EHDI Services in the Republic of the Marshall Islands:

A Local Perspective on Telehealth

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Presenter/Author Disclosures:

Chinilla Pedro Peter: Employed by University of Hawaii

Sean Arthur Smith: Employed by Bristol Bay Area Health Corporation

Ray Miner: Employed by University of Hawaii and has Ray Miner Associates, LLC

Samantha Kleindienst Robler: Employed by Norton Sound Health Corporation, University of Arkansas for Medical Sciences, University of Hawaii

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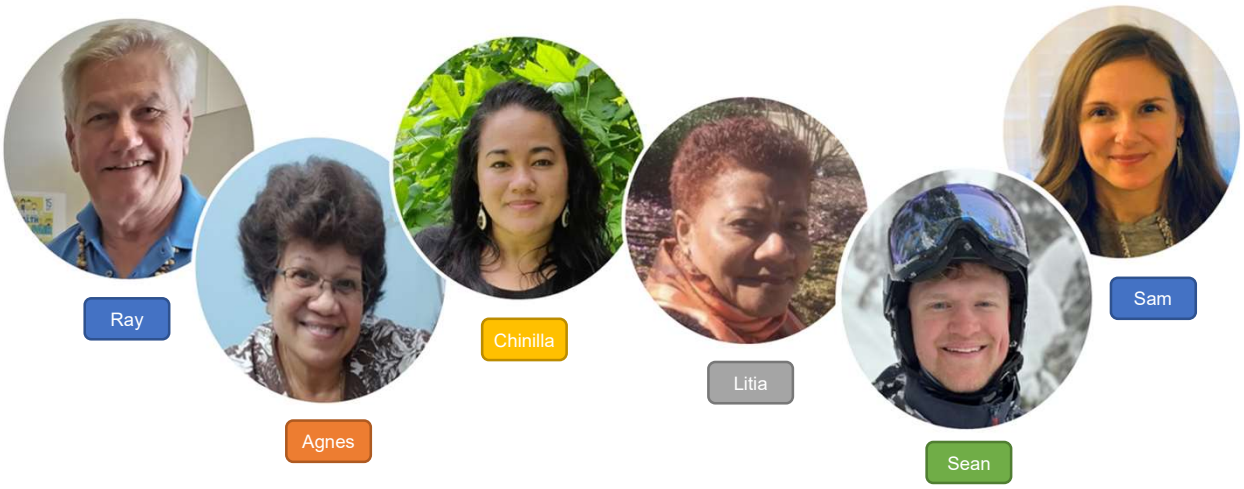
Meet the "rAy" Team



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Presentation Details

Learning Objectives

Describe the Republic of the Marshall Islands (RMI) and list its two primary centers for EDHI services within the islands

Identify two obstacles to identifying children with hearing loss on the RMI before 2020

Describe one potential advantage tele-audiology and remote EI has over in-person services after 2023

Outline

1. Introduction to the Marshall Islands
2. EHDI in RMI
3. Transitioning to telehealth
4. Telehealth in practice
5. The future of telehealth on the RMI
6. Questions, perspectives from our team

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Marshall Islands

An Introduction

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Marshall Islands

- Northern Pacific halfway between Australia and Hawaii
- 29 coral atolls and 5 islands
- 2 Parallel chains of Islands/Atolls
- Total landmass of 70 sq/miles
- 750,000 sq/mi of ocean

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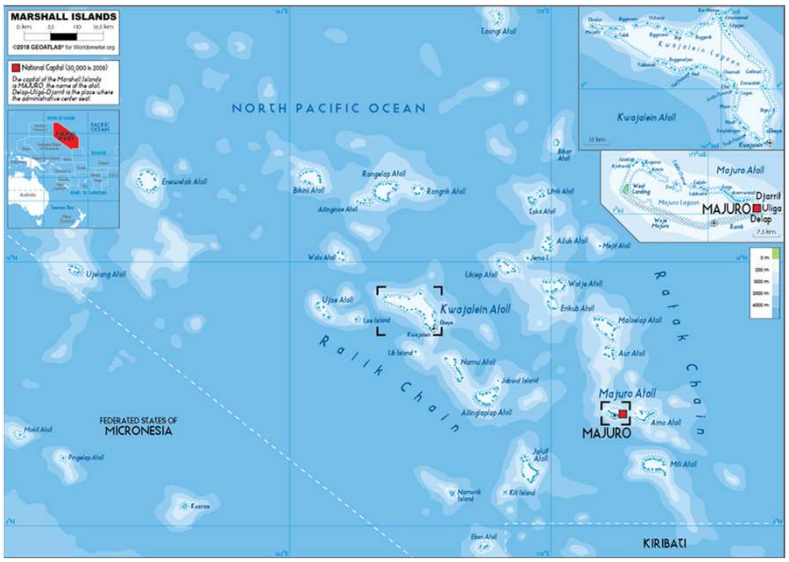
Marshall Islands



