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This is a test of the captioning. 1, 2, 3.

WILLIAM EISERMAN:

We are going to be starting about 10 to 12 minutes from now. Thanks everybody.

WILLIAM EISERMAN:

If you have signed on, you are in the right place, for today's webinar that will be starting in about five minutes at the top of the hour. I'm going to speak just a little bit here just so as people sign on, they will have a chance to get their volume levels adjusted to their liking. So that is why I will be doing that.

I am well iDetermine from the -- William Eiserman, from the National technical Centre or any Utah State University -- national technical Centre. Where centred within the National Center for Hearing Assessment and Management, and we are funded by her son to serve the EHDI community as a technical resource Centre -- funded by HERSA.

Today's webinar is a part of a whole series of webinars that we offer periodically on relevant topics. As you will hear me repeat, again after we get started, this webinar will be recorded so that way if anything disrupts your full participation today, or if there are people who are not able to attend life today who you think may benefit from today's information, that can be shared through our website.

We will have that posted in another couple of days, and we will send the link out to that to everyone who is Winchester. -- Who is registered.

Kelly, can we just have you come on the screen and do an audio check for a quick moment to make sure everything is so good? (Laughs)

KELLY A. BAROCH:

Yes I am here. Hello everyone.

WILLIAM EISERMAN:

Loud and crystal-clear so that is great. I'm going to continue to talk just so that as people sign on, they can get their volume adjusted. So pardon my rambling for those of you who have already been on for a minute.

This webinar is entitled an interdisciplinary approach to earlier identification and Intervention of Hearing Loss in Medically Complex Infants. And can you pronounce your last name for me please Kelly?

KELLY A. BAROCH:

Kelly Barrick.

WILLIAM EISERMAN:

Will be -- we will be starting in about 2 to 3 minutes now. You have probably noticed that this webinar is going to be and is being captioned, as well as interpreted.

If you're looking for captioning you can click on "Live transcript" To activate the captioning on your screen. You can also adjust the size of the video windows, like the one that I am in, by looking at the right side of your screen where there is a short white to bar that you can move to the left or right. That will change both the sides of the PowerPoint slides as well as the video windows.

We have people signing on fairly rapidly right now, so we will give it a minute or two and then we will get started. You are in the right place for today's webinar brought to you by the Early Hearing Detection and Intervention National Technical Research Center, known as the Andy NTRC and Utah State University. -- EHDI, housed within the national hearing assessment and management known as - - NCHAM. This is part of a series of webinars we offer periodically.

I'm just rambling as people get logged on, but we will launch into our official welcome and just a minute here. You will hear me repeat myself because I'm just trying to give you a chance to adjust your audio to your liking right now.

You are in the right place for today's webinar, entitled an interdisciplinary approach to earlier identification and intervention of Hearing Loss in Medically Complex Infants.

Well what you say Kelly, shall we start?

KELLY A. BAROCH:

I'm ready let's go!

WILLIAM EISERMAN:

Ochre. An official welcome to everyone here today. We welcome you taking the time out of your busy work lives to join us to this webinar entitled An Interdisciplinary Approach to Earlier Identification and Intervention Of Hearing Loss In Medically Complex Infants.

This webinar is brought to you by the early detection and intervention national technical resource Centre, known as the Addie NTRC -- EHDI, has in the National Center for Hearing Assessment and Management, known as NCHAM has at Utah State University. Those are a lot of words! But we offer these webinars periodically to support those of you who work as part of the EHDI system, and we are delighted to offer this webinar to you today.

This webinar is being recorded. What that means is that after the webinar is completed today, we will prepare it to post on our website. We will be sending all of you who registered a link to this recorded webinar so that if something disrupts your full attention today, or if there is a part that you would like to review again... Or if you have colleagues who are not attending lied -- attending life who you think may benefit from today's information, you can share that link with them. -- Attending live.

So know you will be receiving that, and you will receive a link to the copy of the slides from our presenter today. So be assured you will have access to this information in both of those modalities after today's presentation is completed.

Once our presenter today has wrapped up her comments, we will open up and invite you to use the Q&A field to engage with questions and our presenter. But we invite you to refrain from using the questions field because she needs to focus on presenting while she is in that mode, then we will visit the questions that come up. And you never know, she may actually answer your question subsequent to when you think of it.

So that will be towards the end of the presentation that we will open things up. As we close out today, we invite you to complete an evaluation of today's webinar. When you do that it will generate a certificate of attendance for you today. So... We always want your feedback, and if getting a certificate of attendance today is important to you, that is how you will be able to get it.

Shout out of thanks to our interpreters and to our captioners today! I was feel like those folks do not get the recognition that they do. They are real-life people who are using incredible skills and giving us their time to help us make this as accessible as we can. So thank you to you who are providing these services for us today!

