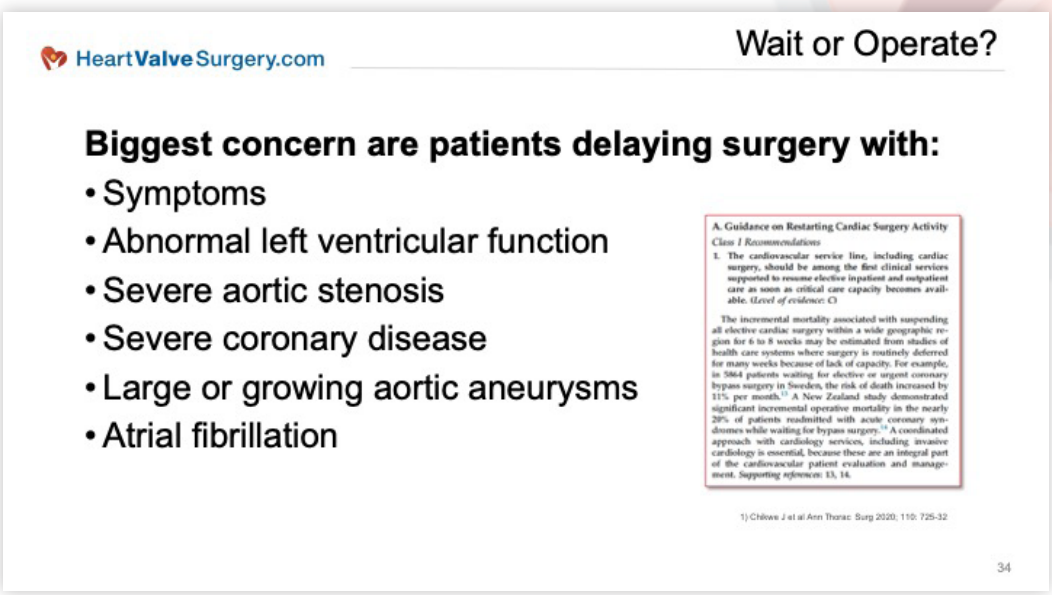
Wait or Operate?



Dr. Joanna Chikwe: There was such a large amount of uncertainty amongst cardiologist and cardiac surgeons that we've led on trying to create guidelines and advice from the evidence and the knowledge that we could find out there in the community. We published these guidelines in one of the main cardiac surgery journals. I think it comes out in July or August. This reflects the change in our understanding. The data is really limited.

What we do know is waiting for elective heart surgery is not the same as waiting for an elective hip replacement. When you look at studies with patients with severe heart valve disease that need surgery, if the surgery has to be delayed for weeks or months, there is a risk of mortality. It's a relatively small risk, but it is a risk. We're very much of the opinion that if that risk can be avoided by having a surgery in a timely fashion, that's definitely the way to go.

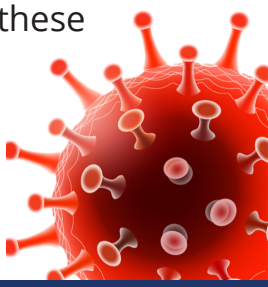




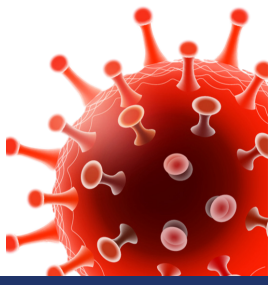
Dr. Joanna Chikwe: There are certain patients that we are more worried about that we would advise "waiting" is not the right thing to do. Who are those patients? Any patient that has progressive symptoms is a concern to me. That's always a sign if you're getting short of breath, if you're getting chest pain.

If your shortness of breath and chest pain is coming on with more activity than normal, that's a big concern to me. That really says you need to go and see your cardiologist. You need to be getting on with having your heart assessed and scheduling your procedure if that's indicated.

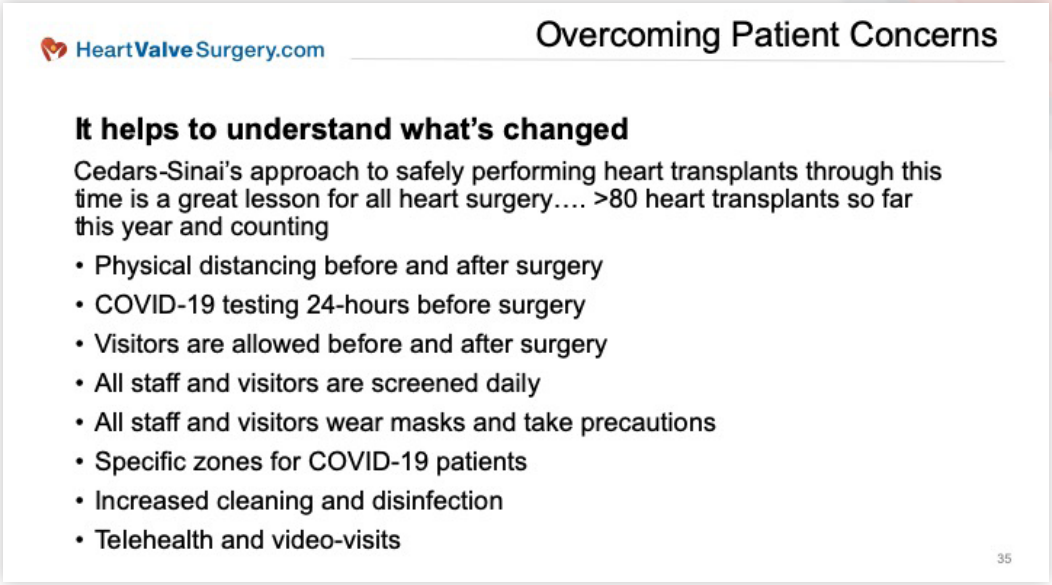
Similarly, if the echos and the testing that you have show that your heart is beginning to struggle with the load of your valve disease – for example, your left ventricle. The strength is going down. You measure ejection fraction or its stretching inside. It's dilated. Those are major red flags. Patients with severe obstructive lesions, and aortic stenosis is probably the most important one of those, but also very severe coronary disease on top of their valve disease, these are patients that do not do well waiting for surgery or intervention.



