COMMUNITY EAR AND HEARING HEALTH

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EDITORIAL: A NEW JOURNAL

Andrew W Smith

Welcome to the first issue of *Community Ear and Hearing Health*. We hope that this new international Journal will fill an urgent need in raising awareness, and providing knowledge and skills for ear and hearing health in developing countries.

Hearing loss is one of the commonest disabilities in the world, and yet also one of the most neglected. Ear disease, especially in children, is one of the most common reasons for needing health care, yet there is much ignorance about it and a huge shortage of skilled health workers in this field.

These situations apply particularly in developing countries and are worst in the poorest countries.

Hearing Impairment Worldwide

The World Health Organization estimates that in 2000 there were 250 million people in the world with disabling hearing loss (moderate or worse hearing impairment in the better ear), and a further 340 million with mild hearing loss.

Of these, 62 million persons have moderate or worse hearing loss that began in childhood and 104 million such persons have mild hearing loss. Two thirds of the burden of hearing loss is in developing countries, and the number of people with hearing loss continues to increase.

Testing for hearing impairment in Madagascar
Photo: Andrew Smith

Consequences of Hearing Impairment

Deafness and hearing loss have profound effects on individuals. Hearing loss damages development of speech and language in children especially, if commencing at birth or during infancy, and later slows progress in school. It also causes difficulty in obtaining, performing and keeping a job and it produces social isolation and stigmatisation at all ages. These effects are magnified in developing countries. In addition to the effects on individuals, hearing loss produces a huge economic burden on society so that prevention of hearing loss is likely to be a very good investment.

At least 50% of the burden of hearing loss in developing countries can be prevented with current knowledge and many more people with hearing loss can be treated or given rehabilitation.

Hearing Impairment: Awareness, Prevention, Management & Rehabilitation

A critical problem in dealing with this problem is the lack of awareness about hearing and hearing loss in all parts of society. Most people are not aware of the effects of hearing loss and ear disease on individuals, and politicians and decision makers are not aware of the large numbers with hearing loss and its high cost on society. Programme planners and health workers are not aware of the opportunities for prevention, management and rehabilitation of hearing loss and ear disease.

There is a critical lack of trained personnel in the necessary health, rehabilitation and education fields at all levels.

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Editorial

Therefore, there is an urgent need for new means to raise awareness and provide knowledge transfer and skills enhancement in developing countries, especially at the primary and secondary levels.

Community Ear & Hearing Health

This new Journal is being launched to fill part of this need. It will focus on the situation and needs in developing countries and deal with prevention, management and rehabilitation of ear and hearing disorders, whilst at the same time promoting ear and hearing health. It will cover a wide range of themes, including:

- epidemiology
- economic analysis
- raising awareness
- causes
- prevention
- health education and promotion
- community involvement
- screening and early detection
- interventions (individual, community, environmental)
- treatment
- training
- management
- practical procedures
- rehabilitation
- education
- project and programme planning and development
- programme implementation
- anthropology
- basic science
- resource mobilisation
- others that you may request.

Each issue will consist of commissioned and volunteered articles and we encourage authors from developing countries to submit papers. For the article requirements, please see instructions for authors (on page 15). There will also be abstracts of important articles relevant to developing countries. We hope there will be a lively correspondence column, and information about relevant recent and future events.

We hope this new Journal will go some way towards addressing the problems of deafness and hearing loss and promoting ear and hearing health in developing countries.

Good reading!

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Publication of The Journal

The Journal is funded by the charity Christoffel Blindenmission (Christian Blind Mission) which provides much support to projects on hearing loss in developing countries. The Journal is edited independently and the present issue has been edited by Andrew Smith (WHO), with Murray and Andrew McGavin of ICTHES World Care (International Community Trust for Health and Educational Services), as editorial consultants.

For future issues, an Editorial Board and an Editorial Panel will be set up to consider themes, and seek and review papers and articles worldwide. Members will be listed in the second issue.

The Journal will be sent free to people in developing countries and this first issue is being sent free to everyone. In future, there may be a small charge for people living in developed countries. We want to make the Journal as interactive as possible and, subsequently, to make it available through the Internet and on electronic media such as CDs.

Please send in your comments and suggestions as to how we can make the Journal better and what should be included in future editions.

CONGENITAL DEAFNESS IN DEVELOPING COUNTRIES

Ian J Mackenzie

Hearing impaired children are severely disabled, as deafness impairs normal speech development and limits ability to socialise – which results in social and occupational isolation in later life.

Congenital Deafness Worldwide

In developed countries it is estimated that 1:1000 babies born suffer from severe to profound hearing loss. This hearing loss is generally sensori-neural. It has been realised that intervention at an early age to improve hearing with hearing amplification leads to significant improvement in education and language. To ensure that the congenitally deaf child is identified early, neonatal screening of hearing is fast becoming common-place in developed countries. In the past, children were not being identified as deaf or hearing impaired until an older age which made remediation more difficult. Reliable standardised population based data on the prevalence and causes of deafness in developing countries is very scarce.

Congenital Disease and Gestation

Congenital conditions comprise diseases or physical abnormalities present from birth. Normal gestation lasts 40 weeks with a term baby defined as from 37 up to 42 weeks gestation. A pre-term baby is defined as a baby born at less than 37 weeks gestation and a post-term baby as one born at 42 complete weeks or more. The perinatal period lasts from 22 weeks gestation up to seven complete days after birth. The neonatal period commences at birth and ends 28 days after birth. If these definitions are not clarified, it makes comparison of data very difficult.

Major Causes of Congenital Deafness

The majority of children born congenitally deaf will have a bilateral sensori-neural deafness. In the majority of instances, this will be attributable to dominant, or recessive or sex linked genes, to infection acquired in the uterus, to hypoxia or birth trauma during childbirth or to hyper-bilirubinaemia during the perinatal period. (There is now good evidence that hypoxia, and hyper-bilirubinaemia are causes of congenital deafness, and are now regarded as frequent causes of profound deafness in children). It is stressed that not all congenital infections result in deafness.

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Hereditary Hearing Loss

The largest proportion of hereditary hearing loss is considered to be the result of autosomal recessive genes, while the remainder are the result of dominant genes, or sporadic genes and there are a few cases that are sex linked. In populations where there is a high incidence of consanguineous marriage (marriage between close relatives such as first cousins), there is a higher proportion of recessive genes present resulting in increased numbers of children born with disabilities which may include deafness. In persons with hereditary deafness, one third of cases will be linked to a particular syndrome. For example, the presence of physical features of visual and oro-facial deformities added to deafness can lead to the identification of one of these specific syndromes. The unusual physical characteristics give the first indication of a genetic hearing loss. Unfortunately, these features may be late appearing. The following four syndromes demonstrate this mix of hearing loss and physical abnormalities:

- ***Pendred's syndrome*** is an autosomal recessive condition with sensori-neural deafness and thyroid enlargement.
- ***Usher's syndrome*** is autosomal recessive with deafness in association with blindness.
- ***Jervell and Lange-Neilson*** described another autosomal recessive condition involving deafness and cardiac abnormalities.[1]
- ***Waardenburg's syndrome*** is an autosomal dominant condition linking deafness, a white forelock and abnormal iris pigmentation.

The identification of these syndromes is often difficult and time consuming but once identified, it helps greatly in genetic counselling.