Without any other delay, I would like to introduce to you Doctor Kelly Berridge -- Kelly Barrett, a Pediatric Audiologist in the inpatient and perioperative audiology program at Cincinnati Children's Hospital. So Doctor Kelly?

KELLY A. BAROCH:

Thank you. I appreciate that! Thank you all of you for being here today, and to our interpreters and to NCHAM for having made.

Just a little bit about my cell, I have been an audiologist at Cincinnati children's Hospital for about 20 years, and I was lucky enough to start our inpatient program in 2002, so it has been over 20 years I have been working with this population. It is truly my love. I'm as passionate about these children and these patients as I was the day I started. So I will do my very best to stay within my time limits today.

Once I start talking about this I do have a tendency to talk longer than I should, but I will try to leave a good 15 minutes for the end so we will have a chance to talk, to talk about your questions, and hopefully will get an opportunity to know you a little bit. Jim was always hard because I cannot see your faces – zoom is always hard, but I do have slides for you at the end. The last I do believe has my email address and phone number on it – like the last slide.

So if there's anything that we do not get to in our questions, please feel free to reach out to me! I will be unhappy if we leave anything unanswered today.

Let's dive right in and talk about our most fragile patients that definitely need our help from a hearing healthcare standpoint.

Just some things I would like to cover today, medically complex infants/toddlers, trends in this growing population. I hear from folks across the country, and I work with groups in the past three weeks that have said they are getting more and more inpatient referrals and it seems like this population is just growing.

If that is what you are feeling that is definitely true! It is not just your imagination. So why are we seeing this? How can we provide earlier identification and intervention in these really complex, very sick children?

So moving from the audiology booth and the audiology suite where we are used to being as Audiologist, moving to the bedside and hospital setting providing quality hearing healthcare for these kiddos. How can we manage late onset hearing loss and you do a better job of tracking kids within our systems? And improve care coordination for our children as they transition from hospitalized infants and children out to our outpatient settings?

Since then, I want to talk to you about just a will but, if you are in the process up starting or growing an inpatient program, I'm going to talk a little bit about what we have learned from our 20 years of experience. I'm a clinician out there every day doing this work. So... I am not a researcher. This is hopefully going to be very tips from the trenches, hands-on types of things, where if you are working with these kids will be able to utilize these. I realize not everyone has the opportunity to work on the inpatient side in a hospital setting, but I always tell people that this population... No matter what you do, they are going to become your patience. So I think it is really important to know where they started -- patients., And how we can better meet their needs for hearing healthcare.

I'm the face talking to you today, but I need to thank my team at this 90 Children's Hospital. We've grown so much over the past years -- Cincinnati Children's Hospital. I work with six people daily for that we have a fleet of equipment that we take over our hospital. We have a full-time administrative assistant who is also a hearing aid fitter who helps us daily and keeps us all moving in the right direction, and knowing where we are going next. So huge thank you to my team into Cincinnati children's management!

I have been so blessed for the past 20 years to work with management team that believes and understands that this is the right thing to do for children. That we need to get access to these kids early during these admissions -- early and during these admissions. It is not always easy to do, it takes a ton of work.

But we have great support on the hospital site. And I know sometimes that -- side, that can be the hardest piece, and developing a program like this. So huge thank you to my team and management. This is where we live.

We are not in the audiology clinic, we are on the hospital side with all of our most critical patients. Just to give you a little bit of background about what we do, we cover all of the inpatient floors I have listed here. So we are seeing kids in all of these areas, and we have grown relationships with these specialty

areas. We see a low bit over 850 patients for a hospital stay annually, and the other half is there perioperative program. So these are for sedation and honour anaesthesia. So we've seen these at our radiology, Carter Kappa – not cardiac, wherever we can come in to coordinate with other cases so that we can hopefully reduce anaesthesia for kids. Message this at our Liberty campus which is our largest, one of our largest neighbourhood locations. We are there and we have a large proton therapy Centre where we test under sedation. We are opening another facility at our Eastgate campus coming here in the next year or so. We do over 752 dated cases annually.

In a time in our hospital, we have between 10 to 20 hard of hearing and deaf patients that are admitted on our floors. And I'm going to talk to you a little bit later about how we track that until we know exactly who those kids are and when they come in, so that we can help them with anything that they need from a communication device, from a hearing test standpoint, once they come into the hospital.

I will show you our numbers over the fiscal years, you can see our program is more than double of the past six years. So you can see we are up to a little over 1600 inpatient encounters in fiscal year 2022, and even through the pandemic over the last two years, we have really continue to grow on the inpatient side.

