GETTING IT RIGHT AT THE START (EARLY YEARS)

Background information
Getting it right from the start is necessary if improved outcomes are to be achieved for families and deaf children. The Newborn Hearing Screening Programme established throughout Scotland aims to identify deafness in babies and provide appropriate support at the earliest possible opportunity. Research indicates that the majority of parents with deaf children have no prior experience of deafness in the family and so it is both an unexpected event and a new set of experiences (Young et al., 2010). To complement the advent of Newborn Hearing Screening programmes The Scottish Standards for Deaf Children (0-3) Families and Professionals Working Together was produced. These standards have been developed in collaboration with a number of agencies at the Scottish Sensory Centre and have gone through a period of consultation and review. As part of the consultation, there was discussion with organisations such as British Association of Teachers of the Deaf (BATOD), Heads of Sensory Schools and Services Forum, Royal College of Speech & Language Therapists (RCSLT) Deaf Special Interest Group, Cochlear Implant Centre at Crosshouse as well as National Deaf Children’s Society (NDCS) members and family officers. The Scottish Standards for Deaf Children (0-3) Families and professionals working together to improve services provide a coherent framework and vision for both parents and professionals supporting deaf children during the crucial early years and in doing so bring the Scottish Government’s Early Years Framework to life. Underpinning both the Scottish Government Early Years Framework and these quality standards is the Children and Young People (Scotland) Act 2014 and the four key principles of the Scottish Curriculum for Excellence. The standards provide a reference point and quality rating tool for benchmarking quality improvement for families as well as all services involved. They place families at the centre of an effective support system and acknowledge that the family is the main stakeholder in ensuring better long-term outcomes for deaf children. Developing sensory support provision away from a professionally driven model to one consistent with the Scottish Early Years Framework and the Children and Young People (Scotland) Act 2014 should be a priority.

At present The Scottish Standards for Deaf Children (0-3) Families and professionals working together to improve services is not used consistently throughout Scotland to assess service provision.

In the absence of additional needs, a deaf child has the capacity to achieve age appropriate language and communication skills. Families should play a central role in monitoring their child's
language development. Any child who is not reaching language milestones appropriately is assessed as soon as it is practical to try and identify or exclude an additional language problem. In England the Early Support Monitoring Protocols were developed to support monitoring of a deaf child’s development from the newborn screen. In Scotland such a framework and materials are not available. Ensuring that deaf children have appropriate amplification and associated assistive devices is an effective for the development of spoken communication. In Scotland there is a paucity of educational audiologists who have the skills and knowledge to ensure that families have the most appropriate equipment.

**Suggestions to improve attainment (Early Years)**

1. The Scottish Government should seek to make available, nationally, the Early Support Monitoring Protocols. This should be supported by training in the use of materials (web based learning) to ensure that they are widely used. Ensuring that deaf children’s progress from the newborn screen is monitored and appropriate intervention is in place will be the foundation of future attainment.

2. The Scottish Government should consider how deaf children fit in to the early years framework. The *Scottish Standards for Deaf Children (0-3) Families and professionals working together to improve services* provides the basis for ensuring that there is a consistent level of service for families of deaf children throughout Scotland. Looking at how this could be incorporated into Education Scotland’s inspection programme may prove beneficial.

**CLASSROOM ACOUSTICS AND EQUIPMENT**

**Background information**

Studies have shown that noise levels in schools have a negative impact upon attainment amongst the general population but are significantly more pronounced for those with additional needs (Dockrell and Shield, 2006). Learners with sensorineural deafness have an additional difficulty with listening in noise to those from the general population. The primary reason for this is a consequence of damage to the outer hair cells within the inner ear. The constructional standards for acoustics in new school buildings are set out in Building Bulletin 1993 and acknowledge that regulations are required as learning is an acoustically demanding process. Internal noise, the transfer of noise between rooms and reverberation are detrimental to listening and learning in the classroom. However, at present Building Bulletin 1993 is not mandatory for Scottish school buildings.

Children in Scotland recognised that the school environment is not passive in the learning process but is integral to better outcomes as it encourages continuous engagement with the learning experience (Cohen, 2010). Effective school buildings are regarded as central to the Scottish Government’s frameworks to address inequality: Early Years Framework, Equally Well and
Achieving our Potential (Scottish Government 2009:6). In 2007 the Scottish Government issued advice that a holistic approach was required for the school building and refurbishment programme so that the learning spaces meet the needs of the new Curriculum for Excellence. The new buildings would require the flexibility to meet a multiplicity of purposes such as whole class teaching, collaborative working, group work, active learning and independent research (Fisher, 2007). One significant omission in the document was classroom acoustics and technology to enhance signal-to-noise ratio. One of the most important factors that influence speech intelligibility in the classroom, and so impacts upon attainment, is the relationship between the intensity of the signal and the level of the background noise. The signal refers to the speech source, this could be the teacher or student and noise refers to any background or environmental noise that interferes with the signal being heard. This relationship is commonly referred to as the signal-to-noise ratio.

