Disparities in access to cochlear implant surgery and related services

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Disclosures

• Advanced Bionics:
  • Latin-American Advisory Board
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Background

• Despite universal screening, 60% of hearing impaired children fail to receive a final diagnosis within 3 months of an abnormal screen. [Summary of 2014 National CDC EHDI Data 2016]

• Delayed access to adequate hearing has negative effects on:
  • language acquisition,
  • long-term academic performance,
  • social interaction,
  • employment,
Background

• An increased proportion of DHH children come from families who live closer to the poverty line, report poorer health status, and are on public (Medicaid) insurance. [Boss EF, et al. Laryngoscope, 2011]

• Lower SES, having public insurance, and having a primary language that is not English have been shown to delay care to tertiary multidisciplinary CI centers. [Su BM, et al. Otolaryngol Head Neck Surg, 2017]
Background

- The UM Ear Institute (UMEI) offers multidisciplinary services to hearing impaired children across all of South Florida, as well as the Caribbean. The center cares for a diverse, unique population of children and parents of varying races, languages, and socioeconomic statuses.
Objective

• To evaluate the effect of demographic, clinical, insurance type, socioeconomic, parental involvement, and primary language factors on utilization and outcome of cochlear implant care services.
Methods

• Retrospective chart review
• Children under the age of 18 with bilateral moderate to profound sensorineural hearing loss who underwent cochlear implantation between July 2010 and October 2018
Independent Variables

• Age, sex, race/ethnicity, insurance type, primary language, home zip code, need for assisted transportation, date of diagnosis, etiology of hearing loss, number of “no show appointments”
Outcome Measures

Wait time to:

• First evaluation for hearing loss at UM to hearing aid fitting
• Cochlear implant evaluation
• 1\textsuperscript{st} cochlear implant surgery
• 2\textsuperscript{nd} cochlear implant surgery
Cohort

• 247 children
• Male=54%
• Ethnicity:
  • White, Hispanic : 122 (49%)
  • White, non-Hispanic: 60 (25%)
  • Black: 48 (20%)
  • Asian: 5 (2%)
  • Other: 10 (4%)
Primary Language Spoken at Home (N=245)

- English: 157 (64%)
- Spanish: 85 (35%)
- Creole: 2 (1%)
- Other: 1 (0.5%)
Medical Insurance Type (N=247)

- Managed-Medicaid: 113 (46%)
- Medicaid-plain: 45 (18%)
- Private/self-paid: 87 (35%)
- Military: 2 (1%)
Onset of Hearing Loss (N=238)

- Congenital: 156 (66%)
- Early-onset <2 yrs: 47 (20%)
- Late-onset >2 yrs: 33 (14%)
- Unknown: 2 (<1%)
Etiology of Hearing Loss (N=238)

- Hereditary/genetic: 52 (23%)
- Acquired: 58 (25%)
  - CMV/TORCH, meningitis, ototoxicity, prematurity
- Unknown: 121 (52%)
Need for Assisted Transportation

- Yes: 13 (7%)
- No: 173 (93%)
Wait Times
(median, mean±SD, months)

• Diagnosis to HA fitting:
  • Median: 2
  • Mean: 5.7±7

• HA fitting to CI Evaluation:
  • Median: 2
  • Mean: 7.1±16
Wait Times
(median, mean±SD, months)

- CIE to 1st CI surgery:
  - Median: 5
  - Mean: 6±5
- 1st CI to 2nd CI surgery:
  - Median: 12
  - Mean: 19.2±26
- CI surgery to initial activation:
  - Median, mean: 1, 1.1±03

- Proportion of Bilateral CI: 66%
Wait Time from CI Evaluation to 1\textsuperscript{st} CI Surgery by Insurance Type: Longer wait for public (6 vs 4 months)

P=0.0019, Wilcoxon ranks sum test
Wait Time from 1\textsuperscript{st} CI to 2\textsuperscript{nd} CI Surgery by Insurance Type: 10 months longer wait for public

\[ \text{Mean(Wait to 2nd CI) vs. Insurance Type 2} \]

\[ \text{P=0.025, Student’s t test} \]
Wait Time from CI Evaluation to 1st CI Surgery by Need of Assisted Transportation: 9 months longer wait for Need

P=0.0083, Wilcoxon Rank sum test
Mean of 2.4 “No Show” appointments for children in need of assisted transportation

P=0.0062, Student’s t test
Wait Time from HA Fitting to CI Evaluation by Distance to CI Center, Public Insurance

P=0.042
There were no differences in wait times by:

- Gender
- Race/Ethnicity
- Primary language spoken at home
- Onset/Etiology of hearing loss
Conclusions

- Public insurance (Medicaid) is associated with longer wait times to first and second cochlear implant surgeries

- 7% of our families required assisted transportation to attend appointments:
  - Greater number of missed appointments
  - Longer wait times to CI surgery
Conclusions

• Distance to CI Center is associated with longer wait times to HA fitting and CI evaluation in children with public insurance.
Conclusions

• Primary Language (English, Spanish, Creole) did not affect wait time to hearing aid and cochlear implant services
Conclusions

• Awareness of barriers, advocacy, availability of satellite offices, scheduling flexibility, prioritization of referrals, multi-lingual and multidisciplinary services allow for adequate diagnostic and early intervention
Future Directions

• Associations with CI performance
• Telemedicine
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