**RACHEL DEERR: Hello, I'm Rachel Deerr, host of today's program COVID-19 Critical Care: What Providers Need to Know. This is the June 5th update of DKBmed radio's coronavirus educational series, COVID-19: Keeping Up with a Moving Target. Thank you for joining us. As a reminder, we are providing twice weekly 15-minute webcasts and podcasts featuring the latest news treatment updates and clinical considerations as well as answering your questions about COVID-19.**

**These will be available on Wednesday evening and Friday morning. Sign up at COVID-19.dkbmed.com to be sure you get the latest updates.**

**Today's program is accredited for ANCC and AMA PRA Category 1 Credits. Please visit our website for complete CME and CE information. To attest for CME or CE credit please visit COVID19.dkbmed.com. There you will find all of our previous COVID-19 programs and have access to other free CME and CE programs on a wide range of topics. Slides from today's presentation as well as all previous presentations can be found in the Resource Center.**

**Today's learning objectives are:**

- **Explain three challenges institutions faced when COVID-19 was first recognized**
- **Discuss two causes of the financial difficulties hospitals face today**
- **Identify at least one priority for institutions going forward**

**Again, I'm very happy to introduce Sue Hansen, a clinical nurse specialist at Harborview Medical Center in Seattle. This is the second part of Sue's series CAMP COVID: what have we learned so far. Sue, thanks for joining us.**

SUE HANSEN: Thank you for having me, and before we begin, I'd also like to thank the generous support of DKBmed, the Postgraduate Institute for Medicine and the Institute for Johns Hopkins Nursing.

This is our second part of two-part series of Camp COVID. For prior information regarding the first part, it was taped earlier, and so you can reference those slides for further information.

This second part, we're going to talk about management of Human Resources, the impact on staff, the impact on post acute care facilities, and going forward what we have learned.

So, regarding human resources, I can't speak for other institutions, but this is again certainly how I think we all felt. We all felt like we were running every day, we're running out of time, and we had to do more with less and do things by yesterday. It never stopped and it went on and on and on and on and never seemed like we were going to get any relief. But in terms of managing our resources, I think our center in particular did a really great job in training people and training people for different roles at the last minute. We got things in the place, or redeployment, so for those staff members who maybe have been out of ICU or been out of bedside nursing for one to two years, we tapped into those folks. We provided training materials and we provided orientation so that they can refresh their memory and get up to speed with caring for ICU patients again.

Another thing that our institution was very fortunate enough to provide staff, because our staff were working 6-7 days a week, 12-16 hours a day, is child care. They have families just like all of us, and they can't leave their children at home. And so, we do have a child care center associated with our facility, and we were able to provide extended hours of child care and reduced child care fees for a lot of our staff.

In addition, one of the things that we are able to provide for staff is counseling and wellness resources for them. It was a huge impact on staff emotionally and physically, again we're fortunate to provide those resources to staff, but I think going forward and one of the things we're learning now is that once you get over the height of the COVID-19 surge and the census starts to drop and your adrenaline starts to drop and things are starting to slow down, that's frequently when people start to think about all that's happened over the last three months. I think we're now just seeing that in staff, and we're starting to see the toll it takes on their mental health.

I think one of the things that would be really beneficial if institutions can do and they're able to provide these wellness services and these counseling services to staff is to please continue those services even though we're seeing COVID-19 censuses go down. Even though we're starting to ramp up our routine operations, staff need this. Full staff, not just frontline staff, because we're starting to see lasting effects for the people who cared for these patients. It's one thing to come out on the other side and have great numbers in terms of mortality for our COVID-19 population, but at what price is that if your staff cannot recover as well and they don't get the services that they need to become healthy again? Because again, it has taken a huge toll.

