

**Mini Review***Copyright © All rights are reserved by Adriana Bender Moreira de Lacerda*

# Hearing Health Programs for Schoolchildren

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In the past decades, students' health care has become a priority in many countries and, due to high rates of hearing disorders found in this group, epidemiological studies in the area suggest the need of implementation and development of programs which foster health promotion and prevention from hearing disorders among children and adolescents. Students' hearing assessment is one of the population-oriented actions and early prevention-oriented interventions. Hearing assessment is a simple and fast procedure, applied to a great number of subjects, and aims at the early detection of those most likely to suffer from hearing loss, whether due to conductive or sensorineural pathology, and in need of a complete audiological diagnosis. However, it should be pointed that intervention among that group, in the scope of hearing health care, should not be restricted to hearing assessment only. Other aspects, such as guidance and information on hearing care, and the acoustic school environment, must be considered. In this context, the aim is to propose directions for a model of a hearing health program towards school children based on practical experiences, not only clinical but also academic experiences, comprising perspectives for the use of new health care technologies.

**Introduction****The significance and magnitude of the problem**

Hearing is fundamental for the development of language. When hearing loss (HL) is present, problems in communicative processes may occur, hindering global cognitive development, learning and interpersonal relationships, thus harming school development and, consequently, the professional performance of the affected population [1-3]. For the World Health Organization (WHO) [4], hearing impairment may bring about social and economic overburden to individuals, family members and society, that is why prevention is essential. Still according to the WHO [5], about 10% of the population in any countries has some kind of disability, and hearing impairment takes up 1.5% of that. For the Global Burden of Disease (2005) [6], 278 million individuals around the globe suffer from some kind of moderate to severe hearing impairment in both ears. From that population, 80% live in developing countries, and about 50% of the observed hearing impairments can be avoided by prevention, early diagnosis and treatment. In Brazil, for example, studies show rates of hearing loss among students of up to 39.4% in some cities [7]. In view of such high rates in several Brazilian regions, Hearing Health Programs for Schoolchildren must be implemented as an integrating part of the primary health care.

**Hearing Health Programs for Students – Directions**

The Hearing Health Programs for Schoolchildren aim to:

1. Foster hearing health promotion and quality of life among the school community.
2. Identify hearing system disorders early, as they may hinder global cognitive development and interpersonal relationships, and they may also cause or justify immediate and future educational difficulties due to the close correlation between hearing impairments and language problems and/or schooling.

The program should feature a continuous flow and must be founded in three axes:

1. School environment.
2. Hearing assessment.
3. Educational interventions.

Ideally, the program should be part of public policies oriented to child and teenager's caring and should be carried out with other student-oriented government programs.

**School environment**

By analyzing the school environment, an important risk factor to be considered is the environmental noise. Investigating noise levels in the school setting, in not only an empty classroom, but also when

teacher and students are carrying out their activities, would enable the analysis between exposure to environmental sound levels and probable vocal, hearing and health disorders, in addition to the likely effects on the school performance among that population [8-13]. The analysis of the environmental noise may bring about collective and individual measures to solve the problem and foster improvements in school settings, making them healthier. Moreover, for a more efficient performance towards health promotion and hearing loss prevention, it is important to know students' profile, taking into consideration their socioeconomical and cultural status, origin, habits and customs of the population, in addition to hearing signs and symptoms. Such information is necessary to carry out effective interventions and meet that population's needs. Therefore, the use of questionnaires or anamnesis is suggested [14].

### Hearing assessment

The Joint Committee on Infant Hearing (1994) [15] described the basic responsibilities to be met by a program of hearing assessment, such as: awareness of the importance of early diagnosis, whenever there is prognosis of hearing loss, especially in the initial grades; careful observation of students, searching for signs of hearing impairment; organization and carry out of a survey on audiometric data, in addition to a program of guidance and follow-up in order to help children with hearing impairment to have the diagnostic screening, the necessary treatment and adaptation to the school environment. It is essential to consider that, nowadays, not only the already established traditional protocols for hearing assessment, but also new technologies (mobile health apps) have been developed and studied for further implementation and practical use of hearing assessment programs among schoolchildren or adults with promising results [16-19].

The access and use of technologies have been widespread worldwide, as well as the generalized use of mobile technology by children and teenagers, thus being essential elements for communication, relationship, learning, and leisure in their lives. Considering and searching for those tools as well as new technologies and approaches, aiming at the practical use of the mobile health care, including in students' hearing assessment, has great potential. Therefore, it is necessary to advance in order to incorporate them to further interventions.

### Educational interventions

Some initiatives have already been developed in several countries [20,21]. Currently, it can be pointed preventive educational interventions oriented to hearing health promotion, founded in the behavior related to children and adolescents' attitudes and hearing habits [22-24]. Some educational/preventive interventions have been efficient to change children and adolescents' behavior [25-30]. Considerations on the frequent aspects related to hearing, environmental and biological hazards for the development of hearing loss and its prevention are suggested. Moreover, at schools, it can be suggested that teachers address, in their lesson plan, the issue of health promotion and hearing loss prevention. Thus, along the school year, all the school community can be involved.

### Final Considerations

The hearing health program, founded in three axes, broadens its scope and effectiveness. Although it does not carry out the early detection of hearing loss by means of the hearing assessment, it contributes to the promotion of students' hearing health, fostering positive individual and environmental changes, praising the importance of hearing for the quality of life, minimizing risks and creating healthy settings. That may contribute to the improvement of quality of life, in the perspective of students' comprehensive health.

### Acknowledgement

None.

### Conflict of Interest

No conflict of interest.

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