

A CALL FOR ACTION TO STRENGTHEN HEALTHCARE FOR HEARING LOSS

Hearing loss is a major health issue that continues to receive inadequate attention in many countries. More than 360 million people worldwide suffer from hearing loss, which is strongly linked to cognitive and functional disability in both children and adults.

Introduction

Hearing loss is one of the most neglected and hidden of all impairments that leads to disability (see World Report on Disability from the World Health Organization and the World Bank^{1,2}) and affects an estimated 5.3% of the world population³. The vast majority of those affected live in low and middle income countries (LMICs) where the capacity for prevention and treatment is poorest.

Hearing loss in children can lead to irreversible language, intellectual, social and emotional delays in development, particularly if it is diagnosed later than six months of age. Without appropriate intervention in the first months of life, congenital and early onset hearing loss results in developmental delays or altered brain development. This cannot be fully compensated by therapy or rehabilitation programmes offered at a later age. Whilst cochlear implants have recently made a remarkable difference to prospects for congenitally deaf children, these are affordable for only a small percentage of the world's population and rely also on early ascertainment programmes, which most LMICs do not have. Deaf and hard-of-hearing children in LMICs face a challenging future where support services are non-existent or severely limited and the prevailing culture may be unsupportive or even hostile. Measures for prevention, early identification and intervention are therefore essential.

In older adults, hearing loss has generally been considered as an unavoidable aspect of ageing. However, there is increasing evidence that hearing loss in older adults is associated with a greater risk of dementia and disability. Healthcare efforts to address and rehabilitate hearing loss in older adults can therefore have a profound impact on their health and functioning, with cascading benefits for society.

The term 'hearing loss' includes a diverse range of impairment and disability, and implicates many different diseases. It is important to note that causes of hearing loss differ between high income countries (HICs) and LMICs. In HICs, most permanent or long-

term hearing loss arises from pathology of the inner ear as a result of genetic and age-related factors, although co-acting environmental factors such as noise, infection, nutrition and ototoxic medicines (such as certain antibiotics) can also play a role. In LMICs, the overall prevalence of inner ear pathology is also high, but environmental factors such as untreated middle ear and upper respiratory tract infections, meningitis, unregulated noise exposure, toxins in the workplace, and ototoxic medications play an even greater role. Genetic factors are still a major contributor, especially in regions with high consanguinity. There is also a high percentage of cases that arise from infectious middle-ear disease. As inner ear pathology is more common in older adults, it remains to be seen what effect the increasing lifespan will have on these patterns. Both inner ear pathology and middle ear disease in LMICs may be influenced by efforts to prevent and effectively treat infections. While there are genetic dispositions of the immune system, the emphasis in primary prevention must be on environmental factors. These include nutrition, climate and the availability of simple, affordable and available hygiene and healthcare – particularly by diagnosis and treatment of middle ear infection and its prevention by vaccination (e.g. against *Pneumococcus* and *Haemophilus influenzae*).

Background

Hearing loss is highly prevalent, occurring in nearly two-thirds of all adults older than 70 years⁴ and has been found to be independently associated with accelerated cognitive and physical functional decline, including: a 2- to 5-fold risk of developing dementia; increased rates of hospitalization and healthcare utilization; and reduced life expectancy. The genuine link between hearing loss and dementia is supported by work at several institutions from multiple countries. In this context the problem of "pseudodementia" is also recognized: whereby due to hearing loss, perhaps undiagnosed, a clinical condition resembling dementia prevails.

Hearing loss is associated with these outcomes through, for example, increased social isolation and cognitive load, and direct effects on brain structure/function. Importantly, these pathways could

¹ http://www.who.int/disabilities/world_report/2011/en/

² <http://www.who.int/topics/deafness/en/>

³ World Health Organization (2013). Millions of people in the world have hearing loss that can be prevented.