Infection prevention and control, I'm not going to go too deep into this because all of COVID-19 I think you can sum up under infection prevention and control, but some of the things I would like to highlight are negative flow rooms. We did have some negative flow rooms, but we had to turn more rooms into negative flow rooms. That was a huge engineering feat on the part of our department of engineering, and they pretty much did that in less than a week. Some of us foolishly thought that since we had negative flow in some departments that it could just be turned on with a switch, and that's not necessarily the case. We also didn't take into consideration the negative flow rooms and the impact on the energy sources in certain links of the hospital. Going forward, I think if your institution has the resources to make every room a negative flow room, that of course would be great, but certainly having more negative flow rooms than a handful is absolutely a need, especially during these times where we have these emerging infections that we don't know what they are. We don't know how they're transmitted, and it's going to take months to figure out how they are transmitted. So, we certainly do need more negative flow rooms planning forward.

Cohorting patients, this again was a challenge. We figured out protocols regarding what's the criteria to cohort patients but, our protocols for cleaning those cohorted rooms and supporting staff enough to clean those rooms was not sufficient. I think we’re now to the point where we've done extra training, we've done extra supportive measures with environmental services staff regarding cleaning rooms. One of the ways that I know I had to talk to staff to go into clean rooms is that I had to go in with them. There's a lot of fear, and so when they see someone else doing it alongside them, they feel supported they feel less scared. But again, I think we can improve on our protocols on cohorting patients and cleaning the rooms.

I think we've done a great job on donning and doffing circuits, meaning outlining a specific area and where to remove and put on the specific PPE. I think one of the areas that was challenging is moving to extended reuse the PPE, especially when we change the protocols back and forth so quickly depending on how much supply we had. This creates a lot of uneasiness for staff, so I think we learn to get more information to staff as to why we're doing this, being more transparent as to why we are doing this. That was very very helpful.

Clustering care, I think this is one thing that we got right from the beginning as well is: how do we provide safe care with as minimum of time being exposed for staff as possible? I think staff got really creative in collaborating with respiratory therapy, collaborating with other nurses, especially in cohorted rooms, on sharing the care so as to minimize staff going into a patient's room, and lastly fomites. Towards the end, everything's a fomite. We constantly wiped everything down to the point of where we were coming upon shortages of antiseptic wipes. We didn't, but we were very close.

In the end, it's just like the same analogy: assuming everybody is COVID-19 positive. Assume everything is a fomite. Treat it as such, wipe it down as such, when in doubt, hand hygiene. In the end it all comes down to the four basic things that I think we've been teaching everybody from beginning, if you're sick stay home. Wash your hands. If you can't remember if you washed them, gel again. If you're sneezing or coughing sneeze into your elbow and always wear a mask if you're within 6 feet of people. We now have universal masking in our facility. Our state has gone to universal masking in public, especially if you're within 6 feet of people. A lot of stores require it on entry, so I think we found good results in the tried-and-true. Just stick to those four pieces of infection control and I think we'll all come out on the other side of better in the end.

Testing is one area where we, not only as an institution, I think as a country, learned a huge lesson when this first started rolling out. We were reliant on the state for tests, we were reliant on the CDC for tests. Those were in single digits. We could not test everybody quickly enough. Again, we were fortunate enough to be associated with a university with a lot of smart people, and they developed their own PCR virology test. We were able to expand the virology lab to not only 5 days a week, 9-5, to 7 days a week, 24/7, expanding the actual footprint of a lab, hire new people to do the lab, and currently we run anywhere from 1,500 to 2,000 tests a day.

Another thing that we learned is that it's not only important enough to have enough tests, what's important is for patient throughput, especially and also those pre-procedure tests and those discharges. The challenge is to test rapidly, so we were able to acquire a rapid test with a turnaround time of 2 hours with both the rapid testing. We can swab patients in a variety of ways, but this helped us facilitate patient throughputs and patient placements in a more rapid fashion. I think going forward, it's not enough just to test. I think we need to provide testing where it's free for all. This is just my personal opinion. If we allow cost to be a constraint, then we will never get a handle on how widespread this disease is or could be. We'll never get a handle on the populations involved and we'll never get a handle on adequately treating these patients. It shouldn't have to rely on large centers like ourselves. There should be testing everywhere and adequate access for all people, because again, we're just not going to be able to get a handle on the disease.