So I'm going to start talking about... We are going to talk about two different programs within our inpatient program. We will talk with the infant hearing program, then our oncology program. Because I think they are good opportunities. We cannot go through all of the special populations that we deal with but this is where we started, and this is where I think we got a good kind of template in place and how to work the inpatient piece. -- In how.

So I just want to share with you a little bit about these infants. When we talk about most of the infants that we are seeing as inpatients in our hospital, we are either looking at babies who have prematurity, or babies who have complex congenital anomalies. But I just want to share when we think about the viability of premature infants, if you look at the study here done by March Of Dimes in 2013, 423 weeks of pregnancy there is only a 17% likelihood of survival. Now with surveys here from 2019, if we look at the length of pregnancy at 22 weeks, the majority of these babies are able to survive now. So the likelihood of survival is up to 64%, and 82% for 23 rehearse. So the length of stay -- 23 weekers. Length of stay is increasing along with narrowed about mental delays.

When I first started at Cincinnati Children's Hospital back in 1998, at that time early our 20 beakers – Mike really our 28... Really we felt like we were doing a good job at keeping the majority of those kids alive. So just in the 20 years I have done this, you can see how we are decreasing the liability, and we are keeping more infants alive. We understand from development and what happens within one week of development, it is pretty amazing. What NATO and neurologist surgeons have been able to accomplish in the past 20 years.

We know about 10 to 15% of infants in the US will need NICU care, one out of every 10 babies in the US are born prematurely. We definitely do not do a good job with this as a developed nation compared to other countries! Prematurity is the leading cause of long-term neurological disability in children. We have over 120,000 babies born annually in the US who have a congenital anomaly (one in every

33).

So this is one of the populations that we have definitely seen an increase -- increase inpatient care. I want to share with you some national trends you may not be aware of if you have not seen these national studies. Neonatal abstinence syndrome you may have heard? We know that the prevalence of this is increasing dramatically. So one baby diagnosed with neonatal abstinence syndrome every 19 minutes in the US (CDC 2019). So there are definitely more babies in our NICU that are being weaned off of -- off of drugs, and are having a longer admission because of that.

Myelomeningocele is another that is up 30%. UNC Chapel Hill found a connection with low-carb diets. Which we all know is a big thing in lots of -- big thing, and lots of parents subscribe to that lifestyle, but they are saying this may cause infant defects. *ISIS continues to increase --Gastroschisis continues to increase has more than doubled in recent years. There is a possible link with "Use.

And cardiac defects. The Journal of American heart Association between 19 predicts an increase due to global warming. I thought that is interesting and something that I would not have thought of right now when we are in the middle of a huge heatwave here in the US. It is kind of Accra Po, but the rising climate change can cause heart defects. They're expecting between 25 and 23 five which is not too far off -- Mike 2025 and 2035, there will be the greatest percentage of increases in the number of gentle heart defects in the Midwest followed by the Northeast and the South.

US NICU admissions increased by 38% from 2008 to 2018 -- from 2008 to 2018. So these babies are staying for longer admissions.

Just elope bit more about me, I am from Cincinnati for some we have a huge issue with this. With the perinatal Institute and cradle Cincinnati working hard to improve infant mortality rates -- we have the.

56% of deaths in the first year of life due to prematurity, and 23% due to birth defects. We rank in the bottom 30 counties nationally for prematurity and birth effects. -- Defects.

So this definitely something that we are struggling with regionally. What we have seen at our hospital, is that we have needed to add bed spaces for our infants.

Just over the past few years our NICU has gone from 40 beds up to now 100 beds, and that is just in our NICU. Our babies in our cardiac and intensive care unit are in a separate intensive care unit.

Our fetal care program is growing dramatically. You will know that we have a handful of fetal care programs throughout the US, and it is pretty amazing when we think that the first fetal surgery was only performed in 2011! So it is a very new field that has grown dramatically.

And so for those of us who are at larger centres with fetal care programs, piercing babies, not only from all across the country, but from all across the world to see these fetal surgeons that are current for our most high-risk surgeons and trying to do in neurosurgery to help those babies survive and have a better outcome. -- In utero surgery.

Our ECM all program numbers have doubled from 25 to 50 cases annually. And our neonatal dialysis program is the first in the US cardio renal pediatric passes emergency machine. -- Pediatric dialysis.

We know that there is a kidney connection here, but we're definitely seeing hair loss and we are identifying hearing loss with these babies in NICU. -- Seeing hearing loss.

I think sometimes when we think about the NICU, we think about doing newborn hearing screening. We know we have this one, three, six guideline we have been using for a while. Then sometimes we talk about the one, three, four guideline.

