



THE UNIVERSITY OF BRITISH COLUMBIA

Continuing Professional Development

Faculty of Medicine

UBC CPD

The Division of
Continuing Professional Development
Faculty of Medicine
City Square, 200-555 W 12th Ave
Vancouver BC Canada V5Z 3X7
T 604.675.3777
ubccpd.ca

COVID-19 UPDATE: ASK EMERGENCY AND CRITICAL CARE SPECIALISTS

Webinar recording: **March 26, 2020**

URL: <http://bit.ly/2020-03-26-UBCCPD-Webinar1-COVID19>

Webinar transcript

Bob Bluman (00:00:00):

Let me welcome everybody. Good evening. Thank you for joining us for this webinar tonight, which will be on COVID-19 update, ask emergency and critical care specialists. I'm Bob Bluman, family physician and executive medical director at UBC Continuing Professional Development and happy to welcome you. UBC CPD, which is within the UBC Faculty of Medicine, has recognized the need for relevant, I call it the information and education related to managing COVID-19, which can be a challenge to us at a time when notional distancing measures can limit our opportunities to be together in person. There's so much info coming your way from so many sources, but this webinar is the first in our planned series of COVID webinars to support a multidisciplinary health care audience in urban and rural settings. During the COVID-19 pandemic where we are seeing several excellent and very knowledgeable speakers for this session tonight, who will share their experience working in emergency critical care and other settings.

Bob Bluman (00:01:11):

We'll have 50 minutes allocated for tonight's talk, but depending upon how many questions we receive, the session may end up being extended for 30 minutes to accommodate extra questions and we'll have a moment at 50 minutes to decide that. If you're having any technical difficulties, please note that the webinar will be recorded and will be shared within a week or so with everyone who's registered online. Please email Stephanie at Stephanie.a@ubc.ca if you have any questions about this and can let you know to participate in the question and answer during the presentation. We're going to be using Slido. Please note that slido website and code located on the presentation slides and within your email. Here's an overview of the Slido directions. Go to the Slido website at www.slido.com and enter the event code, Covid-19-UBC-CPD, all in capitals. Once you're there, you can type out your question in the type your question field and click enter. You'll see your question posted and then you will be able to review questions that

others have asked. Feel free to click the thumbs up icon beside a particular question you like as this will move those questions closer to the top. Your questions can be asked anonymously, just leave your name out when you post your questions. The presenters will introduce questions as appropriate during the session. We are anticipating a high volume of questions, some of which may remain unanswered today if that's the case. Please know that we will hope to answer them in future webinars in this series. Lastly at the end of the session, please take a few minutes to complete the attendance and evaluation form. In order to obtain Mainpro+ or maintenance, the certification study credits, you must complete the online attendance. Completing the evaluation will also help with make improvements in future sessions as well as understand what topics are most important to you at this time. You can access those forms via the email link you've received earlier today ,and please email Stephanie if you did not receive those forms. Okay, I'd now like to introduce you to our speakers and pass you on to Omar Ahmad and Adam Thomas, who will introduce others who are going to be presenting along with them. Thank you, Omar and Adam.

Omar Ahmad (00:03:53):

All right, thanks so much Bob. And it's an absolute pleasure and honor to be here tonight. I'm going to introduce our panelists for tonight, starting with myself. So my name is Omar. I'm a critical care and emergency medicine physician in Victoria, BC. I am the department head for those two departments emerging critical care for Island Health. So I've been very busy preparing and working hard with our most amazing teams clinicians and non-clinicians alike. I'm very thrilled to have my good friend, Adam Thomas join us tonight. Many of you probably know Adam Thomas from his international renowned, as one of the podcasters and authors, for the international or the internet book of critical care and works with Josh Farkas and the EM crib team. Adam Thomas is also a Emergency Medicine Physician and is currently finishing up his ICU fellowship at the University of BC and is calling in tonight from Calgary.

Omar Ahmad (00:04:58):

Thank you for joining us tonight, Adam. I am really great to have you. I'd also like to thank you. I'd also like to introduce a few other panelists. We have here, Mario Francispragasam, also another emerg and Critical Care Physician. Mario practices critical care also in Victoria as well as on the mainland and works emergency at St. Paul's hospital as well as Vancouver General Hospital. I'd also like to introduce Dee Hoyano, who is one of the Medical Officers of Health with Island health. It's great to have Dee because there'll be many questions that her expertise will be uniquely...she'll be uniquely qualified to answer. And you can see here just beside me is Chloe Lemire-Elmore, who is the medical lead for the hospitalists here in Victoria.

Omar Ahmad (00:05:57):

And again, we'll give another perspective from the point of view of inpatient management and admission criteria. For non ICU, non critical care patients and help with profitable decisions of how to send people home. I'm also very pleased to have Dr. Danish Ahmad. You'll see a theme developing here. He is also an emergency medicine and intensive care physician, and he actually works in New York city, so in the epicenter of of the coronavirus in the United States. Very pleased to have him because he can speak to the environment that is there and perhaps give us a little bit of a looking glass view of what is to come possibly, hopefully not that bad. Danish works in a quaternary site academic sites Mount Sinai right in the heart of New York city. So those are the intros in terms of disclosures and conflicts of interest, we really have none.

Omar Ahmad (00:07:00):

Adam Thomas and I worked with a group of physicians who run an app called woolzy, the which provides support to rural physicians. We do have a website and the link there is Rosie telehealth.com. It's just a place for people to ask questions and get support. They call in and get the help of an intensivist with various backgrounds, especially training. I want to provide disclosures but not necessarily conflicts of interest. The session is called ask the experts and I just want to disclose that none of us are particularly experts and I don't think there are any experts in this region. Things are in this domain, things that are changing on a daily basis and we're learning as we go. We were asked to put this together about a week ago and we said, sure, we'll be happy.

Omar Ahmad (00:07:58):

At first, we were very reluctant cause there's lots and lots going on, but we said sure we'll do it. There's really not a lot of time we have to prep for this. So under that understanding, we said we'd be happy to talk, share common, share stories and answer questions. But just know that we're not experts and with this panel, hopefully we can get to all the questions or get to many of the questions that we have. Again, I want to stress that whatever we say today may very well change as soon as this podcast is over. There's so much literature and so much knowledge sharing that's happening that things are really changing rapidly. In regards to the literature here, you've all seen, there's a lot of good literature, there's a lot of bad literature and there's a lot of ugly literature out there.

Omar Ahmad (00:08:46):

In this time of information sharing, we're well aware that of course much can be published without much evidence or peer review or strong, sort of, research methodology behind it. Things are changing and what we think is the gold standard yesterday changes as something better comes along in terms of methodological rigor, in terms of the studies. Further to that, of course, as you all know, there are a lot of controversies. So again, in terms of the changing landscape is, there's some things we just won't be able to give you an answer for, but we can certainly touch upon different approaches. Hopefully things will become clear as we go forward over the coming days and weeks and then finally it's important to say sources of truth are very, very important. We are going to speak, we all work in different health authorities. We're going to speak to the source of truth for our community and we can chat about the rationale for why we do certain things where we do, but that might not be true for where you are, the source of truth know what the direction is from your, local public health officer as well as your health authorities. Without further ado, we'll jump into Adam. Is there anything you want to add at this point in four weeks?

Adam Thomas (00:10:14):

The only thing I would get is I know there's a lot of people in different clinical contacts on the line right now. We're all with you. We get there's a lot of apprehension. I would just want to echo what Omar just said, but there is a lot of misinformation out there. And Mario said something 15 minutes ago that is key, that we have to be very careful that fear and hysteria do not drive our clinical practice because we still have to treat patients and presentations that showed up before COVID. We're trying to give you guys the armamentarium today to approach this new clinical situation that we recognize does influence our daily clinical work. But it's really important that we put things into context of what's true and what's not true.

Like Omar said, everything is changing every day so we will say something today and we will be wrong. Please do not tweet us. Please don't message us [inaudible] and say, there's a new JAMA paper out tomorrow morning, you guys are wrong. We recognize we're wrong. We want to be wrong, cause exploring more about this is a good thing. So with that caveat, that sound, I think here from the front lines in New York.

Danish Ahmad (00:11:26):

Hey, how's it going? A pleasure to be a be with you guys tonight and I hope you guys have a less of a tidal wave/ hurricane come your way. The experience in practicing in New York has been surreal, even being in the middle of it and seeing it day to day and seeing how it affects our healthcare system is still hard to wrap my head around. How kind of massive, this this epidemic is walking around New York to some of the major kind of central hubs and commercial hubs and just being empty.

Adam Thomas (00:12:03):

Sorry Danish. Somebody's mic is not muted online and a sound from your feedback guys and everyone listening from home, please turn your mic off. We're awkwardly listening to someone make a drink. There you go.