Another thing that has come up and is gaining steam is serology testing. I think there are some concerns about serology testing, but I also think there are some benefits for serology testing in terms of surveillance. It will not only allow us to get a bigger picture on who has been exposed, what type of populations are exposed, it can help us with contact tracing, but it could potentially help us with donating convalescent plasma for those patients who are really sick in the hospital. Again, 80% of patients are asymptomatic, so I think there's the ability to rely upon those patients for donation if they're willing in the future. That seems to be one of the promising treatments, and so if we can have a greater understanding of what that donor pool would be, I think that would help patients who are critically ill in the hospital.

Financial recovery. I think for country as a whole and for institutions, it's going to take a long time. There is a great deal of revenue loss due to cancelation of elective services and outpatient services. I think ophthalmology is one of those areas that was hardest hit: up to 78% of their services declined as well as there were increased costs for COVID care. Taking care of COVID-19 patients is more costly, especially in the intensive care setting. Again, the majority of patients in intensive care, close to 100%, are on a ventilator. They're on the ventilator longer, they're in the ICU longer, a lot of them need extended critical care with high-tech machines such as ECMO or CRT.

A lot of the costs went to testing. We developed one of the PCR tests here, but we also had to provide tests for all those patients who came to us and needed it. They don't have them in the community and they're certainly not free, and the CDC didn't have enough. I think the country is ramping up their stockpile, but over the last 3 months, we had to provide that and as well as other centers have. I think going forward, institutions are not only going to have to find a way to financially recover but they're going to have to factor in planning for the surge and keeping their normal operations open at the same time. How do we carefully care for these COVID-19 patients? How do we keep the other patients safe? How do we keep staff safe? How are we going to find enough space? How are we going to store enough PPE? How are we going to keep cost down?

We're going to have to do it all at the same time. We're not going to be able to shut down normal operations like we did before because we're already seeing institutions closing because of it. Institutions are having to resort to furloughing staff because of it. Hopefully the majority institutions will be able to factor in that planning for when the next pandemic happens and the next surge of COVID-19 happens. Again, with regards to financial recovery, I think having financial transparency is important. I think people understand. Health care workers understand and the public understands better if they have information. It doesn't have to use fancy data to explain why healthcare institutions are now broke or they're in dire straits, why they are millions of dollars in debt, but I do think there's greater understanding among staff and when they're told information why changes need to take place in order to recover financially. It is much more helpful than no information at all.

I think that if we can plan for new collaboration, again with other facilities in our area, even if you're not part of a system that has multiple campuses, you can still collaborate with other institutions to share data, to share equipment and supplies, in order to lessen the financial burden. I think as well that telehealth has gained in not just popularity, it's gained in necessity during COVID-19. I think we're going to see that expands and continues on. I don't think that's going to go away. I think also we need to treat people where they're at, and when I'm saying this, I'm thinking of extended care facilities and the homeless population. We need to support the public community in testing and housing in order to take the burden off these care facilities. We need to support skilled nursing facilities, training them, providing adequate PPE for them, paying their workers a livable wage in order to provide better care for their residents in their own facility so they don't have to come to acute care facilities so they don't have to see the outbreaks that they saw in the beginning. It was an enormous burden on their part. Again, I speak of ideas, I don't have all the answers, but this is just my one opinion on what would be beneficial.

Revenue improvements. This is maintaining the operations slowly. Our institution has started outpatient elective procedures again, and we're kind of wrapping up slowly week by week by week in order to ensure we keep those patients safe, we are able to keep throughput moving, and we are able to discharge patients in a timely manner as much as possible. The intent is to get back up to capacity of 90-

95% where we were before this pandemic hit, not where we were just two weeks ago at 50-60%. That is a necessity. Hospitals still need to keep the lights on, so I think going forward they're going to need to incorporate normal operations with pandemic operations, for lack of a better term.

