

# Opportunities and Shared Decision-Making to Help Children Who Are Deaf to Communicate

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Parents and pediatricians agree about the importance of ensuring each child's optimal physical, emotional, and social development. Largely because of its impact on communication, congenital hearing loss seriously threatens that development. In deciding how to communicate with their children, the parents of children who are deaf or hard of hearing (DHH), 92% of whom have normal hearing,<sup>1</sup> have been torn for many years by the acrimonious debate between advocates of sign language versus advocates of aural and oral education. Fortunately, advances in technology and practice over the past 25 years (eg, newborn hearing screening, digital hearing aids, cochlear implants, and early educational intervention) have dramatically improved the opportunities for children who are DHH to learn communication skills critical to optimal development at levels comparable to their hearing peers.

The majority of parents with infants who are profoundly deaf are now opting for cochlear implants, and research about the benefits of cochlear implants and early intervention has mitigated some of the historic debate between those advocating for sign language and those advocating for aural and oral education for children who are DHH.<sup>2-5</sup> However, the role of sign language in helping children who are DHH communicate remains contentious.<sup>6-8</sup> Recent articles in *Pediatrics* have presented contrasting conclusions. In a 2015 *Pediatrics* article,<sup>9</sup> 9 “experts in otolaryngology

and language development [discussed] the pros and cons of teaching sign language in addition to teaching oral language.” After appropriately noting that “pediatricians. . . need to help parents understand the benefits and risks,” 1 of the experts concluded that “There are no risks to learning sign language along with spoken language, but there are well-defined benefits.” A short time later, in another *Pediatrics* article<sup>10</sup> based on a systematic literature review of studies from 1995 to 2013, Fitzpatrick et al concluded that “insufficient. . . high-quality evidence exists to determine whether sign language in combination with oral language is more effective than oral language therapy alone.”

In this issue of *Pediatrics*, Geers et al<sup>11</sup> provide clear evidence related to part of this debate about whether learning sign language helps deaf children who are implanted and have hearing parents. Children who received cochlear implants before 38 months of age were divided into 3 groups as follows: no use of sign language ( $n = 35$ ), short-term use of sign language ( $n = 26$ ), or long-term use of sign language ( $n = 37$ ). The 3 groups did not differ by statistically significant margins on their demographic characteristics, measures of language, or cognition at baseline. Children were assessed prospectively until they were 9 to 11 years old on the basis of speech, language, and reading proficiency by certified examiners who did not know the child's group membership.

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**POTENTIAL CONFLICT OF INTEREST:** Our perspective in writing this commentary is influenced by many years of caring for families with children who are deaf or hard of hearing. Understanding, however, that personal experience creates unconscious bias, and wanting to be transparent, we acknowledge that we are both hearing parents of hearing children.

**COMPANION PAPER:** A companion to this article can be found online at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-3489](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-3489).

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The findings are clear. Children who did not use sign language had better speech and language skills by statistically significant margins at 36 months postimplant, and these children also developed better spoken-language and reading skills near the end of elementary grades than children who used sign language. Over 70% of the children who did not use sign language achieved age-appropriate spoken-language competency, whereas only 39% of the long-term sign language users reached this benchmark. Some long-term signers developed age-appropriate language and reading skills by 9 to 12 years of age, but nonsigners were 3.5 to 4.0 times less likely than signers to have delayed mastery and scored ~0.6 and 1.3 SDs higher in language and reading, respectively. These findings are important for both parents and clinicians.

Of course, the Geers et al<sup>11</sup> study is not the final word. Its results, even if replicated by future research, should not be used to draw conclusions about other groups of children (eg, deaf children of deaf parents or children with hearing aids) or related questions such as whether children communicating primarily with American Sign Language typically acquire age-appropriate language and reading skills. Until additional well-designed research is done, humility, common sense, and the support of parents' choices should remain paramount.

Hopefully, the findings of the Geers et al<sup>11</sup> study will trigger more research and will help health care providers remember the importance of family context as they counsel families of children who are DHH. For hearing parents of deaf infants who have chosen cochlear implants,

the study's findings suggest that learning sign language should be an option rather than an imperative. Although learning sign language is 1 option, parents should consider other ways of supporting their infants' communication and development. Additionally, because children with deaf parents who communicate fluently in American Sign Language were not part of the Geers et al<sup>11</sup> study, we do not know whether early aural habilitation combined with sign language may have benefits associated with dual-language learning.<sup>12</sup> More research is needed.

In the meantime, the Geers et al<sup>11</sup> study is an excellent example of how well-designed research can provide credible and useful information. Relying on results of such research, instead of relying on anecdote and argument, as the basis for policy and practice can help end the passionate but debilitating debates between advocates of signing and nonsigning, while offering useful guidance to families with children who are DHH and their health care providers.

#### ABBREVIATION

DHH: deaf or hard of hearing

#### REFERENCES

1. Mitchell R, Karchmer M. Chasing the mythical ten percent: parental hearing status of deaf and hard of hearing students in the United States. *Sign Lang Stud*. 2004;4(2):138–163
2. Sorokin DL. Cochlear implantation in the world's largest medical device market: utilization and awareness of cochlear implants in the United States. *Cochlear Implants Int*. 2013;14(suppl 1):S4–S12
3. Niparko JK, Tobey EA, Thal DJ, et al; CDaCI Investigative Team. Spoken language development in children

following cochlear implantation. *JAMA*. 2010;303(15):1498–1506

4. Bond M, Mealing S, Anderson R, et al. The effectiveness and cost-effectiveness of cochlear implants for severe to profound deafness in children and adults: a systematic review and economic model. *Health Technol Assess*. 2009;13(44):1–330
5. Nelson LH, Herde L, Muñoz K, White KR, Page MD. Parent perceptions of their child's communication and academic experiences with cochlear implants. *Int J Audiol*. 2017;56(3):164–173
6. Humphries T, Kushalnagar P, Mathur G, et al. Discourses of prejudice in the professions: the case of sign languages [published online ahead of print March 9, 2017]. *J Med Ethics*. doi: 10.1136/medethics-2015-103242
7. Moores DF. Partners in progress: the 21st International Congress on Education of the Deaf and the repudiation of the 1880 Congress of Milan. *Am Ann Deaf*. 2010;155(3):309–310
8. Lantos JD. Ethics for the pediatrician: the evolving ethics of cochlear implants in children. *Pediatr Rev*. 2012;33(7):323–326
9. Napoli DJ, Mellon NK, Niparko JK, et al. Should all deaf children learn sign language? *Pediatrics*. 2015;136(1):170–176
10. Fitzpatrick EM, Hamel C, Stevens A, et al. Sign language and spoken language for children with hearing loss: a systematic review. *Pediatrics*. 2016;137(1):e20151974
11. Geers AE, Mitchell CM, Warner-Czyz A, Wang N-Y, Eisenberg LS; CDaCI Investigative Team. Early sign language exposure and cochlear implantation benefits. *Pediatrics*. 2017;140(1):e20163489
12. Barac R, Bialystok E, Castro DC, Sanchez M. The cognitive development of young dual language learners: a critical review. *Early Child Res Q*. 2014;29(4):699–714

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