[BEEPING]

That's all I did. [INAUDIBLE]

Southside, westside, [INAUDIBLE] you want. Room with a view.

Oh, my god. It's so good.

[INDISTINCT CHATTER]

[BEEPING]

Oh, come on. [INAUDIBLE]

So--

From the membrane, which is the oxygenator, you'll be able to have little tidbits of visualization here. You can even see their blood levels here. So if they are actively bleeding, you'll see that tick down.

So right here, the hoses introduce the water into the system. It doesn't touch the blood, but it surrounds it through all the membrane fibers in there. So you're able to cool or heat the patient just through here. And as you can tell-- I mean, I'm pretty sure-- those are large hoses, so you can heat or cool them quite quickly sometimes.

And then, furthermore, you have your oxygen. Here's where it enters through to the QUADROX oxygenator, which is this big, red thing here. And this is the actual therapy of ECMO right here. And that is that you can oxygenate through all these thousands of thousands of fibers that you see here in the back, right here.

So through these fibers, you'll see the blood exiting here. That's oxygenated, so it will be nice, bright, and red exiting here. We're able to sample it before it enters the oxygenator and outside of it. These couplings here allow us to-- one is the flow meter and the other is the bubble detector. I'm sure you can note that any type of oxygen in the blood that's not oxygenated blood, bubbles would be detrimental. If it enters the venous system, it goes into your lungs, otherwise your heart into your brain. So it's imperative that we are always on top of that. Then you have-- we just do other monitoring here in this housing over here.

And then, furthermore, you have your oxygen. Here's where it enters through to the QUADROX oxygenator, which is this big, red thing here. And this is the actual therapy of ECMO right here. And that is that you can oxygenate through all these thousands of thousands of fibers that you see here in the back. Right here.

So through these fibers, you'll see the blood exiting here. That's oxygenated, so it will be nice, bright and red exiting here. We're able to sample it before it enters the oxygenator and outside of it. These couplings here allow us to-- one is the flow meter and the other is the bubble detector. I'm sure you can know that any type of oxygen in the blood that's not oxygenated blood, bubbles and would be detrimental. If it enters the venous system, it goes into your lungs, otherwise your heart into your brain. So it's imperative that we are always on top of that.

We prepare these circuits by introducing saline into the system. These circuits in itself, we use one individually per patient, obviously. As we run the fluid in, there is a venous side, or a deoxygenated side, of the cannulas always. We use the negative pressure to pull into the system and to cross the oxygenator. It's all run by magnets on the inside. It levitates, and it turns the blood essentially.

That negative pressure then pulls through the oxygenator. And these QUADROX fibers that it's called introduce oxygen, which we have here coming into the circuit. At that point the oxygen meets the membrane. And similar to your lungs, it oxygenates them. Then it pushes them out. And depending on the way that we place the cannulas into the body, we can provide either the lung support or the heart support.

In COVID, traditionally, we use a big cannula that we place into the neck. And it's a directional flow, so through the top and the bottom, we pull the blood. And we deliver it straight to the heart, that first part of the heart, that right side. So then it's pulled into the lungs, and it's then passed through the heart, into the body-- lungs and body, there.

And the surgeon is the one that places this cannula since it's obviously a very large cannula. And the therapy that we provide is dependent on this being placed just right so that we can pull from the top and the bottom of the vena cava, the superior and inferior vena cava, and deliver into the tricuspid valve into the right atrium.

So as the blood pulls this way, and it returns this way, you can see the two colors on this cannula. And it's really neat because, I mean, even the length of this introducer is-- it's quite significant. So it takes a specialized surgeon that's familiar in this. And even as much as it twisting a little bit can change the delivery of your oxygen.

This oxygen mixer-- blender, we say-- we can adjust your liters per minute here and how much concentration of oxygen just by a turn of the dial.

[BEEPING]

And this is our oxygen monitor, so we always want to ensure that we are delivering what we're asking of it. So that alarmed a little bit because I had adjusted it. And our lower limit is 91%.

It's housed inside of the pump. And here's where the magnet-- where the magnet set up against other magnet is levitating it. The blood is pulled in to one side in the other via the water cooler heater. We can actually control the temperature of the patient, so we can cool them or heat them depending on our goal and their temperature management is. And it exits this route and essentially provides the support in the matter that you need it to. So we can adjust the level of oxygen that we're inflowing to meet the patient's needs.

So that adjusts the revolutions per minute, the RPMs, and then it adjusts your velocity or your flow, which is what the little V on the right says is that you're running 4 liters and 1/2 per minute. So I can better show you. All right, so where's my cannula here?

When we're cannulated, these lines are actually put in line with this. Red to red. Blue to blue. So from there, we pull the deoxygenated blood from the top, the superior vena cava, [INAUDIBLE] cava in this dual lumen cannula. It enters the blue side here. And it comes in where we then introduce it, it meets the oxygenator.

The oxygenator through its fibers allows oxygen to exchange. And then it exits it through the back end here, where it then is brought up through the red line here, back into this other side of the cannula, and exits straight-- ejected straight into the heart. And you can see the outlet right here. So that--

[INAUDIBLE]

Right here.

Say that, please.

So the blood exits through the cannula right here via this outlet in this crescent cannula. So that in itself-- so here's the heart, and then it's introduced into the lungs pre-oxygenated. And this is directional flow, so it's imperative that this is correctly placed.

Say, for example, this is our patient. You're hooked up with a cannula, arterial, and like your venous-venous for pulmonary or venous-arterial for the heart. So what you're doing is you're pulling and oxygenating. So that means on the right side of-- in the venous system, you're able to pull it via the venous cannula here, and return it, oxygenated, into another venous cannula. So then, essentially, it preoxygenates the blood before it even enters the pulmonary system.