Now in the most recent statement, we are now talking about if we can make a one, two, three statement? To be able to get intervention for these babies higher than three months of age. With medically complex babies, we knew that we are not always going to be able to match the same timeline that we do for babies who are coming out with the baby nursery. -- Well baby nursery.

When I started working at the NICU many years ago, I was very bothered when we would go in and do an initial hearing test, if it was abnormal we would repeat it as an outpatient and we would never see those kids again! So sometimes it would be outpatient, and we would not see this kids again for another six, seven, eight, nine months. So that is one thing that I wanted to do and I better job of, to move past board hearing screening and move to intervention -- identification and intervention for these kids were sick and spent more time in the hospital was up we talked about this in audiology for a long time

The JCI age in 2000, -- with JCIH, the goal was to get infants before three months of age. Between 19 -- in 2019, they gave additional recommendations for testing babies who had your anomalies. The diagnostic evaluation should have, that they should not be screened at all, and Stanley diagnostic evaluation should happen immediately upon discharge. The diagnostic could if we had people in place to do it, it could happen in the NICU or other inpatient hospital unit.

We are seeing more and more talk, about, "Let's see if we can move beyond screening, and see we can make arrangements to complete hearing testing at a time and they are medically -- when they are medically stable and still possibly in the hospital."

So sometimes when we think about NICU, I think sometimes we think about these teeny preemies. But we see it our Centre, and what I know we are seeing run the country -- around the country, is that they are not just premature babies, but their baby staying for six, seven, eight, nine months, and they actually call them geriatric NICU patients. Because of course NICU, natal intensive care unit, it means they're only with us with the first 30 days of life, but many of our patients stay with us longer than that.

Especially if their idea tertiary centre like we are. Then a lot of times when they are discharged from the NICU, they may not be discharged home, but they may go to our extended trach unit. A lot of our babies who have t trach (unknown term) they are there the first 2 to 3 years of their life.

We just lost one of our patients was nine, and she was never discharged from the hospital. She did have hearing loss, luckily we did identify early and she was in the hospital. As if we were not doing inpatient work she would have never had that opportunity to have her devices.

We know that if we delay diagnosis and intervention, that obviously it is going to impact their long-term outcomes. Right? Knowing which to Bauman, we know all of those numbers is Audiologist -- what development, but also significantly negatively impacts parent infant bonding. This is a huge piece in the NICU, we will talk about this. It also negatively impacts how the infant reacts to medical care -- negatively.

We have babies with sensory issues, whether it is hearing or visual issues. They do not tolerate medical care well because of the impact on their sensory systems -- babies with sensory issues. And that is a whole another talk, but we have to be aware of that.

We work a lot with our medical team about the fact that if we can get some pretty easy, basic interventions in place in the hospital for our babies who are deaf and hard of hearing, it makes their life a lot easier as an infant. Being an infant in the NICU is not an easy place to be! A lot of research shows that these babies have well over 40 painful procedures when they are with us, -- these babies, and if they do not have access to sound for soothing, or vision for something, they can get into kind of a pretty bad sensory... Integration issue.

So just some numbers for us, because like I said when I first came to children we were not doing a good job in our NICU possibly did not have an inpatient program, we kind of just ran up from the clinic when we could. Our Miss rate was 30%, our lost to follow-up rate was 42%. Our average age of diagnosis was seven months, just of age. And the average age of device fitting was about 10 months adjusted age.

I'm not going to go into this too much, but one of the things that we do for children's is we do not do a screening, we use our Audiologist to do what we consider to be a one-on-one. If we get into their diagnostic process much earlier --... Just some suggestions that have worked for us, I think when we talk about of satellite the time we are doing testing on babies and our medical team is wanting information on these babies, especially if they have conditions associated with hearing loss.

A lot of the time we are doing this on babies that are still intubated, and that is something that... You know? It did not start out this way, we had to grow into that. Now our medical team knows, they know that we know how to work with infants, we know how to position babies.

We know how to read the monitors, we know how to read their stress cues and we are not going to let them get into trouble when we are testing. We have the right equipment, the right team, the right knowledge to be able to do this pretty difficult diagnostic AVR tests on babies who are... Like I have said, intubated, on event. And you can do that on the bedside. -- On a vent.

But you need to make sure that you have a team who have done their homework and know their medical history on the babies full so you have read the care plans, you know what comes, what

stresses them, and how to manage that. We call that develop mental care in our hospital.

We take every teaching opportunity. The bedside nurses have to be your best friends. They are the gatekeepers and they control the baby, so we present at the nursing orientation for all new nurses coming in at the NICU. We talked to residents, APN's. We make sure we were seen as a team member versus a tech/consultant. Does the audiologist bring to the table? Now they do not want a screening when the baby first transfer stress, or if you have a were -- from a screening there, they want to know the degree of hearing lost. They want to know what the pentagrams look like, and that was definitely a teaching moment for them. Because it was definitely not that way when we started out.

