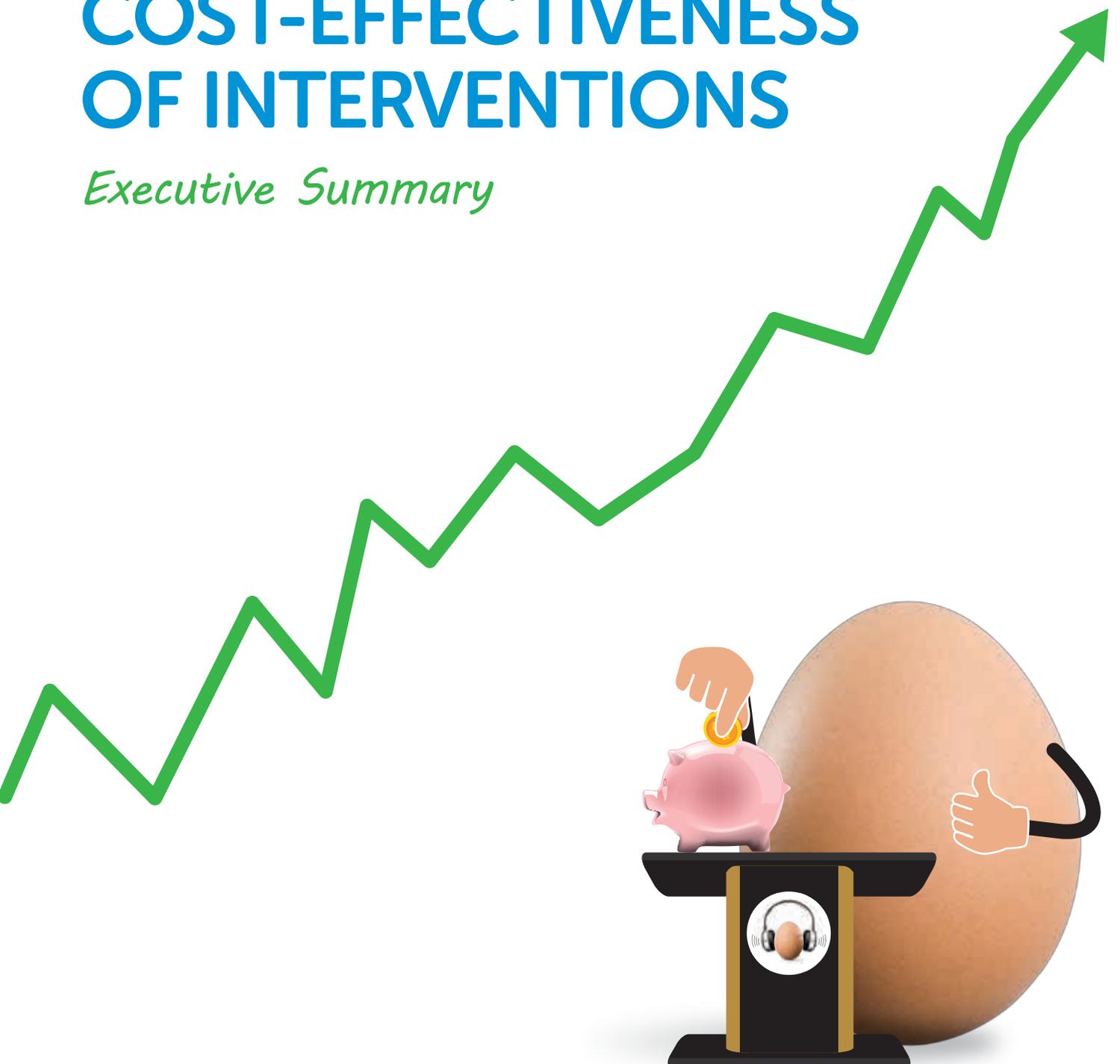


GLOBAL COSTS OF UNADDRESSED HEARING LOSS AND COST-EFFECTIVENESS OF INTERVENTIONS

Executive Summary



ACTION FOR HEARING LOSS

Make a Sound Investment

Introduction

Millions of people across the world live with unaddressed hearing loss and lack access to required ear and hearing care services. While the impact of hearing loss on individuals and families is well established, there have been relatively few attempts to assess at its economic costs, especially in low- and middle-income countries and at the global level.