Post acute care. I can't highlight this enough. Being a safety net hospital, our vulnerable populations as you see everywhere, homelessness, unsheltered, extended care facilities, nursing homes, group care settings, took a huge hit in terms of incident rates and mortality rates well before we ever really realized the scope of the pandemic itself. I think going forward, we need to have public health places where the homeless can shelter in place, processes in place, in these homeless COVID-19 locations where we can keep the homeless for 14 days. You know, it's one thing to have a couple of facilities or pop-up locations, but it's another thing getting the homeless to stay. Many of them have mental illness, many of them have addictions and they don't want to stay, and so what we can't have is having them go out into the greater population and spread that disease among many for which we can't do contract tracing on because it's just too many.

I also think that it's important to expand our home care services. Can those who are sick with the early symptoms of the disease get care at home? Can we reach out to medical supply companies, oxygen supply companies, and support them in better manners so patients can be cared for at home and they can recover at home and they don't get to the point where they need to come to your facility and then end up critically ill, intubated, and then sometimes die?

I also think there needs to be a focus on our incarcerated population. Prisons and detainment centers are grossly overcrowded. As it stands now, there's just no way to adequately isolate patients who are incarcerated. In addition, when we have to care for patients and our hospital who are incarcerated, maybe they had COVID-19, maybe they're doing fine, but they still test positive, or now they tested negative and they converted, but what is the process for them transferring back to that type of community? Do they need to have a test done before they transfer back to the community? Do certain prisons and places of incarceration do their own testing? My guess is no, and even if they did know their inmates were positive, how do they isolate them? I think this is another area that needs a lot of work in order to maintain the safety of everyone.

A little more on long-term care facilities, we know that this population took a great toll not only on the residents, but on the staff who work there as well. This is from the Kaiser Family Foundation. This is state by state, and as you can see at the very end with 38 states reporting, the mortality rate in this population is about 42%. That's horrible that there's such great disparity. Some of those we could have prevented if we would have known how much our long-term long-term care facilities are so inadequately supported as they are now. Hopefully that will change.

Post-acute care transition plan, I think this would be helpful. Working with your local and state leadership in order to plan for post-acute care transition and seeing all the difficulties that we have discharging our patients, I think there needs to be readmission protocols, first in the care facilities for patients regardless of whether or not they're positive, asymptomatic, or they were positive and negative, or they never were positive, they're now negative and they still don't want to accept their patients back. I think that expanding telehealth and healthcare at home is a good option, I think also inviting the idea of expanding hospice for some of these patients and allowing family members to be there when their loved ones pass, because that is something that all families should not have to go

through is experiencing a loved one that dies from COVID-19 or whatever disease and they could not be there with them.

I also think that's on the government level. Public Health historically has been grossly underfunded. There needs to be a greater focus on public health. I'm not sure if that's going to happen, but as we can see, pandemics more lives in a much quicker fashion than any other disease out there. I also think that everyone should have the ability to get tested. This is the only way that we're going to know what the true population of positives are out there, how to do the best contract tracing in order to mitigate these emerging infections that seem to be coming up more and more frequently over the past couple of years.

Health care workers, this is one topic I guess I'm most familiar with, again I like to include all health care workers, not just the frontline healthcare workers. Administration EVS staff, engineering, clinical engineering, bio engineering, laboratory staff, this has taken a toll on everyone. One of the things I can say is that and again this is just my experience, but our other health care centers can speak to this as well is that they are a group of people that are very adaptive. I think I tried to count the number of new protocols revisions adaptations to policies and procedures, and in three months it's well over 300. And they've had to implement safely all of those protocols, knowing that the next day they come into work it's going to change again. They've had to be quick thinkers. Everyone seemed to be very collaborative. In the first slide I showed Camp COVID, and if you can imagine going camping with friends, this seemed in some respects like the same atmosphere. They all became very good friends, supportive of each other. There was just an underlying understanding what the needs were, what everybody's going through, without ever having to say anything.

