



American Society of
Anesthesiologists™

Central Line
Episode Number 11
Episode Title – COVID-19 Town Hall 4/16/20
Recorded April 2020

(SOUNDBITE OF MUSIC)

VOICE OVER:

Welcome to ASA's Central Line, the official podcast series of the American Society of Anesthesiologists, edited by Dr. Adam Striker. Slides for individual presentations and a video recording are available at asahq.org/covid19info. The anesthesia machines as ICU ventilators hotline is 1-800-224-1001. Other resources mentioned can be found at asahq.org/ventilators, asahq.org/caesar and asahq.org/hotel-discounts.

DR. ADAM STRIKER, HOST:

Welcome to another episode of Central Line. I'm Adam Striker. Today we're sharing more information from ASA's most recent COVID-19 Town Hall, bringing you up-to-date information from our experts in the field. Here's what they said:

DR. MARY DALE PETERSON:

Good evening everyone. As in all of our Town Halls, I welcome our fellow anesthesiologists, members of the anesthesia care team, anesthesiologist assistants nurse anesthetists, and anesthesia techs and the administrators and executives. And we also welcome and value our relationship with attendees from across a number specialties and other organizations that continue to work with us to save lives and give hope to our patients, their family and friends.

A lot has happened since the last time we met on April the 2nd. It's hard to believe, but it was just two weeks ago. We were talking about the New York surge and identifying several resources on the ASA website to help you convert anesthesia machines to ventilators and give you the resources to brush up on clinical care through our Caesar education materials. For converting ventilators, with quick references and resources go to www.asahq.org/ventilators. For resources, education and training on managing COVID-19 patients in a critical care setting, please visit www.asa.org/caesar.

It's not everyday that you purpose your anesthesia machine as an ICU ventilator for sometimes many weeks. So ASA, uh, physicians and staff have established a hotline for you to contact with your questions. This is in addition to the online resources already available. Um, we also have offered this to members of the Chest and ATS Societies. Uh, to increase the availability of ventilators to support COVID-19 patients in the ICU, the hotline will provide guidance for using anesthesia machines in the ICU settings and agents will be available 24/7 to provide web-based resources and our physician experts are also available for, uh, daily consultations from 6 a.m. to 10 p.m. Eastern time. I want to really thank our, all of our physician volunteers for volunteering and staffing the hotline, including especially, those from the Committee on Critical Care Medicine and the Committee on Equipment and Facilities.

The COVID-19 pandemic has also created a demand for qualified healthcare workers to help with the influx of patients in some of the hard-hit areas. To help with these requests that we're getting from members, ASA is partnering with the American College of Chest Physicians, um, and ATS and PA Consulting on a national-level clearing house of qualified volunteers who can be matched to institutions in need. That was launched last week, um, in supporting New York City. ASA will be joining immediately, and the site will be adding geographic regions beyond New York City if there is a need for supporting those regions.

Last week, we also had many members asking us about recent actions by Hilton and American Express and several other hotel chains about hotel rooms for frontline workers. Although it was rolled out initially to members of just ten medical societies, we were able to use our relationships and good will, uh, with those hotel chains to include ASA members in that opportunity.

Um, I understand the concerns that some of you have about needing to have a hotel close by to work, to rest as well as maybe our concerns about bringing COVID home. So we are grateful to American Express and the hotels, and, and, provide, uh, happy to let you know that we can help you with that service. And so you can visit our website www.asahq.org/hotel-discounts for more details to take advantage of those offers.

Two weeks ago in our Town Hall we also talked about the economic relief packages. It's, it's is a complex and an important discussion. Um, since then we have learned that several anesthesia practices have received some relief from the CARES funding, um, and many more have applied for support. We know that some checks went out last Friday. We're still very concerned, however, with the economic viability of our practices

wherever they may be, whatever type of practice, and whatever their size, and ASA is committed to supporting you at every step of the way. Money from loans for the Small Business Administration also began to flow last week. Of course, we know that some of that money has been depleted. I would expect the administration is going to have to refill those coffers for all of those that are in queue.

This is a good step, but it still won't be enough. On Sunday, I sent a series of recommendations to the Secretary of Health and Human Services, Alex Azar, on what our practices and our physicians on the front lines need and deserve. Um, we will continue to work with the Administration and Congress ensure that money continues to be available for our practices. We are asking for additional funding. Um, please read the letter and our recommendations on the ASA website and our COVID-19 information section under Late Breaking Developments.

Our advocacy team has been hard at work advocating also in front of the FDA on the drug shortages issue that I know we're facing in our operating rooms and ICUs. Um, we have been in constant communication with the FDA and the DEA and the Agency agreed to increase the 2020 aggregate production quota by 15% for certain opioids. So when the DEA basically allows those allocations to go to the manufacturer so they can produce more, and that hopefully will help us with some of the shortages that we're seeing of drugs like fentanyl.

We've also asked the FDA to work with the manufacturers to extend expiration dates on some of the critical drugs that were seeing in shortage. We're also concerned about wasting of drugs and ASA is partnering with the American Society of Health-System Pharmacists on a statement to provide some guidance related to unopened, unused vials from COVID-positive patient rooms. Um, anesthetic sedatives and neuromuscular blockers are in critical short supply, and should not be wasted unless absolutely necessary. This statement will hopefully provide some strategies for facilities to ensure, uh, that drugs are handled appropriately and not discarded. We expect the statement to recommend segregating and disinfecting the medication vials.

I'm happy to say that we have opened up our Certified Anesthesiologist Assistant version of ACE, and all five of our anesthesia Sim, Sim-STAT modules for free to be used by the Anesthesiology Assistant students who are members of ASA. Um, you'll have free access to that through June 30th. And if you want more information, please connect with Sarah Braun of, of ASA.

Um, I also want to provide a quick reminder that, uh, resident members of ASA also have access to a wide range of free educational con, content available in our Education Center.

All these things that I mentioned, whether it's the website with the COVID-19 recommendations, our FAQs that are constantly being updated, the hotline advocating for you as frontline physicians to partake in the hotel room offer, to our education resources, advocacy in Washington, as well as at the White House, and finally these Town Halls where we have the opportunity to talk with one another by chatting in the chat-box and we can touch base with each other. I just want you to realize, this is your membership, your society, your profession and who we are. I'm really proud to be your President during these difficult times and in working each day with, and for you.

At our Town Hall a couple of weeks ago, I asked you to send me, or send us, though your COVID, how COVID-19 has changed your daily life and practice. It's important that we show each other, our patients, our colleagues and our country what we do and how we uniquely do it. Personal profiles and shared stories help bring the reality of what we're facing and what we're managing to the forefront. So please, consider sharing your stories at www.asahq.org/covidstories. I really want this to be like a story core that we can file with the Wood Library Museum working in unique times and I know there's a lot of great storytellers and writers out there. So please, I think it's also a good therapy for you to, to journal a little bit and share that with us, so I encourage you to do that.

I now have the pleasure of introducing our speakers for tonight. Tonight our topics reflect the questions that you have submitted and the nuances and best practices of care we deliver each day to our, our patients.

Our first speaker is Dr. Mark Caridi-Scheible, a Cardiothoracic Anesthesiologist at Emory University School of Medicine, and Mark will be discussing ventilation management in the ICU, including respiratory failure in a discussion of prone positioning.

Our second speaker is Dr. Justin Tawil, a member of the ASA Committee on Critical Care Medicine and Anesthesiologist who specializes in critical care medicine at Froedtert Hospital at the Medical College of Wisconsin. Justin'll be speaking about hyper coagulation among the COVID-19 patient population.

After that will transition to obstetric care with Dr. Hally, um, Cally Hoyt, um, who is the Chair of the ASA Committee on Obstetrics Anesthesia and practices at the Cleveland

Clinic. She's also the past President of the Society, uh, for Obstetric Anesthesia and Perinatology and continues to maintain her leadership positions at both SOAP and ASA.

So, now, um, Mark, would you like to carry on here with your presentation?

