A Review of Cochlear Implantation in the Georgia Medicaid Population

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Georgia Medical Care Foundation

Non-profit Organization Established in 1970

Medicare Quality Improvement Organization (QIO)

Georgia Department of Community Health (Medicaid) Utilization Management

Georgia Medicaid Program Integrity Utilization Compliance Reviews (UCR) for Home and Community Based Waiver Programs

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Purpose

Surveillance and Utilization Review Subsystem (SURS) study to investigate the appropriateness of patient selection and the compliance with recommended post-surgical mapping and follow-up in Georgia Medicaid fee for service members

The Study

Period of study: January 1, 2004 through November 31, 2009

Members identified through paid claims analysis

Fee for service only (MCO excluded)

128 members met the criteria for record review

Medical records requested from appropriate providers

The Medicare Coverage Issues Manual, Durable Medical Equipment

Diagnosis of bilateral moderate-to-profound sensorineural hearing impairment with limited benefit (test scores of less than or equal to 40% correct in the best-aided listening condition on tape- recorded tests of open-set sentence cognition) from appropriate hearing (or vibrotactile) aids;

Cognitive ability to use auditory clues and a willingness to undergo an extended program of rehabilitation;

Freedom from middle ear infection, an accessible cochlear lumen that is structurally suited to implantation, and freedom from lesions in the auditory nerve and acoustic areas of the central nervous system;

The Medicare Coverage Issues Manual, Durable Medical Equipment

No contraindications to surgery; and

The device must be used in accordance with Food and Drug Administration (FDA)-approved labeling.

Adults -- Cochlear implants may be covered for adults (over age 18) for prelinguistically, perilinguistically, and postlinguistically deafened adults. Postlinguistically deafened adults must demonstrate test scores of 30% or less on sentence recognition scores from tape recorded tests in the patient's best listening condition.

Required Documentation

Letter of medical necessity from the ENT physician

Audiology results

Neuroimaging (CT or MRI)

Speech/language evaluation

Attestation from the patient or parent that they understand the need for follow-up interventions and agree to comply

Demographics

Forty-nine percent (49%) female/fifty-one percent (51%) male

Age range 2-81 years; median age was 9 years

Ten members resided in Spanish speaking only households

8 members' hearing loss was related to extreme premature birth

The majority of members had co-morbid conditions

Results

All met the prior approval criteria established by Georgia Medicaid and the Center for Medicare and Medicaid Services

Twenty nine members (23%) had bilateral implants at the time of study completion

Twelve members (9.4%) required replacement of their implants either due to malfunction or complications

Removals and Replacements

Eight (8) implants were replaced due to malfunction of the original device

Four (4) functioning implants were removed for the following reasons: infection at implant site, non-healing graft site, structural deformity, and patient intolerance

Members of Concern

• Based on identification of one or more behaviors listed below by the member:

documentation of non-compliance or poor compliance with audiology appointments that required stimulation and reprogramming of cochlear implant;
or poor compliance with speech therapy appointments that documented progress in hearing/speech; or
other behaviors that indicated actions were consistent with misuse of benefits.

Sample Programming Schedule*	
Appointment	**Description**
Days 1, 2	Activation of the external equipment; approximately 4 weeks after surgery
1 week	Audiogram and reprogramming
1 month	Audiogram and reprogramming
3, 6, 9 months	Audiogram, Speech Perception Testing and reprogramming
1 year	Audiogram, Speech Perception Testing and reprogramming
Every 6-12 months	Audiogram, Speech Perception Testing and reprogramming
* *May vary by patient and clinician.*	

Select MAP Parameters	
Name	**Description**
Strategy	Set of rules or defaults that dictate how sound is analyzed and presented. Varies by company. Advanced Bionics – Fidelity 120, HiRes P, HiRes S, SAS, MPS, CIS Cochlear – ACE(RE), ACE, SPEAK MedEl – CIS+
Stimulation	Describes distance between active and indifferent electrode mode
Rate	Frequency at which electrical current (pulse) is delivered, measured in pulses per second
Pulse width	Duration of time electrical current (pulse) is delivered, measured in microseconds

TOOLS for SCHOOLS

TRACKING AUDITORY PROGRESS in Children With CIs

By Amy McConkey Robbins, MS, CCC-SLP

What are the auditory benchmarks for average progress in CI children during the first year of implant use? Auditory benchmarks have been established independently for the following three groups of children, based upon research findings and clinical experience.[1,2,4] These groups are:

GROUP 1: Children implanted in the preschool years (age four or earlier).