When we work with the team, we can get earlier access to testing. That has made the nurse's advocates for us. They help reinforce our message to parents, about how important it is that they are discharging to come back for follow-up. It has really helped us to reduce our lost to follow-up.

So there's this piece again, that we start talking about way back in 2001. Where if the newborn doesn't pass the initial screening, can't we get some audiologists in their do some diagnostic test before they leave the hospital?

I have given you some pieces to think about. If you are building a team in a NICU, and all of the inpatient area, it is not an easy place to do diagnostics. So how do you train ABR Audiologist? What do you need to go – no to use the equipment? How do you work and with what protocols so that these booms can get in and out. They are sick and they do not have a lot of energy reserve. Even though they are not waking up we may be stressing them, as this could cause them to burn colours, and their goal is to grow until when they are there. So we cannot spend two hours at bad sign -- bedside trying to get an ABR, we need to get it and get what we need and get out so that the baby can help.

Early intervention for this population since you're getting to see our sweet friends. Their sweet faces the devices on in the hospital. So we have a sensory care plan as the first piece.

If we have a baby who is deaf or hard of hearing, how do we change our interactions with them as a medical team? How can we approach them in a way that is much more respectful for a child that does not have typical hearing?

If they -- need a sign language program, we work with our term like and speech pathologists was up a lot of children... We talked to a lot of parents about, no matter what your end goal is for medication, sign language is a great thing to start out with with babies. -- Is for communication.

So we set out with signs that are appropriate with babies, then they start to add on more from there. I have a sign-up -- we have a sign-up form on the door, so anyone who works with that baby can use the signs that the baby notes so that it is consistent.

And finally we have a care plan for their device and exactly how that will work at the bedside. Giving you an example of the sensory care plan... I will not go through this word by word, but this is written by the perspective of the baby.

(Reads) "I rely on my sense of touch to know when you want to interact with me. Please approach my bent slowly and gently post concerns firmly beside my my mattress I feel your presence. Touch me gently my legs (that is where a baby is less sensitive), and work your way up to my head and face where I am most sensitive. That is where babies have the most nerve endings and they are most sensitive, unfortunately that is where nurses have to work with them a lot doing math care. -- Mouthguard.... "This will help me from being startled". There is more that you can -- that you can read through on that.

This program has really taken off over the last probably three years. I'm just going to point out a couple of things because I'm trying to keep an eye on my tummy -- my time here.

The first thing I would like to say that if you're an inpatient audiologist, or an outpatient hearing aid audiologist, it is really important when you are working with BBs on an inpatient basis that we get out of the outpatient mindset. Because it is a completely different conversation that you have to have with parents and with the team that is going to be working at the -- at the bedside. -- Babies.

Again the main goal for any of our patients, whether their infants, toddlers, or older children is to rest, Hugh, grow and get out of the hospital. -- Heal.

So... That talking point that we use, that we want the devices on during all waking hours. That will not work in the inpatient setting, these kids are too sick. So we worked really closely with the medical team to determine when it is appropriate, and when it's typically stable enough for us to bid a device on. -- When the baby is stable enough for us to put a device on.

Sometimes we want the hearing intervention to happen as soon as we can, sometimes we are the ones that are actually pumping the brakes on the medical team. Because we have been in there and we know these babies, maybe that they are trached. The answer ultimately may clampdown on their trach and that can hurt their breathing. So until we get some pieces in there, sometimes we do not want to add the additional turnkey zone unless we are just really sure -- additional hearing piece on unless we are just really sure. And it is a lot for parents to handle. There learning trach care, and G2 care. This is one more device they have to learn.

It is really a joint conversation between the Audiologist, the family, and the medical team as to when it is an appropriate time. -- They are. And that everybody has got to be keeping an eye on the baby.

If the baby is starting to show us that they are getting overstimulated with their device on, or if they are tired and they have had surgery yesterday, and the device comes off and they rest with it off. -- Then the.

We work a lot with our speech therapist, music therapist, OTP's. They all like to have devices on babies when they are awake and in the quiet alert sea, and they are getting a good speech signal -- quiet alert state.

We have grown our loaner devices program. So many of our babies were being fit with our loaner devices until we were kind of seeing how things are going to progress. We have 10 bone conduction devices/soft bands, and 10 pairs of BTE hearing aids. We discussed a \$10,000 grant from our (unknown name) society that renews every two years, and they give us \$10,000 for inpatient loaner devices so that we can get these devices on these babies quickly.