DR. MARK CARIDI-SCHEIBLE:

Thank you. Hello everybody. Thank you for having me. Um, I am Mark Caridi-Scheible. I am, uh, an intensivist and a Cardiothoracic Anesthesiologist at Emory, uh, University Hospital in Atlanta. I am also a team member and one of the leaders of the Best Practices Committee for the Emory system. Um, today I'm going to talk to you about uh, ventilation and oxygenation strategies in COVID. I'm just going to be talking about intubated patients. Um, I'd say there's a lot to be said about oxygenation strategies before intubation, as well as the timing of intubation, but that's a little beyond the scope of a 15 minute talk.

Uh, so, yeah, just a quick review of the disease as we've kind of observed it. Um, I would say it's a fast moving disease. Um, it has these slow, extended plateaus, but these rapid unpredictable transitions like that can occur over hours. Um, we've divided it into a number of phases, including the, the viral projump pre-admission, the silent hypoxic phase, generally in the 2-8 meter range of oxygen support, a kind of struggling phase, generally, this is when we see them in the ICU, where they're increase, increasingly to tachypnic and subjectively short of breath, uh, and then, uh, outright respiratory failure, um, requiring greater than 15 liters flow, and this is generally the point where we're considering, uh, high, heated high-flow nasal cannula or intubation. And then lastly there's a various kind of, uh, pathways from there, um, generally we see kind of a slow progression, um, towards recovery, uh, but less frequently, a rapid uh, um, decompensation, multi-organ system failure, and death.

The disease itself is kind of hall, hallmarked by this, uh, uh, profound encephalopathy, um, an atypical hypoxic failure, um, that we'll discuss a bit, acute mild acute hepatic insufficiency, uh, very common AKI, hypercoagulability, um, which we'll talk about later and, uh, difficult occult secretions. Um, there's also this kind of emphasis on sudden death in this hyper inflammatory phase, um, which we're not, not really going to talk too much about today.

Um, I'm so my experiences really stem from, um, two units within a single Hospital in our system, um, reflects kind of experience with about sixty patients, um, about 90%, 90-95% of which required intubation. Um, we've had about a 20% mortality, uh, for these two particular units, but, you know, not a hard number, and unfortunately are

seeing, uh, an increase in mortality for variety of reasons. Um, and I would just kind of stress that a good supportive care, um, is really the only, uh, known, effective therapy at this time, although we've certainly been trialling a lot of the, um, alternative therapies.

Uh, so, you know, when we first started I think our inclination was to treat this like an ARDS, the same way we treat any, uh, ARDS, uh, with a high PEEP, uh, ladder, paralysis, proning ... you know, gen, general ... high with strategies like APRV, or inverse ratio ventilation, um, and uh, low tidal volumes. Um, but we noticed a lot of deviations from a kind of our standard paradigm. Uh, the compliance, uh, noticeably, was usually quite preserved. Not always, but generally it was.

And we were seeing a lot of evidence of over-distention including, uh, compliance worsening as, uh, PEEP was pushed higher, uh, towards the end of their vital capacity. Uh, we saw several pneumothoraces and, uh, lastly, uh, hemodynamic instability, uh, that we don't usually see when our compliance is really low. Uh, we have had a lot of uh, pronounced dyssynchrony and which has been difficult to manage, uh, and um, in general, highly variable response to proning, PEEP paralysis and the inhale dilators that we usually use.

Um, so, I'm not going to delve too much into a kind of the emergence science of this but, um, I would say these two sources are, uh, really, relatively good place to start for, for a lot of when I'll be talking about. I'm just going to give the highlights. There are within these things some conflicting recommendations that I'm, I'm not quite sure are, are gonna to pan out, but it's a good place to start to, towards understanding the pathophysiology.

Um, so in general, in these, are, those articles and sources we'll discuss, is that we're is the emergence of two general phenotypes. One is the, uh, by and large what we're seeing is this normal compliance, and the Gattinoni describes this as the Type L for low elastance, uh, we call high compliance. It's characterized by V/Q mismatch likely secondary to dysregulated hypoxic vasoconstriction, um, a relatively low, pulmonary artery pressures, a low lung weight, and low recruitability, e non-responsiveness to PEEP. And then, uh, the second is a low compliance which is more your typical ADR, ARDES picture, uh, Gattinoni refers to this is the Type H. Difficulty in oxygenation is generally due to shunt through non-aerated, uh, areas of consolidated lung. Um, you're, you're also seeing generally, an increase ..., increased lung weight and high recruitability.

Um, this is just kind of some pictorial representation of what we think some of this was looking like. Uh, on the left is, uh, a more typical ARDS picture, uh, supine and proned.

The idea being that you have these areas of consolidation that can be redistributed with proning. Where as, in the, the more typical COVID lung, that doesn't have the ARDS phenotype, uh, you see a much more distributed picture that probably is not going to be, uh, that amenable to redistribution, uh, by position change. So the ARDS phenotype is actually relatively easy to, to talk about. Um, we do the things we usually do. Um, if you see low compliance, you do your usual AD, ARDS management. Um, I'm not going to go too far into, um, just except to say, you know, it's our normal PEEP ladder, um, low tidal volumes and the lung protective ventilation we usually seek in ARDS. Uh, the one thing I would say is at least at the moment, we are kind of recommending avoidance of Meduri steroids, um, at least as long as you're able to, but increasingly it looks like that may be at least as, as the disease progresses, might be indicated.

Uh, so now, what, what, I'll talk mostly about is this is high compliance, uh, phenotype. Um, so this is characterized, you know, obviously, by normal compliance, in in which case we kind of recommend, uh, minimizing the PEEP, they will respond to some recruitment maneuvers but you generally don't, uh, need to maintain a high PEEP to maintain that. Uh, and generally, what they need is oxygen and, uh, us trying to increase their FIO2 first to you may kind of consid, you know, there's, there's various ways of kind of achieving this. If, if you're have the capability, uh, to calculate somebody's optimal PEEP methods, if not, you know, uh, and if you need to be more protocol driven, you can just use the low PEEP ladder. And in this case, uh, you know, the, uh, allowing normal tidal volumes keeping in mind, uh, P-SILI, which we'll talk about in a second.

Inhaled pulmonary vasodilators, getting back to the, uh, mismatch, uh due to hypoxic vasoconstriction, reflex loss. Um, uh, so they may be more effective in this group and so, uh, we've been trying them. Uh, the, the caveat being up that a lot of these drugs are in shortage, um, so, um, we, we have actually been trying them, um, last. Proning may not be as effective in this group. But I think most centers are, are still continuing to trial it to see if it does improve first. Uh, but again, given the number of people looking at, at, it can take to safely do, and then the amount of PPE is that is often required, uh again, we've been delaying this, um, unless we really need to. Paralysis in these people, again, because it's not a compliance issue, does not seem to be as beneficial. However, we have been using it quite a bit to get control of the dyssynchrony. There is no role for steroids, uh, at this time, uh, in these patients, and um, I'll talk a little bit about the mode of, of ventilation that, that we think is more effective but it does require a little bit of context. Uh, in, the, what I would say is dyssynchrony, as I said before, is it's pretty noticeable and profound. It's mult, multifactorial. Um, there is an encephalopathy that goes with this you see, like, in enormous sedation requirements in some of these patients.

Um, there's a lot of air hunger likely due to, just the inflame, inflammation. Um, there's a, a coughing and tenacious secretions. And then, finally just picking the wrong mode for the patient's phenotype, which they may be struggling against. Some of the signs that you'll see, uh, with this dyssynchrony, is um, high PEEP pressures, um, belly breathing, uh, high negative pressures which are probably particularly harmful, agitation, sudden desaturations, coughing and tachypnea.

So, and generally, what the patients seem to be wanting and again, this is for the low, high compliance phenotype, is um, uh, high flow rates and short I time. Um, they want variable tidal volumes. They want high tidal volumes. Um, they're trying to mobilize a lot of mucus, a lot of them and, um, you know, for, whether it's because of acidosis or just C encephalopathy, they're wanting a high minute ventilation. You know, achieving synchrony is also complicated by this, um, P-SILI, which is patient self-induced ventilatory injury. Um, uh, high negative pressures that they can generate themselves can lead to pulmonary edema and additional (sic) trauma. Acidation and paralysis are, can be very difficult to achieve in these people and but we also need to be mindful of prolonged paralysis and over-sedation, and can lead to prolonged intubation and, uh, uh, deconditioning, in addition to confronting a lot of the drug shortages.