GROUP 2: Children implanted at age five or later who have some residual hearing/speech perception skills, have consistently worn hearing aids and communicate primarily through speech.

GROUP 3: Children implanted at age five or later who have little or no residual hearing/speech perception skills and are highly dependent on sign and other visual cues for language learning.

The benchmarks shown for each of the three groups in Tables 1, 2, and 3 are based on data collected and reported by the investigators cited above.

*Note that full-time implant use is an unconditional prerequisite to auditory development. If a child is not wearing the implant during all waking hours—at home, school, and other activities—these benchmarks are not applicable. *Children who fail to bond to their device and wear it full-time within a few weeks of initial stimulation may exhibit insufficient progress and are at high risk of becoming nonusers of their implants.*

For additional information on Tracking Auditory Progress in Children with Cochlear Implants refer to *Loud & Clear*, Issue 1, 2005.

Tracking Auditory Progress in CI Kids

Note: Child is credited only for skills in listening-alone conditions. Spontaneous means without prompting or modeling and when not in a listening set.

■ Time post-implant child should demonstrate the skill

Table 1 GROUP 1 Children implanted at age four years or earlier

Skill	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.
1. Full-time use of CI	■				
2. Changes in spontaneous vocalizations with CI use		■			
3. Spontaneously responds to name 25% of time		■			
4. Spontaneously responds to name 50% of time			■		
5. Spontaneously alerts to a few environmental sounds			■		
6. Performance in audio booth consistent with what is reported at home				■	
7. Evidence of deriving meaning from many speech and environmental sounds					■
8. Major improvement in language					■

Table 2 GROUP 2 Children implanted at age five years or older (Some residual hearing, consistent HA use prior to CI, primarily oral)

Skill	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.
1. Full-time use of CI	■				
2. Understands some words or phrases, closed-set		■			
3. Understands many words or phrases, closed-set			■		
4. Spontaneously responds to name 50% of time			■		
5. Understands familiar phrases in everyday situations when listening, auditory alone			■		
6. Spontaneous recognition of own name versus names of others				■	
7. Knows meaning of some environmental or speech signals when heard, auditory only					■
8. Major improvement in language					■

Table 3 GROUP 3 Children implanted at age five years or older (Limited or no residual hearing, limited or no HA use, heavily rely on visual cues or signs)

Skill	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.
1. Full-time use of CI	■				
2. Begins to discriminate patterns of speech (syllable number, stress, length, etc.)		■			
3. Understands some words in closed set			■		
4. Begins to spontaneously respond to name			■		
5. Reports when device is not working (e.g., dead battery)				■	
6. Understands many words or phrases in closed set					■
7. Understands a few things, open-set					■
8. Major improvement in language					■

References

Carver, C. (2007). *Cochlear Implant Mapping: What Every CI User and Candidate Should Know.* Hearing Loss Magazine, July/August, 11-13. Robbins, A. M. (2009).

Tools for Schools: Tracking Auditory Progress in Children with CIs. Advance Bionics. Retrieved June 7, 2010 from: http://www.advancedbionics.com/UserFiles/File/3-01066-B-3_Tracking%20Auditory%20Progress-FNL.pdf

Members of Concern

Sixteen (16) members (13%) were identified as *members of concern*

Ninety-six (96) members (75%), of the one-hundred and twenty-eight (128) members, were categorized as *no concern identified*

Sixteen (16) members (12%) were identified as *unable to determine*

Members of Concern

Fourteen (14) *members of concern* had documentation of non-compliance or poor compliance with audiology stimulation and reprogramming of the cochlear implant and/or speech appointments; and

Two (2) *members of concern* had poor compliance with the cochlear implant follow-up and they also exhibited drug seeking behaviors

General Conclusions

Members residing in rural areas had greater difficulty obtaining needed service

Younger members and those who were able to speak and hear prior to the cochlear implant had better results. They also would more often follow through with their appointments

Recommendations

Develop a uniform structured pre-implant education program, to include post-op follow-up, that prepares member and caregiver for expectations after implantation

Utilize the attached charts to assist with the education program

Provide education, contracts and follow-up details in the patient's native language when needed, as well as English

Consider active case management if available

Summary

Cochlear implants offer a life changing opportunity for many children and adults with severe hearing impairment. However, for successful utilization and cost effectiveness, careful attention is necessary to appropriate selection and to assuring the necessary post-implant mapping and therapy. In our Georgia Medicaid study, there was appropriate selection of members for implantation, but there are opportunities for improving post-implant follow-up.