It is great... If a baby has... If they have a decent phone line, even if it is a sensor neural loss, sometimes we go ahead and for them with a bone conduction device because you do not need your moulds. It is easy for speech therapist and pathologist to use, it does not mean that they will always be in a bone conduction device obviously. But we can I transition them to be TEs eventually have a good enough phone line. -- Can then transition them to BTE's.

I keep saying babies but it is the same process for all of our kids who have these devices inpatient, whether they are babies, toddlers, or older. These kiddos require frequent audiological follow-up. We have done some work to develop a questionnaire. I just want to shake this quickly. -- To show.

The line where the babies are turn, this is the past 20 of our inpatient APR fittings. You can see one month adjusted, six-month adjusted, and three months adjusted. So this is when they were born, when they had their first ABR, their second ABR, and then when they were fit with their device.

Remember when I showed you the first slide, where we were not fitting except for just that age, now we are at the 136 and beating the 136 guidelines for most of our infants. Not always, you can see this one was a little over six months, because his patient was very six and very -- very sick and very complex so we cannot make it to six months, but it has certainly improved our age of inpatient intervention for some and in dark blue here, you can see we fit five kids inpatient in 2018. And you can see how we have grown, in .11 we have for about 24 inpatient devices on patients when they were in hospital.

This is what we talk about with steak about what a baby response to -- with staff. We have talked about parent bonding. (Reads) "My child is mortgage, kids excited and has more eye contact with me - more engaged, gets excited."

So there are so many good outcomes and responses from parents with the devices on. And little bit of talk about ongoing monitoring -- a little.

We know these kids are at an increased risk for late onset/progressive hearing loss. So how do we keep track and how do we monitor? All the times the slow ones that have been set, they may have our departmental differences if they cannot do behaviour testing for sub so we public AVR testing with any solution opportunity, and we also do bedside testing nonsedating when they have readmissions. We will turn this up to about two, they will come in at about 6 o'clock in the morning. You can usually do a CPR on a six-year-old if you get them at 6 AM before they wake up. It is not really fun for our hours, but it is good for the kids.

Alright. I will keep cruising here because I know that I told you guys I would be done... Only 15 meant

for questions and I'm not doing very well.

We had our infant program in place. We had good relationships built, so our next stop was to take those same pieces and take it to our auto toxicity program and worked our oncology --ototoxicity program. P – cancers up to 27%. -- Pediatric cancer. These are kids that often time will still need ABR testing. For central nervous system cancers, real blast, count for 50% of salt to my cases and children and it is usually present at birth. So we are usually seeing kids at the age of one on chemotherapy.

--Hepatoblastoma diagnosed less than three years of age, prematurity is a risk factor with one in five born before 30 to 32 weeks. We have kids from all across the country who are coming to us for chemo. Almost all of them have hearing loss from the transom 18 and the additional hearing loss on top.

We are looking at ultra high frequencies with all these kids, because we know this has his Snicket impact. Form 4000 to 8000 Hz. Typically ABR testing stops at 4000 Hz, we have added six and eight. We do this on all of our oncology kids. If they are old enough to do audiometry, we do extended high frequencies out to 10,000 Hz, and extended frequencies out to 10,000 Hz.

If you're doing the SI OP Boston grading scale, which a lot of facilities do use, you have to go to 5000 Hz if you want to be able to use a grade 1 on the grading scale.

This – make these used to be our protocols when working with audiology. Hearing evaluation prior to every round of chemo with plate and or other auto toxic drugs, hearing evaluation within one month posttreatment, and hearing evaluation every 4 to 6 months until two years of treatment than annually.

We have someone who works interacts with our oncology team. We are missing so much of them. Here is our proposed schedule for our neuro- group. Once you start providing services from these groups, they want more. You can see from this, that now the oncologist that works on survivorship the saying, "We are needing more monitoring. We are not capturing all these children who have language issues because they have brain tumors." So... We felt like we were doing a good time with our neural on-call population, but now they want more. And the solid tour group has said that, "We think we should do the same new protocols moving on." So I think when you grow your inpatient program it just starts snowballing the more relationships that you built, the more they understand how hearing impacts children. As more that they want you involved. -- And the more that they want you involved.

Other special population protocols we have in place, obviously our meningitis kiddos, nonaccidental trauma, and bone fractures. So we have worked with all of those scripts. -- Those groups. It had -- and how do we make sure we get it?

We use bedside that runs on epic close-ups everyday we can run a report that gives us admitting patients that have a deaf or hard of hearing flag issued by their parents. So every morning we look, and usually there is a team with around 10 to 20 kids in the hospital. Usually begin email and we fit them when they are in, but a lot of these kids are -- these complex kids are frequent flyers in the

hospital, they bounce from inpatient to outpatient. So when they first come to us, do we need to do anything for them? What do we need from a hearing standpoint? Is there a medical team that knows they are hearing-impaired and do they have a medical device?