- Majuro is the Capital City
- Population : 61,000 (2011)
  - 40,000 on Majuro
  - 15,000 on Ebeye
  - 6,000 Outer Islands

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Marshall Islands & US History

- 1947-1986 UN Trust Territory under US Administration
  - conducted 67 nuclear tests
- 1986 Independence and Compact of Free Association
- Under the Compact Agreement
  - Provides Economic Assistance
  - Extends US Domestic Programs and Federal Services
  - Marshallese citizens can travel to, live and work in the US visa-free
  - Strategic Denial & LUA of Kwajalein Atoll for US Missile Base (Star Wars)

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Majuro Hospital

- 101 Bed Capacity
- 25 Physicians
- 1/1,500 Patient Physician ratio
- 90-92% of all births occur in either hospitals
- 689 births (2022)

Ebeye Hospital

- 45 Bed Capacity
- 14 Physicians
- 1/1,070 Physician to Patient ratio
- 287 births (2022)

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RMI EHDI Program

U.S. Department of Health and Human Services
HRSA
Health Resources and Services Administration

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RMI-EHDI TIMELINE

2010
- HRSA
- RMI Ministry of Health & Human Services

2012
- CDC
- UH CDS Bonafide Agency
- Majuro Screening & Diagnostics
-Audiology Visits 3/year

2013
- Added Ebeye Screening & Diagnostics 3/year
- ENT twice/yr

2016
- 1st Deaf child identified on Ebeye
- 1st tele-early intervention via Skype

2020
- COVID-19 led to closure of borders for the next 2.5 years

2021
-Tele-audiology via Audiologists contracted through UH-CDS

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- All Newborns on Ebeye & Majuro are screened
- Inpatient screening within 24 hours
- Follow up Screening at 2 wks
- 98-99% screening rate
- 92% of all expectant mothers deliver on Majuro & Ebeye

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- No Audiologist on island
- Audiologist visited 3 times a year
- Subject to weather delay and cancellations
- Delayed diagnostics
- Loss to follow up

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- Referred & Enrolled in EI at Population Centers
- Amplification depending on audiologist and donations
- Delayed enrollment
- No Part C & Head Start
- Home Visits & Playgroups

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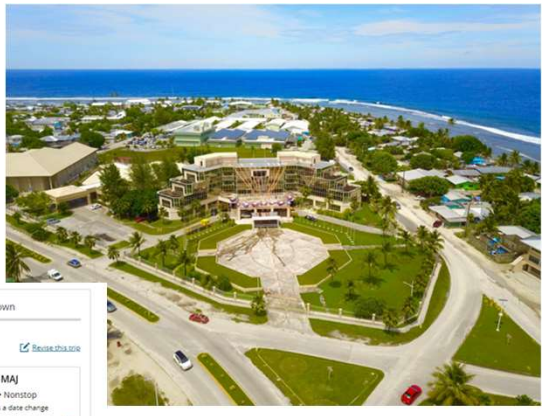
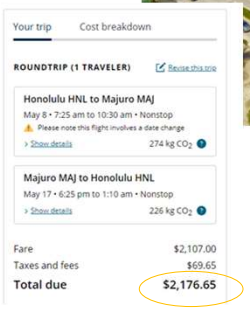
Diagnostics/Intervention: In-Person Clinics

The RMI hosted interdisciplinary team visits 2-3 times per year until 2020

- Pediatrician
  - Medical/developmental management
- ENT
  - medical management, surgery, training
- Audiology
  - diagnosis, monitoring, calibration, amplification, aural habilitation/rehabilitation





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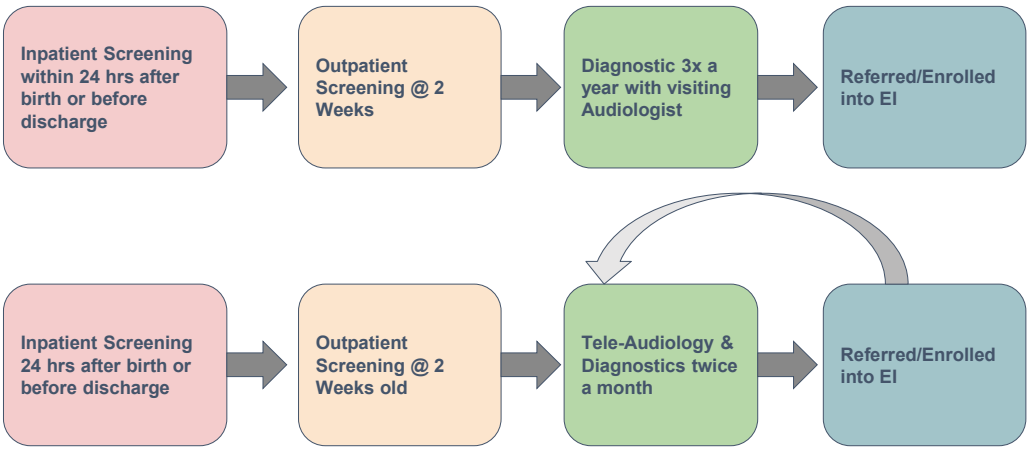
How RMI EHDI Program changed with Pandemic