Otosclerosis is an inherited condition although it may delay its appearance until later in life. It was found to be a common cause of hearing loss in South East Asia. This is of relevance as this condition is amenable to surgical treatment.

Intrauterine Infections

Intrauterine infections have declined in the developed world following mass immunisation. The most likely infective agents causing deafness in developing countries are rubella and cytomegalovirus. Congenital deafness resulting from rubella was first described in 1943 by Swan[2] and may be linked with other congenital abnormalities, notably heart diseases, cataract or glaucoma and psychomotor/mental retardation. The diagnosis can be confirmed by a blood test. However, there are few reports of deafness if infection took place after the 16th week of pregnancy. Cytomegalovirus (CMV) infection is a latent virus, usually asymptomatic, and is passed to the foetus during delivery. This makes for diagnostic problems, as, in a child diagnosed with CMV at a later date, it is not known whether the hearing loss was congenital or acquired after birth. The hearing loss may be progressive.

Congenital syphilis (due to *Treponema*

pallidum) and congenital toxoplasmosis are occasionally reported to cause deafness.

Other Causes

A cause of congenital deafness that is important in areas of iodine deficiency is associated with endemic cretinism. Iodine deficiency is one of the most important public health problems facing the world today, with nearly one sixth of the world's total population at risk of iodine deficiency disorders.

Reports on Causes

The information about congenital deafness is poor from developing countries but there is some good information about causes of deafness, mainly based on work within schools for deaf children. Overall, it is in Africa that the prevalence rates for congenital deafness seem to have increased. There is very little recent information from Africa, but perinatal causes like rubella are a significant cause of congenital deafness. In the Middle East and Asia these increased rates are not seen. Perinatal causes of deafness are high in the densely populated areas of South America and India.

Zakzouk (1996) clearly showed the reduction in deafness as a result of rubella following an immunisation programme in Saudi Arabia.[3]

Sellars (1987) identified rubella as a major cause of congenital deafness in South Africa but also highlighted the large number of children suffering deafness as a result of problems during the perinatal period. In a series of 3,000 children, over half of those with a severe hearing loss had suffered problems during the perinatal period.[4]

The prevalence of congenital deafness in developed countries is well researched (Newton 1985).[5] A reduction in the preventable causes of congenital deafness, intrauterine infection, perinatal trauma and hereditary causes (through genetic counselling) appears to have led to a reduction in the numbers with congenital deafness. The developing world needs to improve health care in order to eradicate preventable causes of hearing loss.

References

1. Congenital deaf mutism. Jervell A, Lange-Nielson F. *Am Heart* J. 1957; **54**: 59-68.
2. Congenital defects in infants following infectious diseases during pregnancy. Swan C, Tostevin A, Moore B. *Med J Aust*. 1943; **2**: 201-210.
3. Prevalence of sensori-neural hearing loss due to rubella in Saudi Arabia. Zakzouk SM, al-Muhaimeed H. *ORL J Otorhinolaryngol Relat Spec*. 1996; **58**(2):74-77.
4. Childhood deafness in Southern Africa. Sellars S, Beighton P. *J Laryngol & Otol*. 1983; **97**: 885-889.
5. Aetiology of bilateral sensori-neural hearing loss in young children. Newton V. *J Laryngol & Otol*. 1985; Supplement No. 10:8. ❑

Review Article

EARLY DETECTION OF HEARING IMPAIRMENT

Valerie E Newton

Professor Valerie Newton has worked in Paediatric Audiological Medicine for nearly 30 years – nearly all at the University of Manchester where she is now Professor Emerita in Audiological Medicine. She is Chair of the British Association of Audiological Physicians. Professor Newton has a strong interest and involvement in audiological medicine and hearing health in developing countries.

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Detecting a hearing impairment as soon as possible after its onset is important for both children and adults. A significant hearing loss in childhood can affect a child's ability to develop speech and language and, as a consequence, affect the child's educational, social and emotional development. Early detection of the presence of a hearing loss enables a fuller assessment of the cause, type and degree of the impairment and so enables help to be directed to the child as soon as possible.

Detection of hearing loss is possible from a very young age as a result of:

- 'At risk' factors
- Parents/carer/teacher suspicion
- Questionnaires
- Screening tests.[1]

'At Risk' Factors

Knowing the causes of a hearing impairment should alert those working with families to the possibility that a particular child might have a hearing loss. Such 'at risk' factors include:

- Abnormalities of the appearance of the ear
- Family history of a hearing impairment
- Infections during the pregnancy (e.g., rubella)
- Premature birth and experience of severe breathing difficulties or jaundice
- Meningitis or other infections, such as measles or mumps
- Recurrent ear discharge.

'At risk' factors do not detect all children with a hearing impairment, but it is a useful indicator in at least half of them.

Parent/Carer/Teacher Suspicion

Parents do not want to believe that there is anything wrong with their children, so any parent/carer who suspects a hearing loss should be taken seriously. A hearing loss may be suspected for a number of reasons (Table 1). A parent may delay before voicing any suspicions, and those working with families should ask what parents think about their child's hearing in order to detect the problem early. A check list[2] may be given to mothers at the time of birth, indicating the normal responses to sound and speech development at various ages – to help them recognise when their infant/child may have a problem.

Teachers in schools have the opportunity to compare one child's responses to voice and other sounds with those of other children in the class. Any suspicions that a child has a hearing loss should be investigated.

Table 1: Some Reasons to Suspect a Hearing Impairment

Infants
- not startling to loud sounds
- not soothed by voice or music
- not turning to voice (from 3 months).

Older children
As above plus:
- unable to locate where a sound comes from
- late development of speech
- poor speech
- isolated, when others are playing.

Questionnaires

These can be used for very young children (e.g., 6-8 month old infants in China[2]). They are also useful for older children (e.g., 4-7 year olds in Kenya[3]). They depend upon the observations of the parent/carer/teacher and are useful for detecting hearing loss, which affects both ears and is usually, at least, moderate - severe.

Screening Tests

0-6 months

Tests at this age require equipment and trained persons to administer the tests and to interpret them. The tests are often only available in main cities and may not be available at all in developing countries.

Behavioural screening tests, outlined here, can be used with older children, and are described in more detail by Hickson.[4]

6 months – 18 months

From the developmental age of 6 months, an infant can turn and locate a sound made at ear level and this is the basis of the 'distraction test' (Figures 1a,1b). Distraction techniques can be used to test hearing with no equipment apart from voice, but when equipment is available this information can be added to provide a fuller picture. Quiet sounds of specific pitch are introduced from behind, at ear level and about a metre away. It is noted whether or not the infant turns to locate the sound source. It is important to test low and high pitch hearing separately, as hearing can be normal for one and impaired for the other. A 'low pitched hum' can be used to test low pitch hearing and 's' to test high pitch hearing. If a hand-held warbler is avail-

