

The inaugural World Report on Hearing: From barriers to a platform for change

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Abstract

The inaugural *World Report on Hearing* was recently published by the World Health Organisation, and outlines the burden of hearing loss, and strategies to overcome this through preventative and public health approaches. Here, we identify barriers to wide-scale adoption, including historic low prioritisation of hearing loss against other public health needs, a lack of a health workforce with relevant training, poor access to assistive technology, and individual and community-level stigma and misunderstanding. Overcoming these barriers will require multi-sector stakeholder collaboration, involving ear and hearing care professionals, patients, communities, industry and policymakers.

1 | INTRODUCTION

On 3 March 2021, the World Health Organisation (WHO) launched the inaugural World Report on Hearing¹—a pivotal opportunity for civil society and ear and hearing care professionals to unite worldwide to advocate for “hearing care for all”.

The call to action is predicated on the view that hearing loss denies individuals access to effective spoken communication, which is fundamental to the human experience. Hearing loss affects individuals, society and the economy, with touchpoints across multiple sectors, including health, education, employment, housing and community. The report provides a platform for policymakers around

the world to understand these impacts, as well as the available evidence-based solutions and the current challenges and opportunities to address access to hearing care. Importantly, it provides a range of implementable priority interventions that can be tailored to the country or context.

The report is an important outcome of the resolution adopted in 2017 at the 70th World Health Assembly,² which recognised both the prevalence and magnitude of effects of unaddressed hearing loss and called for countries to integrate people-centred ear and hearing care within national health plans. Here, we identify the challenges and opportunities to address this, and the need for multi-stakeholder partnerships that include government and civil society.

2 | THE BURDEN OF HEARING LOSS

Hearing loss has been historically overlooked in primary health care, and often absent from policy and public health agendas. Yet hearing is critical across the lifespan—a necessary part of normal childhood development and successful aging.^{3,4} Evidence from newborn hearing screening programmes demonstrates that early identification and intervention can reduce the gap in listening and learning between children with hearing loss and their normal hearing peers.⁵ Hearing loss in adulthood can affect employability, productivity and retention in the workforce.^{6,7} In older age, hearing loss disrupts social connections, contributes to loneliness and associates with comorbidities in mental and physical health, as well as earlier risk of mortality.^{8,9} The recent Lancet Commission for Dementia found that hearing loss in mid-life is the single biggest potentially modifiable risk factor for dementia in later life¹⁰ and that holds true across geographical regions.

The Global Burden of Disease study highlights that the burden of hearing loss is huge, with new prevalence estimates at 1.6 billion, ranking as the 3rd largest source of years lived with disability¹¹ and in adults over 50, a top ten contributor to the global burden of disability. The prevalence of hearing loss is expected to further increase^{12,13} through population growth and demographic shifts. Unaddressed hearing loss poses a current global annual cost of \$980 billion USD, with nearly 80% of disease burden seen in low- and middle-income countries (LMICs), where there is also often greater stigma, under-resourced health and disability services, and limited access to enabling technologies, such as hearing aids and cochlear implants. The prevalence of chronic suppurative otitis media is also highest in lower socioeconomic settings.¹⁴

The sheer magnitude of the worldwide burden of hearing loss demands a public health approach, based upon primary prevention (stopping hearing loss from developing), secondary prevention (early identification and intervention, e.g., through screening programmes) and tertiary prevention (interventions to address established hearing loss).

3 | PUBLIC HEALTH APPROACHES TO HEARING LOSS

Primary prevention through practical measures and policies has significant potential, particularly for hearing loss among children and young adults. A 2016 WHO report estimated that up to 60% of childhood hearing loss is preventable through public health approaches of immunisation, good hygiene and maternal and child health practices and programmes.¹⁵ Across the lifespan, ototoxicity from pharmaceutical drugs and chemical solvents also contributes to hearing loss, although uncertainties about prevalence, exposure and individual susceptibility to such compounds make that risk difficult to quantify. However, in the current era, the most prevalent modifiable environmental risk, particularly in younger populations, is exposure to loud noise from recreational activities through personal listening

devices and live entertainment¹⁶ (which also increases risk of tinnitus¹⁷). In partnership with the International Telecommunication Union, the WHO has developed a global standard for safe listening devices and systems (WHO-ITU Global Standard H.870¹⁸), which provides users with information about their personal sound exposure to support decisions on safe listening levels. The WHO is also developing a global standard for sound levels in recreational venues, to enable legislation akin to that in many countries mandated for occupational settings. Despite such legislation, occupational noise continues to pose a high risk of hearing loss, and more needs to be done to mitigate this.¹⁹ Public education campaigns, occupational legislation and enforcement on noise exposure, as well as primordial preventative strategies to reduce environmental noise pollution, such as in high-density traffic areas,²⁰ are also critical to support healthy hearing.

