



Workforce Development

Briefing Paper: Auditory Processing Disorder
An Education Response

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Preface



This briefing note, prepared jointly by the British Society of Audiology (BSA) APD Special Interest Group, the British Association of Teacher of the Deaf (BATOD) and the National Sensory Impairment Partnership (NatSIP) was commissioned using grant funding from the Department for Education to NatSIP.



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Table of Contents

1. Introduction	5
2. Categories of APD	5
3. Diagnosing APD – the current situation.....	6
4. Diagnosis and interventions.....	6
5. Referral routes	7
6. Intervention	8
7. Conclusion.....	9

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1. Introduction

Auditory processing disorder, (sometimes also called auditory processing difficulties, or APD) is a condition where a person has difficulty making sense of the sounds they hear. The most important expression of this difficulty is when listening to speech, particularly in noise. It is suspected that many (but not all) children who have language-learning difficulties may also have APD. However, it is useful to make the distinction that the term APD is used when the child finds it difficult to understand when *listening*, whereas the term Speech and Language difficulty means the child has difficulties developing and/or understanding *speech and language*.

The ability to listen to sounds involves memory, learning, vision and attention, as well as hearing. If any of these functions (or their coordination) is impaired, listening may be compromised. The preferred term used to describe the resultant processing dysfunction is Auditory Processing Disorder (APD).

The British Society of Audiology (BSA) APD sub-group steering committee has published a Position Statement (2011)¹ setting out its view on the description, definition and diagnosis of APD. The BSA has also published Practice Guidance (2011)² which includes most of the Position Statement. The Practice Guidance mainly deals with the medical diagnosis and outcomes from studies on APD both here and abroad. It also makes some suggestions for intervention by educational personnel.

2. Categories of APD

The BSA position statement offers three categories of APD:

1. **Developmental APD:**

Cases presenting in childhood with normal hearing (i.e. normal audiometry) and no other known aetiology or potential risk factors. Some of these people may retain their APD into adulthood.

2. **Acquired APD:**

Cases associated with a known post-natal event (e.g. neurological trauma, infection) that could plausibly explain the APD.

3. **Secondary APD:**

Cases where APD occurs in the presence, or as a result, of peripheral hearing impairment. This includes transient hearing impairment after its resolution (e.g. glue ear or surgically corrected otosclerosis).

There is an international focus on Developmental APD, primarily because of fears that it may lead to learning difficulties, especially affecting language and literacy, and hence to poor school performance.

Individuals in the latter two categories are likely to require medical and audiological intervention in addition to the APD management strategies presented here.

¹ <http://www.thebsa.org.uk/resources/apd-position-statement/>

² <http://www.thebsa.org.uk/resources/overview-current-management-auditory-processing-disorder-apd/>

3. Diagnosing APD – the current situation

Following a study involving 1638 children in four locations in the UK (Nottingham, Exeter, Glasgow and Cardiff) the APD team at Medical Research Council (MRC) Institute of Hearing Research (IHR) developed a diagnostic test battery which includes psycho-acoustical, audiological and cognitive assessments.

This has not been universally agreed and the UK does not yet have an agreed battery of tests with which to diagnose APD. There are clinicians who are diagnosing APD using an American protocol (ASHA 2005). The BSA publication '*Selection of tests for the assessment of Auditory Processing Disorders: a critical approach. BSA APD steering group (2008).*' counsels caution in the selection of tests and maintains that all tests are subject to validation.

The IHR, following their multi-centre study of auditory processing (IMAC) study has proposed a battery of tests, which enables clinicians to diagnose the condition of APD³.

4. Diagnosis and interventions

It is important that we, as educationalists, are assured of the validity of the diagnosis and the degree to which the child is affected. The APD group proposes a series of tests that will provide such information. Some children will be severely affected and the diagnosis may be very clear. Some will be much less affected and the intervention they require may be very small. Prevalence figures vary in the literature and appear to range between 7% and 2%. These figures are based on surveys which do not always include children. The prevalence, whatever it is, does not give an indication of how many would be so severely affected as to require substantial intervention for this specific difficulty. It should be borne in mind that these children are already in the population and are being catered for within the education system. There is a substantial number of children who have language and literacy difficulties who are taught in a way that would represent a valid intervention for a child with APD as proposed by most clinicians (reducing environmental noise; provision of FM devices; small group work auditory training etc.)

Where a child receives a firm diagnosis of APD, we would expect to see a significant educational impact. These children may be known to schools, and staff, and may already be receiving some form of intervention. This could include input from a Speech and Language Therapist (SALT), Educational Psychologist (EP) and other professionals who would continue to provide some level of support regardless of the diagnosis. This is likely to be delivered under the umbrella of 'SEN support' coordinated by the school SENCO, and the school will be making use of some of its SEN budget for this purpose. In these cases, a diagnosis (of any type) would be helpful and may lead to a change, or addition, to the intervention programme already in place.

In cases where the diagnosis and impact are less strong, the case for intervention may be more difficult to make. More research into the efficacy of any recommended interventions needs to take place before we are able to make a valid case for support or equipment. In these cases, the school may, or may not, have put in place additional support but will be monitoring the child closely. A diagnosis of APD, where the educational consequence is small, is unlikely to result in substantial additional support. However, if auditory training and listening exercises can be performed at home there may well be some benefit. Any intervention should be evaluated in each individual case and amended in the light of educational outcomes.

Currently, recommendations from the APD group for children who are diagnosed with APD are broadly:

- Auditory training programmes to improve listening skills
- Good listening environment (however this is achieved – acoustic treatment, small group work, etc.)
- Provision of personal FM systems (iSense, Mini M1c GN Resound, Soundfield, etc.)

