>> My name is Sean Smith.

Welcome. Thank you so much

for being here. Why don't we get

started. We'll talk about the Marshall

Islands, we'll talk about who they

are and what our EHDI program looks like,

 the hopefully we'll get some

audio-visual help and we'll be able to

show you a you about our

transition to telemedicine on the

islands and what it looks like in action.

>> So the addition closures I'm

employed by the university of Hawaii.

>> And I'm employed by the university of

Hawaii as well as the Bristol bay hells

organization in Alaska.

>> Our team is surprised of RpI and I'm

the EHDI coordinator and the

only early intervention teacher. Maria

is our screening supervisor

and our two phenomenal radiologieses,

Sean from Alaska and Samantha from

Honolulu.

>> In if you've heard salesman's

name before that's where she's from. So

we'll start off -- we're going to talk

about the history of the Marshall

Islands and about kind of the local

perspective there and then we'll talk

about what telemedicine looks like this.

We're hoping to go TV learning

objectives, we want you to know about

this awesome place, identify a couple of

obstacles to diagnosing children with

hearing loss and meeting those 1-3-6

goals and because we're trying to make

this a permanent project and fixture in

the health care RMI what are the

advantages to health telemedicine moving

 forward.

>> So as a lot of you know my Pacific

island sisters are in the room but you

may not know where the Marshall Islands

is so the Marshall Islandses located

above the equator and it's halfway

between Hawaii and Australia. So we're

right there in the middle. The atolls

and five islands and [indiscernible].

They are in groups of islands

known as a chain of islands and the

other group is the sunset set of islands.

The total combinedded land magazine is

70 square miles, that is abthe size of

Washington, D.C. if I'm not mistaken and

we're surrounds across a mass of

750,000 square miles of the part of

ocean. There's a National Anthem that

explains our islands and it says it's a

wreath of flowers and a very f fit

ting the description. 4,000 reside on

the capitol city and 15,000 on the

second largest urban center and 6,000

are scattered across the other

islands. A little history about the

relationship between the United States

and the monthly the Marshall Islands was

a territory under the U.S.

administration right after the Pacific

war, between 947 and 1986, can duck this

time the U.S. conducted 67 nuclear tests

in our country. You can't see the

pictured but it's a picture of the

infamous shot that made it in the atoll.

In 1986 the island became independent

and entered into a special agreements

known as the compact of free association

and under the agreement the U.S. provides

 direct economic assistance to the RM I

and extends domestic programs to

the,MI which is why it's eligible for

[indiscernible] but the people can

travel and work in the U.S. without

 visa and in campaign

they're the only military prejudices in

our jurisdiction and they have a

land use agreement.

>> And to fill you in on the map if

you're not familiar we have the Marshall

Islands in the square inset and if we

Zoom in this is what we're looking at

and you can see the twilted chains heading

 north.

>> So that's the tin famous shot that

was a nuclear bomb that was detonated

in the Marshall Islands. The EHDI

program wouldn't be possible without the

collaboration and trip of these agency,

the government of the Marshall

Islands, center for disability studies

can university of Hawaii, the RMI

ministry of health and of course HRsa.

And this is a quick snap shop to

have Eddy timeline it became the youngest

 nation to join the national EHDI family

and we got our funding from HRsa and was

administered by the ministry of health.

Between again and 12 there are some

administrative issues that left

the ministry asking Cds and the

university of Hawaii to administer a

program on their behalf as a bona fide

agency and we also worked under a CDC

grant.

2013 we expanded our services to the

hospital, and ever since then we started

getting -- before I move on it's

important to know in the R MI we do not

have audiologists or ENTs so we rely on

specialists to travel to provide these

services for us two to three times a

year. 2016 with we identified our

first deaf child on the island of Ebeye

and we started early intervention and

this was the 12 intervention via Skype

because I live on the capitol city

and this child was I'veed in Ebeye and

in of course in 2020 the pandemic

happened and the government had to close

our borders for almost three years, so

that's when we had to think about how we

were going to meet our 1-3-sib objectives

 if we're not going to have visiting

teams come in. So this is what our EHDI

program looked like before the pandemic.