Do they have their devices on when they try to talk to these kids?

Every one of our inpatients has an iPad tablet that is called My Chart Bedside. So when they come in and they have that flag that they have a hearing issue, they will automatically get this inpatient or audiology knowing note that automatically get sent to their iPad. So it tells them if they do not know us, we are inpatient audiology. What do you need from us when you're inpatient? Is your child to do for a hearing test?

Do they need and hearing aid repairs? Are they outgrowing their hearing moulds? Do they need batteries while they are here? And... You need a communication plan. So if they are not feeling well and they do not feel like having their hearing aids on, we need some of -- some kind of sign-up in the room so that the team will know that this child is deaf and hard of hearing and how they should approach them?

WILLIAM EISERMAN:

Just giving a prompt Kelly excuse me, that we are at a low bit less than 15 minutes.

KELLY A. BAROCH:

Thank you. I think I have just a couple more on here. We also have an audiology care coordinator, non-Dell just was wonderful but helps us. She tracks all of our infants from birth to three. -- Who is just wonderful.

It our medical team who works with high-risk clinic and complex care pediatricians, do a good job knowing when a child needs to be admitted and what they may need from us.

Interdisciplinary relationships are critical. Educate, educate, educate! Everyone will talk to you about these patients but please talk to them! Ensure that their effective diagnostic particles in place so that you are efficient and quick. And equipment that is appropriate for the environment/population is important. Choose a reasonable starting point. It took us 20 years to get to this point, but can you start with the sensory care plan?

Can you start to provide some kind of support? If you are past that, then can you move to device fitting? A small team of audiologists dedicated to the population I think works best for building and Inpatient Audiology Program they need extensive ABR experience, strong medical knowledge, and her personal characteristics to be flexible, thick-skinned, and adrenaline junkies the calm demeanour. -- With a calm demeanour. They need to be close to the action, so offices in critical care areas plan on early mornings and late nights. ORs never run on time.

It is emotionally and physically draining work to cart those cards bedside. It is a lot easier to sit behind the audio monitor and let patients come to you, but often times that will not work. You will lose

patience. Self-care is critical – compassion fatigue is a very real thing! You need to participate in debriefings with your chapters and social workers when you lose patients. Reflect and celebrate the small wins.

You will be inspired every day! These are the most amazing patients. They have incredible strength.

There is my email address and my phone number. So let's find out what you need, or what questions I can answer for you in these last 10 minutes. I feel like that was a whirlwind at the end (Laughs)

WILLIAM EISERMAN:

Thank you so much. This is William Eiserman facilitating now. You will see a Q&A field into which you can type in your questions. We will let Doctor Kelly take a sip of water, or just collect her thoughts for a moment while I read the first question.

It reads "I find in medically complex cases, that language acquisition is the least concern of the team. Although as someone who was born and raised with Deaf folks this we know is false! You cannot improve behaviour, medical linguistic needs, without language. How do you approach this dilemma?"

KELLY A. BAROCH:

Yeah I completely agree with that. I think it goes back to that education, education, education for supper only first argument medical team did not really want to talk about hearing. They did not want to talk about language outcomes. You know?

It is ABC's. It is airway breathing and cardiac issues. And I understand that their main goal is to keep this baby alive, right? And to get them out of the door, so we had to do a lot of on -- education on, "Unfortunately, with sensor development, brained bellman and languished moment, they all have these critical windows of time -- century development, brained Veltman, language development, -- brain development. Sensory development.

One of the ways we have got them on board, is by showing them that when we have devices, when we give kids access to hearing or access to language and start using sign language with them, that they respond better medically!

Docs care about what they see on the monitors. They do not form their heart rate increasing, they do not want oxygen saturation strapped, and kids who have sensory issues will do this very quickly because they are not getting a full sensory input.

It when we put devices or put a sensory care plan in place and that kid stabilizes from a physiologic standpoint and the docs can see this, then they are like, "Hey! These audiologists have got something to bring to the table." As we are at the table, then we can start teaching them -- once we are, then we can start teaching them about language and about how important it is to get language into these babies even when they are sick. So help that may be gives you a start.

WILLIAM EISERMAN:

Here's another question (Reads) "Do you have Audiologist that work on weekends?"

KELLY A. BAROCH:

Yes, we are on call every weekend and every holiday. And like I have said... You know? It's not... You have better love this when you do this. Because it is 24 seven. I am off today, and they have access to us, so it is a 24/7 job.

We have a great team that is so passionate. We do get, the hospital has been great and we do get extra pay if we have to come in on the hospital. But yes we do provide coverage 365 days a year.