Then there's the group of patients with large or growing aortic aneurysms. You only know if you've got an aneurysm that's growing because you're having your surveillance scans. A lot of this is about not avoiding your cardiologist in the follow up appointments. It's about really maintaining those and doing it safely. Patients with atrial fibrillation, where that's a sign of severe valve disease, particularly in the mitral group of patients, that would be something to prompt me to say the balance of risks really favors you getting on with your elective surgery. Waiting isn't going to do you a service.

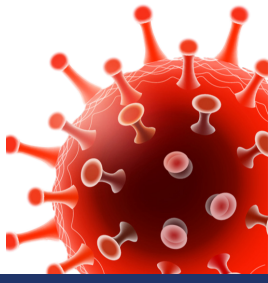


Overcoming Patient Concerns



Dr. Joanna Chikwe: It helps to understand what's changed I think this is a really important take-home. The way that I framed this is if you're concerned about having heart surgery, imagine if you were one of the sickest patients that we see in the hospital and not only were you sick, you were immuno-compromised, which means that you're much more susceptible to infections. That kind of patient is a transplant – a heart transplant patient and Cedars-Sinai's experience with heart transplants is really, I think, a great lesson for how we should be doing heart surgery safely during COVID.

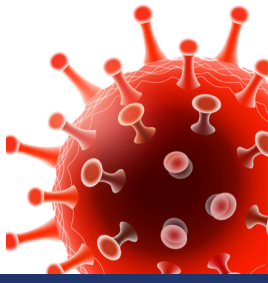
As I said at the beginning, we're the largest heart transplant program in the world, and we've done 80 heart transplants so far this year, which the majority were done during COVID. The reason we kept transplanting is because these are patients that absolutely can't wait.



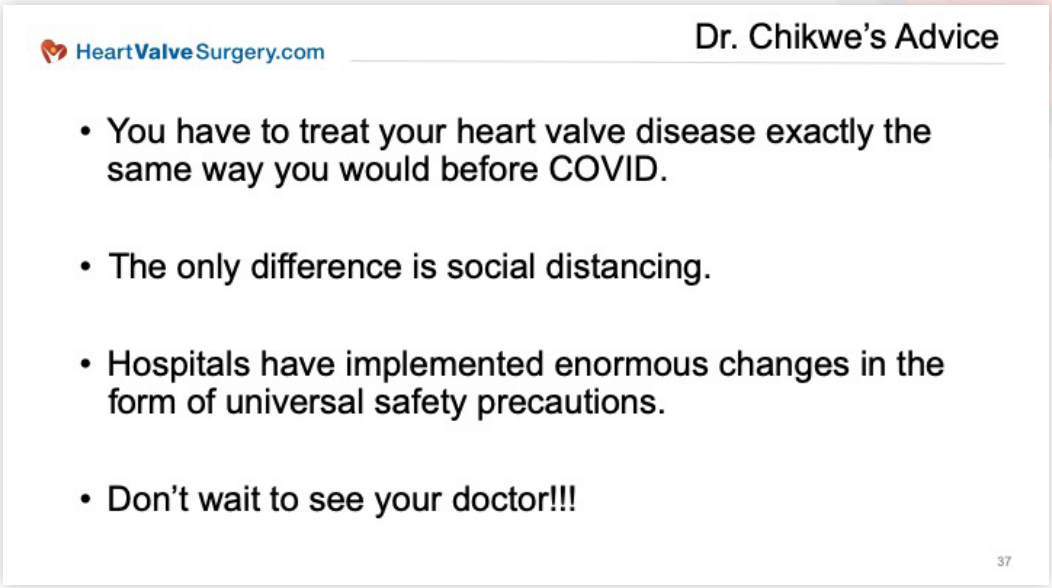
Only a minority of them are at home managing on medications. The majority are in the hospital because they're too sick to be discharged without mechanical support. These transplant patients have done remarkably well despite the fact that when they go home, they're now taking immuno-suppressive drugs so they're at higher risk of infection.