Um, and finally there's a, a limitation of some, um provider skill incumbent in matching and adjusting the vent and, and matching, um, uh the vent to the patient to synchronize. Um, especially, as we start to use a lot more providers who are not used to, um, working in the Intensive Care Unit.

So, kind of recommending then, a staged approach, um, and again this is in the, in the, uh, high compliance, um, uh, phenotype. Um, you know, for an acute, de, decompensation, just get control. Um, you know, we've been bolusing paralytic and then kind of redressing the overall strategy, once the patient is no longer hypoxic. For everybody, uh, it's, um, important to, uh, kind of stay on top of secretions and have a good plan for control. Uh, the vent mode itself, would again, it's going to vary on the patient, um, if they're not tolerating trying to pressure control ventilation where they can set their own flow rate, and vary the volume that they like. Allowing normal tidal volumes, not trying to force them into a 4, you know a 4 or a 5 ml per kg tidal volumes, avoiding fixed flow where they can generate a fairly negative pressures if they're trying to breathe at a higher flow rate than you're delivering. The pressure control volume ... may be more comfortable but they may also oscillate as the ventilator tries to guess what their what their ... needs to be. Um, and finally, adjusting their I time to match with what they want to breathe.

If they remain, uh, dyssynchronous, though, or if you're having high negative pressures, despite your changes or really high tidal volumes and some of them really have, um, you know, cautiously going up on their, um, level of sedation. Um, but if they're already as unresponsive, and this appears to be reflex driven, then I just considered bolusing the paralytic to get control. If you're having to do that multiple times, of course, it may just be better to paralyze them and keep them that way, but in the end you have to keep trying. So, um, keep trying to return them to normal settings. Keep trying to wean the sedation. Otherwise, you know, we'll never free them from the vents.

Non-vent considerations, uh, really, this is in any phenotype, whether ARDS or not, is that increasingly and, and, Justin I think we'll talk about this more, is appreciating the micro- and macro ASCI thrombi, so kind of for persistently having problems with hypoxia and hypercarbia, it, there may also be a, a role for addressing anticoagulation.

And finally, extubation. Uh, um, I would say, be careful with extubation. We have seen the encephalopathy long outlast the pulmonary mechanics and gas exchange resolution, and they get very deconditioned, especially in the elderly, um, and we are recommending extubating to heated high-flow nasal cannula or non-rebreather at least for a, a period of time to monitor them safely.

Um, so I would just say, you know, supportive care is our number one therapy again, and um, this is all unfamiliar territory for everybody. Be prepared for a lot of experimentation and discomfort, um, but it continues to be worth it. Um and we've treated a lot of patients, and thank you to Christina Criapoulos, my fellow, for a lot of these pictures. Thank you.

DR. MARY DALE PETERSON:

Thank you, Mark. Um, our next speaker is Dr. Justin Tawil. Justin?

DR. JUSTIN NADEEM-TAWIL:

Thank you, Mary Dale Peterson, my name is Justin Tawil, I'm a, a Critical Care Medical Cardiac Anesthesiologist in, um, Milwaukee. Uh, I'll be talking about anticoagulation monitoring. I don't have any conflicts of interest. Uh, my care and my team's care of these patients has been mostly limited to the ECMO population or our management. Uh, we'll be covering some of the specific hematology issues. I know that's what you guys are excited about on a Thursday night, uh, so I will keep it to the point. Uh, we will review some common anticoagulants, what people are seeing as uh, pitfalls with their

monitoring, and then talk about what treatment recommendations are out there, and then what we're doing.

Um, so, thrombin is activative, activates fibrinogen, it creates a fibrin mesh. That's how your coordination system works, that's how you start to really form that clot. And it's broken down by plasma into the D-dimer. There's a lot of talk out there right now about what to do with these elevated D-dimers, so I wanted to remind you guys of where that comes from which is primarily the breakdown of those uh, fibrin mesh. So, um, coronavirus coagulopathy is something that's out there right now, that people are talking about. There's descriptions of micro thrombi that were mentioned that the previous speaker and I we, we have seen this before with other, uh, similar viruses. We see that these particular coronaviruses have this really strong inflammatory response and they, uh, release what we talked about as the acute phase reactants, which the ones that are relevant to us with coagulation are really fibrinogen factory, and uh platelets. They, they are also associated with disseminated intravascular coagulation, which is really inappropriate clotting and then break down of that clot which chews up your fibrinogen, your platelets, releases large volumes of the D-dimer and elevates your normal coagulation testing.

The data out of China is not particularly great. Un, there's a lot of differences about what we do as a standard of care, um, for instance, you know, subcutaneous prophylaxis heparin is something that we do as a standard in the ICU and most of these reports that we're getting, that's not necessarily the same standard. So what we are seeing is that the sick patients are really developing coagulopathy, which is really just abnormal PTs and PTT and a, a vast majority of people who are dying are dying with laboratory evidence of the DIC which is those low platelets, those low fibrinogens, and a high D-dimer. So, you know, the things that were used to seeing, these kinds of fingers and toes that are falling off of people are really on high dose pressers, but did not in this particular population. Uh, there, there's really two phenotypes that are out, as there are people are talking about the hemorrhagic patient and then people are talking about the, the clotting patient. So as far as the, the numbers go, we just, we have no idea. There's really been very little data out there other than case reports. Um, I, there's a lot of autopsy reports that have been confirmed here in the US of pulmonary hemorrhage. This picture, uh, there's some dark spots on the left, and then in the top right corner, that represents, um, pulmonary hemorrhage in these patient. This is probably the late stages of this DIC process that's going on. Once you've burned out all of your thrombocytes and your fibrinogen, people start to ooze and bleed. The overt bleeding, that we're, is really unknown. We're not sure, um, how often that is happening. Um, we see laboratory data that tell us things but the actual rates of bleeding are, are unknown. Um, again, lots of case reports of clots, um, some really dramatic clots, dialysis lines,

ECMO circuits, PE's, DVT's, aortas, kidneys, I don't know, all kinds of people are reporting really scary stuff. And so this concept that micro thrombi are being thrown out systemically and that that's the cause of it, well, that's really variable when we look at the autopsy data. So, um, again, the, the incidence is really hard to say because I think, um, they're not, they're not really using standard therapies that we would consider here in the ICU, regularly. '

We do know, um, there was a, one nice study by a Dr. Clock, here, um, looking at a couple of, I think it was three Dutch centers where they were really doing some, um, uh, prospective studies looking for clots. Now, clots are hard to find. Um, it's easy to find bleeding, people, you know, you see it at the bedside you see it, uh, in the operating room. But clotting is a little bit harder. It's, ah, you have to go looking for it if you're going to find it. And what they found was that about, you know, as many as 31% of their patients were, were showing composite clots. Primarily, they're finding DB, PE's really that 27% was primarily pulmonary emboli.

Now, um, those are pretty high rates of pretty serious problems. Um, there are some prospective studies really in severe sepsis that look not terribly different from this, as high as 30%. We typically think patients in the ICU are closer to 1 to 3%, uh, of having risk of a thrombus in sepsis, but these are really severely ill patients and so, um, it is potentially comparable to some things we've seen in the past. Uh, so everybody wants to jump to ant coagulating these patients because they hear the stories, they see these laboratory data, and it's and um, you know, you need, you need to be careful there. There are risks of anticoagulation. The general bleeding from, uh, systemic anticoagulation is somewhere between 2 and 5%, um, and then there are also risks of, you know, heparin induced thrombocytopenia. I think it's worth, I, I like this picture because really what we're trying to do is balance the risk of clotting with the risk of bleeding and unfortunately right now we don't have any good numbers, uh, to deal with that.

