



AMERICAN
SPEECH-LANGUAGE-
HEARING
ASSOCIATION

AUDIOLOGY

Information Series

Hearing Assistive Technology

Hearing assistive technology systems (HATS) are devices that can help you communicate with others. You may also hear them called assistive listening devices. HATS can be used with or without hearing aids or cochlear implants to make it easier to hear.

What are examples of HATS?

Frequency modulation, or FM, systems use radio waves to transmit sound from the sound source to a receiver worn by a person who is hearing impaired. The FM system can be fit to behind-the-ear hearing aids with special snap-on “boots” that pick up sound directly from a microphone. The microphone can be set up in front of the person speaking or worn around the speaker’s neck. FM systems are useful in many places, including:

- Classrooms
- Restaurants
- Sales meetings
- Nursing homes
- Senior centers

They are also used in theaters, places of worship, museums, public meeting places, corporate conference rooms, and convention centers.

Infrared systems are often used in the home with TV sets, but, like the FM system, they can also be used in large settings like theaters. In this system, the sounds are converted to infrared waves and then back to sounds again by the listener’s infrared receiver.

Induction loop systems are most common in large group areas. They can also be purchased for personal use. Hard-wire loops are placed under floors or around walls, and these convert sounds to magnetic forces. Hearing aids with telephone switches, or t-coils, pick up these forces and change them back to sounds.

Other types of HATS include:

- **Telephone amplifiers:** These devices amplify speech heard over the phone. They are useful for people who don’t wear hearing aids. You can put a new handset on

your phone, or get a phone line with an amplifier in it, or buy a phone that has an amplifier in it.

- **Voice carryover telephones, or VCO:** These phones connect the person with hearing loss to a local telephone relay service through a toll-free number. Some forms of VCO are for voice only, while others let you hear and read what is being said.
- **Text telephones, or TDD or TTY:** These are for people with severe to profound hearing losses. With a TDD or TTY, the telephone works like a typewriter that is able to send and receive typed messages through the telephone lines. When two people talk using a TDD or TTY, text messages can be typed back and forth easily. This technology is used less often now that texting is available through cell phones.

Alerting devices provide a signal in response to sound. Many use strobe lights, regular lights, or vibrating systems to alert the person with hearing loss that a sound has occurred. Examples include:

- Doorbell, knock-at-the-door, or phone alerting devices
- Fire alarm/smoke alarm devices
- Baby-crying or room-to-room sound alerting systems
- Vibrating clock alarms, paging systems, and watch alarms

Can children use HATS?

Yes! It has been shown that children’s language development, speech development, social skills, and academic achievement depend on the ability to hear. HATS can get the best out of a child’s hearing and learning skills.

What do FM systems do for children in schools?

FM systems, because they are small, sturdy, and easy to use in many places, are among the most common HATS used with children. FM systems are used in many educational settings because of their proven benefits in noisy child care, preschool, and classroom locations.

They allow the child to:

- Hear the teacher's voice clearly and comfortably, no matter the distance between the child and the teacher.
- Hear the teacher's voice over background noise even when the background noise is closer to the child than the teacher's voice.
- Monitor his or her own voice using a hearing aid.

Are there other assistive listening systems used in schools?

Yes. **Sound field systems** can help listening for all children in the classroom. Using FM technology, the teacher speaks into a microphone transmitter. The teacher's voice is sent through speakers around the classroom.

Who is qualified to decide if a child needs HATS?

The ability to select, evaluate, fit, and deliver FM systems should be handled by a certified audiologist. Many school districts employ certified audiologists who specialize in educational setting issues. Their skills include the evaluation of children for HATS and the selection, purchase, and monitoring of HATS used in school by the child. Furthermore, audiologists guide and instruct teachers and students in making the best use of HATS.

NOTES:

For more information about hearing loss, hearing aids, or referral to an ASHA-certified audiologist, contact the:



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2200 Research Boulevard
Rockville, MD 20850
800-638-8255

E-mail: actioncenter@asha.org
Website: www.asha.org

Compliments of

American Speech-Language-Hearing Association

2200 Research Boulevard, Rockville, MD 20850 • 800-638-8255

