

## Technology for children with APD

There are different types of technology that can make listening easier for children with APD.

This technology should be considered alongside speaker considerations and environmental modifications.

Teachers are advised to face the child, first secure their attention, use clear speech, alter the pacing, emphasis and segmentation of their speech, and regularly check on the comprehension of verbal instruction.

Architectural and acoustic interventions are primarily about blocking out sounds from outside the classroom and absorbing noise within the classroom. Acoustic treatments such as carpets, curtains, doors, seals, rubber shoes on furniture legs, and double-glazed windows all help to reduce noise. The installation of noise absorbent partitions or screens and preferential seating can also be considered.

There are specific acoustic performance standards which UK schools are required to meet:

1. Acoustic Design of Schools: Performance Standards, Building Bulletin 93, Department for Education, 2015.
2. Acoustics of Schools: A Design Guide, Institute of Acoustics and the Association of Noise Consultants, 2015 (which provides supporting guidance and recommendations on the acoustic design of new and refurbished schools).

## Examples of technology for children with APD

- **Remote microphone technology or personal assistive listening devices**

This technology helps to reduce background noise and reverberation so that the child can hear the teacher's voice more clearly. The technology is specifically for children with normal hearing. The teacher wears a clip-on wireless microphone. The microphone transmits his/her voice directly to a child's receiver, worn on the ear.

The older technology used frequency modulation (FM) listening systems (the same FM frequencies radio stations use). Examples of the newer digital remote microphone technology include the Phonak Roger Focus system and GNResound APD bundle. Most companies offer a returns period.

- **Sound field systems** relay the teacher's voice to speakers placed at different locations in the room. This helps to distribute the teacher's voice evenly throughout the classroom, so all students can hear it well regardless of where they seated. In addition it also has the advantage of reducing vocal strain for the teacher. Some systems have a pass-around microphone for use during class discussions.

These types of systems are often used for conferences and in theatres and cinemas.

- **Noise-canceling headphones** can help block out background noise when individual work needs to be done. If the child needs to listen to audio recording (e.g. in second language classes, he/she can listen *through* the headphones to help block out background noise).
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- A newer type of technology that is emerging is **Personal Sound Amplification Products (PSAPS)**. They are mostly off-the-shelf amplifiers (look like hearing aids) for adults with normal hearing who want a little boost in volume in certain settings such as to watch television without disturbing other people nearby, or bird watching. They may help people hear things that are at low volume or at a distance. PSAPs have been described as the audio version of reading glasses. More research is however needed to determine both benefit and any risks in children.

## • Final considerations

It is crucial that an audiologist, ahead of any consideration of personal assistive listening technology, evaluates a child's hearing and middle ear function to rule out hearing loss and any problems requiring audiological intervention, or onward medical referral.

APD technology is *not* a substitute for other intervention that may be required, e.g. speech and language support or learning support.

A trial with any personal assistive listening technology is advised before final fitting to ensure benefit and acceptance. For some children extra technology can be a distractor. For others cosmetic considerations may play a role.

Teachers should be offered training and there should also be support in place to check and support the child's use of technology on a day-to-day basis. Current APD technology service provision and support at educational level in the UK is variable. Where local educational authorities are unable to offer funding or support parents may need to self-fund the technology, or approach a charity.