So we'll talk about recommendations closer to the end, and really all we have is control over where that fulcrum is. We can slide a little bit towards bleeding. We can slide a little towards clotting. Um, but our goal is really to try to balance those things. So, uh, we'll talk about some drugs, we us use them, uh actually, heparin most commonly in, uh, surgical patients. So that's, most of your pretty familiar with this. I won't go into too much of it, it's great in that is reversible. And, um, I like this slide because it, it reminds you that really heparin is pretty dirty. I'm unfractionated heparin working with a antithrombin III to, to facilitate its function. It, it works all over the place in the, um, coagulation cascade, so at least four different places there. Um, and it's monitoring is, is quite complicated. So we'll talk about that a little bit as well. Unfractionated heparin, or low-

molecular-weight heparin will be, uh, something that you're seeing more and more with these patients.

So, low, low-molecular-weight Heparin, uh, to me as an, as an anesthesia provider especially when I was in training, I was always anxious about it. It was really limiting my ability to use regional anesthesia interaction, neuraxial anesthesia. And so to me it was, it was kind of like this garlic to a vampire thing. But in, in you're COVID patients and in your ICU patient, especially your medical patients, you, you're going to see a lot of this and it's really, uh, probably your best, uh, uh, therapy for patients that it isn't contraindicated in. So some things to remember about low-molecular-weight Heparin is that it, it does really depend on your GFR for clearance, so in those patients who are in pretty bad renal failure, you're going to need to reduce your doses, and as we've seen, uh, obesity, you know in the US and also, uh, patients that are suffering from this problem, uh, with COVID, it is, uh, targeting obese patients or, or they're getting quite sicker than, than what we're seeing them in the average population. And those patients need uh, dose adjustments upward. The, the reversal agents are only partially effective. And so, um, you know when bleeding does occur, it, it's problematic, but, um, generally it's, it's faster onset. We don't have to give an infusion and we don't have to go in the room to titrate it. Um, so it, it's, uh, quite easy to use and the monitoring is, is very reliable.

Um, there's a few other drugs that are worth talking about. Um, in ARDS we've, we've sort of briefly mentioned that anticoagulation is a, a big question that everybody wants to know. Um, TPA has come up repeatedly in these patients. We, we are seeing PE's in, in some of the studies that are coming out as well. Um, but even before that, uh, there, there was some human data looking at, um, the value of TPA in ... patients. Even in the absence of identifiable PE, uh, TPA has been reported it to improve, uh the PaO₂ in these patients, and we can see sort of how that happens in this autopsy slide from a COVID patient. Um, this blue uh, deposits around the a alveoli that you can see there, that's all thrombin and, and fibrin deposits. And so it's really going to impair you're a, ability to transfer oxygen from the air into your bloodstream if you got to go through clots to get there. Um, so the idea that would be, you know, potentially to target some of that to improve your oxygenation.

There are some ongoing trials both, uh, on the East and West coast looking at TPA for non-PE patients. And then also some trials of inhaled Heparin, so we're looking forward to seeing what, what that comes out with. Um, but right now, uh, you know, those, those are not considered standard therapies. So, there's two other agents, there's your direct thrombin Inhibitors, bivalirudin, argatroban. I don't want to spend a lot of time on these. Generally they're reserved for patients who have Heparin induced

thrombocytopenia. Um, that, the reason you, you do want to stay away from these in COVID patients is because they rely entirely on PTT monitoring, which we're going to talk about as being a, a problem in these patients. Uh, the direct oral anticoagulants, you're going to see a lot more of as well.

Um, I'm just like the unfractionated Heparin, they're very easy to use you, you know, their oral medical, medicines, they, they have both prophylactic and therapeutic dosing and so, um, you, you can really take care of a patient through their spectrum, um, without having to do lots of dose adjustments and they, they can be carried into the outpatient so people aren't going infrequently for their INR checks, and, and being involved in, in more medical care, and, uh, more strain on the system.

So, so monitoring this is a really important topic, um, we won't talk much about the ACT everybody in anesthesia has, has run these tests in the operating room, but they're really designed as a point-of-care measure. They, they don't correlate well with it, uh, you know, long-term care of Heparin, uh, and there are so many things that interact with your ACT, there really is, it's, it's not measuring Heparin in an effective way. So really, uh, stay away from ACTs your PTTs and your Xa's are, are dramatically, um, more useful in, in all patients that your ACTs.

So, uh, this is a really messy slide, and I apologize and I'm proud of you guys for sticking with me up to this point, um, but I want to take some time here to really talk about the differences between these tests. Um there I, I, put the, the shorthand version of it at the very top, so if, if you can at least take that message home, I'll be happy. Um, the Anti-Xa monitoring is much better than PTT you for telling you what your Heparin is doing. There are a lot of things going on in, in COVID patients, specifically, uh, that mean, that alter the PTT in ways that are both strong and variable. And so, um, we'll talk about each of these tasks and where their pitfalls are, and, and I put them side-by-side because they actually are complementary tests in this population. Um, the PTT looks at the entire intrinsic pathway. It's looking at a number of different factors and, um, every single lab across the country is using different protocols. So they're at, different additives, um, whether or not they're adding anti thrombin to it. It's really every lab is, is kind of giving you a different story. It's, it's also not as strongly correlated with Heparin as you think. If you look down at the, in the bottom right corner here, there are two scatter plots. The one on the left is, is looking a PTT, and the one on the right is looking at Anti-Xa. So, along the bottom, um, uh, you're seeing escalating doses of Heparin, and, and so at lower doses of, of Heparin, we're seeing a reasonably up and to the right curve, but not nearly as, as, uh effective as what you're seeing with, with the Anti-Xa on, on the bottom right.

So it doesn't really correlate well with Heparin administration, which is a problem. Um, and, and we're going to talk about a couple of the reasons for that. So, so there are some factors in these COVID patients that are causing the, the PTT to be driven down. Early in their course when they're really inflamed and their fibrinogen levels, and their factor 8 levels are really high, uh, what you're seeing is that the PTT is, is being dropped, thus showing you evidence of hyper coagulation. Um, if you're using this as the monitor for Heparin in those patients, you're going to end up giving a lot more Heparin than you need to be therapeutic, to push your PTT into a range that you won't be, you would expect it to be in for, for therapeutic effect. On the other hand, as this disease progresses and, uh, you start to see that DIC picture as your fibrinogen starts to fall and your D-dimer starts to rise, you see the opposite effect and the prolonging of the PTT in that scenario may lead you to under dose your Heparin based on a PTT study. Looking at the Anti-Xa levels, it is really a pure test of the Heparin anti thrombin effect on Xa. It's really the gold standard for Heparin monitoring, um, but it's not necessarily available everywhere. The reason so many people use PPT is because it's cheap and it's available. Um, but these patients, it, it's probably worth either going back and forth between the two or, you know, my preference is to actually look at both of them every day, even if you're running off of one primarily for your drips.

Um, the, the few things that do interact with Anti-Xa are worth talking about, too, because we will see some of these, these problems. It is an optical test, so as the, as the plasma gets cloudy with triglycerides from propofol toxicity, or from liver failure, or hemolysis, it will, uh, reduce the, the, um, the reported value from, um, and may lead to overdosing of Heparin. So the other thing that's worth remembering about Anti-Xa is that because it doesn't care about your fibrinogen and your platelets, if those get really low your patient may start to bleed on a, on what was previously, uh, uh, healthy therapeutic dose of Heparin. So I like to look at both of these things, um. I primarily use the Anti-Xa, but I do like to see a PTT everyday because if I'm pegged off the top at a, a PTT of 200, then I'm probably missing something, and I, and I might need to back off.

So, what, what should you do? Um, well, there's really a lot of limitations on data. There's no, uh, high-quality evidence. There's really nobody out there telling you, um, that, what's going to affect mortality, and, and how to manage these patient. We do know that we have lots of good data, um, for the last 30, 40 years looking at prophylaxis in the ICU. We do know that, um, we need to continue prophylaxing these patients. We're seeing a broad practice across the ASA Critical Care Committee. Um, there are people who are just using, you know, your normal low-molecular-weight Heparin medical prophylaxis, until they find clots. There are other people that are using D-dimer triggers like 5 or 10, to say these patients are going to be fully anticoagulated now. And then there's people like, um, like my group in the medical college that are doing

something sort of in between. So there's really a full practice, across-the-board of what people are doing because we just don't have a lot of data to drive us at this point.