Without suitable interventions, hearing loss poses a significant challenge in the lives of those affected and their families: it affects communication and language learning and is associated with lower academic achievement and fewer job opportunities. Unless suitable care is made available, the inevitable exclusion from communication causes feelings of loneliness, isolation and frustration; in elderly individuals it may also lead to cognitive decline.

Today, the causes of hearing loss are well known and preventive strategies have been identified. The technology is available to detect hearing loss at the earliest stage of development, and intervention techniques are well established. Early intervention programmes have been implemented in many parts of the world and are improving access to ear and hearing care services. People who have hearing loss are acquiring communication skills and can have the same opportunities in life as their hearing peers.

Despite the evident potential to intervene, millions are still facing the adverse consequences of hearing loss, without receiving required interventions. Only a handful of countries – mostly high-income countries – have developed strategies to address hearing loss. Other health priorities competing for limited resources were identified as the main barriers to provision of ear and hearing care services in underserved populations.

Knowledge of the economic costs associated with any health problem such as hearing loss, and of potential costs that might be avoided, is a powerful tool for policy-makers in planning the best use of their health-care budgets.

Purpose

This report provides an analysis of the global costs of hearing loss. It sets out different components of cost and, where feasible, attaches monetary values to such elements as direct market-value costs typically incurred by health-care systems for hearing loss, as well as costs that fall beyond the health system, e.g. for special educational support for hearing-impaired children. The report also highlights the adverse impacts of hearing loss on the potential for individuals to contribute to the economy through participation in paid work and considers some of the broader societal impacts of hearing loss.

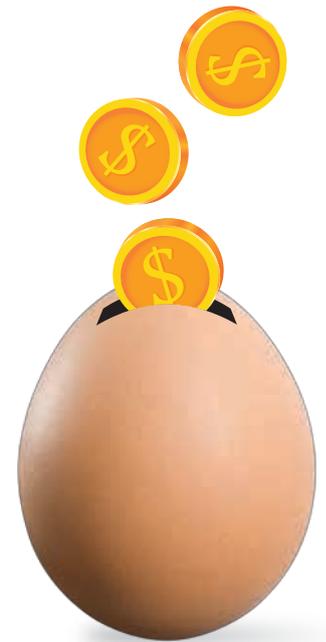
Finally, the report also reviews evidence on the cost-effectiveness of interventions to address hearing loss and presents the main findings.



Cost of hearing loss

All costs are calculated for moderate or higher degrees of hearing loss, i.e. hearing level greater than 35 dB in the better-hearing ear. The costs are estimated in 2015 international dollars (a unit of currency defined by the World Bank and represented simply as \$ throughout the report).

- The cost to the health-care sector, for adults and children, is estimated to be in the range \$67–107 billion. This does not include the cost of providing hearing devices such as hearing aids and cochlear implants.
- A conservative estimate of the cost to the education sector of providing support to children (5–14 years) with unaddressed hearing loss is \$3.9 billion. This assumes that only children with at least moderately severe hearing loss (hearing level greater than 50 dB in the better-hearing ear) require educational support.
- Between 63% and 73% of the global costs to health and education sectors are incurred in low- and middle-income countries.
- Loss of productivity, due to unemployment and premature retirement among people with hearing loss, is estimated to cost \$105 billion annually.
- Societal costs – the result of social isolation, communication difficulties and stigma – add a further \$573 billion each year. These costs are calculated on the basis of the monetary value attached to avoidance of a year lived with disability and draw upon disability-adjusted life years (DALYs) attributed to hearing loss.



Overall, this analysis suggests that the annual cost of unaddressed hearing loss is in the range \$750–790 billion globally. The analysis takes no account of certain aspects of hearing loss, the costs of which are not well documented in literature, such as the costs of providing informal care, or preschool learning and higher education for people with unaddressed hearing loss.

The analysis does not take into account certain aspects of hearing loss, the costs for which are not well documented in literature, such as costs of informal care provision, higher education and pre-school learning for persons with unaddressed hearing loss.