How have we done that? Well, the physical distancing which is absolutely essential at home before and after surgery – we test for COVID 24 hours before surgery and during the admission. Then there are universal precautions in the hospital, so visitors are allowed before and after surgery now, but we restrict the number, and they will all get screened when they come into the hospital.

You can expect that all staff and visitors wear masks and take precautions. They'll socially distance. We use alcohol on our hands as if it were soap and water. It's constant. We have very specific zones for patients who have COVID so that they're separated from the patients that don't. There's greatly increased cleaning and disinfection.

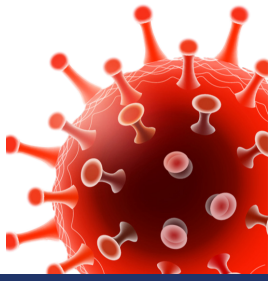


Dr. Chikwe's Advice

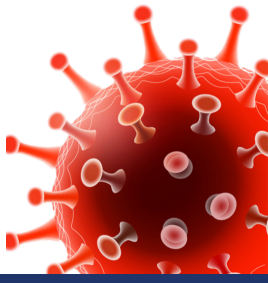


Dr. Joanna Chikwe: My summary advice for those of you with valve disease or loved ones with valve disease is that you really have to treat your heart valve and valve disease exactly the same way as you would have done before COVID at this point in time. We're not in the middle of a surge. We're in the middle of a long, probably slow – you heard from Dr. Burkle that vaccines are going to be one or two years before we're all able to have them. The hospitals aren't overwhelmed. Your valve disease is more important than your small risk of catching COVID. The only real difference is social distancing inside and outside the hospital. Hospitals have implemented huge, huge changes to really improve safety and minimize your risk. Don't wait to see your doctor.

I'm looking forward to taking questions at the end of this session. Thank you very much.



Adam Pick: Dr. Chikwe, I cannot than you enough for your commitment and the commitment of your entire team to COVID-19 research. I have watched all of your work that you've done at the professional level with your clinicians, all of the videos at CTSnet. It has been remarkable. Your pursuit of helping reactivate cardiac surgery and get the patients treated who so desperately have been put off. I love what you say here: don't wait to see your doctor. Great, great advice.



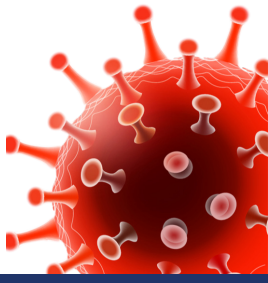
Patient Interview with John Roland

Adam Pick: Now we have a special opportunity to hear from John Roland, who is a heart valve patient treated during COVID-19. John, are you there?

John Roland: Yes, I am.

Adam Pick: John, thanks so much for being with us. For everybody out there, I first connected with John in the Community Section of HeartValveSurgery.com, which is our social network for patients where they get to meet each other, share their stories, and form online connections. John, I have to thank you for your service. You're a retired police officer in New Jersey, so thanks for all your work protecting the people in your town and cities around you.

John Roland: Thank you.



Adam Pick: Can you share with everybody what type of heart valve disease you were diagnosed with?

John Roland: I was diagnosed with a bicuspid aortic valve and I also had a aneurysm on the aorta.

Adam Pick: What was your quality of life like before you got treatment?

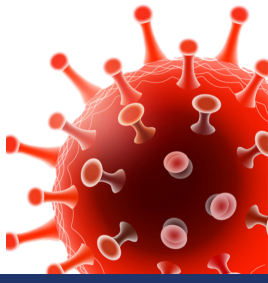
John Roland: I was starting to get very fatigued and if I was working out hard, my vision would go bad. I'd get double vision and things would get a little blurry. I had a low endurance with any type of exercise. I was just "getting older quicker" and there was a reason behind that.

Adam Pick: When were you diagnosed with the valvular disease and the aneurysm? How long had you been tracking it for?

John Roland: Probably seven years ago.

Adam Pick: I'm guessing it was diagnosed during a regular visit to your primary doctor? They heard a murmur or something?

John Roland: After I retired, I was working for Homeland Security and I had these weird heart palpitations, and I couldn't figure out what it was. I finally went to the hospital and they started doing some tests and just referred me to a cardiologist, and then more testing, CT scans, x-rays, and next thing you know, here come all this stuff. I was shocked.



Adam Pick: When did you and your medical team decide it was time to have surgery?

John Roland: I had a visit scheduled in October of 2019 to see the cardiologist for the third time at the Cleveland Clinic, and I was telling him all my symptoms, and he said, "Let's do a CT scan." The next day they scheduled a CT scan in the morning, and we saw the doctor in the afternoon. He said, "Wow, it's changed a bit. Your aneurysm is at 5.4 when they usually like to operate at 5.5." It was a 4D CT scanner, and he saw something a little funny with the valve and he said, "Honestly, I think it's time to refer you to a surgeon." I had already picked Dr. Roselli. The cardiologist said "You're probably going to have to have surgery within a year," and then he said, "I'd prefer around six months."