They also are enormously intelligent. These patients became very sick. Some patients required very high-tech equipment to keep them alive and to support them primarily meaning ECHMO or CRT. Not everybody is trained on that, so we had to quickly train those staff members in place and these are high-risk things, things we don't do very often, but staff stepped up to the plate. We also saw that a lot of our staff could have gone to engineering schools if they wanted to. We had to create a lot of things for a reuse of PPE that I discussed a couple of weeks ago as you can see the mask in that little Tupperware. Anywhere from that to head positioning devices for when patients are prone. We relied heavily on clinical engineering to really build some things for us and build it quickly so we could deliver the care that we needed for our patients.

Lastly, I think health care workers in general, and we always have known nurses to be, but I think all healthcare workers are altruistic. I cannot tell you how many people gave so much of their time to the institution and to these patients that they were never paid for, and I know they would do it again. That shows their commitment. That shows others outside the hospital how committed they are. I always knew it because I always saw it every day, I just never saw it to this degree. I think because of their level of giving, for lack of a better term, also speaks to their resilience and how much they can be pushed, and how long they can go. But in the end staff are human. They do have their point where they begin to give get sick either physically or mentally and I think that's where we're really starting to see the crisis happen for us now.

Caring for COVID-19 patients has taken a huge impact. Our health care workers have absorbed a huge impact of caring for these COVID-19 patients. This top line speaks of medical workers on the front lines in New York City committing suicide I think about a month or so ago. We're starting to hear more and more about that in this country. There's a lot of literature reporting on that from Italy, from Spain, from

China, and it just goes to show the enormity of the pressures that health care staff members had to absorb. I can't speak to certain circumstances for privacy issues and honoring that, but there's a lot anxiety, depression, fear and hopelessness that are popping up. I think there's an element of a lack of social supports. I can speak for myself that I don't think my family really understand what I do and what it takes, and now staff are facing furloughs in order to help the financial component of COVID-19.

I think everything is beginning to take its toll on staff, and I'm going to highlight supporting staff once COVID-19 slows down for your institution. Maybe once COVID-19 is not in the headlines anymore, when we develop the vaccine, it's still going to be felt by all health care workers. When you're in the thick of it and you're working 7 days a week and the adrenaline's rushing and the pace is rapid, you don't have time to think about these things, and now that the environment is slowing down, staff have time to think about it, and this is when we're starting to see the mental health needs for health care members. So, if your facility can extend those supports, I highly encourage you to do so.

So, what's next? The best thing would be to plan for national contingent and crisis phases, all phases of emergency planning, so that's supply chain, that's capacity, that's infection control resources, all the things we talked about last week and this week. I think we do need to plan for co-infections in the fall, and the flu, I can only imagine what it's going to be like, especially for the elderly population and the homeless population. I am hopeful that funding for Public Health is going to increase, but historically speaking it has not increased very much. I know it's a very small picture of the CDC's budget for 2021, if you can look near the arrows, the proposed budget for 2021 for public health and zoonotic infections are down millions of dollars, so that does not support the mission of improving public health among all communities.

Lastly I'm going to highlight this again, when you go to plan for your conventional, contingent, and your crisis phases, also incorporates recovery into those conventional, contingent, and crisis phases so that pain is not also imparted upon acute care facilities. As a whole, I think we need to support our community facilities in order to minimize the impact to acute care facilities and staff and PPE and their overall mental wellness, because I can say firsthand that all of healthcare workers, they understand being furloughed. They understand the cost this took. I'm not sure that they'll understand having to pay that cost again a second time due to insufficient planning, so I'm hopeful that those administrative leaders who do the planning for the recovery and the next phases, that they will incorporate contingency plans and crisis plans into the recovery as well so the impact is minimized on the back ends when we see an ending to this particular pandemic. That is all I have I'm happy to take questions.

