Survey Results – Cochlear Implant Use by Students in Schools for the Deaf

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This survey was sent by email to audiologists in residential schools for the deaf located in the USA. A total of 55 invitations were sent; 1 email address bounced back. Out of 54 email invitations received, 37 audiologists responded for a response rate of 68.5%.

Demographic Information:

The number of students in attendance at the surveyed schools ranged from 53 to 648 with the average number of students being 203. One hundred percent of those responding reported that their school enrolls students at the elementary, middle school, and high school level. An additional 48.6% of the schools enroll students ages 0-3; 89.2% enroll preschool-aged students (3-5 years of age); and 54.1% of the schools serve students who are at the post-graduate or "transitional" level.

Of the respondents, 67.6% indicated that their school has a communication philosophy of ASL/English; 38.2% reported having a total communication philosophy; and 5.9% (2 respondents) reported having an oral/aural philosophy.

The average number of audiologists employed at these schools was 1.3, with a combination of full-time and part-time professionals employed.

The average number of speech-language pathologists was 3.6, including both full-time and part-time. This number also included SLP assistants and, in one case, "spoken English teachers".

Numbers of Students with Cochlear Implants:

The audiologists were asked to report how many students with cochlear implants (CIs) are currently enrolled on their campuses. Results are as follows:
3% (1 school) reported having 0-5 students with CIs
8% reported having 5-10 students with CIs
14% reported having 10-15 students with CIs
16% reported having 15-20 students with CIs
16% reported having 20-25 students with CIs
22% reported having 25-30 students with CIs
22% reported having more than 30 students with CIs (the range was 31 to 80)

Audiologists were asked to report how many students with cochlear implants were enrolled at their campuses 5 years ago (note: many of the responses were estimates). Results are as follows:
23% reported having 0-5 students with CIs 5 years ago
31% reported having 5-10 students with CIs 5 years ago

17% reported having 10-15 students with CIs 5 years ago
9% reported having 15-20 students with CIs 5 years ago
14% reported having 20-25 students with CIs 5 years ago
3% (1 school) reported having 25-30 students with CIs 5 years ago
3% (1 school) reported having more than 30 students with CIs 5 years ago (exact number was 60)

Audiologists were asked to report how many students with cochlear implants were enrolled at their campus 10 years ago (note: many of the responses were estimates and several reported the number was unknown). Results are as follows:
78.8% reported having 0-5 students with CIs 10 years ago
15.2% reported having 5-10 students with CIs 10 years ago
3% (1 school) reported having 10-15 students with CIs 10 years ago
0% reported having 15-20 students with CIs 10 years ago
0% reported having 20-25 students with CIs 10 years ago
3% (1 school) reported having 25-30 students with CIs 10 years ago

Use of Cochlear Implants:

Next, audiologists were asked to report on the frequency of use of the implants by the students. Each audiologist provided a total number of students with implants who use them daily, occasionally, and never. The resulting numbers were averaged across schools for ease in reporting.

- An average of 14.8 students per school (across schools) were reported to use their cochlear implants daily, with a range of 4 to 51 students.
- An average of 4 students per school (across schools) were reported to use their cochlear implants occasionally, with a range of zero to 12 students.
- An average of 8.5 students per school (across schools) were reported not to use their cochlear implants at all, with a range of 2 to 36 students reported.

With respect to the patterns of daily use by students:

- 37.8% of respondents indicated that the number of daily users had a large increase compared to 5 years ago.
- 54.1% of respondents indicated that the number of daily users had somewhat increased compared to 5 years ago.
- 2.7% of respondents indicated that the number of daily users was the same as 5 years ago.
- 5.4 % of respondents indicated that the number of daily users had somewhat decreased compared to 5 years ago.
- 0% reported a large decrease in the number of daily users compared to 5 years ago.

Next, the audiologists were asked to report on the communication abilities of the active cochlear implant users.