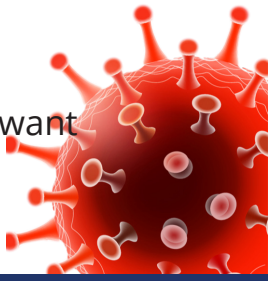
Adam Pick: So, this is right as COVID-19 is really starting to spread on the East Coast. Can you talk about the timeline of that meeting with your cardiologist to when you started seeing Dr. Roselli?

John Roland: I actually didn't see Dr. Roselli until a couple days before the surgery. It was awful because I was waiting every day for – to get a call to see if they were going to cancel surgery because of COVID. It just kept going, and I would call once in a while and they said no, because everything's still on because it's not elective.

Adam Pick: Do you remember the day that your surgery was scheduled for?

John Roland: Well, the funny thing is it was scheduled for April 8th. We go to Florida for the winter, so my wife and I fly back and forth. I'd just come back from New Jersey and I got a call from Dr. Roselli's office that they had an early opening for March 24th, so I jumped on it. I didn't even go back to Florida. That was on March 18th.

Adam Pick: So, in the timeline of COVID here in the United States, this is potentially one of the most confusing times. Can you talk – why didn't you want



to wait to have this done?

John Roland: Well, health-wise, I was in a relatively good position for the surgery even though I was having the fatigue. It was just if I waited for the virus to pass, maybe it wouldn't pass. I just didn't want to wait, and I just felt it was better to deal with the known than the unknown, so I chose just to move forward.

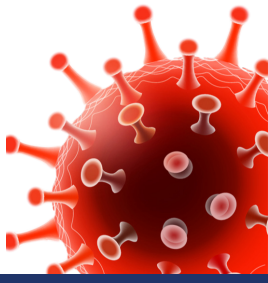
Adam Pick: Were you concerned about getting infected with COVID-19 when you went to the Cleveland Clinic?

John Roland: The funny thing is that when we left New Jersey, I looked to the right and I could see New York City, the skyline. Between New York and New Jersey, it was – we were the hotbed, the start of the hotbed. I was glad to get out and head west. But once we got to Cleveland, they were starting to ramp up a bunch of people getting sick, so we were really at the edge. When we came to the hospital to meet everyone, you have to have the heart catheterization first. They were just so positive about everything They just said, you're okay. Just use the universal precautions, be careful, social distance, and we'll move forward. We're not stopping this.

Adam Pick: Can you tell us about your surgical outcome at the Cleveland Clinic?

John Roland: I'm five months post-op and you would never know I had heart surgery. Still, some of the people I know don't have any idea I had surgery. I'm just out there riding a bike, working out, going to work part-time, and enjoying life.

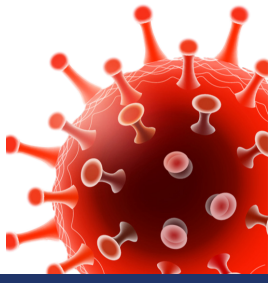
Adam Pick: I got to tell you, it never gets old hearing patients' success stories



from our community. John, I am so thrilled to hear about your specific patient success story during COVID.

John and I have a special connection in that his surgeon, Dr. Eric Roselli, has been a friend of mine for over 30 years. John, I heard from Dr. Roselli this morning. He was going to try and get on the webinar, and Dr. Roselli, if you are on the webinar, thanks to you and your team for taking such great care of John. John, thanks for being with us today. We really appreciate it.

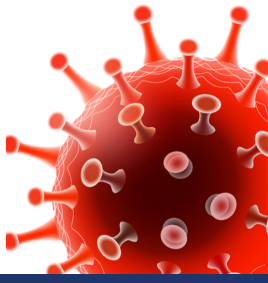
John Roland: Thank you for having me, Adam, and I just hope everyone out there doesn't wait. Move forward with your surgery. The waiting is the worst.



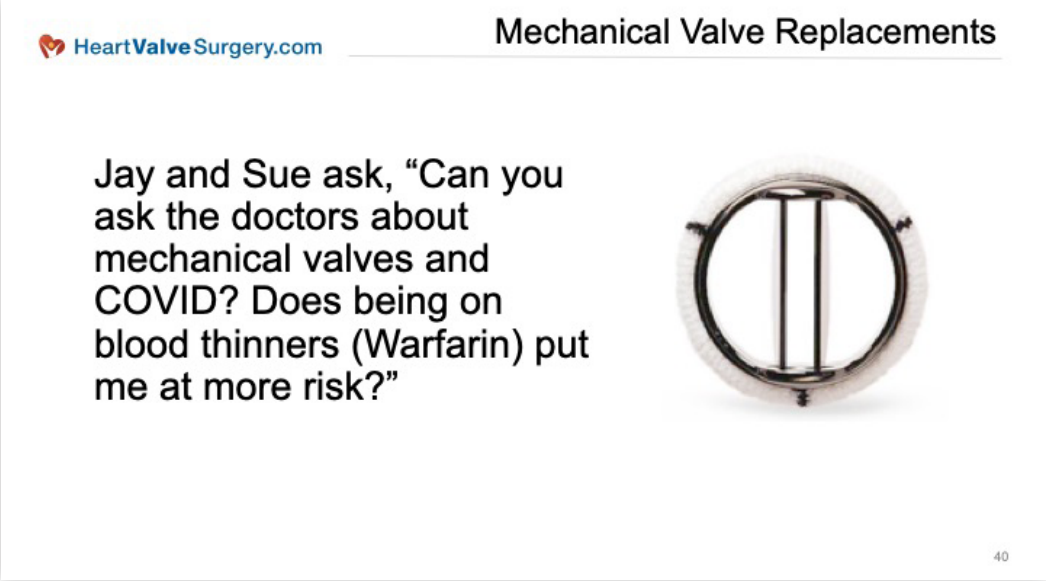
Questions & Answers

Adam Pick: We have received many questions from the patients on this webinar. Thank you! We are going to get to them and move as fast as we can here in the remaining time that we have left.