Danish Ahmad (00:12:24):

Sure, so I was just saying it's been, it's been kind of a harrowing experience and despite again, seeing it every day within the emergency department as well as in the ICU is so hard to kind of wrap your head around. The scale of this, I think the best way to kind of put in perspective as I'm walking down Broadway or walking through Times Square at 3:00 PM and not really seeing a storm out there, as again just I'm fallible along with doom and gloom. However, I think all the different services come together to kind of see these patients in house. The administration come together and trying to offer the best contingency plans in the rest of the waterfall. Seeing well, wishes from fellow New Yorkers who aren't quite warned... I kind of see masking and brain and some of the messaging both with this and saying it's definitely kind of talk to the public.

Danish Ahmad (00:13:21):

We're seeing a lot of that now as well as seeing outpouring of love for healthcare workers, where literally, we're having literally almost every meal in the emergency department catered from some local business or not. So that's kind of an overall general picture. I think clinically it's been it's been a challenge, kind of dealing, with this volume of patients. I think we've changed around the layout of our emergency department about three times in the past three weeks depending on volume and it's just slowly become more and more as we initially tried to keep it a clean and dirty side, if you will, for lack of a better term. Again, I'm going to use that term, COVID and non-COVID emergency departments. The split that we were making as more and more towards a fully COVID unit and kind of the spread in New York is, it's just, it's so endemic that it's almost impossible to keep a COVID sign and not go outside the emergency department. We're seeing people come in with strokes, with just very dense neurological signs with no other symptoms. We'll get a head and neck CT and they'll catch them. The APCs, the lungs, it'll have findings that are consistent with COVID pneumonic, so it's been a challenge in that sense. I think what has been remarkable and what somewhat reassuring is that our experience clinically is really mirrored what the Chinese physicians, lovely Italian physicians have said. It's almost pattern recognition. We see these

patients come in and it's like they've all essentially read the textbook. I mean with the same kind of X-ray findings. This is hypoxia that is not commensurate with their dyspnea fluid. They'll be talking to you in full sentences saying they are feeling fine. You'll look at the pulse socks while they're on a non re-breather and they're set at like 89%.

Danish Ahmad (00:15:06):

I don't think, that just goes to and again, I think I would agree with our Chinese and our Italian comrades and arms where an early intubation is probably best. It is incredibly hard to pre-oxygenate these patient and I know there's now a lot of questions about non-invasive ventilation. I think there's a couple of issues with that, we've faced in New York city is whether or not those are closed systems, whether or not those are aerosolizing, especially with a BiPAP or the high flow and having enough negative pressure rooms to be able to do those procedures. To kind of place those patients on non-invasive ventilation. We're kind of using up our negative pressure rooms...[inaudible]. Are these more robust forms of oxygenation? We find that the patients usually do end up deteriorating, increased significantly within the next 12 hours and we've kind of taken it as a practice to intubate earlier.

Danish Ahmad (00:16:02):

Part of the job that I have at Mount Sinai is I'll also round on one of emerge departments. I'll round on patients in on the wards, who are less critically ill, but will get called for critical care consults. These are often patients who I saw in the emergency department, who looked well on two liters nasal cannula and I'll go see them the next day and they're trumping out on their high flow nasal cannula completely. Just kind of, I'm maxed out on that. They're still saturating at 90%. When we go to intubate them, what is a little bit nerve-wracking is that these patients decide within seconds. It's really important to have the most experienced intubator, to be the one who has the first pass. I kind of scoffed at the idea initially, a couple of weeks ago when people were saying that thinking that, Hey, maybe we should really have our residents be the first pass given up this as a teaching institution and the rest but it's just been, I think it oftentimes puts the patients at risk once you have full faith in these residents. These aren't great teaching cases, because again, I've seen patients desat literally within five seconds. So it's been a bit of a challenge.

OmarAhmad (00:17:14):

Great. Thanks so much, Danish. We're going to certainly go into a lot more detail about a lot of the things you spoke about and yeah, it was very harrowing listening to you talk. Last night when you were filling me in about the state of things in New York as we're certainly going to delve into a lot more detail and into what you spoke about in particular, sort of the initial presentations and timelines in terms of what we're seeing as to one that are getting sick. Then we'll go through the procedures for intubation and all the rest. I think the clinical running of the departments is very fascinating as well so I'm sure there'll be some questions for you there. I'd also like to chat with you about and the rest of the team as well, but in particular what your experiences have been in regards to palliative care and how their involvement is very different than how they would be in in normal day to day operation. So maybe we'll start off a bit, take a few steps back and just chat a little bit about both the virus. I think just to take a few steps back and I'd also like to talk, maybe we'll get the panel just to talk about. So one thing I wanted you to, you mentioned Danish, a lot of people are coming together to support our healthcare workers. I've got to say,

I've been very impressed with the amount of collaboration that has come about with this virus being a national phenomenon and sort of seeing it on a, on a global level, how organizations that normally are at arms length with each other actually coming together to try and fight the vaccine and sharing genotyping and working towards vaccines and therapies. Just so much sharing of literature. I'd love to hear maybe from Mario next and then maybe Adam and then we'll go to Chloe and Dee, just in that order. Just act random acts of kindness that we've all sort of heard about or personally been recipients of those acts of kindness. I think it's just so heartwarming.

Mario Francispragasam (00:19:19):

Thanks for having me. One of the things that you know has been pretty profound is the support that's coming in from the community, from various small businesses to our downtown emergency departments. I think in the context of the businesses being shut down if they're non-essential, these acts of kindness are quite poignant. For example, one of the local pizza joints on the last day that they were operating, used all their remaining ingredients to bake a bunch of pizza pies for the staff at Vancouver General Hospital emergency room and send them in before they closed up the joint, which you know that was super touching. There's been certainly an overflow from the community for donations of masks and PPE equipment to both VGH and St. Paul's. And that's also been very encouraging. It really does feel for the most part, like we're in this together and that's that certainly boost our morale.

Omar Ahmad (00:20:22):

Thank you, Mario. Adam, I think you're on mute, Adam. Okay, I think we may have lost Adam for now. Chloe, did you want to share some of your experiences?

Chloe Lemire-Elmore (00:20:48):

Sure, yeah. Thanks. Thanks very much, Omar. There are two things that have really struck me since this all started. One of them is the sense of solidarity among the teams and collaboration. The admitted naivety that many of us have as we prepare to face the somewhat unknown, the increasingly known, but something that's changing every day. I've felt real support and unity with the emergency room staff, critical care staff, the administrative staff, the nurse needs and coming together to come up with our hospital's response and then the island wide response. We also have the IMP, the island medical program with medical students here. They got together and have put together a website and a spreadsheet offering all sorts of different support for healthcare workers from childcare to buying groceries to pet care. They said, we can do, we'll do anything we can to help. So that that meets to support us as we face this together is quite heartening.

Omar Ahmad (00:21:50):

And Dee, did you want to add a few things?

Dee Hoyano (00:21:52):

Sure. I think what I wanted to really recognize is that what you're experiencing globally and certainly in Canada is a whole of society effort to protect these vulnerable people who will bear the most consequences of this disease and so I think we're asking so many people right now across the society to make big sacrifices right now. They're not working. They're not able to socialize with their friends, and you know.

We know there's going to be lots of social impacts of this pandemic that extend beyond our secretions and so I think that's just been really touching to watch is that the majority of people are recognizing that and playing their part. It is a very bizarre, a bizarre situation to be in. To ask people to do. Nothing to protect others, but that is the best actually out right now at the societal level. I think to recognize all the sacrifices and the choice decisions that people are making to help protect healthcare workers, to support them and also to help protect some of those populations we know are our highest risks. For example, our seniors living in residential care. Just as an example, I have a neighbor who is a cook in a senior's home here in Victoria. His partner works in daycare. She has made the deliberate decision not to work at this time because she does not want her to be become a transmitter to her husband who had been going to the care home and be potentially that, oops. It's just been an amazing thing to really listen.