Listening requires intention and attention, and therefore demands expenditure of effort. Noise has a detrimental effect on listening effort as it increases fatigue which impacts on the storage and processing capacity available for learning. We all have finite cognitive capacity and when the primary task (listening) becomes more demanding performance on the secondary task depreciates (Gosselin and Gagné, 2010).

One classroom based technology that potentially mitigates the effects of poor room acoustics and enhances the ratio of signal to noise is a soundfield amplification system. Within Fife we are at present undertaking research that looks at the impact that soundfield amplification has on educational attainment using a pre-test/post-test longitudinal quasi-experimental study design. Thirteen Fife primary schools are involved in the research each with a control and intervention classroom. Attainment is being measured using the Assessment for Excellence package from the CEM. The adaptive assessment has six modules: Developed Ability, Mental Arithmetic, General Maths, Reading, Attitudes and Spelling. Furthermore, we are comparing the effect of dynamic soundfield amplification on speech intelligibility scores when used in conjunction with a low and high Frequency Modulation (FM) radio aid systems using a within-subjects crossover design. Fourteen primary school aged deaf learners with a moderate to severe form of sensorineural deafness participated.

**Suggestions to improve attainment (Classroom acoustics and equipment)**

1. The Scottish Government should look to how consistent standards for classroom acoustics (Building Bulletin 1993) can be established in Scotland. The future construction of open plan schools should be considered to how they meet these standards.

2. In Fife the Building Fife Future programme has involved the project management team having early and ongoing discussions/consultation about acoustics and associated equipment for all new school builds with specialist teams such as the Sensory Support Service. This ensures that the needs to of deaf children are being incorporated at the very
start. Such good practice should be encouraged on a national level so that the schools 
buildings provide the foundation upon which attainment can be developed.

3. Robust research that is peer reviewed and evidenced-based (such as Fife’s research into 
soundfields and attainment/speech perception) should form the basis of advice on a 
national level. There is a paucity of such research within the Scottish system for learners 
that are deaf.

4. The Scottish Government should look to how soundfield technology can be incorporated 
into their new school building programme. Interactive whiteboards that are now common 
place in Scottish schools started as specialist equipment for children with additional needs. 
As noise levels in schools have a negative impact upon attainment amongst the general 
population then establishing equipment that increases the signal to noise ratio, such as 
soundfields, in new school buildings will provide a framework for attainment for deaf and 
non-deaf learners alike.

5. The Scottish Government previously indicated to the Scottish Educational Audiology group 
that they would fund training so that local authorities across Scotland could train/employ 
educational audiologists. This would ensure that we have consistent standards for 
equipment issue/sue throughout Scotland.

6. In Fife we issue FM systems to families with deaf babies and also allow use of systems at 
home/social situations. We have now got children entering school established aid users 
with age appropriate language skills. There needs to be greater consistency about the 
types and availability of equipment at a national level.

MODELS OF SUPPORT

Background information

The Scottish education system has evolved over the last twenty years with a more interactive 
teaching style replacing the more traditional teacher dominated lessons of the past. The focus has 
shifted towards a more active learning style in which learning occurs through interaction with 
others, where learners construct and reconstruct prior knowledge and the development of new 
knowledge is connected to what the learner already knows. Cognition, problem solving and 
reasoning are central to successful learning. Furthermore, inclusive pedagogy focuses on shared 
responsibility for learning between learner and teacher and trust that the learners will make 
meaning, and find relevance and purpose through their experiences. However, models of 
supporting deaf children have not always adapted to meet this changing landscape. Looking at 
support models that promotes independent learning needs to be investigated.

Suggestions to improve attainment (Models of support)

1. For learners using BSL there is a shortage of staff with the appropriate level of qualification 
that can sign. There is a cost implication to local authorities but there is a lack of qualified 
staff to provide training. Herriot Watt University provides training for interpreters and the
Scottish Government should be look at how these graduates can help support and train staff. We have an established training route for teachers of the deaf but this does not exist for support staff and educational audiologists.

2. Fife is above the national average for those in a mainstream setting using BSL. Twelve years ago deaf families wished exercise their choice for their children to attend their local provision. An innovative approach to supporting deaf BSL users was developed. The approach was founded upon the notion that deaf children develop robust language skills through active and experiential learning that is common place in the classroom. Providing opportunity for independent and child-centred learning was central to success. Developing age appropriate literacy skills requires a number of factors including a strong language base as well as effective decoding skills. We used an approach that proved highly successful with the deaf learners having above average reading ages as measured by the Achievement for Excellence/PIPs results. The HMIE recognised this strength and recorded it as a national priority. The Scottish Government could use the Scottish Sensory Centre or Education Scotland to collate good practice that has been proven to raise attainment.