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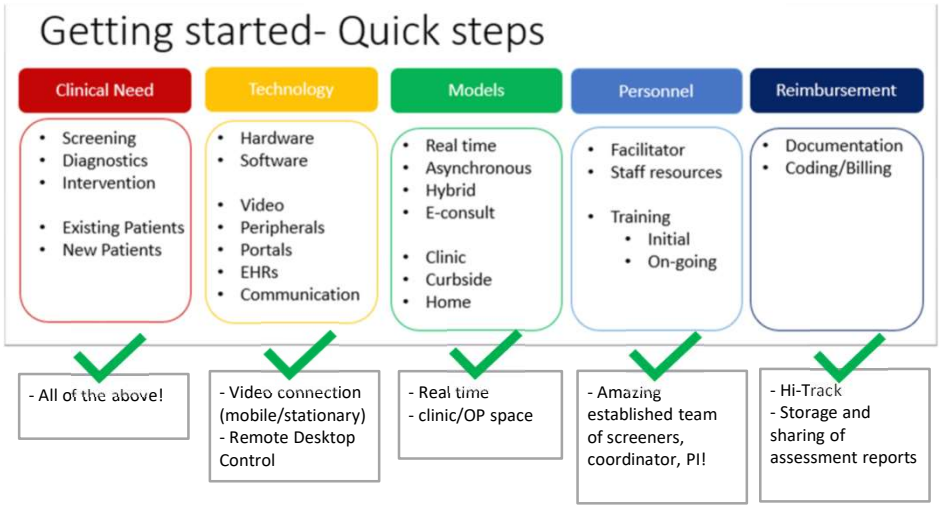
The first steps



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First Steps in Action

- Acquire Equipment, set-up and deploy
- TeamViewer Acct, and technical calls for user access and computer set-up
- Multiple training sessions to review equipment, workflow, connection, process/procedure
- Took about 3-4 months of preparation with first successful Diagnostic ABR in August of 2021

an amazing feat with part time staff, time zone differences, procurement and shipping time, and so on…

Excitement over 1st Diagnostic ABR

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Hurdles we overcame and those we're still practicing jumpin'

- Agency and staff buy-in and partnership
- Interprofessional collaboration
- Equipment availability and training
- Remote connection with teamviewer
  - accomplished but required persistence
- Scheduling and coordination UH and RMI
- Report documentation
- Technology solutions for seamless team & patient communication
- Equipment acquisition - grants and donations
- Calibration

Inter-Island transfer of equipment/supplies can take days/weeks

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Transitioning to Remote Intervention

Effectively reaching remote families became easier
-Facebook Messenger

Made possible with:
- distance training
- in-home observation
- Incorporation of iPads
- portable wifi devices

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Telehealth in Practice

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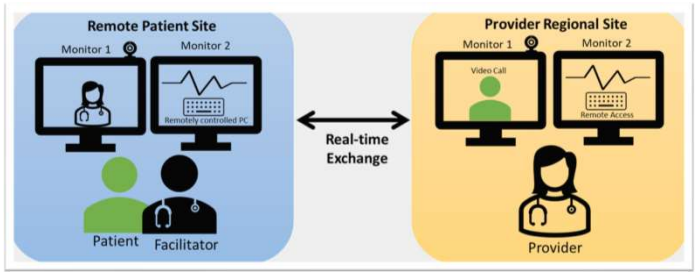
RMI EHDI- Diagnosis Setup