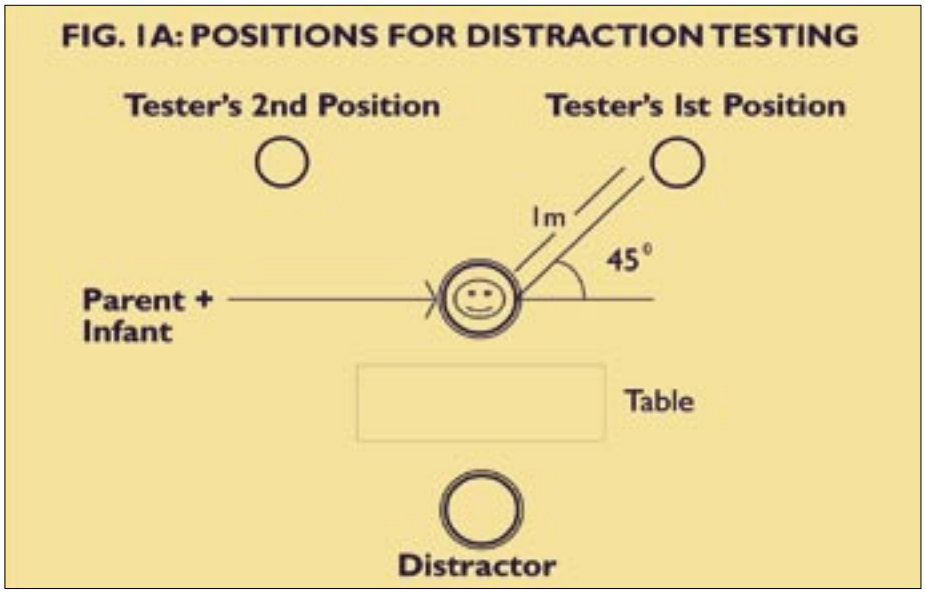

Fig. 1a: A typical arrangement for a distraction test

Fig. 1b: A distraction test in which the distractor in front controls the child's attention with a toy

Photo: Valerie Newton

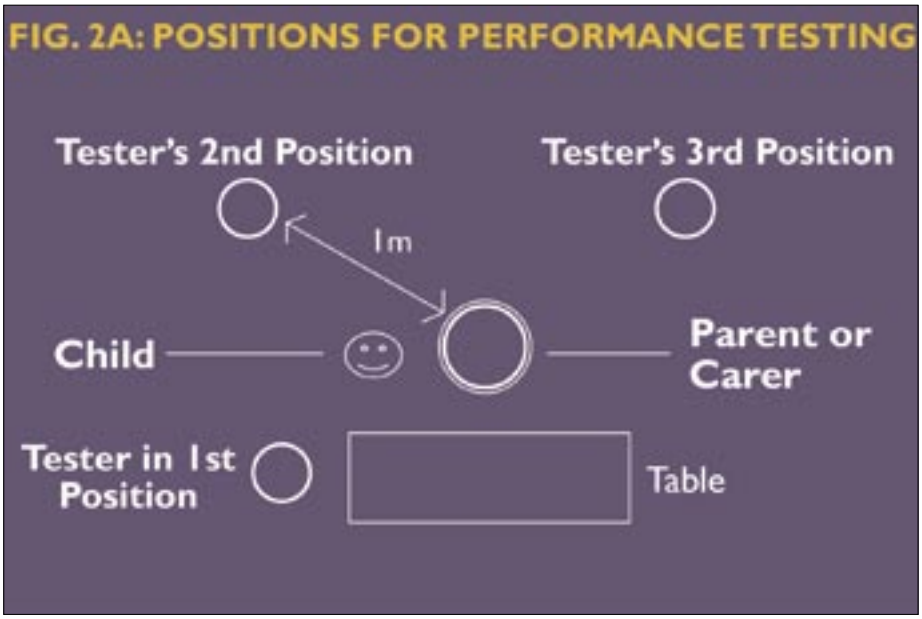

Fig. 2a: An example of a room arrangement for a performance test

able, this can be used instead or in addition to the voiced sounds.

18 months–30 months

At this age, in addition to the information from distraction tests, it is possible to determine how a child responds to speech. Simple instructions can be given at very quiet voice levels without the speaker's face being visible (i.e., from behind, or from in front with the mouth covered). At least three instructions are needed and two responses, to reduce the chances of the child guessing correctly. The instructions, for example, may involve a small object, which the child is asked to give to mother or to father or put into a box. Alternatively, the child may be asked to show a body part (e.g., hair or eyes or nose).

Fig. 2b: A performance test in which the tester is conditioning the child to carry out an action in response to a signal

Photo: Valerie Newton

Over 30 months

Once a child can wait for a signal, a performance test can be carried out (Figures 2a,2b). The sound 'Go' is used to test low pitch sounds and 'ss' to test high pitch sounds. The child is taught to carry out a simple action when 'Go' is heard (e.g., to put a stone in a tin). The sound is made very quietly from behind at about a metre distance, and two responses from the child at this quiet level are required to pass the screen. The sound 'ss' is then taught and the test repeated. If a handheld warble tone generator is available, this can be used instead. If available, an audiometer may be used to screen hearing in children at this age, but more usually in children of three years and older.

Further Assessment

Having detected a hearing loss, the degree of hearing loss can be determined using the same tests, but this time raising the loudness of the sound until the infant/child responds. The amount to which the sounds have to be raised gives an estimate of the degree of hearing loss (e.g., slight, moderate/severe) or, if there is no response, profound. Care has to be taken, however, as children who are slow learners or have sight problems or other defects may not give a response, even when the sound has been heard. This is one reason why assessment of children who have not responded satisfactorily in screening tests, should only be performed by those who have had training for these procedures.

Conclusion

Early detection of a hearing loss is important – and it is possible in infants and young children. Lack of equipment does not prevent a hearing impairment being identified in this age group.

References

1. Screening and surveillance. Stevens J, Parker G. *In* Paediatric Audiological Medicine. Newton VE (Ed), Whurr Publishers, London (2002).
2. Screening for Hearing Impairment in Young Children. Barry McCormick. Chapman & Hall Publishers, London (1988). (An example of a check list called 'Can your Baby Hear You?' can be found on page 42).
3. Evaluation of the use of a questionnaire to detect hearing loss in babies in China. Newton VE et al. *Int J Pediatr Otorhinolaryngol.* 1999; **48**:125-129.
4. Evaluation of the use of a questionnaire to detect hearing loss in Kenyan pre-school children. Newton VE et al. *Int J Pediatr Otorhinolaryngol.* 2001; **57**: 229-234.
5. Behavioural tests of hearing. Hickson F. *In* Paediatric Audiological Medicine. Newton VE (Ed), Whurr Publishers, London (2002).

Review Article

MANAGEMENT OF OTITIS MEDIA IN A DEVELOPING COUNTRY

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Otitis media is an inflammatory process that involves the middle ear cavity and the structures within it. Acute otitis media (AOM) is characterised by the presence of pus in the middle ear and presents with fever, ear pain and hearing loss. Very young children may have such non-specific symptoms as irritability, vomiting, diarrhoea and crying upon ear 'tugging'. The causative agent may be bacterial or viral. The infection usually resolves uneventfully within one to two weeks, although in some cases the eardrum may perforate and the ear may continue to discharge. In other instances, the fluid that forms in the middle ear behind an intact eardrum is clear or mucoid, produces no acute symptoms of infection but, nevertheless, may cause hearing impairment. These conditions are termed otitis media with effusion (OME), serous otitis media or mucoid

otitis media, depending on the appearance of the fluid.

Chronic otitis media presents as recurrent ear discharge through a perforation of the eardrum, presumably as a result of unresolved acute otitis media. This is called chronic suppurative otitis media (CSOM). In more severe cases, chronic suppurative otitis media may present with epithelial debris invading and destroying the structures of the middle ear and mastoid cavities. This epithelial mass is called a cholesteatoma and may lead to the development of intracranial or extracranial extensions of the middle ear and mastoid infection.