Secondary prevention is predicated on effective hearing screening programmes. At different ages or life-stages—from newborn, to school-age, and older adults—screening provides opportunity to detect hearing loss early and connect individuals to treatment and care, which can mitigate some of the long-term effects. Newborn hearing screening programmes are based on globally recognised guidelines and protocols, and established and effective in many countries.²¹ Pre-school and school screening programmes provide an opportunity to identify hearing loss and middle ear disease in children early along their educational pathway, with near universal capture possible because of mandatory primary school education in most countries.²² While the value of school screening is well documented, more work is needed to develop evidence-based robust models for widespread implementation. Although there is yet insufficient evidence to support universal screening programmes for hearing loss in older adults,²³ the combination of high prevalence, significant detrimental effects on health and well-being and availability of evidence-based and cost-effective solutions highlight the urgent need to develop evidence on the cost-effectiveness of identifying and screening at-risk individuals in this cohort.

Tertiary prevention encompasses technological interventions for long-term or permanent hearing loss, including devices, such as hearing aids and cochlear implants, which have been shown to be cost-effective.²⁴ Accessibility should be supported by sign-language interpreting and captioning, particularly for educational events such as classroom teaching or conferences. In patients with chronic suppurative otitis media, tympanoplasty has high success in closure of the tympanic membrane, usually also restoring associated hearing loss.²⁵ For children born with hearing loss or who acquire it early in life, communication options include sign-language (bilingual), auditory-oral and auditory-verbal approaches. However, early family engagement is critical in identifying the right communication choice for the child and family, and ensures effective participation in the child's rehabilitation. Person-centred approaches should provide trusted information about options to manage hearing loss that go beyond technological interventions as a solution.

3.1 | What are the barriers and how can they be overcome?

The principles of a public health approach to hearing loss are in place and enunciated in the World Report on Hearing, but many barriers will need to be surmounted before we can expect wide-scale adoption.

The first is the potential low prioritisation of ear and hearing care against other priorities. An international survey in 2013 reported that only around half (40/75) of responding countries had a national strategy for ear and hearing care.²⁶ A 2014 report found that 6 of 22 countries in the Americas had no legislation on occupational noise exposure.²⁷ And a survey in 2020 found that neonatal hearing screening is not available to 38% of the world population, particularly in sub-Saharan Africa.²⁸ Perhaps, the most important aspect of the World Report on Hearing is its documentation of evidence and use of economic modelling, to win both the heart and minds of policymakers. The report describes the effects of hearing loss on individuals and societies, summarises data on the effectiveness of hearing screening programmes for different ages, and incorporates evidence on the effectiveness of interventions, including devices, such as hearing aids, cochlear implants and bone-conduction aids. The included evidence-based interventions are all supported by estimates of the financial return on investment: data critical to those controlling health budgets.

A second important barrier is the lack of appropriately trained human resources. Recent analyses report that in low-income countries there is less than one audiology or ENT specialist per million people in 93% and 78% of countries, respectively, with capacity not much better in lower-middle-income countries.²⁹ Several strategies to counter this deficiency are explored in the report, but none represent an easy solution. In countries where there are few or no specialists, training additional specialists seems an obvious answer, but a lack of trained specialists in a country usually means a parallel lack of infrastructure for training more specialists.³⁰ Task sharing is another option discussed, which enables greater access through training health workers to screen and manage non-complex ear and hearing care problems. Evidence for this option is currently limited but emerging.^{31,32} More research is needed to demonstrate the effectiveness of care, as well as policies that expand access, and here ear and hearing care professionals (as gatekeepers) could play a critical supportive role. Importantly, barriers to health access for vulnerable populations in high-income countries typically are centred on culturally and linguistically accessible care rather than simple numbers of professionals,^{33,34} and experience suggests the same to be true in low-income settings.³⁵ Community health workers may be critical to bridge this cultural/linguistic divide.