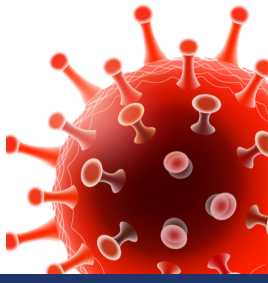
Dr. Chikwe and Dr. Burkle, this is going to be on the fly, so I'm going to go ahead and pose a question. When you want to jump in and answer or do a follow-up, please do. Here's the first question, and it's all about mechanical valve replacements.



Adam Pick: Jay and Sue ask a very similar question. The question is, “Can you ask the doctors about mechanical valves and COVID? Does being on blood thinners (e.g. Warfarin or Coumadin) put me at more risk?



Dr. Jaime Burkle: The answer is no. There’s no evidence that being on a blood thinner will actually put you at greater risk of either contacting COVID or having complications from COVID infection.

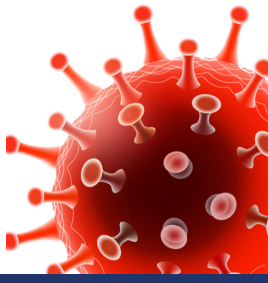


Adam Pick: Dr. Chikwe, is there anything that you want to add to that in terms of blood thinners potentially being used for blood clots with COVID? I've heard some rumblings about that. Is that anywhere true or not?

Dr. Joanna Chikwe: Yeah, that's a really great observation. I think one thing we've learned in the months that we've been treating COVID is the need to be much more aggressive using blood thinners in patients that come into the hospital because if we don't, they get clots in the strangest and most unusual places.

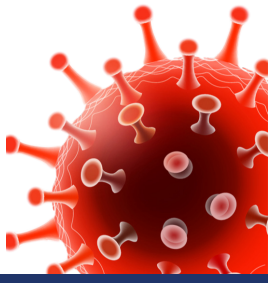
Adam Pick: Thanks. We can move onto a very interesting question from Tina about accelerated hospital stays. Tina asks, "Is COVID-19 forcing doctors to get patients in and out of the hospital faster to avoid potential issues? I just read that a patient had a mitral valve repair performed and was released the next day. Is that safe?"

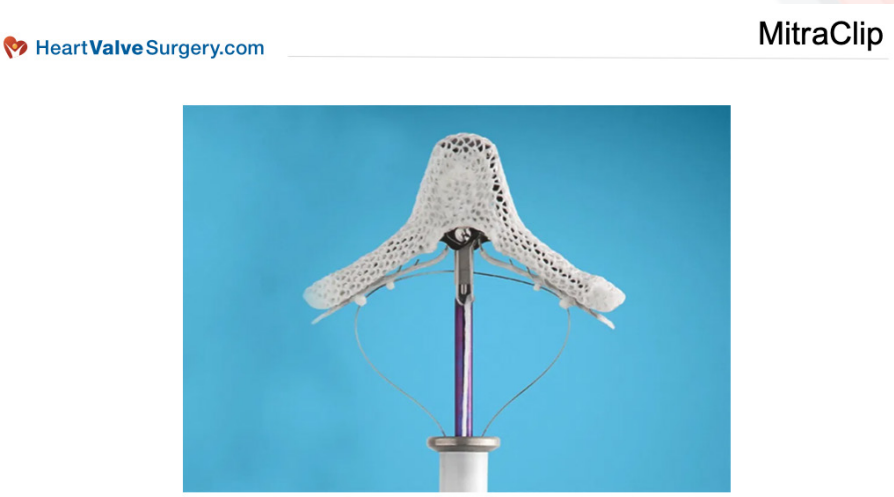
Dr. Joanna Chikwe: I think that mitral valve repair might've been a MitraClip and getting home within a day would be completely within normal expectations. It certainly would be for us, maybe three or four days after mitral valve surgery.



I think that COVID's actually doing the complete opposite of forcing us to get patients in and out of the hospital faster because one of my take-homes from essentially really reading the news – this wasn't in scientific journals – was just being really shocked by the amount of COVID in residential care facilities that we would normally use to help patients rehabilitate.

I've told every single patient that would otherwise be a candidate to go to rehab after surgery that you're going to have to spend maybe an extra day or two or three or a week in the hospital so that we can get you home safely rather than assuming that you'll go to a rehab center to convalesce. If anything, I think we're keeping patients in slightly longer just to make sure that they're really bomb-proof when they go home.

