The Development of a Statewide Pediatric Auditory Rehabilitation Program

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Status of Auditory Assistance for NC Children Prior to 1988

- No funding for hearing aids
  - Commercial insurance or Medicaid
- No funding for cochlear implants
Dept. of OHNS at UNC Decides to Fund Hearing Aids for Poor Children in 1989

• We were considered hearing aid dealers at that time
• Hearing aids cost us $125.00 a piece (sold for $750).
• Required audiogram and financial statement from family obtained from audiologists across North Carolina
• If met standard below 150% of poverty level, we supplied hearing aid to audiologists statewide to be distributed to these children
• Spent $58,000 in first year
History of CCCDP Timeline

1989
UNC Dept. of OHNS decides to fund hearing aids for poor children.
Spent $58,000 in first year.

1990
Spent $67,000

1991
Spent $79,000

1992
Dr. W. Paul Biggers secures funding from North Carolina Legislature for CCCDP:
- $270,000 in the first year
- $1,100,000 presently

Spring 1992
Visited by investigative reporter from Raleigh News & Observer:
"You spent > $200,000 on "Miscellaneous Expenses" in the past 3 years. Did you buy a beach house with state money?"
- Showed reporter a map of North Carolina with 1,632 dots representing all children we had fit with hearing aids not supported by any state money
30 Years of Helping Children Hear

2,911 KIDS HAVE BEEN SEEN, AND 1,213 OF THEM HEARD FOR THE FIRST TIME WITH US!

Our first recipient is now 30 years old.

5,461 Speech and Language Evaluations

30,909 Hearing Tests

1,782 Children helped with financial assistance

50% of our families receive help from Medicaid.

28% of our kids have an additional diagnosis.

12% of our families speak two languages.

58 sets of siblings

5 Years, 4 Months
Implant age for children born deaf from 1993-1997

15 Months
25 Years of Listening at The Children’s Cochlear Implant Center at UNC

1993
1st CI in at Child at UNC

2000
Age of implantation lowered to 12 months

2008
Bilateral implants become routine at UNC

2013
UNC implants the first pediatric ABI under an FDA trial

2014
First Pediatric Unilateral Hearing Loss Recipient

2015
CCCDP and CASTLE become one program

2015
Our first EAS Fitting

2017
Our 1000th child receives an implant

2017
A formal pediatric research program is created.
W. Paul Biggers, MD
The Children’s Cochlear Implant Center at UNC’s Mission

- Maximize hearing access for optimizing communication potential
- Provide quality audiology and speech-language services to children and their families regardless of their ability to pay
- Coach Professionals in the skills and knowledge to serve children with hearing loss
- Empower parents and families to be primary teachers and advocates
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**Carolina Children's Communicative Disorders Program**
- Financial assistance program for NC children with hearing loss

**Cochlear Implant Services**
- Over 1400 pediatric cochlear implant patients have received care since 1993

**Speech and Language Services**
- Diagnostic evaluations, LSLS parent sessions, teletherapy
- Training, mentoring and support for educators, interventionists and parents
Financial Assistance

Carolina Children’s Communicative Disorder’s Program
CCCDP Financial Assistance Program

• Provides hearing technologies and ear and hearing related services to children in North Carolina
• Since 1993 have supported almost 1800 children in 95 of NC’s 100 counties
• $4,156,436 spent to date on $14,559,805 in equipment & services
Pediatric Cochlear Implants

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UNC Pediatric Cochlear Implant Program: 1993-June 2019

- 1,290 children
- 2,051 ears
  - bilateral surgeries starting in 2007
- 1993 - 4 surgeries
- 2018 - 139 surgeries
Pediatric Cochlear Implant Procedures per Year Through June 2019 (2,051 devices placed)
Total Cochlear Implant Procedures per Year through June 2019 (3,720 devices placed)
Our Population: Very similar to the state profile

**UNC Patients**
- White: 60%
- African American: 19%
- Latinx: 9%
- Asian: 4%
- Mixed Race: 4%
- Indigenous: 1%
- Other: 3%

**NC Census**
- White: 64%
- African American: 22%
- Latinx: 9%
- Asian: 3%
- Indigenous: 2%

Cochlear Implants are accessible in North Carolina!
Age of Implant at UNC

- Includes all children, even those with progressive loss and more hearing.
- Age of implant had been decreasing over time, but there has been an uptick in recent years as children with unilateral loss and more hearing “catch up” and receive implants.
Evolving Candidacy

• Expanding indications to “non-traditional” pediatric candidates with more hearing and poor word recognition.

• Hearing preservation has become a possibility.
More children with less severe thresholds are receiving implants over time.
Evolving Candidacy

Bilateral, Profound HL → Bilateral, Moderate-to-Profound HL → Bilateral, Steeply Sloping → Unilateral

Who we can help is evolving.
Ongoing patient management & care

- Family Involvement
- Collaboration with local educators and therapists
- Frequent visits & documentation of communication development
- Maintenance of individual & group database
- Co-treating between audiologists and speech-language therapists
Listening and Spoken Language Therapy

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Services

- Diagnostic evaluations
- Individualized therapy sessions
- Family Support & Information
- Co-treating within audiology sessions
- Teletherapy
- Mentoring & coaching
- Education
- Research
Research

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Collaborative Research History

• NIH Sponsored Childhood Development after Cochlear Implantation (CDaCI)

• Cochlear Implantation in Special Populations
  • Auditory Neuropathy Spectrum Disorder
  • Cochlear Malformations
  • Cochlear Implant Revision
  • Bilateral Cochlear Implantation
  • Bimodal Instrument Use (CI + HA)
  • Meningitis
  • ABI
  • Electro-acoustic hearing in children

• Manufacturer Sponsored Studies
  • Cochlear Pediatric Freedom Post Market Approval
  • Advanced Bionics Bilateral Study
  • Med El Little Ears Study
Current Projects

- Cochlear Implantation in Cases of Pediatric Unilateral Hearing Loss
- Outcomes in Children with Cochlear Implants and Pre-Operative Residual Hearing: Electric Only and Electric-Acoustic Stimulation
- Expanded Indications in the MED-EL Pediatric Cochlear Implant Population
The Children’s Cochlear Implant Center at UNC

• Innovative Services:
  • Financial Assistance Program
  • Professional Training and Mentoring
  • Co-Treating
  • Telehealth

• Continuing Research
  • ANSD
  • Cochlear Malformations
  • Bilateral & Bimodal outcomes
  • Speech perception, speech & language outcomes
  • Evoked potential studies in unique populations
  • Single Sided Deafness
  • Electric-Acoustic Stimulation
  • Expanding Indications
Sadie hears at 12 months, and is singing on stage by age 9.
Thank you

16th International Conference on Cochlear Implants and Other Implantable Technologies
March 18-21, 2020
Abstract Deadline: August 15th