³ www.ihr.mrc.ac.uk/downloads/research/apd/MAF_Article.pdf

These recommendations would not be difficult to implement, and in cases where the impact of APD is substantial, would represent welcome advice. Further advice on the listening environment and the use of FM would also be simple to provide and Sensory Services can provide this.

5. Referral routes

Currently, diagnosis can only be made by a recognised centre that has the skills and facilities to carry out the assessments and interpret the results.

Referral to the specialist centre is most likely through Audiology Departments. There have been reported instances where the GP has made the referral and this has usually been after receiving information from the local Audiology Department. Referral to the Audiology Department in the first instance is by the GP following, we would imagine, concerns raised by the parents. Parental concerns may have been triggered in a variety of ways including difficulty communicating with the child and concerns raised by others. It is likely that concerns would have been raised by the school, and the child may be performing poorly in the view of the teachers, the parents or both. In some instances, the child may be performing well at school and the concerns of the parents are not shared by the school. Parents may feel their child is struggling and has the potential to do better given additional support.

Following a visit to an Audiology Department where the child's hearing has been assessed as 'within normal limits', parents may continue to insist that the child has difficulty. The presentation of the difficulties the child is experiencing is often made by the parents at this stage. The referral to the specialist centre is likely to be made on the basis of this information alone and the school's view is unlikely to be sought at this stage. In some cases, the views of educationalists have been sought prior to, or following the first appointment. Where this is the case, a more complete picture of the child's difficulties can be formed.

Referrals based solely on the views of the parents do not provide the whole picture of the difficulties the child may be experiencing. It is preferable that the specialist centre request information from the school (and service, where involved) to provide as full a picture as possible. If the test battery proposed by the APD group provides a high degree of accuracy, additional information may be unnecessary. However, information from the teacher may add valuable insight towards determining the severity of the condition and informing an intervention programme.

At no point in the referral process described above is a Teacher of Deaf (ToD) involved - as the child has not been diagnosed with a hearing loss, and hearing aids not issued, a referral to Sensory Services would not have taken place. The diagnosis of APD, in this scenario, would be passed to the school along with recommendations for intervention. It is fair to say that schools would have little knowledge of this condition and would require some form of support and information. Sensory Services are in a position to provide awareness, training and support for this condition to enable the school to act appropriately in response to the diagnosis.

In some reported instances, a ToD has been involved in the referral process and advised that the child be investigated for APD. They have perhaps been asked for advice if a teacher raises a concern about a child's hearing or inability to listen in certain situations. The referral can be made either directly, if possible, or via the GP. Where this has been the case, educationalists (Teachers of the Deaf as well as class teachers) should have the opportunity to provide details of the child, which give an additional perspective to the parents' views. It is important that parents are aware that they must stress the apparent listening problem if audiometry indicates normal hearing.

6. Intervention

Sensory Services are the conduit between Audiology services and education. As some of the features of APD (difficulty hearing in noise) and some of the interventions are common to hearing loss, services may feel it appropriate to offer support.

Awareness of APD could be incorporated into training provided by many Sensory Services and provide the opportunity to 'manage' referrals. However, awareness raising training of this type has limited impact on provision unless the school actually has a child with APD on roll. Initially, it might signpost the school to find further information and currently, Sensory Services appear to be best placed to provide this information. This could simply take the form of an information sheet available on the Service website. Together with the suggestions provided by the specialist centre, the school could choose to purchase equipment suitable to support the child.

The level of intervention the child requires is related to the impact of the condition. If the impact is substantial, the school is likely to be already using its SEN funding. In this case, the provision of FM systems might be seen as a valid intervention and could be set against other interventions such as additional staffing (usually a Teaching Assistant). The school would choose to purchase the equipment if they felt the impact of the condition was high and benefit could be demonstrated. Sensory Services might wish to be involved in providing evidence that FM is successful (or not) in APD cases. As Sensory Services have knowledge of FM, and if the number of cases is likely to be small, it would be fair to assume they would provide some initial training in its use and maintenance.

Where the impact of the condition is slight the interventions would be simple and low cost and would not represent a significant impact on Sensory Services. The child may also be receiving support from an EP or SALT and this may continue as part of the intervention package where appropriate.

In order for education services to determine the impact of the condition, it is necessary for the specialist centre to provide evidence that:

- the child's perception of speech in noise is substantially worse than that of other children of their age
- the child's perception of speech in noise is substantially improved with an increase in the speech to noise ratio as might be provided through the recommendations made.

The BSA offers advice and educational management tips which can be downloaded from the BSA APD pages on their website⁴. There is also information about programmes and interventions which have, anecdotally, helped some children.

There is an internet based network www.apduk.org.uk and information is available from the National Deaf Children's Society's website⁵.

⁴ <http://www.thebsa.org.uk/>

⁵ http://www.ndcs.org.uk/family_support/auditory_processing_disorder/

7. Conclusion

There are currently no reliable prevalence figures for APD in children and the proposed figures range between 7% and 2% of the population. Where there is a marginal impact on the educational progress of the child, we would expect them to be receiving some form of low level support. Additional information and suggestions, made by the Sensory Support Team, would be welcome in these cases and need not pose a significant strain on Sensory Services.

Where the impact of the condition is substantial, we would expect these children to be receiving significant additional support. A diagnosis of APD will add to the overall picture of the difficulties the child is experiencing and provide suggestions for intervention. The degree to which the school chooses to implement these suggestions can be informed by a number of professionals (SALT; EP etc.) including ToDs who have specialist knowledge in the field of FM and acoustics. Again, this need not put Sensory Services under significant strain.

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