**RACHEL DEERR: Thank you, Sue. For our learners, these are the references for some of the information Sue provided us with today. The slides will be available in our resource center. We will now continue to the listener Q&A.**

**Sue, our first question: has the procedure for running a code blue or performing CPR changed in the current circumstances?**

SUE HANSEN: Yes, it's a great question it has changed dramatically and has changed about ten times, maybe fifteen. Running a code is pretty high risk, and a majority of patients need to be intubated, and so that's considered an AGP or an aerosol generating procedure. How do we do that? How do we provide this emergency care to our patients and protect staff at the same time? So, in our institution, we created protocols where only the necessary number of people need to go into the room. Historically, everyone

would show up to a code, there'd be 30 people in the room, 20 of which did not need to be there. So, we have really cracked down on having the only necessary people in the room. We have someone man the door and they strictly enforce only certain people should be in the room. We also developed what we call code blue boxes, and inside those code blue boxes has all the PPE equipment for the people who need to be in the room. Right now I think we have five people in the room and that is it, and so if you run to a code and you did not bring a paper hood with you, or you did not bring that clean N95 which most people don't have because we're always out of them, we have those necessary supplies in that code blue box ready to go on each unit of the hospital, so you can just grab the appropriate PPE and go into the room.

The rest of the code team will stay outside the room and watch, and actually communicate by walkie-talkie or we'll put the phone that's in the room on speaker so we can communicate with the people outside the room. We would keep the defibrillator outside the room unless we absolutely needed it, keep the crash cart outside the room, pharmacy outside the room as well. We would have social work and other ancillary staff stay outside the room to take feedback from the code team inside the room and be able to hand off any supplies that they may need.

Long story short or short story long, yeah, our Code Blue process has changed dramatically. I think staff have gotten used to the new process. I think we assume anybody who we don't know the COVID-19 status of, we assume them to be COVID-19 positive, and everybody just dons their gear appropriately as if the patient was COVID-19 positive.

I think going forward in the fall, if we should see a surge which I'm sure we will, will now probably be coupled with the flu, that his process may change as well. Again, this is one of the things where we pretty much did right from the beginning is limiting the number of staff that enter the room and still be able to provide that emergency care adequately to that patient.

**RACHEL DEERR: Next question: from a patient safety perspective, do you think that hospitals should be performing non-emergent operations that require inpatient stays?**

SUE HANSEN: Yes, I do. I think we have, in trying to do the right thing by our patients and by our staff, I think we have been overprotective and over safe. Again this is just my personal opinion, but I think we've done a fabulous job in bringing on the rapid pace testing that the turnaround time is two hours. This allows us to do pre-procedure testing for our patients to determine their COVID-19 status, and to be quite honest 99% of those are all COVID-19 negative. We have put our COVID-19 positive patients in certain areas or certain floors of the hospital. On those floors where we have other non-COVID-19 patients, we have done a great job in putting them on opposite areas of the floor. Staff who take care of COVID-19 patients do not take care of non-COVID-19 patients, so I think it is very very safe, and I think that because of COVID-19, people have avoided going to the doctor, avoided coming to the hospital maybe a little bit longer than they should have, and they're now seeing consequences of that. I think everyone should be feel very safe in having the monitored procedures done at facilities. I think that is one thing that we have really done a good job in protecting our staff and protecting our patients with our current processes that we have right now and what we have learned.

**RACHEL DEERR: Thank you Sue for your contribution to the program. As a reminder, to claim CME or CE credit please complete the evaluation at COVID19.dkmed.com and select today's activity. You'll receive your certificate immediately after. Any questions or issues, feel free to email us at the address**

**listed. To submit questions please send them to QA@dkbmed.com. Don't forget to access our resource center at COVID19.dkbmed.com. There you'll find information on the latest COVID-19 data and statistics, medical society guidelines, and resources in Spanish. Please be on the lookout for our next activity next Wednesday. We will send out an email when it becomes available. Again, thank you for joining us and thank you for your dedication to your patients with COVID-19.**