The analysis was limited by the absence of country-specific data, especially from low- and middle-income countries; nevertheless, it provides a realistic but conservative illustration of the costs associated with unaddressed hearing loss.

Interventions to address hearing loss

A review of available literature reveals the cost effectiveness of various interventions with respect to hearing loss. These include:

- **Prevention:**
 - Evidence suggests that prevention of hearing loss through early identification and management of otitis media is highly cost-effective.
 - A significant proportion of hearing loss is attributable to noise exposure. Directing government resources towards measures for prevention of noise-induced hearing loss is thus an appropriate option.
- **Screening programmes:** Overall, early identification of hearing loss through screening of newborns, schoolchildren and adults over 50 years of age is found to be cost-effective.
 - In neonates, universal screening strategy yields good economic returns in the long term. However, it is important to establish a tracking system for optimal benefit.
 - Screening of school children is shown to be an economically attractive intervention for mitigation of hearing loss.

- Use of hearing devices:
 - Use of hearing aids is shown to be cost-effective, especially when the use is continuous and accompanied by audiological rehabilitation.
 - Cochlear implants are shown to be most cost-effective when fitted unilaterally and at an early age. However, even when implants are fitted later in life, or provided in both ears, the benefits exceed the costs incurred.

There are a number of other interventions which are effective in preventing hearing loss or reducing its impact. These include strategies such as strengthening maternal and child care programmes; training of health workers in ear and hearing care; implementing regulations for prevention of ototoxic hearing loss; raising awareness on hearing health and making information accessible through captioning services and sign language interpretation. Though the review did not identify studies assessing the cost-effectiveness of these interventions, their potential in addressing hearing loss needs to be highlighted.

Conclusions:

- This first global analysis shows that unaddressed hearing loss poses substantial costs to the health-care system and to the economy as a whole.
- Current estimates show that most global health-care and education costs linked to hearing loss are incurred in low- and middle-income countries.
- A number of public health interventions for prevention and early identification of hearing loss are cost-effective.
- Provision of hearing devices is a cost-effective strategy, especially when used regularly and supported with rehabilitation services.

Recommendations:

- Hearing loss must be addressed as a public health issue.
- There is a need for policymakers to allocate resources for and plan strategically to promote access to ear and hearing care.
- Public health strategies should address prevention, screening and early intervention of hearing loss.
- Country-specific data on the cost of unaddressed hearing loss and cost-effectiveness of interventions should be gathered to strengthen available evidence.

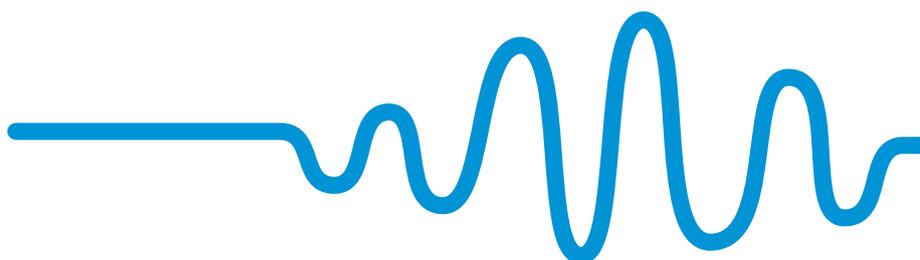
A recent editorial in the Lancet stated that "hearing loss cannot and must not continue to be a silent epidemic". Despite the magnitude of impact of hearing loss across the world, ear and hearing care services remain out of reach of many who need them. Through this report, WHO aims to highlight this issue, its high economic impact and the cost benefits of addressing it.

Action for hearing loss: make a sound investment!



**Department for Management of NCDs, Disability,
Violence and Injury Prevention (NVI)**

World Health Organization
20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel +41 22 791 1466
whopbd@who.int



ISBN 978-92-4-151204-6

© WHO 2017. Some rights reserved.

This work is available under the CC BY-NC-SA 3.0 IGO licence.

Detailed report can be accessed at:
www.who.int/pbd/deafness/world-hearing-day/2017/en