 All newborns are screened on Ebeye in

the the hospital. Patient screening is

done after birth or before discharge,

and I would say we have 90 to 99 screening

 rate. It's also important to note that

we even though -- sorry. Our expect

tenant mothers including those

on the islands fly to either the to

deliver so they get the screening -- the

hearing screening done. As

mentioned we don't have an audiologist

or the island and the team -- the

scheduling these teams to come in

depends on the audiologists or ENTs,

their schedules or commitment, the

weather, things like that. We at would

have delayed diagnostics

sometimes. So as mentioned the RMI hosted

 interdisciplinary team visits three

time a year until 2020 when the pandemic

happened and this included our local

pediatrician for medical and

developmental management, medical

management surgery and training can

audiologists for diets, calibration and

[indiscernible]. And these two or three

time visits are pretty expensive. One

round trip ticket costs about

2,100-dollars t. So this is how the R

minimumI program changed with the

pandemic, the floor chart on the top is

what we did before the pandemic and the

floor chart on the bottom is where there

are changes with 12 audiology so now

instead of waiting for the teams to come

in we can now do diagnostics.

>> As well as early intervention. We're

going to spend the rest of the

presentation focusing on that last arrow.

So beginning in 2021, realizing the

borders weren't going to open up anytime

soon our team got together to first time

out with a we needed to implement and

development a 12 medicine program. We

have a couple of things to consider, the

clinical needs, what are we focusing on,

screening, intervention diagnostics, who

are we seeing, what are we seeing

them with, are we focusing on the

technology, the software, the peripherals

 and in our case we were mostly focusing

especially in the early days on video

and in clinic diagnostics, that means

that we chose a realtime synchronous

model as opposed to something like story

 forward where we weld get an

interpretation, we're actually videoing

in and controlling the computers live

and we're making sure that everything

is organized, managed in realtime. We

can only do that because and I'm going

to say this a bunch of time. We have an

amazing team of people that are

donating time, resources to training

each other, to facilitating that

remotes intervention that, remote

diagnosis. And finally who's going to

take ownership of the willing,

clinically I know if I didn't document

it it did not happen, who's going to

make sure we document it, who's going to

share that responsibility. So beginning

that process we started by figuring out

what own -- what was owned by whom.

Is this a grant funded piece of

equipment, this a donation, get ming

all that set up. If bulk of our time

was setting up our team viewer account F

anybody's worked with I.T. that's what

we're doing but rather than doing it on

a scheduled business we Cincinnatied to

make sure the audiologist could

remote in at any time. It might be nine

a.m. where I'm at and it might be

midnight for you depending on where we

are, we need to be able the get in there

and write reports without scheduling,

 took a listening time but we were

reward bid our first successful

diagnosis, that's Sam our guru on face

 time, I believe in the beginning

after we moved over the Zoom. With the

whole family with everybody, everyone

was so happy. Making sure we had that

buy-in from the university of Hawaii

which they're still administering the

EHDI program, they're working

with the funding, grants tempt to flow

through the university of Hawaii, how

are getting agreements with

 hospitals Highway we

collaborating with each other. When I

see a kid that has something going on in

the middle ear are we sending them to

the pediatrician for drops; can an

ENT take over, do they need to go to a

medical center.

The closest one is in manila. Scheduling

 is still a challenge, it's always

difficult. I think I've definitely and

-- I closely with [indiscernible] I've

messed an appointment with her because

she said 5 o'clock and it's maybe

9 o'clock my time and I log in and it's

yesterday or it's tomorrow and I have a

watch with four different time zones op

it and I still can't keep track of where

I am.

Documenting the equipment: that bill box

that you see in the corner that took

about a month to get to Ebeye in the

mail whereas there was a charger we

can't do this test, we don't have that

equipment. So everyone needs to work

closely together and motivated in the

same direction.

>> We also transitioned into remote

intervention so the picture of me on the

right is providing intervention and the

 other picture is me training with

our consultant out of Washington state.

>> And we used Facebook messenger a lot

in the the beginning, that was

the old expedient, we're transitioning

to Zoom and other products that are a

little more HIPAA secure moved forward

and I a lot of this diagram showing what

we have., this iPad is usually when

I'm on Zoom or Google meet with a family

while I'm talking with the family or

maybe an I pad and I'm use I'm

using a hand held camera the look at

mom, looking at the baby and I'm remote

 connected to the AVR that's on

the island: once we have all of that I'm

the one that's updating the charts in

high track, that's our little

 multicolored star in the

corner. We're on high track and using

that to update and everyone that the way

kind of owns a little bit of that record.

So we're going to watch two videos I

hope, everyone can cross their fingers

that we have permission to watch this on

this computer.

We're going to watch Sam working in

Hawaii for a little demonstration.

We're going to start with the settleup

and do the ABR itself and then we'll

talk about that. okay. I think this

might be an issue with our permissions

with the drive. If you'll excuse me one

moment. All right. I'm so sorry, looks

like this is not going to play. I think

we'll chalk that up to technical

 difficulties. What we'll

do is maybe my card available and

just send us your e-mails and we'll make

that available for you.