Risk Factors for Otitis Media

The risk for AOM increases significantly if any of the following apply:

- Another member of the family has had AOM
- The child attended a day care outside the home or a family day care
- The child has been exposed to parental smoking
- The child has been breastfed for less than three months
- The child had been given a pacifier.[1]

Poor socio-economic conditions and frequent upper respiratory tract infections may be related to the development of CSOM.[2]

Epidemiology

It is estimated that otitis media, in all its forms, accounts for an estimated 4,000 deaths and a disease burden of just over 1.4 million DALYs*.[3] Prevalence surveys, which vary widely in disease definition, sampling methods, and methodologic quality, show that the global burden of illness from CSOM involves 65–330 million individuals with draining ears, 60% of whom (39–200 million) suffer from significant hearing impairment. Over 90% of the burden is borne by countries in South-east Asia and the Western Pacific regions, Africa, and several ethnic minorities in the Pacific rim. CSOM is uncommon in the Americas, Europe, the Middle East and Australia.[4]

Treatment of AOM and OME

An otoscopic examination is necessary to diagnose both AOM and OME. Typical findings include a reddened, bulging eardrum, with fluid level or air bubbles seen through the eardrum. Most cases of AOM and OME resolve spontaneously without complications. Resolution of AOM is slightly more likely with ampicillin or amoxicillin treatment for at least 5 days.[5] Recurrent bouts of AOM and OME may also be slightly shortened by antibiotic therapy.[6] There is no evidence that other antibiotics are any more effective in relieving symptoms although some antibiotics are more likely than others to cause diarrhoea and other side effects.[7] Children with AOM should be followed up to ensure that recurrent episodes are similarly treated. Children with bilateral OME should also be followed up since persistent middle ear fluid may impair hearing and lead to difficulties in school.

Diagnosis and Treatment of CSOM

A history of at least 2 weeks of persistent ear discharge should alert primary health workers to the problem. If the ear can be dry-mopped well enough to see the eardrum, then the diagnosis of CSOM can be confirmed by visualisation of the perforation in the tympanic membrane (Figure 1).

Mastoidectomy with or without tympanoplasty eradicates mastoid infection in about 80% of patients; however, such treatment is costly, does not always lead to satisfactory hearing improvement, and is inaccessible in many developing countries. Daily instillation of topical antiseptics or topical antibiotics after very careful aural toilet, for at least 2 weeks, appears to be the most cost-effective treatment for the short-term resolution of otorrhoea. Topical quinolones (examples:- ciprofloxacin or ofloxacin) are particularly effective in resolving otorrhoea without the risk of ototoxicity. There is no evidence that the addition of oral antibiotics confers increased benefit. Intravenous antibiotics, particularly the anti-pseudomonal drugs, are highly effective, but expensive.[7]

A person with a newly discharging untreated ear, or a persistently discharging initially treated ear, may be managed at the primary health care level. The onset of the ear discharge should

Fig. 1: Dry-mopping an ear during a field survey

Photo: Andrew Smith

be determined by history taking and the eardrum should be examined carefully. Daily ear cleaning, followed by the application by instillation or insufflation of topical antimicrobials may be administered for 2 to 4 weeks. Whenever possible, the patient must be referred to a trained otoscopist for confirmation of the diagnosis of CSOM. This is important since acute otitis externa can also present with a draining ear. A person with a recurrently discharging ear requires careful assessment of the middle ear by an ENT specialist – for middle ear disease that has not resolved. Antimicrobial therapy may still be initiated, but the patient must be given the benefit of otological assessment for possible elective mastoidectomy. Health care managers should consider organising outreach ear clinics and ear camps in areas where patients of this type would not otherwise have access to specialised care. A person with a discharging ear with headache, fever, dizziness and other danger signs of intracranial or extracranial extension of CSOM requires urgent referral to an ENT specialist as such patients may require emergency mastoidectomy. A person with a dry, perforated eardrum, with hearing loss, requires restoration of hearing either by tympanoplasty or by the use of a hearing amplification device.

Summary

Otitis media is highly prevalent in developing countries. The diagnosis involves careful examination of the eardrum and management involves timely and appropriate selection of antimicrobials. Surgical interventions are largely limited to patients with chronic suppurative otitis media who do not respond to medical therapy, particularly those with infectious complications.

**DALY = disability adjusted life year: a combined measure of the years of healthy life lost due to premature mortality and years lived with a disability brought about by a particular disease or condition*

References

1. A meta-analytic review of the risk factors for acute otitis media. Uhari M, Mantysaari K, Niemela M. *Clin Infect Dis*. 1996; **22**:1079-1083.
2. Acuin J. Chronic suppurative otitis media. *Clin Evid*. 2002; **7**: 440–457.
3. Annex Tables 2 & 3; World Health Report, 2003; WHO, Geneva.
4. Chronic suppurative otitis media: Burden of disease and management options. Acuin J. WHO, Geneva (to be published in 2004).
5. Treatment of acute otitis media with a shortened course of antibiotics: a meta-analysis. Kozyrskyj AL, Hildes-Ripstein GE, Longstaffe SE, Wincott JL, Sitar DS, Klassen TP, Moffat ME. *JAMA*. 1998; **279**(21):1736-1742.
6. Use of antibiotics in preventing recurrent acute otitis media and in treating otitis media with effusion. A meta-analysis attempt to resolve the brouhaha. Williams RL, Chalmers TC, Stange KC, Chalmers FT, Bowlin SJ. *JAMA*. 1993; **270**(11): 1344-1351.
7. Evidence assessment of management of acute otitis media: I. The role of antibiotics in treatment of uncomplicated acute otitis media. Takata GS, Chan LS, Shekelle P, Morton SC, Mason W, Marcy SM. *Pediatrics*. 2001; **108**(2):239-247.

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Review Article

TRAINING FOR PRIMARY AND ADVANCED EAR AND HEARING CARE

Piet van Hasselt

Dr Piet van Hasselt is an ENT surgeon and has worked since 1995 in the Prevention of Hearing Impairment Programme of Christian Blind Mission in Botswana, Malawi, Zambia and Madagascar. In these countries, clinics and programmes have been set up at various levels of ear and hearing care. The main objectives are preven-tion and management of ear infections, aural rehabilitation, as well as training in ear care and surgery.

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Primary Ear and Hearing Care can make a great impact on prevention and management of ear disease and hearing impairment, especially where specialist ENT and audiological capacity is lacking. The reality is that often ear and hearing problems have a low national priority and are neglected, not only because of more pressing health problems, but also because of lack of manpower, skills, medicines and equipment. Training health units/groups in Primary Ear and Hearing Care (PEHC) are, therefore, an essential part of any Prevention of Hearing Impairment Programme. There are two main groups that need training in PEHC: Community Health workers and Primary Health Care (PHC) professionals. Each of these groups has its own set of learning objectives.

Community Health Workers

In urban areas, patients generally find their way to medical care in clinics and hospitals. The situation is different, however, in rural and isolated areas, where access to primary medical care is often limited and sometimes non-existent. Patients may not even expect treatment, because nothing has ever been done about their ear and hearing problems. In these areas, community-based health workers like Family Welfare Educators, Health Surveillance Assistants and Field-workers of Community-Based Rehabilitation Programmes can play a significant role in PEHC.