Omar Ahmad (00:23:45):

All right, perfect. Thanks everyone. We're going to move on to sort of more of the meat and the potatoes and do a quick little review of some of the clinical aspects. Then we'll get into some questions. So obviously, important to talk about the virus itself. I think we've all followed the John's Hopkins dashboards. We won't go into that other than I think it's interesting to know that the mortality case fatality rate is anywhere from 2.5 to 4.5%. To put that in perspective, SARS was 9.6, but SARS was fairly contained, not as transmissible. COVID to the MERS coronavirus had a mortality rate as high as 34.3%. Again, that was fairly contained, not as contagious, and that compares to influenza where it has a mortality rate of 0.05 to 0.1 so we're looking at 25 to 50%. Sorry, 25 to 50 times as high a mortality rates compared to influenza so pretty significant. Of course, the big denominator we probably don't know of course is that we're not testing everyone. It's probably lower than that but the numbers so far are fairly staggering. To touch a little bit on the virus it's an mRN virus and obviously is a part of the SARS coronavirus family. A lot of the studies on transmission and possibilities that have being airborne or not are based on the previous coronavirus pandemics and epidemics including SARS, COVID-1. It's got an ACE2 receptor through which it binds and enters the body and I think that's interesting as we talk a little bit about controversies in regard to ACE inhibitors and ARBs. Actually, not so much controversial but that we'll talk a little bit about that as we go forward but the fact that it uses an ACE2 receptor is interesting cause there are multiple receptors for that throughout our body, including the kidneys, the lungs as well as the GI tract and explains a lot of the clinical presentations that we see. A big question always is PPE and there's going to be another upcoming webinar on that but I think we can't not talk about it. Adam, do you want to chat about PPE as we know it so far?

Adam Thomas (00:26:08):

Can you guys hear me? Am I muted?

Omar Ahmad (00:26:11):

We can hear you.

Adam Thomas (00:26:12):

Okay, perfect. So maybe I'll step back, and I'll talk about transmission because guys, it's really important everyone understands how this virus is transmitted and that directly correlates to the recommendations around PPE. The major driver of this is fomite to face, it's contact transmission for which droplet is a form of contact transmission. That is because this virus is a bit of a sticky thing and it can live for prolonged periods in the environment on organic material and inorganic material. So someone sneezes into their hand, they touch anything in the patient's room and you come there minutes, hours later, that virus is still viable based on new England data. Fomite transmission, very important now where people get confused and there's conflict is between airborne and droplet. Remember the biggest example of airborne that everyone freaks out about is something like Ebola, not because of the mortality rate, but just because it's easily aerosolized. Now there is data flying around there that it isn't viable in air when aerosolized up to three hours. You remember that is in a drum that you just circulate the drum and you see to see if there's live virus particles. So whether that applies to true airborne transmission or not, we don't have an answer on that and that's why the guidelines internationally between WHO and CDC all have conflicting recommendations cause it's not really well known. So from now, you use your local MHO guidance on this. We did just get a provincial memo on the 25th to say everybody providing clinical care in on the province youth, have a surgical mask on and be careful around droplet transmission. Is that okay for now Omar? Just cause we're going to be going into PPE session later.

Omar Ahmad (00:28:11):

Yeah, that sounds good so maybe we'll roll back over to Danish and talk a little bit about, maybe just the early clinical presentation and some of the characteristic lab findings. Then Mario, maybe you can add to that as well and then I'd be interested to see Danish. So yeah, the early presentation and then how long timeframe wise, you've mentioned that it's very similar to, to China on the Italian experience. I think our audience would love to know sort of what it, what kind of timeframes are we, are we looking at in roughly. So yeah, maybe we'll do the clinical presentation and Mario you can touch on labs as well afterwards.

Danish Ahmad (00:28:52):

Sure, so the initial clinical presentation is it seems pretty benign. Usually they cough, usually fairly well appearing. Again, very influenza like body aches, myalgias. Again, just kind of this not feeling well. The, the overwhelming complaint that we get when they come into the emergency departments that finally brings them in is dyspnea. Usually that's probably up to a couple of days after initial present after initially just feeling ill solution. You see the look five days and oftentimes what we'll say to them early on is if we will check their pulse ox and to check some of the labs, make sure nothing crazy is going on and we'll tell them your either going to stay at home or we'll see you again in a couple days as your dyspnea kind of gets worse.

Omar Ahmad (00:29:37):

Great. Thanks so much. I've heard some signers using PAULSOX and asking patients to either take them home from the hospital or go and purchase them have, is that happening in your local location?

Danish Ahmad (00:29:53):

I think if we had the resources, we would love to do something like that, but given kind of the scope and the prevalence of this, we haven't been able to do that. I think another thing oftentimes we'll do before discharging patients home is we will go for a walking pulse oximetry and make sure that they don't desat too far before discharging them home.

Omar Ahmad (00:30:19):

For sure, there's been a lot of a lot of telehealth being set up. We know that the family physicians here in Island Health have set up many telehealth portals to see their patients and that's been pretty impressive. There have been sites that that patients come in, they get their they get their pulse ox done, but the no further vitals are taken. That's kind of how they're done to protect the healthcare workers that are looking after these patients. We've also opened up at least on Island Health clinics, to see these patients on an outpatient basis so that they're not all streaming to the emergency department. They've got clear criteria that if they're not overly sick, then they could go to these clinics and be seen. Mario, do you want to chat a little bit on some of the labs and maybe touching upon some of the labs that might not just the basic labs and maybe some of the lab work that's important for some of the inpatient caregivers like Chloe sitting next to me and for some of the Intensivists as to what might be helpful as the, as the disease progresses.

Mario Francispragasam (00:31:16):

Certainly. Sure. The main lab abnormality that's present of about 83.2% of patients, and this is data out of China is about is leukopenia or sorry, lymphopenia. Some of them have LDH greater than 250 units per liter and the interesting thing from a pulmonary infectious standpoint is that because it's made in a barrel, the procalcitonin that we usually can rely on isn't as elevated. It's totally elevated, maybe in 5% of cases. With respect to other aspects of the disease, there is a transammonite, that is sometimes seen with these as well as in sicker patients. Often a harrowed of very poor outcome in critically ill patients is a myocarditis express with a triple increase. There's probably a couple of things that inpatient providers should look at with respect to lab work. I think I'm going to say this because it has to be said that the lab work takes a back seat to clinical course and a clinical course should always be respected. But, if we're looking at the lab work, very high CRP or elevated CRP increased neutrophils lymphocyte ratio above and an increased D-dimer can be indicators that a significant inflammatory cascade is about. Any early signs of myocarditis should be treated with a lot of caution. I think that if there is any concern about myocarditis that that would result in an ICU referral. Those are kind of the main lab findings. There're also radiological findings, but they're generally pretty typical of a typical viral pneumonia. There is some crazy papers and stuff on CT scans, but again not the suggested diagnostic modality for these. I mean, we bring infectious control precautions. I think that, sorry, there's one more important lab finding that I was hoping to touch on. Some people do think that having positive cultures for group-based strep and for other common pulmonary bacterial infections excludes COVID 19 infection but this is not true. Superinfection is seen and is often resulted with a associated with poor outcomes as well.

Omar Ahmad (00:33:52):

Thank you Mario, that's great. Not only do we see a super infections with bacteria, but we often see concomitant viral infections as well. I think early on our data was saying that if you have RSV or test positive for influenza, your likelihood of having a COVID or are very slim but now we're actually seeing that up to 20% of people can have co-infections with other viruses. So that's quite a quite interesting and concerning. I'm going to turn it over now to Chloe to chat a little bit about when what kind of vital signs

may be looking at to actually admit the patients and of course the crawler you should, that is what are, what are safe criteria to send patients home? I'll pass that on to Chloe.

Chloe Lemire-Elmore (00:34:34):

Great, thanks Omar. I guess as the hospitalist is doing the admissions, it's going to be the [inaudible] assessing the patient and the question really is, this somebody who was presumed COVID positive or known COVID positive, whom we can safely discharge home with quotes follow up or would need to come in? You can break that down into I think three categories. You'll have the clinical and the individual's past medical history and past personal history and also social should be considered when we're looking at this position. We're coming in clinically. We're going to get assessed. The patient is, you know, quite clearly, as this individual needing oxygen to maintain saturations of greater than 92%. Are they able to maintain their saturations overnight to 2% for a period of time or are they desaturating intermittently? Are they dyspneic? Are they displaying signs? We know there's quite often silent dyspnea going on. So oxygen's what from what we're looking for there. Additionally, looking at the lab work for seeing some of those signs that are poor prognostic factors. The more severe the lymphopenia perhaps thrombocytopenia, elevation and the D-dimer, any elevation in troponin as was just previously said by you, by Mario, so we'll look at those as well. Once we've determined, okay, this person this person based on, say for example, the individual is maintaining saturations of 92 to 93, but then we look at their personal history. They're 67, they're 70, they're 80. Anyone over 65, we should have a lower threshold for bringing them in. Then in their medical history called within the comorbidities that put individuals at an increased rate of poor outcomes. So cardiovascular disease, hypertension, diabetes, chronic lung disease, and give those comorbidities. We would certainly be looking at bringing them in. Finally, there's a social piece. Do they live at home alone or with a young family or do they have elderly in the household where we would be concerned about an increased risk of exposure? Are they living on the street? Are they in a shelter? Has the shelter closed? Do they live in close proximity with others? What is the possibility of their following up with public health or keeping an eye on things? So those are all factors we would consider. Then if we're looking back to the clinical, the question is do they need to come to the ward or should we be getting ICU involved now? We would base that on the degree of oxygen that they're needing clinically, how they're doing also very importantly, what the agreed upon code status is. So once we made the decision to admit early on, we need to have a robust discussion about code status and that that has to include going over with the clinic, the trajectory is with COVID. Also considering the patient themselves. Some places, I believe it's the UK right now have you are using the clinical frailty score as an adjunct or to support this discretion about code status and they're seeing anybody with a frailty score of five or above that the more appropriate decision is an M3. We'll do everything medically possible but the likelihood of a good outcome if you were to go into the ICU is quite slim. So again, a robust code status discussion early on, what to expect, what the signs and symptoms of clinical deterioration are. Still needing greater than six liters by nasal prongs or non repeater mask, frequent desaturations, any sign of shock, altered level of consciousness, respite, respiratory distress early on with the individual and the family members about what steps will take when, if and when we get there. For the for the full code, the ICU candidate, it's an early discussion with ICU and early intubation as has been said for those who aren't ICU candidates, possibly trying higher flow, Optiflow up to 15 liters in a negative pressure room. But again, on a case by case basis because we know for not everybody would benefit from that.