I think it's really

worthwhile and Sam is fantastic. Thank

you so much; if we have a little bit of

time maybe instead of question we can

watch a video together. So thee are

some of the current

challenges, children aging out of the AVR

 window and I know they've been working

on doing AVRs are children that are

awake. We still think it's best

practice to get the kids to try to fall

asleep and even though we're seeing older

 kids our rate overuses isn't as high.

 Sometimes when the kids go to manila

for treatment they don't autopsy always come back, sometimes the

families stay there and getting the

treatment is difficult.

And access to amplification, making

sure that we have time to see these

kids before they hit that intervention

guideline period. So the future for

tele-health looks like this. We've got

diagnostics, medical management,

collaboration both on island and off

island and amplification and early

 intervention. These are

all key components of a successful

telemedicine program.

Expanding services and ensuring

longevity are two major goals right

now, having cleared those initial

hurdles we're working on increasing

services to both Ebeye and mad row and

making sure that when we do get the

chance to visit in person we're getting

the kids that may have been referred in

gosh, beginning of 2020. We have a list

that sometimes we're not able to tackle

unless it's in person.

Make sure that UH funding continues to

flow to the Marshall Islands. We're

making sure we're calibrating and over

 coming those issues. and

overcoming technical issues as they

arise, I think that was the fourth part

of that maybe we demeanor straited it to

you in problem. So the takeaways and

hopefully we'll be able to give why a

short video as we take questions but a

couple of takeaways we made this

transition during a really weird time in

the world. The borders had been closed

for a year at that point, they weren't

going to be open anytime soon, it's a

year and a half before anyone could fly

in.

I think the team did a great amount job

of riding to that challenge but the

benefits we think are obvious to

continue this program, making sure we

sigh those kids in those 1-3-6

guidelines and using this as a

foundational change for remote medicine

in iPhone 7 in the Pacific. So did I

see someone pop in for -- e-mail any

requests but we'll put together a video

for you if you're interested in seeing

 it about what that looks like in action.

And do you have any questions for us?

>> Bethany? I'll bring the mic to you.

>> I had a question about how was

internet connectivity for you folks, and

also how long did the as a results take

to set up from start to finish and how

many successful A B Res were you able to

complete in the marshalls?

>> Yeah, a lot of awesome questions,

just to start with my first like gut

reaction when you asked about internet

connectivity is it can be difficult.

We have actually been playing around

with a couple of different internet

 solutions, we find that Zoom

tends to be a little more

efficient with data. Some of the Google

products surprisingly don't work as well

and team viewer has a video chat

function, really slow, huge data hog, we

stopped using it immediately. As far

as how long it takes, scheduling can be

an issue. You said four months and you

there are some kids that we have some

difficulty. Typically I block aside two

hours given the family maybe 30 minutes

to come in, usually around a minute ten

she runs to the family's

house and grabs the family, brings them

back, leave time for baby to either fall

asleep or relax, and then we'll spend 30

to 60 minutes on the AVR itself.

>> For Samantha and we usually for ABRs

we usually take two and a half to three

hours from start to finish and we've

done I would say about ten, 11

successful remote diet AVR

 diagnostics so far but we

have allow a lot of babies to

catch up on. Do we have any other

questions.

>> Hi. This is Elizabeth interest

Hollande college of engineering. We've

been working on an intuitive screening

device so we would be interested to hear

with any of the devices you use were

there any particular things that were

harder to train when your going it

in the teleaudiology circumstance.

>> I snow you and I spent a lot of time

together working on the hands on portion

of things.

How long would you say it took us to get

good at that? One to two days

of good practice and I think you brought

in another assistant; sticking electrodes

 on your face, looking silly. We use a

viva sonic and I found -- tell me if you

think differently but we're mostly training

 the hands on portion, is this electrode

in place, does that wire lead to the

spot we think it's going to.

>> .

>> It's not really a question but a

recommendation regarding the contextivety

 issue. It would help if you have a

separate [indiscernible]. That's

what we do and it helps a lot, so think

about it.

>> Thank you. We'll make note of that.

We have portable wi-fi devices and we

have one specifically for this when the

hospital internet is doing but it's one

of those portable wi-fi devices.

>> And I'm getting a wave that that's it

for time. Thank you so much for coming

and again I hope you had a chance to

take down my e-mail. Please e-mail me.

I would love to send you more about our

project and what we're working on.