The hematological societies are a bit more conservative. They want to see the data before they're going to ever make recommendations that you need to be more aggressive with your anticoagulation. So, uh, most of these guys are saying use low-molecular-weight Heparin prophylaxis unless it's contraindicated. Please don't forget to dose adjust for obesity and renal failure and really their, their recommendations would be to continue normal practice, which is full anticoagulation only if you're finding clots, or having problems with um, machines, or lines, or, or things like that. Um, so there's a bit of discord there between what I think people are doing and, and what is being recommended, so.

So what, what are we doing? Uh, we, uh sort of have two classes of patients. And, and like I said, I don't manage the non-surgical patients, but this is what our hematologists and our, our pulmonary Docs have agreed upon. While they're on the floor they're, they're getting normal daily low-molecular-weight Heparin in the ICU. They're, they're stepping that up slightly to the BID dosing of the low-molecular-weight Heparin, and then, uh, when they have that surge and their D-dimers are really getting elevated, or if they're showing evidence of hyper coagulation on, on their clinical care, they're really starting to think about therapeutic uh, anticoagulation. Really a case-by-case basis, um, and they're monitoring based on, uh, the Anti-Xa levels. As far as ECMO goes, we have made some changes. Uh, normally we would give 81 of of aspirin and, and infer sort of a moderate dose of Heparin, unfractionated Heparin dosing, in that .21 to .35 range, but our COVID patients we've seen a bit more clotting of the oxygenators and so we have increased our dosing towards that .3 to .7. Um, we are using thromboelastography or a viscoelastic testing to try to target the higher or lower end of that based on what the patient's underlying inflammatory state is. Um, but that's just what we're doing and I, I don't, there's not evidence for it. Um, and so that's not necessarily my recommendation to you.

Um, so in summary, really, uh, what we're looking at is an inflammatory surge that is variably associated with his hypercoagulable state. Um, it is occasionally associated with bleeding. Um, understanding your lab tests and your patient is really important as you interpret the results of your tests. The in, un, inflammatory responses, they activate tissue factor and compliment, uh, which we know to be ways that clot form. As we think about anticoagulation initiation, really prophylaxis needs to be early, um, but above that it, it really needs to be patient-specific depending on how sick they are, because lots of these people do just fine and don't have these problem. So you want to be careful about who you're fully anticoagulating, and once you start down that pathway that you, you're

really buying that patient you know, 3 to 12 months of anticoagulation and, and lots of additional care. So, if you're giving Heparin, you need to remember about uh, your, your, sort of what's important with your tests, your Anti-Xa tests are going to be really accurate talking about your Heparin affect, but they're going to ignore fibrinogen levels, platelets and liver dysfunction.

So, if you're having those problems you need to be careful, um, if you're on the higher end of those Anti-Xa's, you may end up with some bleeding. And as you, um, look at your PTT guided therapies, really, you need to be extra careful. You might want to consider, um, you know, double-checking all this with your Anti-Xa's because you, you have both effects. It can push it up, or, or more commonly what we're seeing is that the PTT is, is prolonged and, and that is going to lead you to under anticoagulate people that you're trying to anticoagulate. The, the, and just remember that hematology, uh, our friends in hematology are not particularly, uh, excited about aggressive therapies at this time, although you know, that may change as time goes on. So I just want to say thank you to, uh, Mary Dale Peterson and, and George Williams for the invitation to be here and then my ASA Committee for sharing, uh, their experience, and Dr. Bauman is a hematologist and Joel, our, our pharmacist in the CVICU. The three of us have been working hard on, on taking care of ECMO patients for a while, and I appreciate their help and all of you guys for fighting the good fight.

DR. MARY DALE PETERSON:

Thank you, Justin. Our next speaker is Dr. Cally Hoyt. Cally?

DR. CALLY HOYT:

Thank you very much, and Dr. Peterson, thank you for inviting me. Uh, I am, uh, the head of OB Anesthesia at the Cleveland Clinic and I am also Program Director for the Fellowship there. I am currently the Chair of, um, the Committee on Obstetric Anesthesia and former President for the Society for Obstetric Anesthesia and Perinatology, and as Chair of the ASA committee, I'm back on the SOAP board again.

Uh, in preparing for tonight's talk, uh, one of the things that's true of the whole COVID situation is it's so fluid. I'm going to try to give you ideas and strategies that you can take forward. But, as you all know, what's true today may not be true tomorrow, may not be true next week, but hopefully some of this is going to help you. But in order to put some things together, I wanted some immediate responses from my Committee. And so I decided to do a little survey. Now the anesthesia committee consists of about 30, um, anesthesiologists, OB anesthesiologists, and it is from all over the country, large

academic centers, smaller academic centers, private practice, so it's a good mix of what's out there. And I posed four questions to them. And one was negative pressure units, do you have any labor, um, units or ORs on your labor units that have negative pressure? What do you do about screening, or are you moving towards universal testing? What about use of N95 masks, particularly as it applies to labor epidurals? And those first three, I'm going to answer those as I go through my presentation, and it, it hits those points in the, the talk there.

But the other thing is I wanted to know what people are actually seeing out there. We know what's happening in New York, we know what's happening in some of the bigger hotspots, but what about the rest of the country? Now, SOAP is trying to put together a registry to get out there and give people an idea of what the numbers are, but I decided to go to my little microcosm. And my Committee, uh, a little under half of my Committee responded to those questions that were there. And it's interesting in that, no surprise, everybody's seeing, um, persons under investigation or PUIs, and there, that's to be expected. But I was surprised with the COVID numbers. Of the 13 that responded to me, uh, only about 5 are seeing COVID-positive patients. And, no surprise, they are coming primarily out of the bigger hubs where you're see, expecting to see a surge or have seen a surge, sort of thing, but other places are not. We have yet to see a positive COVID patient, uh, on my particular unit.

Now some of the general, uh, principles are pretty obvious, but I just want to go through in a little bit, anyway. Whether you're on labor floor, or your are on the OR, first principle in this pandemic is limit the number of people that are interacting with a patient, and that's true with the labor floor as well. And the recommendation is to go with the most experienced people, um, that you have. Now that does not necessarily mean it's always going to be the anesthesiologist that's trying to run the floor. That person is running the floor. It may be the next most experienced person in that team, whoever it may be. What a lot of people in the Committee are talking about, too, though, is we're trying to limit resident exposure. We don't want to put them, especially those who are first time through on the rotation, aren't going near these patients. Um, but we're sticking with primarily those that are, uh, uh, out of residency or nurse anesthetists, or anesthesiologist assistants who have a lot of OB experience. In some of the larger pandemics, I'm sure they're recruiting the residents, just simply because they may not have the numbers to keep it that way, but most units, I think, can.

What about negative pressure rooms? This is kind of an eye-opener. This is part of the survey here, and what we found with the, um, negative pressure rooms, was that, um, less than half of those who responded have negative pressure rooms on their labor unit, and even fewer, only two or three, have negative pressure ORs on the labor unit. So

even though it's ideal that that's where you put your COVID-positive patients, that's not what people have on their labor floors. I don't have any, at the place where I work, and instead some places are talking about mobile HEPA filters to try to use for that. We're using isolation. So we have cordoned off the area on our labor delivery unit where we are least likely to place patients. Now, when we're full, we're full, but if there's a COVID, or PUI, we know where we're going to place them.

Same thing with the OR, uh, of the labor ORs, you want to identify one for uh, COVID use, um, and basically strip it down just like you did in the OR. Problem on labor and delivery though, is you're use, usually talking about three or four ORs around that unit. If you're restricting one to just COVID patients, you've cut a quarter to a third of your ORs, and that's not going to be viable. So even though we've stripped things down, think of this as a room you don't schedule cases in, obviously. If you've got a PUI or COVID-positive patient, you're not using it, but you can put the occasional case in there and bring in the equipment when you need it. Uh, have airway kits available for that particular OR, medications, you're going to bring them in at the time of the case. You're not going to open up any Pyxis, or any Omnicell machines during the course of the case because then you technically expose all your medications.