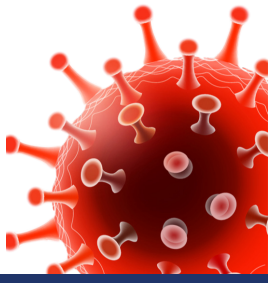




Adam Pick: A quick follow-up. For patients who may not know what the MitraClip is, can you briefly explain why that may have been such a quick procedure in terms of mitral valve repair?

Dr. Joanna Chikwe: Absolutely. I think that one's worth a one-hour webinar on its own.

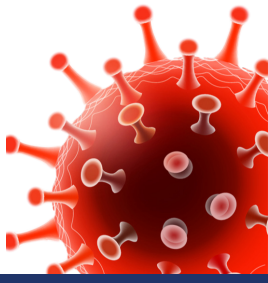
As those of you that have had mitral valve surgery know, you can repair the valve where you get to keep your own heart tissue. You can also replace the mitral valve where we put in an artificial valve replacement. For those of you with floppy mitral valves, really you want to go somewhere where you're going to get a 99, 100% chance of getting a great repair. Repair can be done really, really safely, and we know when it's done well. It should last you a lifetime.



For those patients who are really too frail to get through surgery safely, MitraClip is actually a great option. A MitraClip involves having a catheter in your groin, a little bit like when you had your coronary angiogram before surgery. Essentially the cardiologist or surgeon is just trying to clip your mitral valve leaflets together as the heart beats to try and reduce the amount of regurgitation. It's been used really successfully as opposed to medicine for treating mitral regurgitation that's due to heart failure.

What we're about to see new exciting trials and research on how the MitraClip compares to mitral valve repair done surgically for floppy mitral valves. My money, I have to say, is if you're a young, fit patient or even an older fit patient, surgery is still going to be the gold standard.

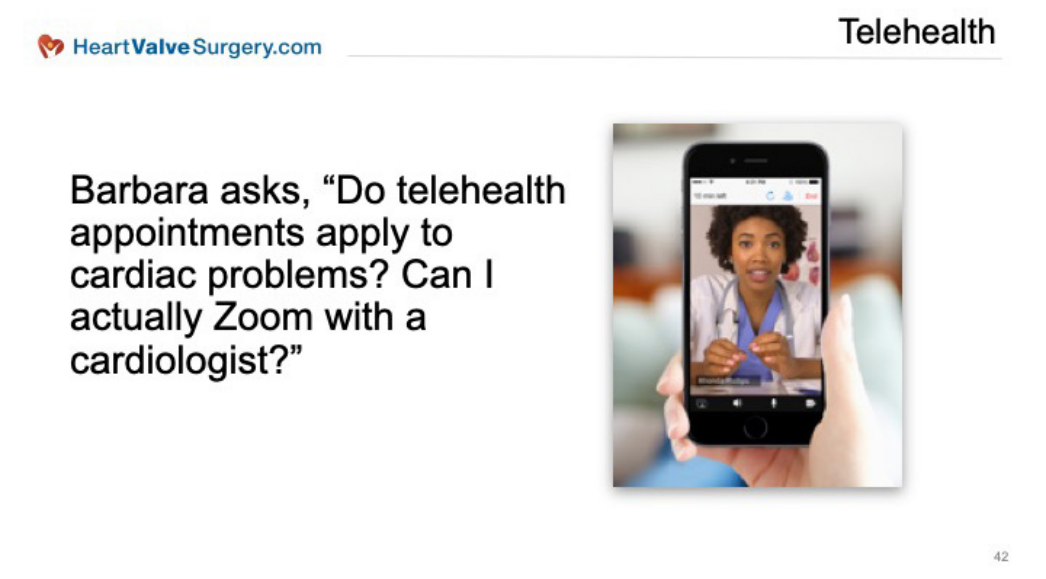
Adam Pick: For Dr. Burkle, these new transcatheter technologies are obviously getting patients in and out of the hospital faster. There's no incision to the chest or ribs. Are you doing a lot of the transcatheter work during COVID, Dr. Burkle, at Piedmont Heart in Atlanta?



Dr. Jaime Burkle: Yes, we are, and basically it has become our preferred method for replacing the aortic valves. Very seldom we're doing aortic valve replacement with open heart surgery anymore.

We're doing mostly through TAVR and same thing, we have a very active valvular program now with Dr. Thourani and Dr. Yadav that have joined us and the staff, along with Dr. Rajagopal and Dr. Meduri.

We have basically four full-time interventional cardiologists that work on structural heart disease cases. They're working very hard at getting this minimally invasive procedures to help our patients with valvular disease.