Software

Hardware

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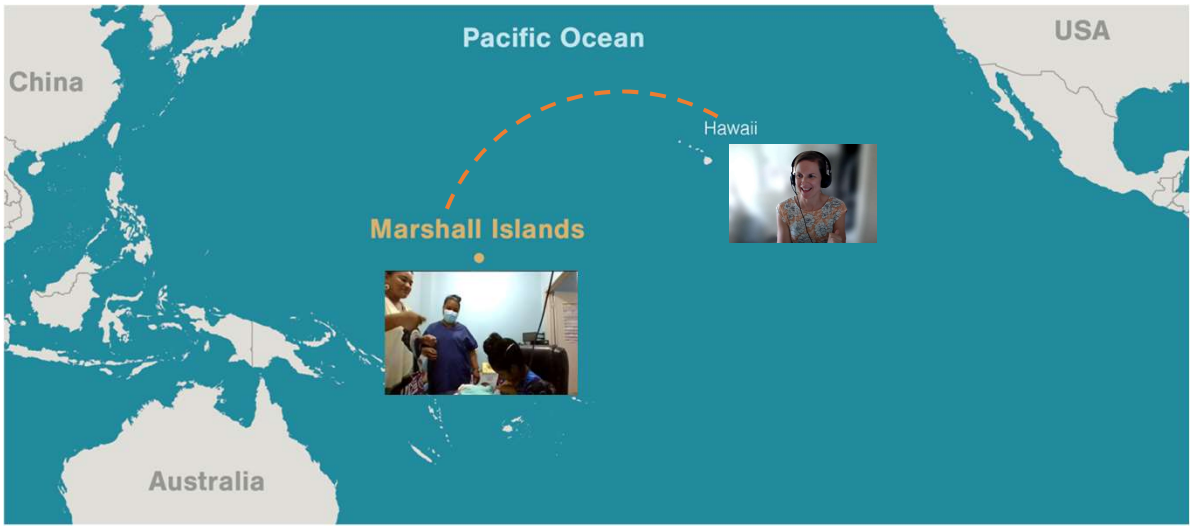
RMI EHDI Diagnosis - Testing



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RMI EHDI Diagnosis- Testing

ABR Set-up

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RMI EHDI Diagnosis- Testing

ABR Remote Connection

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Current Challenges and Opportunities in Telemedicine

Challenges	Opportunities
Children aging out of ABR window	Increasing tele-ABR volume, with in person follow up
Coordinating of medical intervention on-island	Increasing capacity through ENT pediatric training and ensuring inventory of needed medications/supplies
Access to amplification	Establishing initial remote fitting and follow up protocols, improving training, and increasing inventory

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RMI EHDI: The Future for Telehealth

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RMI EHDI- The Role of Telehealth

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Looking Ahead

Expanding Services

- Increasing services to both population centers
- Decreasing the backlog
- Increasing coordination between systems

Ensuring Longevity

- Investments in equipment (calibration)
- Building local capacity
- Expanding Stakeholder Investment

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Takeaways

Our EHDI team transitioned to Telehealth - remote diagnosis, intervention, and medical management - to meet challenges presented by COVID.

Our hope is that these changes represent, not a stopgap measure to be rolled back, but a foundational change leading to enhanced EI services in the future.

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Questions

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In their words: Litia Cama

The main challenge we had here on Ebeye is there is no audiologist or ENT specialist. We have to wait for visiting team if any to see patients here. There were no canvas back teams [other traveling services] here since Covid till today.

Now that we have teamviewer, it's a great accomplishment where babies can be diagnosed via ABR.

- Our screening machines need to be calibrated and it's been more than 3 yrs now with no calibration done

There are only 2 of us here doing screening so we are a bit understaffed.

- During Covid our mothers and babies were allowed only to stay for 6 hrs before they are discharged and since we are short of staff we had a few misses so we had to catch them at their first clinic in outpatient.

  If we can have one more machine- we can use during outreach in the outer islands.

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Program PI: Ray Miner

- First and foremost, telehealth-Audiology is critically needed in RMI since there are no practicing audiologists in RMI. Given the expense of sending audiologists on a regular basis to RMI and the limited funds available through the EHDI grant, the Program has to rely on telehealth to meet 1-3-6 goals.
- Given the small size of the entity, the funds generated through other Programs such as the Maternal and Child Heath Program, etc. are not enough to assist and support the EHDI initiative. Furthermore, as reported by the World Bank, the Gross National Product per capita as of 2021 the most recent data available was just over $6,000 USD compared to the US at over $70,000 per capita, thus there is little local generated funds to support the Program. Therefore, the EHDI grant is basically the sole source for the initiative.
- To help supplement the grant, a portable operating microscope was donated to the Program, and we solicit for hearing and aid supplies donations.
- Equipment calibration is a challenge and will be even more of a challenge as the available funds continue to be smaller after personnel costs. I am a certificated calibration specialist and have been doing the calibrations. I am not going to always be available to do the calibrations and at reduced cost. Remote calibration for audiometric equipment is a possibility, but a person will need to be trained to connect various cables and receivers to couplers as the calibration progresses, and accessories will need to be shipped to RMI.
- There are many challenges facing the RMI EHDI Program but given the creative and positive thinking and energy of our team we will find ways to over come the obstacles and challenges in order to identify and service babies and infants with hearing impairments and their families.

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