Omar Ahmad (00:38:41):

Excellent. thank you so much for that Chloe. That was great. Lots of interesting thoughts in regards to the frailty score. I think that's something we're going to be using a lot more of I've heard in, in this in this pandemic to help us guide therapy. Danish, do you mind? We've got a patient in here that that's been seen in the emergency department has been seen by Chloe and saturations are good. They're 95, 96%, and they've had a PCR done that's a, and the patient sends home the swab. Chloe tells us, came back negative the next day and the patients out in the community. This is one of your patients that then comes back a few days to you later and actually turns out to be COVID positive. So I was wondering, maybe Adam, you can talk a little bit about the PCR and, and sort of how somebody who might initially look pretty good. Maybe, you know, what, what is the sensitivity and, and how often are we seeing negatives? Danish, if you can talk to the timelines of when you are seeing these patients bounce back to you and, and just very quickly how they how they present. Adam.

Adam Thomas (00:39:48):

I'll back up and I'll say, remember the sensitivity, how good the test is at picking up all the positive cases is dependent on the prevalence. So in this awkward phase, especially on the Island and communities where we have low prevalence of the disease, the sensitivity will be lower on the PCR. The big caveat here is that your pretest probability, if you really think this patient like data is showing us if they're hypoxemic and they sound like the textbook presentation and have a negative swab, be very careful of calling them COVID negative. Now the range of sensitivity for the PCR test, nasopharyngeal or oral pharyngeal is reported between 59 and 71%. It's very dependent on the prevalence and then the specific clinical correlation. The only two caveats I'll say is it depends if your patient's intubated or not. Tracheal aspirants can be used to confirm that. Bronchial lavage and washes be very careful, because those are aerosolizing procedures. If you have a high index of suspicion or other data points that make you think this is a COVID-19 patient, you don't necessarily need to continue to pursue that, maybe I'll leave it there.

Danish Ahmad (00:41:12):

Yeah, sure. I guess we're talking about the timeline of when they usually come back. I think in our experience has been about, what we usually see them pretty minimally symptomatic. Then usually about five or seven days later, we'll see these patients come back to the emergency department with more hypoxia, more dyspnea and at that point we'll usually admit them with pretty low requirements and oxygen. One type of low requirements are still talking about nasal cannula. And then usually about two or three days following that, we'll usually kind of get the critical care consult in terms of duties. Patients require higher levels of oxygen nature, more robust methods of oxygenation. In terms of presentation, it's remarkable. I had probably about 30 of them last night in the emergency department just being admitted, waiting to go up but three of them required intubation. What was just remarkable is while they're sitting on a non re breather, they're sitting at 89% and I remember one of them literally called his wife on his cell phone, had a full on conversation with her while he's on a non-reader about how he's going to get intubated. So these patients look sneakily good at least clinically before they before they kind of go over the cliff with their oxygenation. So it's kind of be the timeline or leave it there.

Omar Ahmad (00:42:27):

That's great, Danish. Maybe at this point we'll talk a little bit about imaging. Adam, do you want to talk a little bit about ultrasound? Maybe actually before we do that, Mario, do you want to chat a little bit about what your institution's approaches for using chest X rays and CT scans of the chest to diagnose.

Mario Francispragasam (00:42:56):

Sure. I think the guiding principle here is that COVID-19 is a variable clinical entity with many different presentations and phenotypes. That in mind we discouraged using a CT scans to make diagnosis with COVID unless absolutely critical to management. Certainly there, I don't really know of many scenarios where that is the case. Of course, we'd use CT scan, rule out other illnesses and disease focuses that would be competing diagnoses. Chest X rays we would use barely with for the same reasons that test X-ray is used in a variety of just NIC patients. They have been relegated to patients who are complaining of significant shortness of breath or having an objective measure of desaturation, like hypoxia will once some, one way or another. Other kinds of instance that is starting to be looked at is in terms of preservation or when you do see the quote unquote super spreading events that happen throughout the hospital. So nosocomial transmission and for that reason CT scans have been used in Sinai and Italy and they're starting to be used at VGH or elective abdominal surgeries to ensure that agents don't have asymptomatic COVID-19. The only caveat to this and that's still on a very early phase. To summarize we were using test X rays and CT scans the same way that we use chest x-rays and CT scans to guide management in our other units.

Omar Ahmad (00:44:52):

Sure and then I'll just sort of say that I think as we go forward, we're trying to minimize staff exposure as you said. We lose patients through the through the various departments so we're trying to use portable x-ray. If we can and trying to minimize, at least in our institution, chest X rays and CT scans as well. We had recently talked to a rolling out doing abdominal adding CT scans of the chest and patients with abdominal pain because there is a certain subset, I think up to 20% of patients with COVID that can present with GI symptoms alone. So early on, and especially if you're admitting them or you're worried about abdominal pathology such as an acute appendicitis and they're going to the OR then getting a CT of their abdomen but also getting a CT of the chest as well. But I think you have the evidence still behind that is, is not entirely strong yet. We've kind of backed off doing that, so again, you can get clinical judgment but please try to avoid too much wheeling around of these patients around hospital. Another thing we love to use, and Adam maybe you can chat about this is, is POCUS. And, and maybe some of the findings in relation to COVID please.

Adam Thomas (00:46:06):

There was a lot of work in 2009 and 2003 of correlating bedside lung ultrasound findings with other viral entities. So this is not specific to COVID, but bedside ultrasound correlates very well to CT findings and CT is more sensitive than chest X Ray. So with bedside ultrasound, what you'll see is a normal, a line profile is normal lung union horizontal lines from the near field all the way down in the field. Kind of like the checker product or sorry, the barcode. You're repeating lines all the way down. It's patchy b lines not a fuse like you see in heart failure, but patches of b lines either multifocal or these big chunky ones that a convalescent come together that is consistent with a pneumonic process, something peripheral in the lung that's pleural based and causing inflammation. If you see that on an ultrasound that correlates well with the CT findings of ground glass about applications that are very common in COVID pneumonia. So how

does this clinically correlate? There are some institutions that are using this to rule out respiratory involvement. I don't think the data is there yet. I'd be very careful about it. My sense is we still have to be clinicians like we were before COVID. If someone presents with hypoxemia, I don't think anchoring bias would be the right thing to do and just call it COVID. You should look for other causes of hypoxemic respiratory failure so lung ultrasound in combination with your full ultrasound assessment can help us save materials as in flying do chest x-rays and CT scans and PPE. But these patients were run everywhere, and it can also help you guide management right away with your assessment.