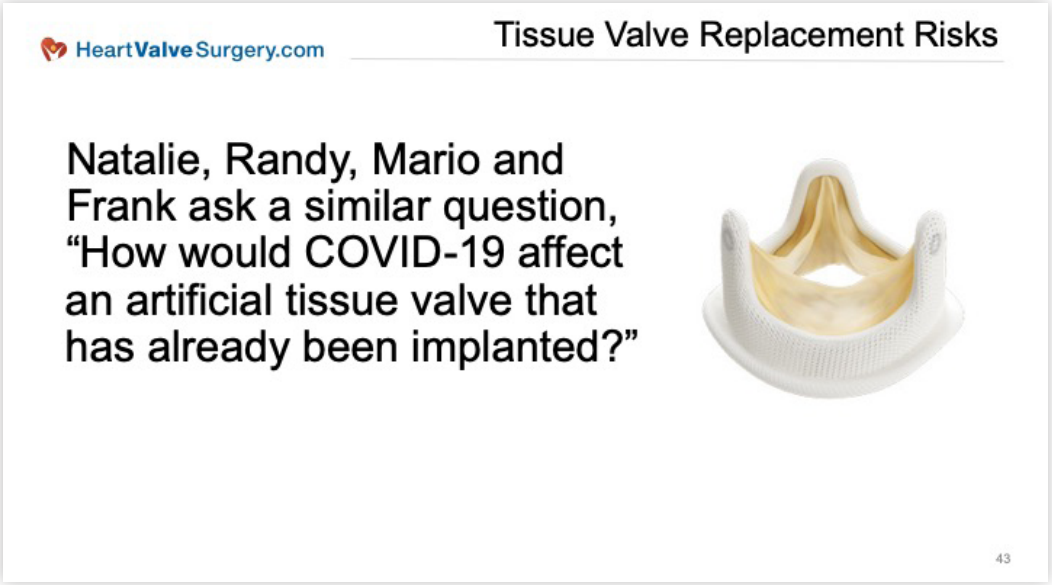


Adam Pick: A questoin from Barbara, "Do telehealth appointments apply to cardiac problems? Can I actually Zoom with a cardiologist?"

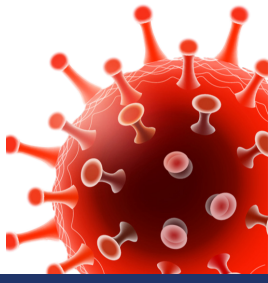
Dr. Joanna Chikwe: Yeah, you can Zoom with a cardiologist; you can Zoom with a cardiac surgeon essentially. I would say right now, two-thirds of my outpatient visits, pre- and post-op, they're done virtually.

If patients prefer it, and a lot of them do, it saves travel time and it saves a visit to an institution which you might be nervous about and you can get so much done, including all of those questions that you may want to get an answer to early. It's just much lower stakes, much more convenient way of essentially getting great care.

Dr. Jaime Burkle: I agree with that. About 30% of my visits are telemed.



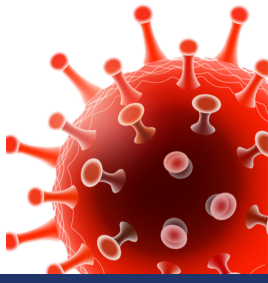
Adam Pick: I know you talked about it a little earlier, Dr. Burkle, but if you could please answer this question. "How would COVID-19 affect an artificial tissue valve that has already been implanted?"



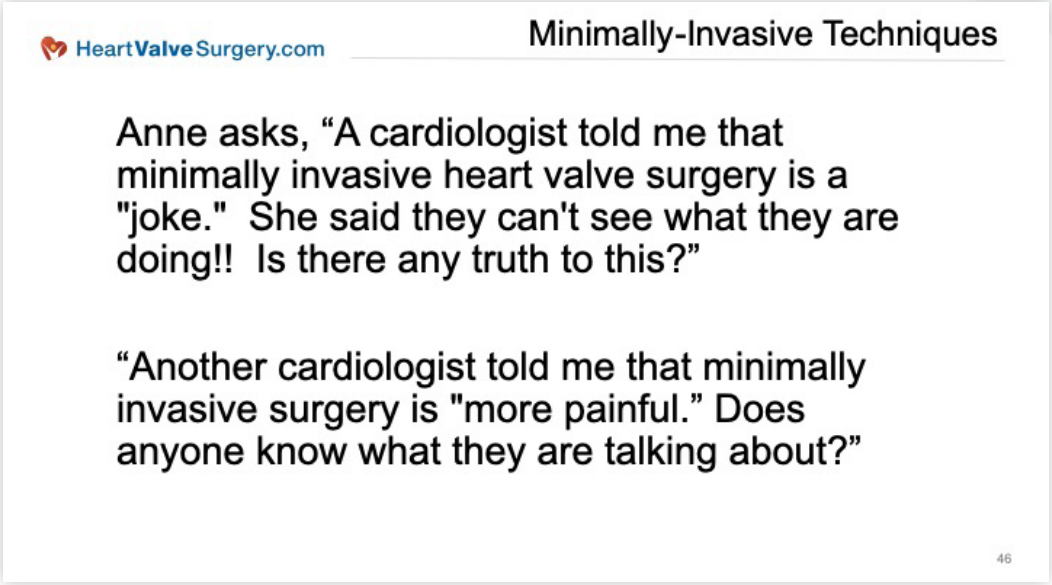
Dr. Jaime Burkle: There's no evidence that the virus will affect the prosthetic heart valves, per se. The virus can cause many systemic effects on blood pressure, hypercoagulability, and make you prone to blood clots, blood clots to the lungs and things like that. There's no evidence that the virus will attack or will cause damage directly to a prosthetic heart valve.

