

The Road to a Teleaudiology Program - Bumpy, But Worth the Journey

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Audiologic Nuts & Bolts

- Driving Objectives:
 - Reduce the number of infants from 35 counties in the eastern part of North Carolina who are lost or have delayed follow-up after referring on a hearing rescreen.
 - To provide diagnostic evaluations for children from rural northeastern North Carolina.

In tune with the 1-3-6 Plan

- Joint Committee on Infant Hearing (2007) endorses:
 - Screening no later than 1 month of age
 - Comprehensive audiological evaluation at no later than 3 months of age
 - Appropriate intervention at no later than 6 months

Audiologic Implementation

- Test protocol development
- Training audiologists
- Dual site preparation
- Evaluation/changes

Developing The Diagnostic Protocol: Guiding Principles

- American Speech-Language-Hearing Association (2004)
- Joint Committee on Infant Hearing (2007)
- Ontario Infant Hearing Program (2008)
- British Columbia Early Hearing Program (2008).

Protocol: General Issues

- Objective:
 - Determine the presence or absence of permanent childhood hearing impairment
- Target Impairments:
 - Hearing threshold ≥ 30 dB HL in 500 to 4000 Hz range

Protocol: General Issues

- Components:
 - History
 - cursory otoscopy
 - Middle-ear analysis
 - Otoacoustic emissions
 - Auditory brainstem response

Assessment Details

- Tympanometry
 - 1000-Hz probe tone
- Distortion product otoacoustic emissions (DPOAEs)
 - Nominal f_2 frequencies of 1500, 2000, 3000 and 4000 kHz.
 - The f_2 / f_1 frequencies ratio of 1.2
 - L_1 and L_2 of 65 and 55 dB SPL

Assessment Details

- Auditory brainstem response (ABR)
 - Frequency-specific assessment using AC and BC tone bursts
 - Click-evoked ABR testing using both condensation and rarefaction stimulus, if there are risk indicators for neural hearing loss (AN/AD)

Training

- Onsite training at East Carolina University for audiologists
- Development of protocol handbook
- Continued consulting support



Population Based Intervention
North Carolina's Reducing Loss to Follow-up after Failure to
Pass Newborn Hearing Screening Supplement
North Carolina's Early Hearing Detection and Intervention
Follow-up
Telemedicine Project in Conjunction with East Carolina
University

Clinical Audiometric Assessment Protocols

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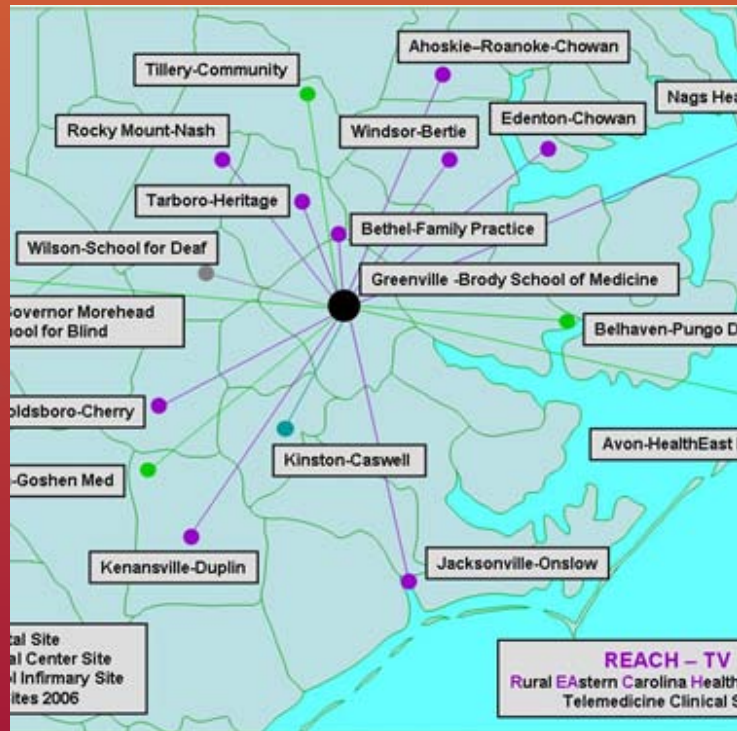
Site Preparation: ECU

- Consultation with ECU Telemedicine Center
- Equipment setup and training
 - Polycom system



Site Preparation: Remote Sites

Site visits



In Real Time: Introductions



Test Preparations



Examination of Results



Counseling



What does it feel like?



Results to Date

- 8 infants referred/scheduled from February to October 2011
 - 3 diagnosed as “normal”
 - 2 referred to ENT
 - 1 with abnormal ABR to AC tonal stimuli and middle ear function
 - 1 with abnormal middle ear function
 - 1 not tested due to technical problems
 - 1 no show

Troubles/Issues

- Diagnostic instrumentation interface
- Billing
- Medical records/HIPAA
- Liability insurance

Future

- Teleaudiology is here to stay!
- Being adopted for service provision in many sites:
 - USA _ California, Colorado, Iowa, New Mexico, North Dakota, Utah, Wisconsin
 - Canada – Ontario
- Licensing/within-between states?
 - 21 NCAC 64 .0219 TELEPRACTICE

Questions