

# Frequency Modulation (FM) System Accommodation Guide

## FM Systems: What are they and how do they work?

A Frequency Modulation (FM) system is a wireless communication device used to support persons who are hard of hearing. It consists of a transmitter, also referred to as a microphone, and a receiver. The transmitter acts like a radio transmitter, which picks up the signal, usually the speech of the person using the device, and delivers it to the listener. The receiver may be attached to a hearing aid, be an ear-level "stand alone" device or be a speaker that is in the listening environment.

Using an FM system enhances "signal-to-noise" ratio, or the amount of signal, that can be heard in relation to the competing information in the environment.

Poor signal to noise ratio contributes to poor speech intelligibility, which is problematic for a listener with hearing loss, auditory processing disorder, or conditions such as traumatic brain injury.

## Tips for Using an FM System

- Speak in a normal tone of voice with the microphone approximately 14 cm from your mouth. Your voice will be amplified, but remember that no hearing aid will allow your student to hear exactly as they would if they had no hearing loss
- A personal hearing aid works best within a 2-to-3-meter radius. Beyond that, other background noise will interfere. It is important to be aware of this range for direct instruction and group activities

- An FM system will transmit for approximately 45 feet. The clarity of the signal and the amount of information received depend on the student's loss and ability to process the information heard. The student may need to have a clear view of the speaker to receive all the information. The larger classroom / lab environments or outdoors may be difficult listening environments even though the FM system has an extended range
- For in class discussions, pass the transmitter to the speaker or, if working in small groups, place it in a central location
- It is beneficial if the instructor repeats questions asked by classmates so that the student wearing the FM system will be aware of the discussion topic
- Remember to take the transmitter microphone off when having private conversations or situations that the student should not be privy to