Adam Pick: Is COVID-19 having an impact on clinical trials?

Dr. Joanna Chikwe: Initially, it's had a major impact on clinical trials for a couple of reasons. One reason is because the focus has been to actually start clinical trials to solve COVID. So that's diverted a lot of attention, energy, and resources specifically to that and a little bit away from the regular cardiovascular trials.

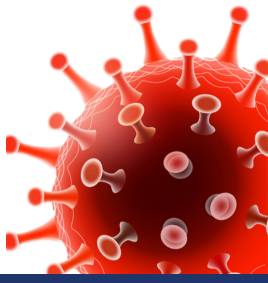


The second piece of the jigsaw is that clinical trials depend on patients coming to the hospital for their regular procedures. While that's been a little bit down, that certainly reduced the number of patients enrolling in trials and their ability to perverse.



Adam Pick: Anne asks, "A cardiologist told me that minimally invasive heart surgery is a "joke." She said they can't see what they are doing! Is there any truth to this?" That's the first question. Then she goes on to say, "Another cardiologist told me that minimally invasive surgery is more painful. Does anyone know what they are talking about?"

Dr. Joanna Chikwe: That's an absolutely great question and speaking as a surgeon that used to get invited to speak at meetings in support of you've got to have a regular sternotomy and minimally invasive surgery is not always the way to go,

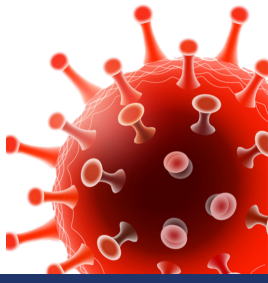


and coming to see it as where – as you know, Adam, from personal experience we've just got such a remarkable team. I've moved from a complete sternotomy platform to the robot for mitrals. I've always, always done the kind of surgery my patients that I would want for myself, which is a smaller of an incision that I could safely and reasonably do without compromising the quality or the safety or the long-term value of the surgery. I think the cardiologist in that quite clearly had a bad experience, but it's like anything.

You can say cars are rubbish. You can pick a bad car or you can drive a Bentley. You choose a surgeon and people listening on this call thought very carefully about their surgeon and very carefully about the hospital, and that's how you make the right choice for you as a patient.

In terms of minimally invasive surgery hurting, that's – I would say small incisions through the sternum, absolutely no different, probably less painful. It's a little different when you go through the ribs because your ribs have nerves and they tend to be a little bit sore. More patients than I expect say it's less sore than I thought when I do it through the middle. When you do it through the side, they tend to say that was a little bit more sore than I expected. One thing that we do at Cedars for those patients where we're doing side surgery and going between the ribs is we freeze the intercostals and that should give you a pain-free incision for up to two months after surgery.

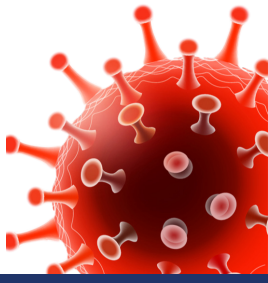
The point though – and this goes back to the MitraClip and back to structural heart. Although it's nice to be out of hospital in a day and be running around, it's not just about how you did today and next week. Your valve is a lifetime and how you treat your valve dictates whether you're alive and well and feeling that good not just today and in a week but five and ten years down the line. It's really about making intelligent choices about which procedure you have and which surgeon or interventional cardiologist you choose to go to.



Adam Pick: Wonderful advice Dr. Chikwe. With that response, we're running out of time, but please, please don't exit the webinar just yet.

On behalf of the entire community at HeartValveSurgery.com and all the patients with valve disease, I'd like to extend an extraordinary thank-you to Dr. Burkle, Dr. Chikwe, and John Roland for joining us today. I'd also like to thank Medtronic and Abbot for co-sponsoring this very special and important event.

As we end the webinar, I'd like to thank, of course, YOU, all the attendees for your participation in this community event. Thank you, take care and stay safe.



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Since 2006, HeartValveSurgery.com has developed several resources to help you better understand your diagnosis, your treatment options and your recovery.

Listed below, please find resources created exclusively for patients and caregivers. We hope they educate and empower you.

- Free Patient eBooks - Download 9 free eBooks about heart valve dis-ease and treatment options for aortic, mitral, pulmonary and tricuspid valves.
- Heart Valve Learning Center - Visit the Heart Valve Learning Center to access over 1,000 pages of educational information about valvular disorders.
- Patient Community - Meet people just like you in our patient community. There's nothing better than connecting and learning from patients who are sharing their stories in our community.
- Surgeon Finder - Find and research patient-recommended heart surgeons that specialize in heart valve repair and heart valve replacement procedures.
- Heart Hospitals - Learn about medical centers that have dedicated teams and resources that specialize in heart valve therapy.
- Adam's Heart Valve Blog - Get the latest medical news and patient updates from our award-winning blog.
- Educational Videos - Watch over 100 educational videos filmed by the HeartValveSurgery.com film crew about heart valve surgery.