And then the other, the last principle is to practice some of this stuff. I don't know if you've had an opportunity to do donning and doffing. Donning is fairly, fairly easy and straightforward. Doffing is a whole different story, and you really need to practice that and have somebody reading it to you so that you do it properly and you don't contaminate yourself, and the best time to do it is under stimulation. Work through what your workflow would be if you had to do a general anesthetic and also work through how you would transport from point A to point B.

So everybody always wants to talk about policies a little bit and I'm not going to spend much time on this, other to say that on the labor unit you ought to have a clear policy of what you're going to do with your PPE and how you're going to manage these patients for your anesthesia department. You're not going to dictate visitation, that's a hospital thing. And any place that they're worried about a surge, they've already restricted, um, visitation rights for these patients.

Nursing, it's up to them to develop their PPE, as well as the OBs, but there's nothing that says they can't work off of your document. You, you need to communicate what you're doing, share what you're doing, and encourage, you can encourage utilization of your document, and that has been a successful strategy for us. And of course the neonatologists know how they're going to manage these babies. There's no need for

you to put it into your policy as to what's going to happen on that front. Just stick with what you're going to do for the anesthesia department.

So, of course, you're going to want to pre-assess the patients as best you can and everybody is doing some kind of pre-screening and I, I suspect that most or all of you were doing that as well. Phone calls for any elective inductions, or sections that are occurring to make sure there's no history there that's concerning. Uh, screening questions at the point of arrival on the labor floor before they really get onto the floor to make sure everything's there. We have backup with it on infection prevention, who we can call and say, this is what I'm getting from the patient. Is this somebody we should test, or not?

So that brought me around to my next survey question to the group, which was what are you doing about testing? And, uh, nobody is doing, well, I'll take that back. One person is doing universal testing. They're just starting to move on to it. Another said that we're going to do it, but sometimes we can't do it. It all depends on whether we have the amount of reagent or test kits that we need. Everybody else is saying, we're just doing the screening and cuz we can't do universal testing. The big problem is they can't get their hands on the kits, the reagents, they just don't have access to it. So most are sticking with just asking the questions. Now, I know probably many of you saw the New England Journal of Medicine correspondence piece that just came out on Monday and this came out of New York, I think it was Columbia, where they looked at, uh, they tested 215 patients whether or not they had symptoms. And the gist of what they discovered was that one out of eight asymptomatic patients were positive. And they argue, this is New York, where the hub is, everybody should have universal testing.

I get a lot of discussions during the day about the false negative and false positive rates of some of these tests, and not everybody is using the same test. Different tests are coming out all the time. I kind of took that New England Journal correspondence piece, as maybe what it was showing us, was that's what the false positive rate is. But I think until we can really decide or discover what is the best testing technique, and get the equipment out there, I think it, most people are going to be restricted to just asking the questions and moving on from there.

As part of my being a, the ASA Chair to the uh, Committee on Obstetric Anesthesia, I am the liaison to the American College of Ob-Gyns Committee on Obstetric Practice and we met virtually in, uh, mid- mid-March to go through an FAQ on what the obstetrician should know. And it was, it was a great two-day process to go through this but one of the things that came up that I feel you should know is, the question was, should a patient have an elective cesarean delivery just because she's COVID positive?

And ACOD came out and said emphatically no. You do not electively section any patient just because she's COVID. You do it for obstetrical reasons, medical reasons, not because she's COVID-positive. And just going www.acog.org, and the, they have six boxes there and you can easily see which one is the obstetric FAQ and just push on that one.

So what about labor management for these folks? Early epidural is what ASA is saying that's what SOAP is saying, that's what ACOG supports, is get the epidural in and make sure it's pristine. Make sure that it is functioning very, very well. And again, the most experience party is putting it in there you're not going in with a trainee. You can limit your interactions and, and I would encourage you to do that. You can look at the patient's chart. You're gonna to be going in to do an early epidural, so why not do everything in the same interaction? Go in, interview, consent and place. And, um, those that I work with know that I'm adamant about this, don't limp along with a poor epidural if, if your getting called in three times ... then it is not a functioning epidural. Tolerate it once, and then if you have to go in again just simply replace it because it's crucial that this is pristine in case you have to use it for a cesarean delivery.

You're not going to take your epidural cart into the room. So you going to take into the room what it is that you need, and we have set up runners, so then when somebody is going into a room, there is someone outside to help with a donning process and then to get anything that the person in the room may have forgotten to take in, or suddenly needs extra supplies of. And then that runner is there to take them through the doffing process at the end.

So what about in N95s? Uh, this was, this was entertaining. Everybody acknowledged, this is part of the survey, everyone acknowledged that CDC says this is for procedures that cause aeroliz, aerolization. And um, no question, a labor epidural doesn't fall into that category, you are facing the patient's back. That said, uh, there were about half the places did say that they were using and N95s for the labor epidurals. Others said no, we're just going in with the usual full equipment with a regular mask on. One of the things that is, is constantly evolving is the use of the N95s and whether you have enough. There's a big concern on whether the, uh, uh hospitals are running out of them. And what are the possibilities of reprocessing? And I, all I can say is for the N95s, if you are in a place where there is limited, uh, exposure to N95s and you're not doing processing, then don't wear one for a labor epidural. It is not necessary.

So let's talk about the OR cases that you may run into, and I broke them down into two categories, the cases that are done under neuraxial and the cases that are not. Under, those would be under GA, obviously full precautions per CDC. You're going to do the full

don with the N95 in it, just in case you need to intubate. So everybody's kind of recommending that, is anytime you're going into the OR labor and delivery with one of these cases, you're putting an N95 on.

Uh, the question is how many people really need to go into that room? Now, if it's an epidural this getting dosed up for a section, it probably can be just one, and outside you have the runner available. And one of the things that we have created as a strategy that I think works well, even though we haven't had somebody, uh, with COVID-positive yet, is, that other provider is usually the staff. They're going to work as the runner, they'll get you extra things if you need it, but that particular person is dressed in full gear, with the exception of the face shield and the mask, so that if they are suddenly needed in that room, that's all they have to put on, and they can get in there to assist. Uh, if it's a spinal, for say, an elective section because the patient is breech or whatever, you might need to have two people in initially, but then one can come back out, doff, re-don, and be available, or, if needed further on into the case. The patient herself is going to have a mask over her, for, throughout the case, and they do recommend that when the patient is being transported to the OR, that there be a cover over her. Now there are plastic covers. It could be a sheet, which has interesting images to that, uh, but, um, you are going to have a mask on that patient throughout the case.

And then recovery and transport strategies. You're not going to just walk out of that room at the end of the case with your fully donned attire. You're going to need to change over to some degree before you walk out of that room. Now, usually from the clavicle up you can leave that on, but you're going to have to change your gown, change your gloves, and, and possibly booties if you've had those on, before you walk out. So you can doff those things and then re-don before you transport. And the other question's going to be, where you going to do recovery? Are you going to take the patient back to the COVID room? Are you going to recover in the OR? You need to work through those strategies.

So for the next slide where we talk about OR cases under general anesthesia, same sort of thing, but this is the part that this is difficult for folks, cuz there's a tendency for people to want to just barge in there because it's an abruption or a prolapsed cord. This is the time you take a breath and you get fully donned. And I seriously mean no shortcuts on this. You need to get yourself fully donned. You have to take care of yourself instead of just going in and doing what you're used to doing with these patients. You're absolutely going to need two anesthesia members in there with somebody nearby as the runner. That runner again, is dressed in full gear is what we do, all set to run in just in case there's a, a need for a third set of hands. But now you got a lot of people committed to that labor floor and you need to consider what your backup

strategy is, if that's maxed out your labor team. And there are places that I know that are part of the surge where they're manning two OB anesthesia teams 24/7 because they're that busy. Again, face mask over the patient on transport to and from. Intubate as you would in the OR. We're covering the patient with plastic and we're intubating through the plastic. Extubation would be the same way cuz you're likely to extubate these cases. They aren't going to stay intubated cuz they aren't showing the respiratory problems, and then again your recovery and transport strategies.