WILLIAM EISERMAN:

The next question is (Reads) "Do you have any issues with hearing aids getting lost? Into is responsible for them?"

KELLY A. BAROCH:

That yes! That is a great question. When we started putting devices on and started increasing those numbers, I said there would only be a number of time because with all of these people having hands on them and with parents not in the room all the time... So we have a very specific order we go in. It is an audiologist to Mercy order that goes in and talks to them about the device. They describe exactly where it needs to be when is often the child, where needs to be stored, and every thing is labelled in there.

We try to identify this as much as possible, but we did have a child who lay down in the event and it went down with the laundry. And we are assuming never. So we know in our program that we are going to eat some of those devices and they are going to go missing.

This is where I feel, and like I have said my management has always been so onboard with us. Because we do understand that this is going to happen and it cannot be the parents responsibility, because all of the times they are not the one that lost it! (Laughs) It Was the nurse or was someone else in the room.

So we definitely need those loaner devices. It is a part that you just need to build into your program. The same thing if they have been fed with a personal device and a nurse damages it or loses it, we pay for that repair. We do not take it off of the parents loss of damage peace because we do not feel that that should be their responsibility unless they were the ones that were actually with the child when it got damaged.

WILLIAM EISERMAN:

While we are on the topic of payment, do any insurances pay for hearing aids for impatience? -- In patients?

KELLY A. BAROCH:

That is a really good question! So in our hospital, we do not really look at what you are reimbursed, we look at what you are billing. But we do pay for hearing aids obviously when we put them on.

If the insurance company will not pay for the device to be that while they are inpatient, we will leave -- loan that child a loaner device, and on the day they are discharge, they walked darkly from the unit and to get fit with a personal device and return the loaner. So that is a way to run the payment issue, is to allow them to get the loaner device.

WILLIAM EISERMAN:

This is William again (Reads) "For your patience with trachea (unknown term) for so have you run into any interference with testing? And have you facilitated any of this testing?"

KELLY A. BAROCH:

Yes. So we try, for our long-term kids, we try to get their first diagnostic testing done by one month of age. So... Obviously we want to do it sooner than that if they are medically stable.

We have a list of criteria that we give the care managers, and we triaged with them and as soon as the kids we the criteria that is when we start testing -- meet the criteria. For kids who are trached, we know we have issues with conductive hearing loss, but we want to get this test done as soon as possible within a month. Because our goal is to relapse severe hearing loss. They have mild to moderate conductive and loss, and they have a trick -- trach for fluid which most do, at least we know we are doing with conductive loss versus central hearing loss.

From there depends on the age of the child. This was another education piece, because our ETT docs did not want to do a lot with the trach kids at first. But now typically we will do to test with them.

First test is done in the first month of age, and the second test is done at to motivate for some it is still at the remains of age, then the ETB will say that we stop fluid now either men's of age, they still have mild to moderate loss, there are trached, so you will take him down to the ER to check their ears. They're too little you do not want to put it to Ben, at least you regatta me do a Maryagotame (unknown term) and get the fluid out to let them test that.

With the equipment you have to have something that has some type of waiting. With ours, we went through and looked at a lot of systems to make sure that we found a system that works really well. One with electrical noise.

It is not always perfect, but typically we do not have intellectual -- electrical interference with infants who are trached. But it depends opposite definitely does depend on what type of equipment that you have.

WILLIAM EISERMAN:

Doctor colour we are at the top of the hour believe it or not -- Doctor Kelly. We have so many more questions we are not able to get too!

But as you have said you do encourage folks to email you or to give you a call to dialogue with you more about all of these questions. All of which in reading these over I can see they're all relevant and

important.

As we close out, a thank you to you Doctor Baroch for your time today and for all of this great information, and incredible work you do on behalf of these fragile patients and children! Our hearts go pitter patter when we hear about them (Laughs) right?

So we just really acknowledge your important work there, and the work of all the people on with us today. Thank you to our captioners and interpreters today.

As we get ready to close out, you will see in our chat field link to -- a link to a quick evaluation survey that will also generate for you all certificate of completion for today's webinar. In case that is of importance to you.

Know today's webinar has been recorded, and in the next couple of days it will be reported on infanthearing.org. We will send you an email with the link to that recording, as well as to the slides so that you will have both formats for accessing the information that our presenter overviewed for us today.

So thank you everyone! Any parting words Doctor Barrett?

KELLY A. BAROCH:

I've dislike to say thank you all so much -- I would just like to say thank you all so much! For all your help, and to our interpreters. I'm sorry I did not get to all the questions, but please feel free to email me or call me because I'm happy to talk about it off-line. Thank you for being here with me today. --Dr. Baroch

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