Benefits & Cost-Effectiveness of Bilateral Cochlear Implants

John K. Niparko MD
Chair, American Cochlear Implant Alliance

Tiber Albert Professor and Chair
Dept of Otolaryngology-Head & Neck Surgery
University of Southern California
The American Cochlear Implant Alliance

*Unique Organization in Field*

- Membership organization concerned with cochlear implantation and access to care
- Membership comprised of physicians, audiologists, speech pathologists, educators and others working with CI recipients in the US

[www.acialliance.org](http://www.acialliance.org)
Two sets of ACI Alliance written comments to Washington State summarize the peer-reviewed literature on benefits of bilateral cochlear implants:

- Improved detection and localization of sound
- Enhanced accuracy in production/perception of speech
- Functional benefits reduced social isolation
- Health-related quality of life enhancement
Effect of Unilateral Hearing Loss in Real World Environments

- Considerable effects of even mild unilateral “untreated” hearing loss on educational outcomes
- 22-35% of children with mild (untreated) hearing loss failed at least one grade (Studies of 1966-2008)
- Permanent unilateral mild hearing loss impact children’s educational outcomes as well as psychosocial well-being
- Impacts when the loss is severe to profound are clearly much more significant
Minimal Unilateral Hearing Loss References


- School failure rates with mild, unilateral hearing loss:
  - Bess & Tharpe 1986 (35%)
  - Oyler 1987 (27%)
  - Jensen 1988 (18%)
  - Martini 1988 (25%)
Unilateral Hearing Loss in Adults

- Adults with normal hearing in one ear and “unaidable” hearing in the other experience significant difficulty in the workplace, in social settings, and in other aspects of daily life
  - Problems of hearing speech, localization, hearing in noise are extensively documented
- Impacts are far more significant for individuals with bilateral deafness (and one CI)
Summary
Hearing with Both Ears

• Binaural hearing: Essential for spatial separation of salient speech from corrupting, background noise.

• Binaural listening: Difficult to test in clinical settings; but essential in challenging listening conditions.

• Such conditions exist when hearing should be at its best: In classrooms, workplaces, settings where people gather to learn new information and maintain the social connectivity essential to cognition and general health status.