So for the next slide, there were a few questions that were asked prior to, um, uh, this particular, uh, Town Hall that I wanted to address and one of them was on the, the use of NSAIDs. Uh, this is something that both SOAP brought up in, uh, their, uh, suggested piece and ACOG went over at the time. Early March, late February two articles came out that suggested that the use of NSAIDs in these cases might make the patient worse. And, it wasn't hard data, it wasn't anything that you could say was, was really good science, it really was suggestions, but they were in well-respected journals.

ACOG decided, uh, that they're going to monitor this with the FDA. And so I think if there's some place you're going to hear about a change, it may well be with them, but but, they're going to continue to recommend that patients who should get baby aspirin continue to get a bay, uh, baby aspirin if warranted. In terms of fever, I know there are people who are reluctant to place a fever, or an epidural in a patient with a fever. Um, they're, you're not talking sepsis, you're talking the fever of COVID. You're not going to make the patient septic or cause any problems, uh, that this should, um, not allow you to place the epidural. And again, you wanna be sure you get that epidural in, in case you have to go to the OR, OR and deal with other issues there.

Thrombocytopenia has come up, and I appreciate very much what Justin presented to you because it makes my little talk here a little shorter. Thrombocytopenia tends to come up in the deathly ill, and it's not something that you, uh, are really seeing what these patients. Yes, there's some OB patients you do go to the ICU, they are that sick, but the vast majority are not. You may see a dip in their platelet count but it's nothing that's going to prevent you from placing an, an epidural. Platelet counts in the epidural, it's all about platelets function. There is no magic number at which you don't place an epidural. So go ahead, you can check the number if you want to, but the real question is do the platelets work? And that's easy to determine by just taking a blood sample and seeing if she clots appropriately.

Use of nitrous oxide, um, BOSO and ACOG and the Committee really have come out and said, maybe if not a good idea. We don't know how well you can clean the equipment. Again, you want the epidural cuz you don't want to risk going back and

dealing with a patient now for a general anesthetic in case something happens. And it's just in this small subgroup. You're not limiting the use elsewhere. If you like to offer your folks nitrous oxide, but we are recommending that you hold off on these patients. Concern about emesis with these patients, labor tends to produce emesis, C-sections tend to produce emesis, so you want to per, use your um, antiemetics, but the suggestion is made that maybe you don't want to use the dexamethasone.

And finally, what about the pregnant anesthesiologist? And ACOG was very adamant about this, that a pregnant patient, uh, is at no greater risk of complications from COVID than a non-pregnant patient with COVID is. I think your bigger risk is that you're an anesthesiologist and you're getting exposed to, potentially getting exposed to these patients, but the fact that you're pregnant on top of it, is not a greater risk to you or the pregnancy itself. We know vertical transmission doesn't happen, and so it's a matter of due diligence and taking care of yourself, um at the end of the day. And so, with that, um, I would like to say that, uh, the ASA, APSA, APSF and SOAP are working with the Columbian Society of Anesthesiologists. They have a very nice, uh, manuscript that's coming out and we're working to kind of, fine tune it, and maybe get it out in all sorts of different, uh, languages for people to work with, and thank you very much.

DR. MARY DALE PETERSON:

Well, thank you so much Cally, that, that was wonderful. So now we do still have a few minutes left, uh, for questions and answers and I'm going to start I think with Mark. So Mark, someone's asking, they're saying sedation of a COVID patients seems extremely challenging with regard to prone positioning, muscle relaxants and other contingencies, and medication shortages are adding to the challenge. If I'm in the ICU, and not an ICU anesthesiologist, uh, sedation questions of this nat, nature are not necessarily available. Does the panel have any suggestions or recommendations on sedation strategies considering the drug shortages? I guess, there's also there's another question asking about PO strategies. So, can you address that for us, Mark?

DR. MARK CARIDI-SCHEIBLE:

Yeah, it's, it's been a big challenge. I, I'm acknowledging that right up, uh, we've had to get very creative when we've had fentanyl shortages, we've had propofol shortages. They've been kind of in and out like we've gotten stock back intermittently. So, um, you know, usually we've been able to, to get away with our usual fentanyl, propofol, um, but, uh, we have had, uh, gotten creative. Um, they seem to respond to uh, antipsychotics well and we've been using a lot of Olanzapine, or, or Quetiapine, you know, we've also been using a lot of oral regimens, too, in addition to the oral, uh, uh, antipsychotics. Uh,

you know so scheduled oxycodone, um, uh, methadone. I've even used some low-dose Klonopin in a bunch of patients. So you do you really have to get creative and kind of look at everything that's in your, your toolbox. But yeah, it's, it's difficult, and uh, Ketamine.

DR. MARY DALE PETERSON:

Uh, it sounds like the kitchen sink, Mark, figuring out what to do. Okay, uh, Justin, um, here's a question. I think that the, the rider was referring to hypercoagulation. Is this seen in later stages, or is there evidence in early in the course of the diseases, um, that the coagulation factors are being consumed or generated at higher levels? Has transemic acid, acid orally or IV been used early in the disease, that you know of?

DR. JUSTIN NADEEM-TAWIL:

Sure, um, thanks for the question. So, um, you know the hypercoaguable state is variable. Uh, there are lots of people who don't ever develop it. Um, but what we've seen here, um, and looking through the charts while they're still in the NICU is that there is the sort of low-grade, um, continuous EIC process going on. So, they, they are consuming those factors. They are, uh, generating a lot of fibrinogen, um, it, it doesn't flare out until, you know, usually what we're seeing is somewhere between three and five days of hospitalization, but really about the time they get transferred to the ICU is when we're seeing those D-dimer start to spike. People aren't usually presenting with that problem. They're usually having their respiratory problems, but it's developing, um, sort of smoldering underneath that until they really get sick.

Um, as far as, um, you know, procoagulant medications in this, the, there's really not a role right now for treatment with hyper, uh, with, with procoagulant, unless your patient is actively bleeding. So, you know, this is best thought of as the, as the disseminated intravascular coagulation problem, uh, that is usually treated, you know, with anticoagulation to try to prevent clotting, uh, rather than adding what we would, what's usually described as fuel to the fire. So if the patient is actively bleeding, yes, there's lots of, um, TXA, oral IV inhaled for, for, to treat bleeding, um, but not in specific COVID patients and I hadn't heard of people having to use this yet.

DR. MARY DALE PETERSON:

All right, thank you so much, Justin. So Cally, here's one for you. And this it was in the chat, or Q&A box, and I think it was Guatemala, I can't remember. But anyway, tomorrow a colleague diagnosed with COVID will undergo an elective cesarean section.

A spinal block will be the anesthetic technique. Do you recommend oxygen by nasal, I am assuming she means, means nasal cannula, during surgery considering the distress that the fetus may suffer? We do have an Any additional recommendations about anesthetic management and protective care? Thank you.

DR. CALLY HOYT:

Well, I guess, you know, my question is, if it's a straightforward spinal for an elective C-section, the fetus should be fine. And if she's not showing any distress, and her saturation levels are good, she really doesn't need the oxygen. Because you're not improving her oxygenation, it's already perfectly fine. It's different if her, if she is having problems with oxygenation than yes, and obviously you're going to have the mask over her face. It's not tight, but it's enough to protect, protect from droplets and things like that. But technically, no, it should be a fairly straightforward C-section in that kind of stripped-down room where you could, at least with an elective situation, you can get all the equipment that you need in there, all the medications that you need in there, have just one provider, and, uh, being able to manage it that way. But, if her vitals are fine, you really don't need to do anything else.

DR. MARY DALE PETERSON:

All right, thanks, Cally. Mark, here's one for you. Um, the question is about the need for the utility of tracheostomies for COVID patients was brought to my attention yesterday. I understand the need for, and use of, tracheostomies is a hotly debated topic for COVID patients, um, but I'm hoping to learn from the experience of others and receive some guidance. What are some important issues to consider, surgical, open trach vs. percutaneous, OR vs. ICU bedside protocol, so I know that the Otolaryngologist Society has put out some recommendations. Can, um, you help answer some of those questions, Mark?