Technological innovations can support the model of task sharing through telehealth: capture of relevant data sent to a remote more highly trained hearing health professional to diagnose and provide rehabilitation as needed (Figure 1). This model may also incorporate semi-automated screening of hearing on smartphones and tablets for assessing older children and adults³⁶ and emerging technologies for semi-automated otoscopy³⁷ or clinical history algorithms.³⁸ One major challenge with this approach is that the cases referred



FIGURE 1 Digital otoscopy performed by a health worker in Cambodia [Colour figure can be viewed at wileyonlinelibrary.com]

still need to be assessed and managed by health workers with higher levels of specialisation. Further, the most common option for rehabilitation, the air conduction hearing aid, has traditionally required specialist input to supply and fit, and while self-fitting hearing aids have been developed and evaluated, more work is needed to integrate this into a care pathway.³⁹

The third major barrier is access to assistive technologies. In 2013 the WHO estimated that less than 3% of people in low- and middle-income countries who would benefit from hearing aids have access.⁴⁰ A 2019 report by the AT2030 Initiative⁴¹ (a programme funded by the UK government to increase access to assistive technologies) revealed that hearing aid technology appears to have plateaued in performance, yet the costs of air conduction hearing aids remain high, and current service delivery models are prohibitive for low- to middle-income countries and other low-resource communities. The limited penetration of hearing aid technology is in stark contrast to other technology, such as mobile phones, which are now accessible to the majority of the global population. 90% of the global hearing aid market is through only five companies, with hearing aids predominantly fitted privately, which can be lucrative for both companies and providers. These five companies appear to have little or no investment in the market for low-cost aids, or in aids fitted through technology-assisted automation, and instead, a lack of quality standards or regulation means the market for low-cost aids is plagued by products with poor performance (Figure 2). These issues are paralleled for cochlear implants: performance appears to have plateaued, there are also five manufacturers that dominate the market, and high costs mean that less than 1% of individuals in LMICs who could benefit from a cochlear implant have access to this technology.^{42,43} Worryingly, we are aware of at least one low-cost single-channel cochlear implant (AIC cochlear implant, Beijing Hengzhuo Technology Holding Co Ltd, China) which has been marketed in South-East Asia and for which we were unable to obtain any patient outcome data. The solution may lie in both greater and less regulation: establishing international certification to allow a product to be sold as an assistive hearing



FIGURE 2 A potentially substandard low-cost air-conduction hearing aid from the Chinese brand Vaanca. Currently for sale on the amazon.co.uk website for GBP £20, but associated with poor customer reviews [Colour figure can be viewed at wileyonlinelibrary.com]

device, but in parallel promoting a high-quality direct-to-consumer model for supply of devices for adults, eliminating the need to see an audiologist. National-level regulation of over-the-counter hearing aids in the United States has recently been introduced as an attempt to do just this: ensure quality while decreasing costs, and may serve as a model in changing the hearing technology landscape.^{44,45} However, some individuals will continue to require audiological support in adjusting to their loss and in becoming proficient in using hearing technology.

The final major barrier is the stigma and misunderstanding associated with ear and hearing disorders, an issue more prevalent in LMICs. This may include social embarrassment from a foul-smelling chronically infected ear, the use of traditional but ineffective remedies, such as urine to treat ear discharge, or refusal to grant a child a hearing aid because of associated stigma.⁴⁶ For children born with severe or profound hearing loss, the consequences can be more serious. Community beliefs and attitudes may mirror those for other disabilities,⁴⁷ including blame on supernatural forces or on apparent misdeeds of ancestors, parents or the child themselves. Deaf children may be assumed to lack intelligence, be denied access to education and become ostracised or be at risk of sexual or physical violence. However, social and self-stigma are also barriers limiting uptake to hearing healthcare for older adults in high-income countries,⁴⁸ even where hearing services are fully government-subsidised. Tackling these many challenges will require significant government commitment and action, including policies and legislation to empower and tackle discrimination against those affected, their families and their communities, and financial and human resource investment to improve access to sign languages and captioning, and to community-based educational interventions which aim to increase awareness and understanding of hearing loss.

4 | LOOKING FORWARD

The World Report on Hearing will no doubt prove a valuable resource, not least because it summarises relevant evidence and includes a

toolkit of interventions and recommendations to implement for ear and hearing care. But implementation must include multi-sector stakeholder collaboration to ensure programmes address both the supply and demand sides of access to care, meet the needs of communities across the life span and have appropriate governance, funding, and enabling policies and legislation to ensure sustainability. To fully realise, the aim of “hearing care for all” requires engagement from a broader field than only policymakers. Audiologists, ENT specialists, speech and language therapists or other professionals involved in caring for those affected by hearing loss need to be vocal in publicising and supporting this agenda. Individuals with hearing loss, their representatives and community organisations must have a place at the table. The academic community needs to further the evidence on effectiveness of current interventions and explore new interventions, both medical and non-medical, including through collaboration with other disciplines or with technology companies to explore innovation in diagnostic tools, service delivery models, and assistive devices.

This is a huge challenge but also a huge opportunity—one that ear and hearing care professionals must take up in partnership with patients, consumers, communities, industry and policymakers to make lasting change for individuals with hearing loss worldwide.

CONFLICT OF INTEREST

There are no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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