Omar Ahmad (00:48:00):

Awesome. Thanks so much Adam and I think we have to continually remind ourselves that yeah, we kind of are very much focused in on COVID. We need to remember that people still get some interstitial pulmonary fibrosis and COPD exacerbations and pneumonia and other forms of diseases and certainly, anchoring biases is huge. I would certainly recommend to our listeners. I mean, I think most people are very savvy with POCUS. Our emerg sessions are pretty impressive. But I think for those that that haven't used it a lot, I would recommend really getting your ultrasound out and practicing lots and all the patients you see so that you can recognize normal. It's a very easy scan to do with practice, but as soon you get a normal down, it'll be pretty easy to find what a normal look like. So that would I think that's important. And then Adam, I think you had mentioned you wanted to chat a little bit about treatments. Maybe we can go into that and then we'll answer. We'll maybe get to a few questions that are coming up

Adam Thomas (00:49:00):

For sure. So guys, what I will say is, I know you have a lot of questions, we will touch on treatments quickly. The punchline is, if you hear nothing else from this webinar is that standard of care right now for COVID is supportive care. There is no good evidence that any antiviral regime is effective at all. At the provincial, local level, we are recommending that these antiviral regimes not be used outside of the setting of RCTs. There will be different guidelines on the health authorities' you guys are in, but it's really important that we don't fly through the hysteria running around. The perfect example is Kaletra. We know about post exposure prophylaxis in HIV. It was touted to be effective in Ebola and SARS and it turned out it was not that effective. And then we now have an RCT out after we were giving an off label that shows it is not effective. I think that's a good example is we have to be careful that we're dumping resources and diverting these medications around from other populations without knowing benefit. That is the providers go for the next category, so chloroquine hydroxies. You guys will see a lot of information online about this because Trump tweeted that this is the cure for COVID. That study he cites is an open label, non-randomized trial 26 patients. It is not in RCT that can definitively tell us that hydroxychloroquine and azithromycin is helping and we are seeing harm from this. Patients are overdosing on hydroxychloroquine and veterinary chloroquine because they think they're treating COVID so be very careful using it. There are physicians across the country that are getting in trouble with licensing bodies cause they're prescribing it for families and there is no evidence that it doesn't. Wait for the RCT. The other quick ones you'll see from death severe, again, no evidence. Tamiflu before COVID where you would commonly with a hospitalized influenza like illness. We would give Tamiflu until the swab came back negative. Tamiflu does not do anything for COVID. Asorbic acid, vitamin C - controversial. What I will tell you, outside of the severe ERDs, there is no benefit and is controversial with severe RDS. And the last thing is you'll see these immune modulating therapies, whether it's Methylprednisolone aisle one inhibitors or aisle six inhibitors like Tocilizumab. This is a growing evidence base. There does seem to be a small subset of regulation that maybe Danish can tell us about too, that we are seeing in Vancouver now day eight, today, 10 they got

better and then they're having this secondary inflammatory reaction when they start to get multi-organ dysfunction and the worsening lung compliance. The Chinese and the Italian colleagues online are telling us that Methylprednisolone and Tocilizumab help. But again, they're only growing small RCTs coming out of China right now. So watch for it but again, no evidence. That's all I got.

Omar Ahmad (00:52:18):

That's fantastic, Adam. Thank you so much. I did want to just talk a little bit about hydroxychloroquine and chloroquine then a little bit because I think it's just, it's quite fascinating. We're hearing about a number of overdoses in the States and as you mentioned before I think people again listened to Trump's advice to go buy this stuff out. So it's very hard to get, cause of course, the stocks are cleared off the shelves but we're actually finding that you can get a chloroquine phosphate, which is an antiseptic for fish tanks. So people have bought all this antiseptic and it's no longer available in the States cause they've been stockpiling this and it's a extremely lethal. Just a teaspoon of this can get you a quite a incredibly toxic just out of interest sake. We haven't seen many chloroquine, hydroxychloroquine overdoses in decades. But just as a quick reminder, it's got very potent and multiple mechanisms of action, so fluidic channel blockade. The reason that's important is you, I want to consider sodium bicarb or a hypertonic saline. When you treat it, it's got potassium channel blockade, so you get to a prolonged QTC. It's got a direct intracellular shifting of potassium, so you get hypoglycemia. It's of course, in addition to those things, it has direct cardiac toxin effects. The one interesting thing about a hydroxychloroquine is one of the one of the mechanisms to treat it, or one of the anecdotes is to give high doses of diazepam. It's specific to diazepam, not other benzodiazepines, which is quite fascinating. The receptor for the chloroquine, hydroxychloroquine. Those with medications that are very similar on a chemical molecular structure and so diazepam being similar to it actually displaces the hydroxy chloroquine and the chloroquine off the myocardial receptors. It's quite fascinating. We're talking about maillefer doses of one to two milligrams per kilogram IV and giving that repetitively. I find that that was, that's quite instinct to have reviewed that at toxicity. We may or may not see that but it's it's quite fascinating. Let's go over to some questions now. We've got so there's a couple for Danish here. The first one being are you seeing much anosmia in your, in your patients that are coming back to you?

Danish Ahmad (00:54:46):

A couple of our providers who have tested positive had had anosmia. I can confirm that.

Omar Ahmad (00:54:53):

Hmm. Fascinating. and then another question is, and maybe Adam, you can speak to this because you just went on a long road trip. In fact, you're calling from a, from another province. Right now. People are asking, how are we keeping our families safe? I think you're at the one end of the spectrum and I can talk about what I'm doing at my end of the spectrum as well. Maybe we can hear from Dee to help people are keeping their families safe. Adam, do you want to talk about what you were doing throughout the night, last night?

Adam Thomas (00:55:24):

Just thrown me under the bus there. Omar. Given a lack of family supports in Vancouver and for me to continue my clinical work at ITU there, we've decided that my family will be here in Calgary with our extended family here and I'll return to Vancouver so that way transmission no longer becomes an issue.

Omar Ahmad (00:55:47):

Adam, sorry, I didn't mean to throw you under the bus. That was not the intention at all. I'm actually very respectful of what you've done, and I just loved the fact that you have immersed yourself in, in COVID preparation and the amount of work you're doing at the local level, the provincial level. I believe probably doing some stuff at the national level is just amazing and you are a true hero, so thank you. I didn't mean to throw you under the bus there at all. Thank you. Yeah, fair enough. And how about you Mario?

Mario Francispragasam (00:56:17):

Yeah, no, I am unmuted now, I think. I think it's been a bit of a challenge, but usually my partner and I exchange the kids every couple of weeks, but you know, it was a very hard to do. Mainly say that I will be talking to them via face time and video chats until this is over. Other than when I come home, I take off everything I'm wearing and I toss it right into my washing machine and go take a shower and smell myself before I touch anything else.

Omar Ahmad (00:57:01):

Great. Thank you. Well how about you, Chloe? Are you, a little thought, on how are you protecting your family and you.

Chloe Lemire-Elmore (00:57:09):

That's an interesting question. We've a group of 74 doctors and all of them are asking this, that and one question that was brought on the, should we get housing for the docs who are working on the COVID ward. He had, you know, you were reassured by the, the medical microbiologists that we have in your hands that are local experts that, you know, PPE works, practice it diligently but that the risk of bringing it home to our families is low. So that's what we're advocating for. We are saying if for everyone, you know encouraging everyone to wear scrubs and shower at the end of the day before changing to their street clothes, going home, having separate shoes for the workplace. At this time, we're not separating out from families, but perhaps if I was on the panel say that we should be and we can change our tune.

Mario Francispragasam (00:57:52):

I'm sorry. I do want to kind of address that if that's okay, Omar. I don't think that's what I'm saying. I think what, what is coming out of Italy, despite their system being completely overwhelmed, the rates of health care worker transmission remain quite, quite low with appropriate PPE. It's under 1%. I think that it's completely reasonable not to separate yourself away from your family and trust the PPE. This is just, I am a paranoid human.

Adam Thomas (00:58:26):

Yeah, maybe I'll say that the human side is that we're all entrenched in clinical work and there's a lot of work to do. And it's not really transmission, but it's that I can't be a good partner. So for my kids and my wife to be supported, they need extra family around so I think that would be the major drive.

Omar Ahmad (00:58:48):

I can say the first patient that I intubated with possible COVID, I slept in a separate room away from my family that night and I didn't really interact with them until the COVID came back negative the next day. Unfortunately, my family continued to not interact with me for the next 24 hours. But that's a whole issue. There's a question here for Dee how many cases do we estimate BC actually has and in comparison to the numbers that are reported? So maybe I'll turn that over to Dee. How many cases do, do you estimate BC actually has?

Dee Hoyano (00:59:40):

We certainly know that based on our testing criteria right now, that is not an accurate picture of what are the number of cases on the patients. The, the latest estimates that I've seen are that we are likely in, we'd like, we have several thousand cases in BC. Again, the majority of laws are mild cases. I think the other important thing for people to remember is that this will not be distributed uniformly across the province. You know, the way this is transmitted, we will see clusters and transmission within, you know, within certain geographic areas. Of course that is principle reason why the social distancing measures are so important to try to interrupt that transmission and movement of the disease into two areas. So that is lie, that public health recommendations have been that anyone has mild respiratory symptoms, they aren't to self isolate for ten days at minimum and all the other measures that have been implemented across the country right now to try to decrease people's social interactions. We know that that again, the majority of people, this is going to be a mild illness, but it is transmissible. And so that's the piece that we need to be hammering over and over with everybody on what, how important their role is in preventing further strike.

