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Speech recognition in noise by hearing-impaired children using fm systems

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The typical classroom presents a very difficult listening situation for a child with hearing impairment. Background noise, reverberation and distance from the speaker can interfere with accurate speech perception. Children with moderate to severe hearing loss routinely use personal frequency modulated (FM) systems in the classroom to improve the signal to noise ratio of teacher-directed speech with notable success. Speech recognition performance in noise was examined in hearing-impaired children with cochlear implants (CIs) and Hearing Aids (HA) when using a frequency modulation (FM) system (a) with the FM microphone/transmitter on and off (b) in noise and in quiet (c) for words and sentences. Recognition of phonemes for lexically frequent and rare words and identification of correct words in simple and complex sentences was measured in 12 teenage students. The results showed that there were no differences in speech recognition between CI and HA users. FM benefit was present in both quiet and noise but was somewhat greater in noise. Recognition of phonemes was high for lexical frequent words and for simple sentences. The findings confirm the value of FM amplification in both quiet and noise conditions.