Learning Objectives of Community Health Workers:

- Causes of deafness and hearing impairment. Risk factors. Preventive measures.
- Identification of patients with ear and hearing problems. In particular, early detection of deafness, recognition of acute otitis media, chronic ear discharge and complications of ear infections, on the basis of core signs and symptoms.
- When to refer to the nurse or doctor and follow-up of patients.
- Instillation of eardrops and dry-mopping/wicking.
- Skills in communication with deaf or hearing impaired. Parental guidance.
- Health promotion, in general, and ear and hearing health in particular.

Primary Health Care Professionals

In developing countries, most general patients are treated by paramedical groups (i.e., nurses, nurse practitioners, medical assistants and clinical officers) due to lack of doctors. These health care professionals need training in Primary Ear and Hearing Care. With adequate knowledge and skills, they will be able to contribute tremendously to Prevention of Hearing Impairment (Figure 1). This training can be done as part of the curriculum of nurses/ nurse practitioners and clinical officers. The course includes diagnosis and management of common ENT problems, with practical training in otoscopy and ear cleaning, hearing screening, as well as in examination of the nose, throat and neck. Much emphasis is on otoscopy, which is indispensable for making a correct diagnosis. Without otoscopy, conditions like otitis media and otitis externa are readily confused and an inappropriate treatment may be given. In Botswana, for instance, antibiotics are too often prescribed without a proper diagnosis. One example of an inappropriate 'diagnosis' to be found on a patient card, is 'inflamed ear'. A syllabus, with equipment like otoscopes, tongue depressors and ear syringes for training in the practical skills, need to be made available to the students.

Learning Objectives of Primary Health Care Professionals:

- Basic knowledge of the structure and function of the ear.

Fig. 1: Medical assistant at an outreach clinic in Malawi
Photo: Piet van Hasselt

- Causes of deafness and hearing impairment. Risk factors. Preventive measures.
- History taking and interpretation of signs and symptoms.
- Inspection of the pinna, ear canal and ear drum with the headlight and otoscope.
- Diagnosis of common ear conditions such as earwax, foreign bodies, external otitis, acute otitis media, chronic suppurative otitis media, eardrum perforations.
- Recognising danger signs of complications of middle ear disease like mastoiditis, facial nerve paralysis, labyrinthitis and intra-cranial complications, e.g., meningitis and abscesses.
- When to refer to the ear nurse or ENT specialist.
- Recognising ENT conditions, such as rhinitis, sinusitis, adenoids, tonsillitis and ENT manifestations of HIV infection.
- Hearing screening by means of a questionnaire, voice.
- Removal of wax and foreign bodies by syringing.
- Conservative treatment of uncomplicated ear conditions: dry-mopping, wicking and syringing, instillation of ear drops, prescription of ear drops, antibiotics and analgesics.
- Ear and hearing health education of patients, parents, teachers and community health workers.

At PEHC level, no manipulation should be done with instruments such as hooks, suction tubes and forceps. Too often we have seen injuries to the ear canal and eardrum, caused by rough attempts to remove foreign bodies from the ear.

Advanced Ear Care

Ear nurses have an important role where ENT specialists are scarce and there is need for referral. There are, at present, three ear nurses at the Ear Clinic of the author in Botswana. They have been trained 'on the job' in Advanced Ear Care and use instruments like fine hooks, metal suction tips, micro-forceps and the ENT microscope routinely (Figure 2). This, of course, goes beyond PEHC, but can be done in a PHC setting, as in outreach clinics.

Additional Learning Objectives for Advanced Primary Ear Care:

- Safe manipulation in the ear canal and middle ear with fine hooks, micro-forceps and suction cannulas, for cleaning out the ears under direct vision with the headlight or microscope.
- Diagnosis of otitis media with effusion, polyps, granulations, cholesteatoma.
- Making appropriate notes and drawings of the otoscopical findings on the patient's card. History, examination results, diagnosis and treatment are noted. The size and location of the perforation and other otoscopical findings (such as bulging of the eardrum, middle ear effusion, granulations, polyps, ear drum retractions and cholesteatoma) are presented in a simple, schematic drawing.
- Screening audiometry with noisemakers and screening audiometer, tuning fork tests.

The ear nurses examine and treat patients on their own and refer when necessary. Registered nurses in Botswana are authorised to prescribe common medicines. This is a legal situation that differs by country. The nurses are capable of handling most of the non-surgical daily ear work and are indispensable to keep the clinic running. In a Community-based Rehabilitation Programme in rural Malawi, two medical assistants do eye and ear outreach clinics in the bush. They use instruments in the ear for removal of foreign bodies with micro-forceps and also do suction cleaning with metal suction tips and a foot suction pump or a battery-operated suction pump. They have no microscope. Another further step of specialisation is the unit/group of clinical officers in ENT, who also do particular surgical procedures, as found in Kenya. There is a need to standardise and formalise the training of ear nurses, or preferably ENT nurse practitioners. The ENT societies of various developing countries could take the initiative in this matter.

Further Reading

1. Van Hasselt P. A Guide to Primary and Advanced Ear Care. Christian Blind Mission International (1999).
2. Van Hasselt P. Ear and Hearing Health for Community Workers. Christian Blind Mission International (1999). ❐

Fig. 2: Ear nurse at the Ear Clinic in Botswana
Photo: Piet van Hasselt

PROVIDING EDUCATIONAL SERVICES FOR CHILDREN WITH HEARING IMPAIRMENT

Beatriz C Warth Raymann

In the Bolivian Amazon, in a town by the name of Riberalta, exists a wonderful school for deaf children. The Principal is a highly qualified Swiss deaf person married to a wonderful deaf woman from Bolivia. The couple have two hearing boys. One evening, before the children went to bed, the young mother put a cassette tape of German lullabies for her two little boys to hear. She then looked at the author and asked: "Is this music beautiful? I put it on every night for our boys to hear because I want them to grow up also appreciating the culture of their Swiss grandparents". And the answer was: "Yes, it is very beautiful!" This happened in 1998 and it has always been an excellent example of quality education for and of deaf people. These deaf parents were preparing deaf children and their own hearing children to conquer the world.

Dr Beatriz C Warth Raymann is a native of Porto Alegre, Brazil. She was Principal of Concordia School for the Deaf for 18 years and, presently, is a Professor / Researcher at the Lutheran University of Brazil (ULBRA) and coordinates the Advisory Working Group on the Education of Deaf and Hard of Hearing People for Christoffel Blindenmission (CBM), Germany.

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The area that concerns the education of deaf and hard of hearing children has historically been rich with debate and controversies. Paul and Quigley[1] have written that none of the many educational options have prevailed, and it shows us that, in the education and rehabilitation of deaf and hard of hearing children, there is no 'one way' to teach. There is probably no one strategy, method or philosophy that is beneficial to all children.

Educating a Deaf Child

Once the problem of identifying deaf and hard of hearing children is solved, and the child is adequately tested and diagnosed, then begins the tremendous challenge of educating a deaf child. Professionals often contribute to the confusion of families who become caught up in arguments of polar extremes, especially regarding the controversy over the best educational philosophy for their deaf children: oral/ aural education, total communication or bilingual education, inclusive education, or special education. There is still the question of hearing aids, cochlear implants, sign language, interpreting services, and much more.

In some countries, these controversies are of less importance because of the limited options offered to deaf and hard of hearing children and sometimes parents are put in the position of having to accept whatever is there, and, unfortunately, have at times to accept less than good programmes.

It should also be pointed out that the area related to deafness and hearing impairment is often divided into two approaches:

- Medical / preventive / curative
- Cultural / socio-anthropological.