Omar Ahmad (01:01:18):

Great. Thank you, Dee for that. I'm going to turn the next question over to Danish, but we can all certainly chime in a little bit. But unfortunately, I think as we go forward we'll know more how to answer this particular question. So the question reads, I'm a palliative care consultant and wondering how patients die. Do they tend to die quickly or more slowly and did any require palliative sedation to control dyspnea? And I think maybe Danish, you can also talk a little bit, cause it's very related of course is the conversations with palliative and how you are consulting them differently during this pandemic compared to how you normally would.

Danish Ahmad (01:01:57):

So, in terms of how these patients die it's mostly been just refractory hypoxia respiratory failure. The last two deaths that we had were patients who essentially failed proning and within four hours just kind of became more and more hypoxic and essentially arrested from that. At this point they're already intubated, sedated. I don't think they were in, hopefully not in any distress or pain and we made sure that they were comfortable on some events later and pronged. In terms of how we interacted palliative care, they've now gone to a 24-7 service, whereas prior to this had been a nine to five service as a critical care division. What we started doing is screening patients who had a high likelihood of mortality and is going through again. The studies that have been mentioned by some of the other panels tonight was just going through some of the biomarkers to start with. It'd be biomarkers in age. So age confers a higher likely to mortality and

we'll kind of go through D-dimer, some worsening lymphopenia whether or not they're on multiple pressor and then we'll kind of reach out to the team taking care of them at that week or during that time and kind of ask if they're doing worse or better. Then if the primary team agrees that they're doing worse and we'll usually consult palliative care on patients that were probably then consulted much later in their course. We were trying to catch these patients before they get into dire straits and have these goals of care conversations earlier. And again, I think we're pursuing these much more aggressively knowing that in the near future we will be having issues with a ventilator distribute-- distribution. We will have started limiting our availability of ventilators to patients.

Omar Ahmad (01:03:41):

Right. Thanks. Thanks so much Danish. A few other questions Oh, sure and actually Chloe to add something to that as well.

Chloe Lemire-Elmore (01:03:50):

For sure. It's something that I'm in a lot of these conversations, it struck me that there's much talk about the patients going through the ICU. I feel as though I'm often defending the ones who are M3 and wouldn't be ICU candidates. So when developing our local clinical orders that we put Dilaudid on there at, at a low rank dose. I think it was one to two milligrams sub comes to a 0.5 to one Q four H and a prompt for the nurse to call us if they have to get, they give the second dose. And that's because we know that even if, before we're palliating a patient, as they're developing more and more air hunger, that the Dilaudid adds comfort and there's no need for these people to suffer right until the very end and we switched to palliation, so we are especially on the, you know, the M3 patients before. If we're not calling ICU, we're discussing palliation and starting those end of life meds. Well, starting the hydromorphone. There's a really neat symptom management flow chart that was developed by the palliative care team here in BC that also gives a nice breakdown on what doses, which meds is your standard palliative care medications. Again, having had this discussion early on about when we will start them because we know that there are a lot, it does work with this for dyspnea and I often tell families we palliate a lot as hospitalists that they'll likely go into a deeper and deeper sleep and that's what's needed to control their symptoms so the families know what to expect and the Twilight sleep.

Omar Ahmad (01:05:19):

That's great. Thank you so much. Alright, great. Another question that seems to have a lot of likes is if you could pick one or two signs that visibly telling me that a patient is in need of respiratory support, what would that be? I think in our critical care literature one of the vital signs that's often missed time and time again is just the respiratory rates and we all take the heart rate. We often take the blood pressure, we take the temperature, but we often just kind of roll our eyes and sort of say, yeah, that's a respiratory rate of 14 and we kind of move on. But you know, looking at the respiratory rate is, tells us a lot about their, their suspected trajectory. I think if you look at someone and their breathing, you know, 22, 24 that should raise that, raise some alarm bells. Again, that's something that I teach all my residents is look at that respiratory rate no matter what the condition we're looking at. That holds true across spectrums of diseases, not just respiratory, but other forms of sepsis, urosepsis or any other forms of, of shock, cardiogenic, anything even without the presence of congestive heart failure to keep me as is really, really key. So I would say, look at the tachypnea is an early harbinger of things to come. I think what Danish mentioned this earlier, but I think walking oximetry is also very, very important. We've all heard that you know, the patients come

to the emergency department, we examine them in a bed and we send them home. But, you know, we don't realize that the patient's got a limp leg from a spinal cord compression or whatever and we're all sort of guilty sometimes, especially in a busy emergency department, not to examine our patients walking. Make sure they can walk and make sure they can walk okay with an O2 sat on and if they start to drop below nineties, you're obviously pretty worried about them. So those would be two quick signs I would look at. There's another question about how do we assess patients over the phone for whether or not they need to be seen in the emergency department or they can stay at home. And, and that's a great question. I think more and more we are seeing across jurisdictions that we're using virtual tele-health to examine patients. And again, just looking at a patient gives you a lot of information. So if you have that ability to do so, that would be great.

Omar Ahmad (01:07:35):

I know zoom is being used a lot. I have no interest in Zoom whatsoever, but it's been used by a lot of clinics now. That's one thing you can use. Of course, the advent of FaceTime and WhatsApp video and all sorts of other video apps, anything that you can use to, to actually physically look at your patient. Again, that'll give you a sense of what their respiratory rate is. If you don't have access to that and the same things that I sent apply before, get them to take the respiratory rates as well as get them to take their resting heart rate as well. I'm going to turn a question over to Dee are we able to comment on which, if we're on the trajectory of Italy, I don't know if we know that right now. So maybe not a fair question, but if I can get you to speak to that, that'd be great.

Dee Hoyano (01:08:22):

What, I think that's we will see in a few weeks is, are we on the same trajectory or have ordered these social distancing measures, order closures, the quarantine measures in time. So, I, I cannot answer that yet. I like, hope they're able to do that.

Omar Ahmad (01:08:50):

I've got just a comment from a good friend of mine and just an excellent clinician, Dr. Jeff Wisen and just reminding me to emphasize people that the standard supportive care and it's super important. At the end of the day, this is a viral illness. So we know what to do and continue doing what we what we do and I think that's good. Any other questions, Donovan, that you can think about that we need to address right now? If not, we'll go into a little bit of boats where they are now coming back to see Danish and how that intubation process goes and maybe some advice. But any other questions are missing at this point?

Donovan (01:09:29):

The top question right now is what is your [inaudible] on asymptomatic individuals being contagious?

Omar Ahmad (01:09:33):

Dee, do you want to take a, you want to take that question? Okay. I'm sorry. I don't know if you heard that question, but I guess the question that's trending the most right now is, are asymptomatic patients contagious. I'll pass that on to Dee.

Dee Hoyano (01:09:50):

Again, I could be wrong tomorrow. I think what we've understand to this point though is that the, majority of transmission will be from people with symptoms. Again, we know it could be very mildly symptomatic. So not necessarily people who are obviously you'll and copping a lot, et cetera. But the majority of transmissions because it is a droplet form will be when they are basically more efficiently transmitting droplets. I think that's also another reason why as far as healthcare workers in particular we need to be monitoring our own symptoms and taking those measures are checked. You know, protect us from potentially, you know, transmitting when you are experiencing that very early symptom onset.

Omar Ahmad (01:10:54):

All right. Thank you. Thank you, Dee. So maybe we'll go back to to your case, Danish. You said that you, we were talking about a patient last night that has a history of hypertension and they were seeing a number of days earlier and now they were coming in looking, looking pretty sick. So maybe we'll chat a little bit more about your approach and we'll sort of move pretty quickly to decisions to intubate. But before we do that, Adam, do you want to chat a little bit about ACE inhibitors cause this patient was on an ACE inhibitor and how that plays into things if it does at all. Is it helpful? Is it harmful? Do we know?

Adam Thomas (01:11:34):

So the punchline is we don't know and right now upfront I will tell you the AGE and the European cardiology study both came out with statements last week saying do not stop people's ACE inhibitors or arbs for their regular blood pressure control. The caveat being when people are critically ill or coming into a hospital, we stop those medications for other reasons anyways cause if you're hypotensive or unwell, the risk of AKI with these inhibitors is high. So if they're coming to the hospitals, you should stop their ACE inhibitor for that indication, not for COVID alone. But, if you back up to the physiology, remember ACE inhibitors block the Angiotensin two receptor. You can up-regulate the receptors. The physiologic argument is that is maybe why people are at increased risk of illness and have higher viral levels when they are on ACE inhibitors and we do not know that answer. People are exploring it right now. The punchline for people in the community, you can continue your patients' ACE and ARBs when they're coming into a hospital and they're unwell, they should be stopped for other reasons.

