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## Expert's Comments

### Screening for auditory Impairment In resource-poor countries

Loss of hearing, very early in life, can affect the development of speech and language, social and emotional development, and influence behaviour and academic achievement.<sup>1</sup> The critical or sensitive period for the acquisition of language extends from 1 to 5 years of age. However, impairment of hearing commencing after 5 years of age can also have serious consequences. Ninety-five per cent of school children suffer from middle-ear disease, sometime in the first 10 years of their life.<sup>2</sup> Otorrhoea and multiple ear infections are the risk factors associated with loss of hearing in this age group.<sup>3</sup> In the auditory-verbal environment of mainstream schools, such hearing-loss can endanger education.

Hearing-loss is much more common in developing countries. It is estimated that two out of three of the world's hearing-impaired are in developing countries.<sup>4</sup> The reasons include: absence of regular screening programmes for ear disease, poverty, malnutrition, ignorance and paucity of accessible

healthcare.<sup>4</sup> A study in a rural primary school in South India has shown that the overall prevalence of otological abnormalities (excluding wax) was 21.5%.<sup>4</sup> A study in Tanzania found ear disease in 27.7% of primary school children.<sup>5</sup>

Loss of hearing should be identified as early in life as possible, if its long-term consequences are to be prevented. The technology used for screening of hearing, should be age-appropriate and the child also should be comfortable with the testing situation. Young children need special preparation. Screening should be conducted in a quiet area where visual and auditory distractions are minimal. Unfortunately, the instruments required for testing hearing abilities in the young children are not widely available in developing countries.

In developed countries, children are screened for hearing-loss routinely at periodic intervals. Implementation of such screening procedures is not feasible in the developing countries at

the present moment. Screening at school entry is perhaps the most practical way of ensuring that children are evaluated for hearing capabilities, at least once. It would help if there were identified predictors of hearing impairment, so that children at greatest risk can undergo further evaluation. Researchers working in rural Nigeria have tried to do just this by attempting to determine the correlates of hearing impairment.<sup>6</sup> They used audiometry testing and tympanometry to identify 50 children with pure tone-deafness (greater than 15dBHL in the frequency 0.5 to 4 kHz). They studied these children against 150 controls with normal hearing. They found that the presence of impacted cerumen had a sensitivity of 80%, specificity of 61% and otitis media with effusion (OEM) had a sensitivity of 66%, specificity of 88%, for identifying hearing impairment. The researchers state that, not only does cerumen cause hearing loss before its removal; a history of impacted cerumen is more common in children with hearing impairment from other causes. This is interesting, given that it is known that children with cranio-facial deformities have a propensity for excessive and impacted cerumen.

Screening is justifiable only if a remedy for the screened disorder is available. In the case of school children with moderate

auditory impairment in developing countries, the feasible solution may not be provision of hearing aids, but preferential seating in the class. They are placed closer to the teacher, such that they can hear the teacher and also see her face, to facilitate lip reading. The paper also emphasizes and brings out the importance of preventing and treating suppurative otitis media.

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