- Across schools, an average of 5 students per school (with a range of zero to 30 students) are able to communicate orally/aurally independently
- An average of 7.4 students per school (with a range of one to 23 students) are able to communicate orally/aurally but require sign support
- An average of 5.9 students per school (with a range of one to 20 students) are unable to use their cochlear implant for oral/aural communication but still use the CI for sound/speech/music awareness.

Audiologists were asked to provide their opinion as to why students with cochlear implants were enrolling at schools for the deaf.
52.8% reported it was for a better education.
69.4% reported it was to learn ASL or sign language.
86.1% reported it was to be in a signing environment.
91.7% reported it was for better social opportunities.
66.7% reported it was for more access to support services.
Ten respondents wrote in additional answers. (see **Appendix One**)

Services for Students with Cochlear Implants

Audiologists were asked who provides CI mapping for their students.
16.2% reported that their campus audiologist provides mapping.
10.8% reported that it was a local off-campus audiologist.
100% reported that the students are seen by their private CI center.
10.8% reported that the students are seen by a local university center.

Audiologists were asked who provides CI repair services.
48.6% reported the campus audiologist providing repair services.
10.8% reported it was a local off-campus audiologist
94.6% reported it was the students CI center.
2.7% reported a local university center.

Next, audiologists were asked questions about aural habilitation services for students with cochlear implants.

97.2% reported that the school speech-language pathologist provides AH services.
41.7% reported that the school audiologist provides AH services.
30.6% reported that the school teacher of the deaf provides AH services.
33.3% reported that an off-campus professional provides AH services.

On average, across schools, students receive 86.5 minutes of AH time per week.
66.7% of schools are able to provide additional AH time for new cochlear implant recipients, with the amount of time varying per student. Meanwhile, 33.3% of schools are not able to provide additional AH time for new cochlear implant recipients.

52.8% of respondents reported that their school has made instructional or classroom modifications to accommodate students with cochlear implants. 47.2% have not. (see **Appendix 2** for specific comments)

When asked what other supports were available on their campuses for students with cochlear implants, results were as follows:
53.8% of those who answered the question reported having support groups
53.8% of those who answered the question reported having music classes
38.5% of those who answered the question reported having a listening lab
15.4% of those who answered the question reported having workshops for students
24 out of 37 respondents did not answer this question (see **Appendix 3** for specific comments).

When asked whether they felt that their school adequately supports the auditory needs of students with cochlear implants, results were as follows:
44.8% of those who answered the question said yes.
58.6% of those who answered the question said no.
8 out of 37 respondents skipped this question.

32 respondents provided comments about other services/supports they would like to provide for their students with cochlear implants. (**see Appendix 4**)

When asked why these additional services were not being provided, results were as follows:
78.1% of those who answered said it was because of limited staff.
81.3% of those who answered said it was because of limited funds.
25% of those who answered said it was because of limited access to students.
18.8% of those who answered said it was because of limited participation by students.
17 audiologists provided additional comments and 5 skipped this question (see **Appendix 5** for the additional comments).

23 audiologists provided additional comments regarding use of cochlear implants at their schools (**see Appendix 6**).

Overall, the survey results indicate a trend towards more students with cochlear implants enrolling at schools for the deaf than ever before. Additionally, these students have more sophisticated oral/aural skills than previously enrolled students at schools for the deaf. Several schools have already established formal cochlear implant programs that include, among other services, increased auditory access opportunities, mapping and repair services, student workshops, and support groups. It is safe to say that this trend will continue to increase and schools for the deaf need to take appropriate steps to ensure that the educational and emotional needs of these students will be met.

Appendices

Appendix One: Why do you think students with cochlear implants are enrolling in your campus?

1. Limited success in oral/aural school as well as in the public school system

2. most need sign support/have lang. learning probs

3. Cannot rely on implant alone

4. we have a strong cultural component some parents search out, as well as a new push to provide mapping, audiologic and spokenEnglish support

5. Auditory/Oral preschool program

6. overall, when we are considered to be LRE

7. Only oral program in our area has a tuition cost which most of our parents cannot afford. The local school districts have been less than successful in educating them.