DR. MARK CARIDI-SCHEIBLE:

Yeah, um, the, those recommendations have been, brought some conflict, I would say, um, uh, to put it mildly. Um, it's been a, you know, a legitimate topic of debate. Um, I think, you know, we finally arrived at a set, some consensus around our own hospital system, uh, that we would be, uh, uh, allowing trachs, um, you know, sort of a as a last resort. Um, but if someone is getting the two or three weeks, you know, of intubation, and we do think they stand a reasonable chance of survival, then a trach is indicated. And, um, I think you know, the problem has been, I think, how has been, um, you know we're very used to, we've become very used to dealing with, uh, the PPE and the, our

perception of risk. Um, I think, you know if you think about it, just with us doing intubation, you know, that's, that's a large part of the risk, of you know, tracheostomy in a lot of ways it's not that much different.

Um, so, uh, but I think you know, I think every getting everybody on the same page with that, uh, really would require a lot of, you know, negotiation, but I think, you know, it is doable if you think it is indicated. I, I think it's just kind of a matter of, you know, of arriving at kind of common protocols. Um, we do kind of think it's probably preferable to do it at the bedside if able, just to avoid all the transport issues, going to the OR, but it's not out of the question to go through the OR if we need to, so, I think it's just very case by case. I think the, the good thing is, is that, by enlarge we haven't been getting to the, that many patients which are kind of lingering that long on the vent. We are starting to see it because we now are like week three or four of, of the, the, the epidemic here. Um, so we have, we are starting to see patients requiring it.

DR. MARY DALE PETERSON:

So, as a follow-up, what, what did you find a little bit controversial maybe, about the Otolaryngology guidelines that we need to let our members know about? Is there negotiating how to do these, or when to do them or whatever?

DR. MARK CARIDI-SCHEIBLE:

You know, I think, like allaying fears about, um, we've become very entrenched in, and gotten a lot of specific attention regarding PPE training and ... and you know, a lot of our colleagues have not gotten that. Um, so there is a, like a bit of a component of kind of walking through what were the concerns are, and, and making sure they have the adequate training, in kind of protecting themselves. I think there are some kind of, a lot of theoretical concerns that were brought up by other societies before we really knew a lot uh, about what was going on that was really reflecting more theoretical concerns. Um, but in the same way, we've gotten away from concerns with high-flow nasal cannula or, or you know, other kind of aerosol generating, uh, or, or potentially aerosol generating procedures.

Um, it's become a little, I think I our, our thinking has evolved when we just need to kind of catch our colleagues up, and kind of show with other things, what other people have been doing that kind of have the same risks involved. So, you, you know, I they're natural concerns and, and they're realistic concerns. But I, I think they can be addressed. And, and, just kind of continue pointing out that these things are indicated.

DR. MARY DALE PETERSON:

So I guess what I'm hearing from you is that as long as you have the appropriate, um, PPE and, and you're wearing it properly, that you know, really we should be taking care of these patients like we would other patients with, you know, the best recommendations and not shy away from things that we need to do.

DR. MARK CARIDI-SCHEIBLE:

Uh, correct. You know, I, I think the, the concerns are, are real. Um, but I think we can address them one by one, and to, you know, to a point where everybody's comfortable. So, um, it just takes some, some effort, and on both sides.

DR. MARY DALE PETERSON:

Okay, Justin. I've got one here for you. Um, it's there any preference for tech over static tests like PTT and TEG any for monitoring of coagulation status?

DR. JUSTIN NADEEM-TAWIL:

Um, yeah, sure. Uh, so we use, uh, the ... testing, we use TEG for most of our patients. Now, I'm, again I'm dealing with ECMO, so it's a little bit different. Um, you know, there are lots of protocols out there, uh, and, and monitoring techniques, you know, if you look at your baseline R times on those TEGs and you want to make them, sort, sort of like double what they are at baseline, uh, similar to how you manage a PTT. There's a lot of people doing that, there's, there's really not data to drive that, um, especially in the medical patients. Um, there, there's a lot of debate about how best to manage, uh, Heparin and ECMO, and so I don't think this was an accurate question so I don't want to touch on that too much. I think the cost is really a problem with TEG availability is also a problem with TEG, it's also, um, you know, it is subject to table bumps and, um, the, the results aren't always as reliable as you would see in other things.

And just like in the PTT those, those factors that are driving, um, you know, consumption of products, they're going to be reflecting your TEG. So, your platelet function, your, your fibrinogen, um, the, the factor levels. You may end up, again, not necessarily giving what you're trying to give with, as you manage Heparin. If you're talking about whether they are thrombotic or not, well, there, it'll definitely tell you that, but that's not necessarily a reason to start full dose anticoagulation in the absence of a known clot. So, I guess, to answer your question, um, I, I think it's interesting and helpful and we get them, but I'm not sure that I would say it's better than the static testing.

DR. MARY DALE PETERSON:

Okay, great and uh, Cally, this'll I think be our last question. And then I've got a few exciting things to tell you all in the end, so I hope you'll stay for the very end, but, uh, COVID-positive patient is going for crash C-section under general anesthesia for fetal distress. Um, what's the best technique?

DR. CALLY HOYT:

I'm assuming there's no epidural?

DR. MARY DALE PETERSON:

I guess so...

(LAUGHTER)

DR. CALLY HOYT:

I mean the best technique is that you've had that epidural in early and all you're doing is dosing it up at this point in time, that's the way to go about it. Um, again, fetal distress is a whole spectrum of what are you talking about? And, um, obviously if there's any possibility, if there's no epidural, of maybe doing a spinal, that would be the safer way to go. You really want to avoid that airway if you know. You know, GA for terminal bradycardia where there just is no other way to go. But again, if you're going to sleep, full PE! People have a tendency to want to cut corners because they're worried about the baby, and they need to think of themselves and their families when they're done at the end of the day.

DR. MARY DALE PETERSON:

All right, thank you. I, I want to thank everyone for their questions, but I want to especially thank all of our panelists who, you know, prepared the talks and took the time out of their very busy schedules, as, as you can hear. So, many of you have already reached the peak resource utilization, where as others of us have a few weeks to go.

Um, there's a lot of discussion right now about resuming elective surgery. The ASA, The American College of Surgeons, The Association of Operating Room Nurses and The American Heart Hospital Association, have worked on a consensus document that will lay out the conditions needed to resume elective surgery, it's basically principles. And I

want to especially thank doctors Beverly Philip and Joe Sokol. They represented ASA in this effort and actually were the ones that wrote the first draft. Um, this final document will be posted, I believe tomorrow. So look out for that. We'll give you a notification. Um, elements in his decision-making include where the community is with the peak of infection, having adequate PPE, testing capacity, just to name a few. I know many of you are ready to go back to work, especially those of you who have been on the sidelines. However, we do need to make sure this is done in a safe manner for healthcare workers and for our patients.

Another little bit of good news, I just found this out this afternoon, um, that the Anesthesia Foundation will be offering no-interest loans to early career anesthesiologists. Please, once again, check your mail tomorrow where details on applying will be posted. And, and our thanks to the Anesthesia Foundation and the donors have contributed to that.

I had a media interview this week where the journalist commented that the American public finally gets to see the amazing work of anesthesiologists come to light. We were always there but now we are not invisible. The interviewer, she said, I had surgery last year and now I know what you do. I really should have thanked my anesthesiologist. I want to thank all of our members who have stepped up to serve where needed. I've heard from some of you, taking your vacations to go and serve in the hard-hit areas like New York City. Many of you have offered your inventions and ideas, all in the interest of saving patients.

I'm really proud of our profession, and I'm really honored to serve as your President. Thank you.

DR. ADAM STRIKER:

Thanks for joining us. We'll continue to keep you updated here on Central Line. And for more information, you can find video of the original Town Hall at asahq.org/covid19info where additional COVID-19 resources can also be found. Stay safe and join us again soon.

(MUSIC)