In the curative view of deafness there is an emphasis on the pathology, the search for a cure for the problem. In the cultural / anthropological approach, deaf people are seen as members of a linguistic minority. However, these need not be seen as an either/or issue, for they often intersect and complement each other. Deafness is also discussed from many other perspectives: historical, political, linguistic, social and others.

Educational Programmes

What should be offered to deaf and hard of hearing children in terms of education? The answer is relatively simple. Educational programmes should be planned according to the demands of the deaf child's community and, if possible, above and beyond those needs. Whatever is offered to hearing children should also be available to deaf and hard of hearing children. Each deaf or hard of hearing child, according to his/her capabilities, should be able to lead an independent life after leaving the school system.

What programme should be offered? This depends on the needs and the desires of that community. It may mean:

- Learning to communicate
- Learning to communicate + basic living skills
- Learning to communicate, read and write
- Learning to communicate, read and write + job training.

This child may have an informal or a formal education: pre-school; elementary and secondary school; university, and graduate school.

Education of deaf and hard of hearing children should prepare for life, taking into consideration the capabilities of the person and the availabilities of the local job market. This, for example,

Fig. 1: Teaching sign language in Brazil

Photo: ULBRA

may mean self employment or work in industry, commerce, agriculture, banking, education, services, and many other possibilities.

Where Should Deaf and Hard of Hearing Children be Educated?

In some countries there are many options and families are invited to make a decision. However, in other parts of the world, there may be only one format. Educational options may include the following:

- Residential school
- Day school
- Special classroom in a regular school or an inclusive programme
- Non-formal education
- Community based programmes.

Oral/Aural; Total Communication; Bilingual Education

Even though this discussion may not always be productive, it may be important to demonstrate that there are three basic philosophies for the education of deaf and hard of hearing children:

- Oral/Aural
- Total Communication
- Bilingual Education.

The last two have often had some definition problems and much overlapping and confusion occurs.

In the ***Oral / Aural*** approach, deaf children are educated through the development of speech communication skills: use of residual hearing, lip-reading, and speech. It excludes manual communication and, therefore, it does not use sign language. Auralism is a development within oralism, in which hearing is seen as the most important sense modality.

Total Communication, according to Reamy and Brackett,[2] is a term that was used for the first time by Roy Holcomb, in 1968. It began as a compromise between oral philosophies and manual communication, and was seen as a bridge between the two. Total Communication refers to the right deaf people have to learn the use of all forms of communication, thus developing competency in language at the earliest possible age. It involves the national language of the country and the national sign language (Figures 1 and 2), speech, lip-reading, the use of individual sound amplification, natural gestures, non-verbal communication, manual alphabet, mime, drama, dance, and others. These may be used individually or simultaneously, or in combination, depending on what the deaf person considers is his/her strongest, most comfortable means of communication.

Fig. 2: Brazilian students using sign language
Photo: Elisângela Fagundes (ULBRA)

Bilingual Education uses two languages: the sign language used by the deaf community of the country and the language of that country. Bilingual Education considers sign language to be the first language of deaf people. Not all bilingual programmes teach oral communication skills. Aquiline, quoting Grosjean,[3] explains that some deaf children will be dominant in sign language, others in oral language and some will be balanced in their two languages. 'Most deaf children will become bilingual and bicultural to varying degrees'.

Hearing Aids, Amplification and the Deaf Community

The use of hearing aids and amplification may be present in all three philosophical models and today a child may, for example, have cochlear implants and still have access to sign language and the Deaf community (often the word 'deaf' spelled with a capital 'D' - Deaf, identifying participants of the Deaf community: Deaf culture, Deaf literature, Deaf poetry, traditions, drama, and folklore). The borders that clearly separated the philosophies in the past tend to be much more open and there is hope for a model that sees the education of deaf and hard of hearing children, not so much from the perspective of the personal beliefs of professionals but from the point view of the needs of that child at that moment.

Quality Education

The only requirement that is universal in all this discussion is that whatever is offered to deaf and hard of hearing children needs to be quality education. The place and the programme should make its community proud and should be visited by everyone who comes to that part of the world, as an example of how that community takes care of its members.

Whatever the educational approach, one aspect remains constant: the need to involve parents in the educational process. There seems to be a consensus that for parent education programmes to be successful, three fundamental points need to be present. The first is that before content is presented, the emotional needs of parents should be dealt with. The second aspect relates to continuity. Programmes for parents should be regular and continuous in nature, because parents very often return to the grieving experience, since the suffering process may not be linear but a cycle. The third suggestion for parent education programmes is that they need to be organised in a way that offers attention to the families, so that individual members of a family are empowered and their self-esteem is strengthened. Parents with strong feelings of self-worth are usually better equipped to educate their deaf or hard of hearing child.[4] For more on parents of deaf children, please refer to the work of Luterman.[5]

Conclusion

The education of deaf and hard of hearing children should be planned in a way that will equip each child to become an independent citizen, with full access to the resources of his/her community, ready to search for more, having acquired the skills of learning how to learn and having built strong self-esteem.[6]

References

1. Language and Deafness. Paul PV, Quigley SP. Singular Publishing Group, San Diego (1994).
2. Communication methodologies: options for families. Reamy C, Brackett D. *In* Early identification and intervention of hearing-impaired infants. *Otolaryngol Clin North Am.* 1999; **32** (6): 1104-1116.
3. World Federation of the Deaf: Towards a Policy on Deaf Education. Aquiline C. Proceedings of the 19th International Congress on the Education of the Deaf and the 7th Asia Pacific Congress on Deafness. Published in CD Rom, Sydney, Australia (2000).
4. Family factors as predictors for academic development and progress: a self report by hearing parents of deaf university students and by deaf university students. Raymann B. Wauwatosa, Wisconsin/ Wisconsin I (2001).
5. Counseling families with a hearing-impaired child. Luterman D. *In* Early identification and Intervention of hearing impaired infants. *Otolaryngol Clin North Am.* 1999; **32**(6): 1037-1050.
6. When your child is deaf. A guide for parents. Luterman D, Ross M. York Press, Maryland (1991). ❒

WWHearing
World-Wide Hearing Care for Developing Countries

Key stakeholders concerned with provision of appropriate and affordable hearing aids and services in developing countries came together recently at a workshop at WHO, Geneva, and agreed to establish a new initiative, ***WWHearing – World-Wide Hearing Care For Developing Countries***. Participants came from 18 developing and developed countries and represented governments, NGOs, manufacturers (commercial and not-for-profit), organizations of users and professionals, donors, and relevant experts.

The mission of ***WWHearing*** will be to promote better hearing through the provision of hearing aids and services in devloping countries and underserved communities within the framework of the *WHO Guidelines for Hearing Aids and Services for Developing Countries*.

WHO estimates there are currently 250 million people world-wide with moderate or worse hearing loss, most of whom could benefit from hearing aids. Two thirds are in developing countries. Current annual production of hearing aids is less than 10% of global needs and approximately 30 million are needed annually in developing countries, together with services and staff to fit them.

At the guidelines launch in 2001, WHO called on the private sector to provide affordable hearing aids in the developing world and emphasized that prices of hearing aids will remain prohibitive until all stakeholders work together to reduce costs.

The new executive committee of ***WWHearing*** has drafted the latter's Terms of Reference and operating procedures and has produced guidelines for pilot projects for public-private partnerships in particular developing countries. These will be presented for approval and action at the first meeing of ***WWHearing*** later this year.