<http://www.who.int/pbd/deafness/news/Millionslivewithhearingloss.pdf>

⁴ J Gerontol A Biol Sci Med Sci. 2011 May; 66A(5):582-590

be amenable to comprehensive approaches to hearing screening and rehabilitative treatment. However, such services are difficult to access, even in high-income countries: for example, even with properly developed healthcare infrastructure for hearing problems, fewer than 20% of adults with hearing loss obtain any form of treatment, rehabilitation or instrumental aid. These rates are even lower in LMICs that do not have systems in place for hearing healthcare⁵.

The reasons underlying low rates of hearing loss treatment include:

- Lack of, or poor quality, equipment in healthcare settings for early diagnosis and treatment, coupled with lack of investment;
- Lack of awareness and recognition among policy-makers, and health professionals that hearing loss is a critical determinant of ageing, integral to public health;
- In some cultures, social stigmatization of disabilities that affect communication;
- Poor understanding of how hearing loss manifests and how it can be addressed effectively;
- A current hearing healthcare model and hearing industry that is focused on the delivery of high-margin, low-volume hearing aids and cochlear implants which remain inaccessible and unaffordable to many people;
- Lack of third-party reimbursement and coverage for hearing healthcare services;
- Lack of trained healthcare practitioners for the delivery of hearing health services, including specialists to detect and treat hearing loss, especially in low income countries.

Increasing political focus worldwide

The huge global burden of hearing loss has been emphasized in recent years⁶. In view of this, the World Health Assembly of 1995 passed a resolution (WHA 48.9⁷) drawing attention to this issue and urging its member states to prepare plans and strategies to prevent, identify and manage ear diseases and hearing problems. A WHO report released in March 2014⁸ mapped out the availability of human resources for ear and hearing care in countries across the world. It concluded that only 32 of the 76 responding countries had any programmes or policies to address hearing loss and its causes.

The challenges of hearing loss have been of concern to a number of the world's academies. For example,

the Institute of Medicine and National Academy of Sciences (IOM/NAS) in the United States has discussed the public health implications of hearing loss for older adults, including the possible relationship between hearing loss and accelerated cognitive decline and dementia⁹, and the US National Academies have produced consensus studies relating to aspects of hearing loss, including: noise and military service; eligibility for social security benefits; and the value of research programmes.

Hence, it is essential that a concerted global effort be made to raise further awareness about ear and hearing problems and to initiate related practical actions. Advocacy with national governments, international agencies, nongovernmental organizations (NGOs) and professional bodies is essential to promote this cause.

Recommendations from IAMP

IAMP strongly supports the conclusions derived from previous work by academies and others to establish the global impact and challenges of hearing loss, including the need for research and services, especially development work on low-cost model services. It is clear that there is need for an integrated strategy of effective and efficient activities worldwide to improve the lives of people with hearing loss.

To reduce the current major public health burden of hearing loss, there is a particular need to address this problem globally through multiple steps. Thus, IAMP and its member academies now call on governments and other healthcare providers to:

1. Improve healthcare provision:
 - Strengthen programmes for ear and hearing care within primary healthcare, including training of health workers, especially in LMICs;
 - Develop and implement healthcare structures for the prevention of avoidable hearing loss, such as: vaccination; and reduced use of ototoxic drugs where possible and where drug monitoring is possible;
 - Develop and implement programmes for early identification of hearing loss in children such as universal hearing screening in birthing centres within and outside hospitals, or the combination of hearing screening with vaccination programmes within the first months of life;
 - Encourage programmes to make cochlear implantation accessible and affordable for those who may benefit from this technology.
2. Ensure public health measures address the causes of hearing loss:
 - Support infection prevention and control programmes – including through vaccination