8. regular schools don't want them lowering their test results

9. local school districts unfamiliar with possibilities in mainstream

10. Insufficient service provided by the public schools; parents come to realize they children very often do not develop "normal" speech.

Appendix Two: Have any instructional or classroom language modifications been made to accommodate students with cochlear implants?

1. Elementary School - Hearing/Deaf teams, Listening stations in some classrooms, FM equipment in 2 classrooms, Spoken language resource teacher High School - None

2. Added 1 spoken language classroom (language arts only). Classes are completely full!

3. Adding spoken language instruction, listening groups for fun listening activities, consulting with orally trained therapists.

4. Use of soundfield systems, grouping decisions, language allocation

5. more voicing, sandwiching the sign language and speech

6. CI kids function similar to many HOH kids

7. This is a total communication school. Some modifications may have taken place in Elementary school.

8. In preschool department, all computers have auditory programs added for the students to use. THe audiologist and SLP has asked the elementary dept to turn on sound for videotapes/TV etc

9. sign it/say it/sign it increase SLP services

10. FM in the primary/elementary grades

11. WE have a mostly oral/sign support program in our Nursery school with modeling hearing peers integrated 2 days a week

12. Board of Trustees - several years ago - approved an amendment to the language policy - allowing spoken English to occur in the classroom - in small group or 1:1 instruction to reinforce what was presented in ASL. This past summer the BOT approved a spoken English track - where we can have a class where the language of instruction is spoken English -(with sign support for the 3rd repetition - by student or teacher)- but for all specials, recess and lunch ASL is still the language of use....

13. Auditory/oral approach at preschool/kindergarten level, acoustic treatment of classrooms, covering mouth when talking or use of hoops, daily listening checks to see if implants functioning

14. FM systems, ongoing consultations with Teachers to help them accommodate their instruction

15. ASL + voice, when possible (2/3 Deaf teachers; 1/2 speaking)

16. some students recieve oral interpreters if they are new to ASL and have Deaf teachers Accommodations on IEP for state mandated testing includes oral read alouds for some students

17. Since we have some deaf teachers, if a student can be moved with an oral teacher, it is done, or a hearing aide is put in the classroom to work with the student.

18. classroom amplification systems; teachers use voice and sign simultaneously

19. Our school implemented a policy where kids should be communicated with in their language preference, ie ASL, CASE, spoken, etc. Teachers also frequently use more than one mode. First ASL, then spoken, for example.

20. FM systems,

21. In this primary ASL environment, teachers who are able to voice are now doing so when using PSE.

Appendix Three: What other supports are available on your campus for students with cochlear implants?

1. auditory therapy

2. none

3. not enough support groups, but we do this occasionally, usually facilitated either by a counselor or speech professional and the school mapping audiologist attends for informational gatherings.

4. none of the above

5. none

6. LOL (Laugh Out Loud) – a monthly support group that involves listening and music activities

7. none

8. we are beginning to work with counselors regarding this idea of a student support....we have set up a parent support group - which meets every 2 months - statewide

9. opportunity for off-campus preschool mainstreaming at parents' choice with school providing liaison services to monitor progress. In kindergarten, twice weekly mainstream sessions at local elementary school.

10. none

11. We hope to have one set up next fall in elementary. The principal is working on it.

12. We have a bell choir (extracurricular) for anyone who would like to participate (including deaf, non-HA and non CI users). Kids are also encouraged to take foreign language in the mainstream classes across the street if the IEP teams feels that would be a successful venture. It seems as if ALL the kids love music (iPods, MP3 players...). We also have annual workshops kids are welcome to attend, but they are also geared toward the parents and community.

13. none

14. None, specifically for CI students

Appendix Four: What other services or supports would you like to provide your students with cochlear implants that you (or your school) aren't currently providing?