Andrew W Smith
29 April 2004

INTERNET RESOURCES

A Basic Syllabus on Ear Nose and Throat Diseases was developed by the **Baylor College of Medicine Department of Otolaryngology and Communicative Sciences Faculty, Houston, Texas**, as a guide to otolaryngology for medical students. The syllabus can also be used as a training resource for nurses and other Primary Health Care workers and includes chapters on the anatomy of the ear, hearing tests, common diseases of the external, middle and inner ear, hearing and speech disorders. Some of the learning objectives, related to **Primary Ear and Hearing Care**, are:

- Students should be able to perform a basic head and neck examination with equipment available to a primary care practitioner (flashlight/ torch, tongue blade, otoscope).
- Students should be familiar with typical clinical presentation, key physical findings, initial treatment, and referral indications for common otolaryngological diseases such as: external otitis, acute otitis media, serous otitis media, ruptured eardrum, cerumen impaction, presbyacusis, tinnitus and vertigo.

The **Core Curriculum Syllabus** can be downloaded from: http: //www.bcm.tmc.edu/oto/studs/

Emedicine Otolaryngology. More advanced, excellent monographs on otology and audiology can be found on: http: //www.emedicine.com/ent/

Dr Quinn's Textbook of Otolaryngology is at: http: //otohns.net/library/grandrounds.asp or http: //www.utmb.edu/otoref/Grnds/GrndsIndex.html

The Report of the International Workshop on Primary Ear and Hearing Care, Cape Town, 12-14 March 1998: http: //who.int/pbd/pdh/Docs/Capetown_final_report.pdf

Bobby R Alford's Grand Rounds: http: //www.bcm.tmc.edu/oto/grand/otology.html

A useful resource on **Evidence-based Medicine:** http: //researchinpem.homestead.com/evidencebasedpem_otitis.html

Cochrane Review on Ear Wax Drops: http: //www.update-software.com/abstracts/ab004326.htm

Evaluation of the use of a questionnaire to detect hearing loss in babies in China

Newton VE, Liu X, Ke X, Xu L, Bamford JM

A questionnaire was used to screen hearing of 1020 babies, 6-8 months, in China. All babies failing the questionnaire and 10% of those who passed were tested using auditory brainstem audiometry (ABR). Babies with unilateral or bilateral hearing thresholds 30 dBnHL or more were investigated to determine the cause of the hearing impairment. Sixty-seven failing the questionnaire were tested and 23 were confirmed to have a hearing loss, 20 with bilateral hearing impairment. The causes were: 13 otitis media with effusion (OME), one hypoxia, one genetic and five unknown. One child with an OME related hearing loss passed the screen. The sensitivity of the questionnaire was estimated to be 70%, specificity 96%.

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❐

Evaluation of the use of a questionnaire to detect hearing loss in Kenyan pre-school children

Newton VE, Macharia I, Mugwe P, Ototo B, Kan SW

In developing countries, there is a lack of trained personnel and testing equipment to facilitate the early detection of hearing impairment in children. A questionnaire offers a low cost option and the value of this for detecting hearing impairment in pre-school children was determined in several districts in Kenya. The questionnaire was completed by either teachers, parents/carers or community nurses. The children were subsequently tested using pure tone audiometry and visual examination of the ear by ENT Clinical Officers, who were not given prior access to the results of the questionnaire. A total of 757 (88%) questionnaires were completed. Of the 735 children, who could be tested using pure tone audiometry, four were found to have a unilateral hearing impairment and one was detected by the questionnaire. A total of 13 children had a bilateral hearing impairment >40 dB HL. All were detected using the questionnaire. There were eight males and five females with ages ranging from 4.2 to 6.9 years, mean age 5.7 years and median age 5.8 years. Eight had a sensorineural hearing impairment and two a mixed hearing impairment. Three of the children with a sensorineural hearing loss had a family history of hearing impairment. No question detected all children with a hearing impairment and some questions were more discerning than others. There was 100% sensitivity for the questionnaire when a hearing loss of >40 dB was considered, but specificity was lower at 75%. Negative predictive value was 100%, but the positive predictive value was low, 6.75%. It was concluded that a questionnaire of this nature could be usefully applied at Primary Health Care level for detecting hearing impairment at the pre-school stage. There would be need for services available for diagnosis, treatment and habilitation before a screening programme was introduced.

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❐

Evidence assessment of management of acute otitis media: I. The role of antibiotics in treatment of uncomplicated acute otitis media

Takata GS, Chan LS, Shekelle P, Morton SC, Mason W, Marcy SM

Context: In 1995, >5 million episodes of acute otitis media (AOM) accounted for $3 billion in health care expenditures.
Objectives: To synthesize the literature on the natural history of AOM, the effectiveness of antibiotic treatment in uncomplicated AOM, and the relative effectiveness of specific antibiotic regimens.
Data Sources: Seven electronic databases for articles published between 1966 and March 1999 and reference lists in proceedings, published articles, reports, and guidelines.
Study Selection: Two physicians independently assessed each article. Studies addressing AOM in children 4 weeks to 18 years old were included; those addressing children with immunodeficiencies or craniofacial abnormalities were excluded. Randomized, controlled trials (RCTs) were used to assess antibiotic effectiveness, and RCTs and cohort studies were used to assess the natural history of AOM. Among the 3491 citations identified, 80 (2.3%) met our inclusion criteria.
Data Extraction: Two physicians independently abstracted data and assessed the quality of studies using a validated scale for RCTs and 8 quality components for cohort studies.
Data Synthesis: Random-effects estimates of pooled absolute rate differences of outcomes were derived, and heterogeneity of both the rates and rate differences was assessed. Children with AOM not treated with antibiotics experienced a 1- to 7-day clinical failure rate of 19% (95% confidence interval: 0.10-0.28) and few suppurative complications. When patients were treated with amoxicillin, the 2- to 7-day clinical failure rate was reduced to 7%, a 12% (95% confidence interval: 0.04-0.20) reduction. Adverse effects, primarily gastrointestinal, were more common among children on cefixime than among those on ampicillin or amoxicillin. They were also more common among children on amoxicillin-clavulanate than among those on azithromycin.
Conclusions: The majority of uncomplicated cases of AOM resolve spontaneously without apparent suppurative complications. Ampicillin or amoxicillin confers a limited therapeutic benefit. There is no evidence to support any particular antibiotic regimens as more effective at relieving symptoms. Certain antibiotics are more likely than others to cause diarrhea and other adverse events.

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❐

Abstracts

Counseling families with a hearing-impaired child. *In* Early identification and Intervention of hearing impaired infants

Luterman D

The article stresses that to base counselling on content, before parents are able to go through their feelings of suffering, has little chance of success. The author explains that when emotions prevail, parents are helped more by being 'listened to' rather than being 'talked at'. Professionals can facilitate the grief process by the way they conduct diagnostic and counselling processes. The feelings that are explained in this study are: Inadequacy, Anger, Guilt, Vulnerability and Confusion. Some of the pitfalls that can be found in counselling parents of deaf children are also discussed in this article: Stereotyping, Transference, Projections, Implicit Expectations, Over-Helping and Cheerleading. Coping stages are seen not as fixed points, but steps that constantly change as the conditions of the child changes and as the individual becomes more confident. Luterman quotes Matson and Brooks for their model of coping stages: Denial, Resistance, Affirmation, Integration (Acceptance). Empowerment of parents is the fundamental issue, and all clinical interventions should be judged as to whether they empower their client.