⁵<http://www.demneuropsy.com.br/imageBank/PDF/dnv01n03a05.pdf>

⁶http://www.who.int/healthinfo/statistics/bod_hearingloss.pdf

⁷<http://www.who.int/bulletin/volumes/86/12/07-050005/en/>

⁸<http://www.who.int/mediacentre/news/notes/2014/survey-hearing-loss/en/>

⁹<http://www.iom.edu/Activities/PublicHealth/HearingLossAging/2014-JAN-13.aspx>

- along with the accessibility of affordable simple preventive hygiene and therapeutic measures aimed at reducing middle ear disease;
 - Increase awareness, knowledge and skills in the public health approach to prevention and rehabilitation of hearing loss, especially in LMICs, through the wide scale provision of training courses;
 - Reduce noise exposure.
3. Address hearing loss in both children and adults, acknowledging the differences between these groups:
 - Develop and implement infrastructure that supports greater awareness, earlier identification and more effective management of hearing loss in older adults;
 - Develop and implement specialized healthcare programmes for managing hearing loss in children that work alongside appropriate educational programmes.
 4. Address broader societal needs, including education:
 - Initiate educational programmes for children with hearing loss, their relatives and communities, with the aim of oral communication, where feasible; where it is not feasible, alternative communication modes should be available;
 - Initiate educational programmes to integrate children with hearing loss into the regular school system with the same academic perspective as hearing children;
 - Initiate educational programmes that accept persons with hearing loss and other disabilities as full-fledged members of the society;
 - Develop and implementing technical support in public spaces – such as induction loops and closed captioning
 5. Establish research and innovation programmes targeted at hearing loss priorities:
 - Encourage development of novel screening and diagnostic techniques to improve the early identification of hearing loss in children;
 - Encourage industrial development and innovation to meet the needs of persons with hearing loss, including affordable high quality hearing aids as well as solutions to reduce the costs for batteries in LMICs;
 - Increase the volume of applicable research in three areas, including the relevant research capacity: fundamental research on the pathophysiological mechanisms of the

different aetiologies of hearing loss to aid diagnosis, management and therapy; research on the functional regeneration of inner ear structures; and clinical and epidemiological research on hearing disorders.

Hearing loss is a common and often preventable cause of functional and cognitive problems. Addressing hearing loss is a global health challenge, which will require new research and clinical resources, educational programmes and interdisciplinary collaborations. A concerted effort focusing on each of the five key areas outlined above must be sustained to improve the lives of everyone who suffers from hearing loss

This statement was prepared with the advice of an expert working group who were invited to participate by IAMP's Executive Committee. The members of the Working Group participated in an individual capacity and IAMP would like to thank them for their helpful contributions.

- Detlev Ganten, Germany (Co-Chair, IAMP)
- George Griffin, UK (Co-Chair, IAMP Statements Committee)
- Manfred Gross, Germany, (Secretary, IAMP Hearing Loss Statement Working Group)

The following experts nominated by IAMP member academies formed the Working Group that helped to develop this statement.

- Vicente G. Diamante, Argentina
- Ricardo F. Bento, Brazil
- Gao Zhiqiang, China
- Alejandro Torres Fortuny, Cuba
- Josef Syka, Czech Republic
- Claude-Henri Chouard, France
- Hans-Peter Zenner, Germany
- Otmar Schober, Germany
- Annette Grütters-Kieslich, Germany
- Tibor Zelles, Hungary
- Sandra Kuške, Latvia
- Somefun Oladapo Abayomi, Nigeria
- Charlotte Chiong, Philippines
- Daniël C. de Wet Swanepoel, South Africa
- Mohamadou Guélaye Sall, Senegal
- Mark P. Haggard, UK

We acknowledge the input to the zero draft of this document by:

- Manfred Gross, Germany
- Bolajoko O. Olusanya, Nigeria
- Katrin Neumann, Germany
- Karl R White, USA
- Paige Stringer, USA
- Frank R. Lin, USA
- Jackie L. Clark, USA
- James E. Saunders, USA
- Shelly Chadha, Switzerland

Lead Academy

*National Academy of Sciences Leopoldina, Germany
Prof. Dr. J. Hacker, President
Prof. Dr. H.P. Zenner, Secretary Medicine*