1. Elementary School - Music classes, drama class/public speaking, opportunity for hearing peer integration in some classes, academic and spoken English during part of the school day High School - Listening time lunch group, oral communication in classroom if appropriate, turning on sound during movies and while watching TV programs, opportunities for socializing with peers using spoken language

2. Access to instruction in spoken language in the core academic subjects as well as ASL. Increase amount of time for habilitation

3. I would like to have the ability to MAP or have more resources available to repair the implants.

4. Increased speech and language support

5. Oral-only environments and peer interactions with normal-hearing same-aged peers. Would love to see dual-tracking (oral track, signing track, and blends of this for kids transitioning from sign to oral).

6. would like in-home early aud training for 0-3 yr olds,. self-directed AR computer programs for older kids

7. more successful cochlear implant adult users for role models

8. I do not feel that we need an auditory program here. I would like to give bi-lingual education to more young children with CI. Most families are trying the oral method and when it fails, send them to Bi-bi school. I believe that children with cochlear implants can develop speech with CI. I am not certain that all can develop the language that is necessary for academic success.

9. ASL and Spoken English model in every classroom with classroom discussions presented orally as well as signed

10. Auditory Aural only classrooms for part of the day.

11. Auditory verbal therapy

12. more auditory based instruction; auditory rehabilitation services

13. not assigning ci students to nonverbal deaf teachers. more time spent in tx. Mon,

14. More opportunities to interact with hearing children.
15. spoken English option for language arts/reading/English classes and maybe even a total communication class for preschool.

16. Any kind of support. Special classes, extra speech sessions,music.

17. Mapping

18. More auditory input throughout the day. Our school instructs in ASL, which will not provide constant auditory input needed for some of these students. Many of the students we get have already tried mainstream schools and constant auditory input, however, and have not become aural/oral communicators, however, so they need the manual communication.

19. More spoken english support for classroom learning....

20. on-site preschool mainstream opportunities

21. Would love to have peer support group and more extensive therapy services. It is very challenging to meet all the diverse needs. Also, the students are here for their education - academics - and it becomes difficult to pull them out of class for the amount of services they should have for listening/speech skills.

22. - Increased rehab services (cannot find more SLPs to hire)

23. mapping

24. Our students need more individual and/or sm. group therapy time, and a music program would be great! Our H.S. students need work with our auditory-language therapist.

25. retroactive intensive daily auditory-verbal therapy that they obviously did not get at home/school before arriving here with minimal language. Apparently no AVTs are available in eastern NC and parents are not willing to drive several hours for an hour a week session in Chapel Hill

26. Mapping abilities Support groups More auditory time

27. Auditory training and mapping if I had more time/training or another audiologist

28. One-on-one instruction re: listening; learning to make sense of what is "heard" via the implant; increased speech stimulation.

29. More focus on learning to listen in the classroom & more focus on the importance of hearing in the dorms

30. Mapping

Appendix Five: Why aren't these services being provided?

1. school philosophy, lack of cultural acceptance ...

2. Philosophy of school administration

3. diverse philosophies causing stagnation, too

4. Therapy must be balanced with academics etc....

5. Philosophy; equal access to deaf

6. Students' parents not present at residential school

7. limited support from administration/community

8. uninformed staff and administration

9. Not our school's communication option

10. I think we have the students...but we need to set up more programming to support spoken English in this culturally rich environment

11. Lots of red tape and variances, what monetary arrangements would need to be in place, etc.

12. Cannot find candidates (see above)

13. local implant centers have been very vocal in their opposition

14. The dorm staff is not trained to work with the CI students.

15. limited training (and I have an AuD)

16. Limited understanding/training

17. Not sure

Appendix Six: Is there any other information you would like to share about students at your school who use cochlear implants?

1. Several students (4 or 5) are currentlyin the candidacy process.

2. Students over the age of 6 that have recently come to this school have increasingly better auditory, speech and spoken language skills than in the past. We need to do a much better job of supporting these skills and to look at these skills as strengths...not weaknesses.

3. we do see many children who desperately need sign language, but I do wish there were better systems to allow sign language with more of an oral emphasis. The issue is mixing classes of Deaf (capital D) children with CI children who benefit from CI's...how can one teacher provide the right presentation style for both without compromising what one or the other needs? Dual tracking would be better.