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❐

Family factors as predictors for academic development and progress: a self report by hearing parents of deaf university students and by deaf university students

Raymann B

This study examined family factors as predictors for academic development and progress from the point of view of 35 deaf university students and 28 of their families through self-reporting. The idea was to look beyond the grief and coping stages, and also beyond the sentence that states that parents eventually adapt and develop. The problem that is the focus of this study is the lack of information concerning the educational process of deaf children, as perceived by parents and by deaf university students, from the privileged point of having concluded the basic education process. While parents are involved with their young or very young children, it may be more difficult to draw conclusions and to advise other families. However, if parents of older deaf children are invited to reflect on their past experiences, valuable information is gathered. The results of this research suggest that one of the keys to academic development and progress is Communication in the family and Self-esteem in the family. The findings point to a Parent/Child Mutual Reinforcement Cycle that has these two basic components, seen as interdependent and interrelated in this study. Self esteem feeds communication, and vice-versa; parents reinforce their children and children reinforce their parents back, creating a pattern that is probably one of the explanations for academic success in deaf children.

Published by:
Kind permission of the author.
Doctoral Dissertation (2001)

❐

Parental Involvement in Deaf Children's Education Programs as a Predictor of Child's Language, Early Reading and Social-Emotional Development

Calderon R

This study examined the impact of school-based, teacher–rated parental involvement on four child outcomes: language development, early reading skills, and positive-negative measures of social-emotional development. The 28 children were assessed for outcomes between 9 to 53 months post graduation from birth-to-3 early intervention (EI) program for children with hearing loss. Other factors included in the study were the child's hearing loss, mother's education level, mother's current communication skills with her child and maternal use of additional services beyond those offered by the early intervention program or the child's school program. Parental involvement in children's school-based education programs is a significant positive predictor to early reading skills but shares considerable variance with maternal communication skill for this outcome. In this study, maternal communication skills and the child's hearing loss were the strongest predictors for language development. Maternal use of additional services was the strongest predictor to poorer social-emotional adjustment. The study's findings indicate that although parental involvement in their deaf child's school-based education program can positively contribute to academic performance, parental communication skill is a more significant predictor for positive language and academic development. Factors associated with parental involvement, maternal communication, and use of additional services are explored and suggestions are offered to enhance parental involvement and communication skills.

Published courtesy of:
J Deaf Stud Deaf Educ. 2000; **5**(2): 140–155
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GUIDELINES FOR AUTHORS

Background

There is an urgent need for a means to raise awareness, enhance skills and provide knowledge and news about the spectrum of deafness and hearing impairment, from prevention to rehabilitation, for health and other professionals working in developing countries, especially at the primary level.

The main focus of the Journal is the provision of information and/or recommendations on clinical practice, health education, preventive and community ear health and rehabilitation.

The Journal is intended to be read by all levels and types of ear and hearing health worker, including primary health care workers, community-based workers, nurses, doctors and administrators.

The Journal will be distributed free to developing countries.

The Journal will have an Editorial Board and a bank of reviewers and contributors, mainly from developing countries, and will be produced by an experienced editorial team.

The charity, Christoffel-Blindenmission, has agreed to provide funding for a Journal of two 20-page issues per year which will address these issues.

Contributions

These are considered in two broad categories:

1. Overview articles, review articles and thematic articles where the author is invited to write an original paper or review an article for the Journal. Specific requirements as to length and focus for these articles will be detailed by the Editor.
2. Unsolicited original articles, short reports and letters, which are sent to the Editor with a request for publication. We welcome original contributions from health workers providing ear and hearing care in the community and at primary, secondary and tertiary levels.

Guidelines on Content and Length

1. Submitted articles, short reports and letters should reflect the experience of the author(s) and should provide relevant and new information. Papers that are likely to contribute to a change or improvement in clinical practice or thinking about a particular aspect of community ear and hearing health are especially welcome.
2. Space in the Journal is very limited, and submissions should be kept as short as possible. Original articles should not exceed 1,000 words in length and reports and short reports and letters should not exceed 500 words.

Presentation of Articles

1. Articles should be written in basic English with consideration for the broad readership, many of whom may not have English as their first language. Support will be provided for authors whose first language is not English. No article will be declined on the basis of writing style alone.
2. Articles should not have been published elsewhere unless an appropriate arrangement has been agreed and documented with the original publisher.
3. Articles are accepted for review on the understanding that editorial changes may be necessary. Significant changes will be referred back to the author(s) for approval.
4. All articles are reviewed by the Editorial Board of the Journal. Certain articles may also be referred to Consulting Editors or other colleagues with recognised expertise in the relevant field.
5. References: A maximum of five references may be included. References should be identified by numbers in the text and listed at the end of the paper in the order in which they first appear in the text. The formats given below should be followed: the first is for references to journals[1] and the second is for book references.[2]

1. Hearing impairment and ear pathology in Nepal. Little P et al. *J Laryngol & Otol*. 1993; **107**(5): 395-400.
2. Genetic Counselling for Hearing Impairment. Mueller R. *In* Genetics and Hearing Impairment. Martini A, Stephens D, Read A (Eds), Whurr Publishers, London (1996).

References are the responsibility of the author. Articles with inaccurate or incomplete references may be returned to the author.

6. Articles should be typed in double spacing on one side of each page. Where possible, a copy on computer disk (Word preferably) or as an e-mail attachment should also be submitted.
7. The name, qualifications, title, professional address of each author should be clearly given. If the author wishes, one or two sentences could be included which summarise the author's main interests or activities in this field. The Editor reserves the right to amend or not include these sentences.
8. Tables, graphs, line illustrations and photographs are welcome. Each table, graph or illustration should have an appropriate caption. Photographs can be prints or slides in colour or black & white. Photographs should be at least 300dpi with sharp definition.
9. Acknowledgements (e.g., for illustrations and photographs) should be clearly and appropriately given. Any copyright material must have written permission for re-publication and include an appropriate acknowledgement.
10. Numbers and figures should be checked for accuracy in the text and in tables/graphs, etc.
11. Contributions should be sent to:

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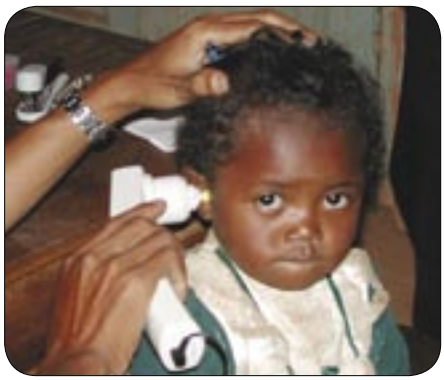

A child is tested for hearing loss using an oto-acoustic emission tester during a survey in Madagascar

Women welders wearing hearing protectors, in a vocational training project in India

Primary school children learn personal hygiene in India

Photos: Andrew Smith

COMMUNITY EAR AND HEARING HEALTH

Aim

- To promote ear and hearing health in developing countries

Objectives

- To facilitate continuing education for all levels of health worker, particularly in developing countries
- To provide a forum for the exchange of ideas, experience and information in order to encourage improvements in the delivery of ear and hearing health care and rehabilitation.

PEHC outreach clinic in Africa
Photo: Mieke van Hasselt

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