Omar Ahmad (01:12:45):

Thanks Adam. That's great and then Danish, we'll get to you in one sec. I just want to answer a couple of questions here that I think are important. Number one is, do you see a role for medical students in the future? I guess I'm getting older in my life here, but you guys are our future. So sorry, maybe that's a bit hokey, but you guys are our upcoming generation of physicians. They're going to be leading the charge ahead of us and I'm very, very, very proud. Chloe and I work with the Island Medical Program here and the, the number of medical students here as well as other parts of the province, other satellite locations of UBC have just been coming out in droves to, to offer support and encouragement and they've even offered to babysit and pick up groceries. I'm working with med students that I'm very proud of, who is working on with a bunch of other med students to get PPE from various buyers in the community. So absolutely medical students, there's so much, and thank you for everyone that's, that's stepping up. We're, we're still fortunate to have such a great group of of, of people that are going to be our future. There is a quick, there's a question here, but what does the situation in the ICU currently? So in BC, we're starting to see an uptick in cases mostly at and Fraser health, there's been some cases in that Vancouver general as well, but for now Fraser health seems to be hit the hardest. There's a case is now, I think in every health authority,

more or less. I am not sure Adam. I'm pretty sure we've got cases just about everywhere, but if we don't, we will in the, in the near future so it is here.

Omar Ahmad (01:14:37):

Just in a plug with that, just let people know just to talk about collaboration and whatnot, just to maybe give people reassurance. The degree of collaboration was just so warm and, and every, every, every, you have morning, seven o'clock in the morning, all the intensivists are on the phone chatting amongst ourselves and getting the updates from people they got him and his crew that are putting together daily updates. We chat about important topics, like how do we approach PPE, how do we approach code blues, how do we approach a resource allocation in regards to ventilators and PPE? It's just really nice and coming together as a province and it really gives me great hope that if we've got a chance, we're going to get through this, through this great communication that we have.

Omar Ahmad (01:15:22):

It's pretty nice time to see that. Dan, can you talk a little bit about so this patient comes in, they're looking pretty poor, you're sort of thinking intubation. Can you sort of go through how your site goes through that process and, and how you think about that and any anxiety levels or I know you've intubated I think over a dozen now COVID patients. I think you've admitted well over 50 COVID patients so you've seen the most under all of us. I hope we never have to see that that much here but maybe just chat a little bit about how the, how that happens.

Danish Ahmad (01:15:57):

Sure. I guess I said we've split our ER into a COVID and non-COVID zone. One of the patients look like they are tachypnea, hypoxic just off of nasal cannula to be moved into one of our pretty limited negative pressure rooms. At that point we'll evaluate the patient. The negative pressure room for the patient. We saw last night was to tachypneic, was hypoxic despite the non re-breather. And I think the hard part mentally is, is just pulling the trigger to intubate. These patients are talking to you in full sentences and completely with it as opposed to for most patients we're intubating look like at least certain extremis or something along those lines and we're going a lot based off of vital signs. And again, that tachypnea is present there. We have two different algorithms that are pretty similar. One that's an emergency department of one that's upstairs in the emergency department. We'll usually move the patients into a negative pressure room and we'll try and limit the number of providers in the room to be two and set up as much as we can prior to going into the room so we'll have the nurse drop all the meds. We'll have the respiratory therapist set up the vent outside the room and we'll kind of bring it in with us and when we go ahead for the nitty gritty. I'll just be brief about it. For the nitty gritty of intubation, we'll usually use high dose paralytics. There's a sure, kind of ideal, situation for intubation. What we've been saying is the most experienced providers should be the one intubating. I think that I was skeptical about it at first. I wanted to make sure that the residents had their experience with difficult airways. But after seeing how quickly these people desaturate and given the dangerous level switch, they go to one that intubating them. I think it should remain that once intubated we'll play sim-d the we'll place angio-two. We'll place all bots just to make sure that there's not a need for repeated x-rays and we will try not to bag them at all. Costs will usually play some directly onto the ventilator with a capnography to make sure that we've gotten placement upstairs. What's kind of been different isn't actually I'm seated the airway to anesthesiology and what will usually happen is one of the critical care providers and the anesthesiologist will be in the

room not to fight each other back up at the anesthesiologist. We'll be taking the airway and that just goes to show kind of how seriously you have to take this airway and there is a lot of trepidation just given how quickly these guys do desaturate. Now, whether it's an easy airway or a difficult airway, it doesn't matter. Just even sec, within seconds, these people are desaturated down to the 70s and you can do everything you can to try and preoxygenate. But again, we are kind of limited in our ability to preoxygenate some of these patients, give them the aerosolizing nature of the disease or the process of non-invasive ventilation.

Omar Ahmad (01:18:43):

Great, thanks so much Danish. I think you know, if there is interest in having this this panel back, I think we'll really dive into you know, checklists and the briefing and the debriefing and the doffing and all that other stuff. Cause I think it's a whole topic in and of itself that's so, so important. I certainly want to stress just a couple of things that that I've learned from, from you as well as Mario, intubating his COVID patients is that number one, that these people, as you say, desat so quickly and that's used to be universal. I'm sure Adam would say the same thing. So just be aware and I can't stress enough, have the best intubator there and number two please, for people who are going to be doing the, the intubations and doing any procedures that involve aerosol generation. Please, please practice in advance, both donning, doffing and actually do simulations and try and make it as real as you can and go through the process of giving drugs and doing the practice of inserting the endotracheal tubes cause you'll pick up little things that you'll forget along the way so having checklists is really important. If people want to email UBC CPD, we're happy to share various checklists that have been shared amongst the intensive care and emergency medicine groups. There's no, no point in reinventing the wheel. But that whole process don and doffing is really important. So just going to go on to some questions here. This first one is Flora. I'm going to direct this to Mario. Do you have any experiences of patients with type one diabetes and COVID-19. Any comments on their course of illness with regards to insulin therapy?

Mario Francispragasam (01:20:34):

Yeah, so I, had the unfortunate pleasure of intubating a, a young, healthy 27 year old type one diabetic with COVID positive, came back COVID- 9 positive. In general, the there is some significant hypoglycemia that did occur throughout the week. It's super challenging to manage their blood sugars while they're kind of in the intensive care unit, particularly because they already have a deranged insulin response to sugars with respect to deterioration, etc. Or this or they are a patient and certainly does have a classic risk factor of severe DVT disease, which is diabetes as born through the Wuhan data initially. But the inflammatory cascade wasn't that bad and the patient did come off the ventilator after a week's time.

Danish Ahmad (01:21:43):

I think I had one. A type one diabetic patient who was interesting for me was I found that once we started treating, we had enough time to treat the DK pretty aggressively. But once we brought their bicarb up, despite their tachypnea, we're able to avoid the tube. I don't know if that was just a foolhardy or if we did the right move, but luckily we were able to avoid the ventilator for that gentleman. It's pretty, pretty crazy stuff.

Adam Thomas (01:22:17):

Well, I think there's a couple of other questions. Should we try to fire those out quick and I think everyone's muted.

Omar Ahmad (01:22:27):

Sure, go ahead, Adam.

Adam Thomas (01:22:31):

A couple of things I wanted to address quick is steroids, because people were asking about steroids and asthma and et cetera. Steroids are not recommended currently because of the concerns about increased risk of viral shedding. We should not be [inaudible] giving steroids out to these patients. There are some questions about if you have the septic shocker and exacerbation COPD and the provincial guidelines to say, in fact, you can use steroid in those scenarios.

Mario Francispragasam (01:23:05):

I think Adam, to also to add to kind of what you've said about steroids, especially in the process of infectious respiratory illness over the last 20 years, steroids have always been first suggested and last proven if at all. I would use that cautious statement of whether where you're dealing with data on using systemic steroids in any respiratory illness. For every single respiratory illness that we've faced as a medical specialty, whether infectious or especially those infectious in etiology in a quick run to the steroid gun and no data ever really supporting that one. I would need that caution specifically with COVID, just treat, treat people as you would with any other respiratory infectious protests.

Omar Ahmad (01:23:58):

Yeah, I think that's fair. I'm not going to go into the, the controversy of the steroids, but I think that's a fair statement. I think, again, just to go back what Dr. Jeff Wisen had said earlier. I remember it's a viral illness and treat supportively. I think in another podcast we can talk a little bit about important things like fluids and management on the vents and those kinds of things of what supportive care looks like. Let's see here. Adam, do you want to talk a little bit about this question here. If I have more critical patients than ventilators, is there any clinical lab or radiographic criteria I should help to choose to help me choose who gets the vents? Maybe you don't have to ask that specific question, but maybe we can chat a little bit about the ventilation allocation framework and, and any and that question anyways, you've been a multiple grit. The most appropriate. Thank you.