4. We have a relationship with the city symphony and the students enjoy their performances. Representatives from the symphony come to play every year at the school and the students attend rehearsals/openings at the theatre.

5. Keeping the devices in good working order can be a challenge.

6. CI students fall in the "wait for failure model" when they struggled and failed with the ci &/or public school, THEN they got to be exposed to sign language and visual support~I am still amazed that the signing to hearing babies is acceptable, but signing to children with ci's is not until they fail

7. These students are getting the luxury of small classes in an environment in which there are no communication barriers in either mode, spoken or sign. I see these students as being very well rounded and able to communicate with all people, not just those that know sign. Their future looks bright when they go out into the hearing world in their ability to be communicatively independant when compared to their non-implanted profoundly deaf peers. The deaf community on our campus originally was resistant to CI kids being enrolled here. However, now they welcome these deaf children and want them to be part of the Deaf Culture, knowing that inherently they are still Deaf and the implant is only a means for auditory access.

8. thanks for doing this Kristin!

9. There continues to be much student pressure NOT to use the CI device. DEAF community is not completely sold on CI use.

10. In the past, only those who had failed with the cochlear implant came here. The trend now is to have students enroll who receive some benefit and a few who receive very significant benefit.

11. Many students who are not considered "successful" with their implants end up coming to our school. We are getting more and more students who are able to communicate through spoken language only and are learning ASL as a second language, though.

12. I really feel that the state schools need to be moving to serve the children with CI's as well as those with multiple needs....

13. Dramatic increase in CI population after starting Auditory/Oral preschool & kindergarten seven years ago. All the students in our infant program seemed to be getting implants and then were not sending their children here so we developed this program in response to that need.

14. It is heartbreaking to talk with the parents of all the students who have CIs. They went through so much and were often pressured to make choices (such as "no signing if you want the child to acquire speech skills" - those kinds of recommendations from medical teams). Most of the students with CIs are extremely language-delayed in Eng. and ASL... I used to work at a large CI center and I know the general attitude of the clinics... But they're not tracking the "non-users" and I don't think they realize that a significant number of CI recipients do not obtain sufficient benefit from the CI to use spoken English -- that some form of sign language would/could help bridge the language gap.... It shouldn't be an "either/or" - Deaf kids benefit from using their EYES, and parents need to get that message, too....

15. Am seeking more instructional materials. Students are not well informed about their implants and become very curious about middle school age. Am currently working with health teacher (high school) to present some materials to students.

16. The most successful implant users are those who have attended this school since preschool and have progressive hearing loss which eventually results in implant. They have good auditory/oral skills going into the implant and also good ASL skills. Well developed ;anguage ability from early on is the primary factor in their success

17. By the time we get "some" of the implanted students they have already been inconsistent wearers for various reasons,which makes it hard to do "catch-up" with them. And again being a residential school has some drawbacks that I do not wish to get into now. But, this is unavoidable with the student.

18. ASL is much easier than aural/oral language and most students here prefer sign. They were generally failing miserably in mainstream programs before coming to a school for the deaf. Most students coming here have more problems than just deafness, even if standardized testing does not easily identify the coexisting learning and behavioral problems. The teachers and SLPs here have all they can handle trying to teach them some language by any means possible and get their reading up to first grade levels. Use of oral & aural skills is not high on the list of priorities for kids behind 3 to 8+ years in language. The parents and minimum wage residential staff do not have the skills, time or interest in working on auditory skills after school.

19. Recently interviewed the seniors who have implants and the #1 reason for not wearing their implant at school is the noise level. Students are yelling and banging on their desks to get the teacher's attention and it really bothers the kids with implants. That

was mentioned by EVERY student. Seems we need to be teaching more socially acceptable ways of getting a person's attention.

20. nothing I would want to make a matter of record

21. Most are congenitally deaf, were implanted beyond the age of 5 years, and are now teenagers. Not many younger CI students bc implant centers in WV will not implant our students or children whose parents express an interest in sign language.

22. Sometimes after they have mainstreamed for a few years they return to us

23. Students are using CI's more often now and environment at school is more supportive for CI use.