Adam Thomas (01:24:52):

Yeah, I think I will. There's a great article out new England three days ago about the use, tactical use of scarcity of resources. I will divert people to read that because it's a good framework for scarcity argument when it comes to ventilator allocation. That is difficult. So we talk about ERDS in these patients, they are not typical ARDX and maybe Danish and Mario can confirm that you're very people responsive and then you do not need to crank the feed that we do with the standard ARDS vent protocol. So if you're on an FIO to 60, you do not need to be on the keep between 15 and 20, usually within that is a big caveat that don't have a, a generalized statement but they are very responsive and they're prone responses. This is an alveolar lithiasis injury and direct inflammation and damage to type 2 alveolar cells. Because of that, they have a failure of hypoxemic nasal constriction and the shunting that Danish got to is that profound hypoxia when they don't look that bad, it's because of pulmonic shunt that they're shunting blood. So what I would say is just be careful with standard treatment. You don't drown this patient. Sorry, I don't draw in these

patients in fluid, the SCCM guidelines and giving 30 cc's per kilo of volume to critically unwell patients, please do not apply that to a viral pneumonia patient.

Omar Ahmad (01:26:26):

Great. Thank you, Adam. There's another question. We'll answer here. Maybe our last question of the evening. How do you see redeployment playing out, especially for doctors who do not typically work in patient care? Do not typically work within the hospital environment, so GPs and GP sub-specialists. So that's a great question and I'm sure everyone hears from BC have seen the letters from the college looking to sort of re-re-pool the workforce to find out who would be willing to work in hospital and retired physicians that have retired within the last two years if they'd be willing to come back and work in the inpatient setting. I can't speak to all the, all the different departments. Okay.

Omar Ahmad (01:27:19):

Thank you. Within the emergency department we've got GPs, not necessarily working with us in the department, but this bravery of multiple GPs out in the community, who have contacted us and are working with the divisions of family practice to open up clinics and figuring out ways that they can take patient load off the emergency departments and they're setting up just like we have in the emergency departments, the COVID zones and the non-COVID zones. Seeing patients both physically and then there's just a huge outpour of people that are seeing their patients via telehealth. I think for GPs, that's great. The GP sub-specialists, again, as we move forward, I think having them work with us in the emerge and again in the ICU will be huge. Those are going to be the two areas that are going to be heads very hard in addition to the inpatient wards as well.

Omar Ahmad (01:28:12):

I think we'll be looking to set up videos on how to manage and send ventilators and how we do management of various inpatients' common diseases. So that, that's coming. Within the ICU I see myself working with our GP subspecialists quite a bit where I'll be rounding in the procedures and maybe they can help with family conversations and help with some of the routine things we do, medication reconciliation, etc. There's definitely ways we're going to get higher workforce to come together and work. And again, it goes back down to this collaboration that's been so rich and so hard for me. We'll definitely find ways for everyone to help out. Actually, Chloe's got some comments here, so I'll pass that on.

Chloe (01:29:04):

Also, on the wards, we've had a number of GPs in the community and retired hospitalists reach out and offer to, to help out. We need it for the COVID surge and we're also considering the individuals' retired positions are often older and age, many have hypertension and other comorbidities cognizant that we're looking after non-COVID patients. All the while, we would do a redeployment of our own staff and if people aren't, you know, have offered to help and coming on board, it's not necessarily that they have, not necessarily that they have to factor the COVID patients. We would look at reallocating them to a lower risk ward maybe like post frac ward, ortho ward and then use our hospitalists on the COVID ward. Again, that familiarity with the medicine and experience being an asset and we would do on boarding and get them a mentor.

Omar Ahmad (01:29:50):

Maybe we'll just end with this final note and maybe Mario, you can comment a little bit about this. It's just, again, there are telehealth, virtual health supports for physicians for them to reach out to. Again, I mentioned ROSE will be there to help physicians if they are dealing with patients that they may not necessarily feel comfortable with. But and then there's some other platforms that are also available out there through RCCBC. But Mario, do you wanna end on that note and just chat about a few different platforms that are, that are available or will be coming shortly to help our physician colleagues?

Mario (01:30:27):

Certainly. The one thing I did want to add to your statement about redeployment, et cetera, was that I think one of the biggest areas where redeployment might be very, very impactful is in the maintenance of a mental health kind of stuff or frontline and active physicians. That could be accomplished through telehealth as well, especially with trauma counseling, et cetera. As we approach the days or weeks or months of COVID that does happen. With respect to the telemedicine options, I think we're positioned with supports. There are certainly us pathways to the RCCBC kind of led by John Pavlowich that are very, very useful. There's the Rudy pathway, which allows for zoom connections and [inaudible] or which you know, I think is so important to have a collegial and camaraderie boosting service like that. The other kind of pathway is through led by Kendall Ho, which is the [inaudible] service again, through RCCBC which allows practitioners to get in touch with the emergency physician. Then finally, there's the rural outreach support. I support an e-health service, ROSE, that's that involves critical care expertise and acute response to COVID as well as non-COVID issues. These all accessible. They work in concert and very easily reached. RCCBC, will be distributing how to reach them. I'm sure to all the rural providers out there and of course the rural providers are more than welcome to contact me as well. I am in touch with the appropriate help as well.

Omar Ahmad (01:32:24):

Mario has been with the ROSE group for much longer than both Adam and I have. I think I failed to mention that earlier. So yeah, you're definitely a bit of a pioneer in that regard Mario, so thank you for that. Bob, there's one more question that I that I think is really good, but should we end it and leave it for next time? What do you think? Well, I think you're on your own.

Bob Bluman (01:32:51):

That's okay.

Omar Ahmad (01:32:54):

Sorry, I missed what you said. I think you're on mute to start.

Bob Bluman (01:32:56):

No, I'm, can you not hear me?

Omar Ahmad (01:32:59):

Yeah, we can hear you now. Yep.

Bob Bluman (01:33:00):

Okay, great. Yeah, no, I think I respect everyone's time. I think we should end now, Omar, and thank you all for staying the extra half hour beyond the one hour that we scheduled this for. I think I really want to express my sincere thanks to the whole panel. You Omar and Adam and Danish and Mario, Chloe, Dee, you know, you're all obviously dedicated physicians, excellent presenters. You know, just really thank you for taking your time out of your busy lives, your heavy clinical duties and to share your experiences and answer questions to your colleagues. I'm sure it was really helpful in that. I'm sure we all really appreciate it and you know in doing so, I'm hoping to be able to invite you back again and as you said you didn't get to cover everything. There're more questions that weren't answered and were, this is all part of the series. I'll explain a bit more about that in a moment. But we'd certainly love to have you back maybe in a couple of weeks or so. We'll talk and make it available and as things are evolving and how are we dealing with COVID and, and just things that you didn't cover. I'm sure there'll be lots more to talk about.

Omar Ahmad (01:34:15):

Can I just say a quick thank you to Donovan McDonald again, who's been reading us the questions as we go. We couldn't have done this without Donovan, so thank you Donovan.

Bob Bluman (01:34:24):

Very well. Thank you. I'm glad you raised that. Thank you and I also want to thank all the all go through our attending and ask that you all take a few minutes to complete the attendance and evaluation forms that you were emailed. As in order to gain your study credits, you must complete these, the online attendance form and if you complete the evaluation, it will help us make improvements to, to future sessions as well as understand the topics on the issues that are most important at this time. You can again, you can access those forms via the email link you've received earlier today and email Stephanie if you did not receive those forms. We're going to be holding other, other webinars and I want to just quickly mention those to you and including, hoping to invite this whole panel back if they'll come and but other topics we're going to cover, we're going to have one specifically coming up on Tuesday March 31st 7 to 8:00 PM ,specifically looking at personal protective equipment for healthcare providers, emergency docs. Sharing their experiences and update and on those procedures both in emergency and non-emergency clinical settings then they would answer all your questions with that. We have another one coming up either next Wednesday or Thursday. We organized needs pretty quick as possible. I can't even tell you the date, but you'll receive a no notification of that one, which is going to be for primary care physicians. We are going to have three different family docs who are knee-deep in, in, in managing their patients and looking at urban and urban full-service line physician or rural proxy position. We're going to have an inner-city marginal physician who's on session type payment.

Bob Bluman (01:36:09):

There's different contexts of practice and they're going to each share what they're doing it to, to how would their [inaudible], how they're managing their, there are patients with frailty and at risk. Finally, we're going to be having a webinar especially on maternity care. I know a number of you have a lot of maternity related questions we didn't get a chance to answer. We will be providing that as well. You'll hear about that in the next couple of weeks. So with that, I'd like to, again, thank everyone for participating,

specifically our incredible speakers, such a valuable information you gave us to all tonight all the viewers. Thanks again and good night and good luck in handling all your COVID-19 patients.

Panelists (01:36:54):

Thanks everyone. Everyone.