

Developing countries, developing hearing health



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The University of Hong Kong

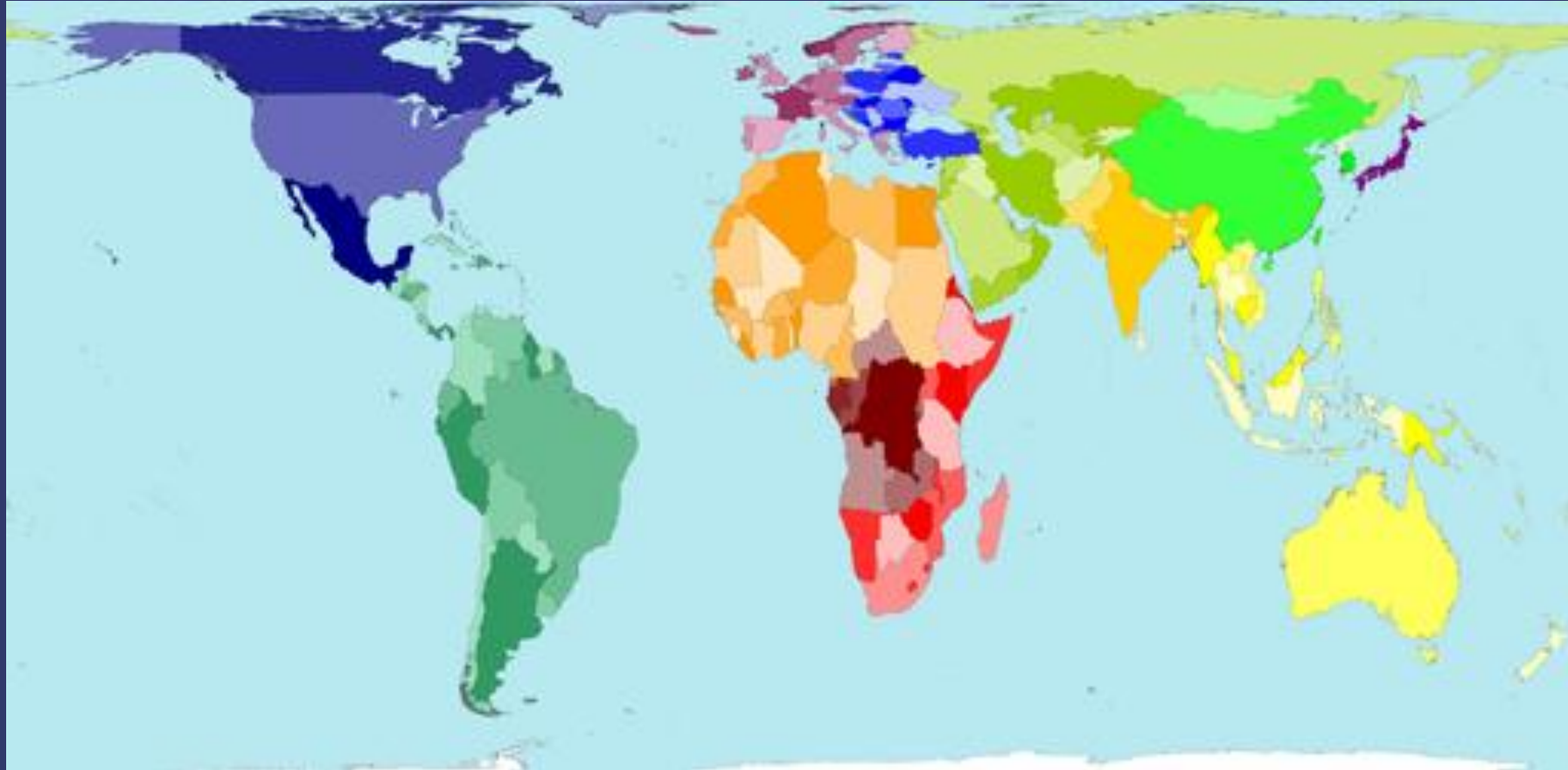


Global perspective

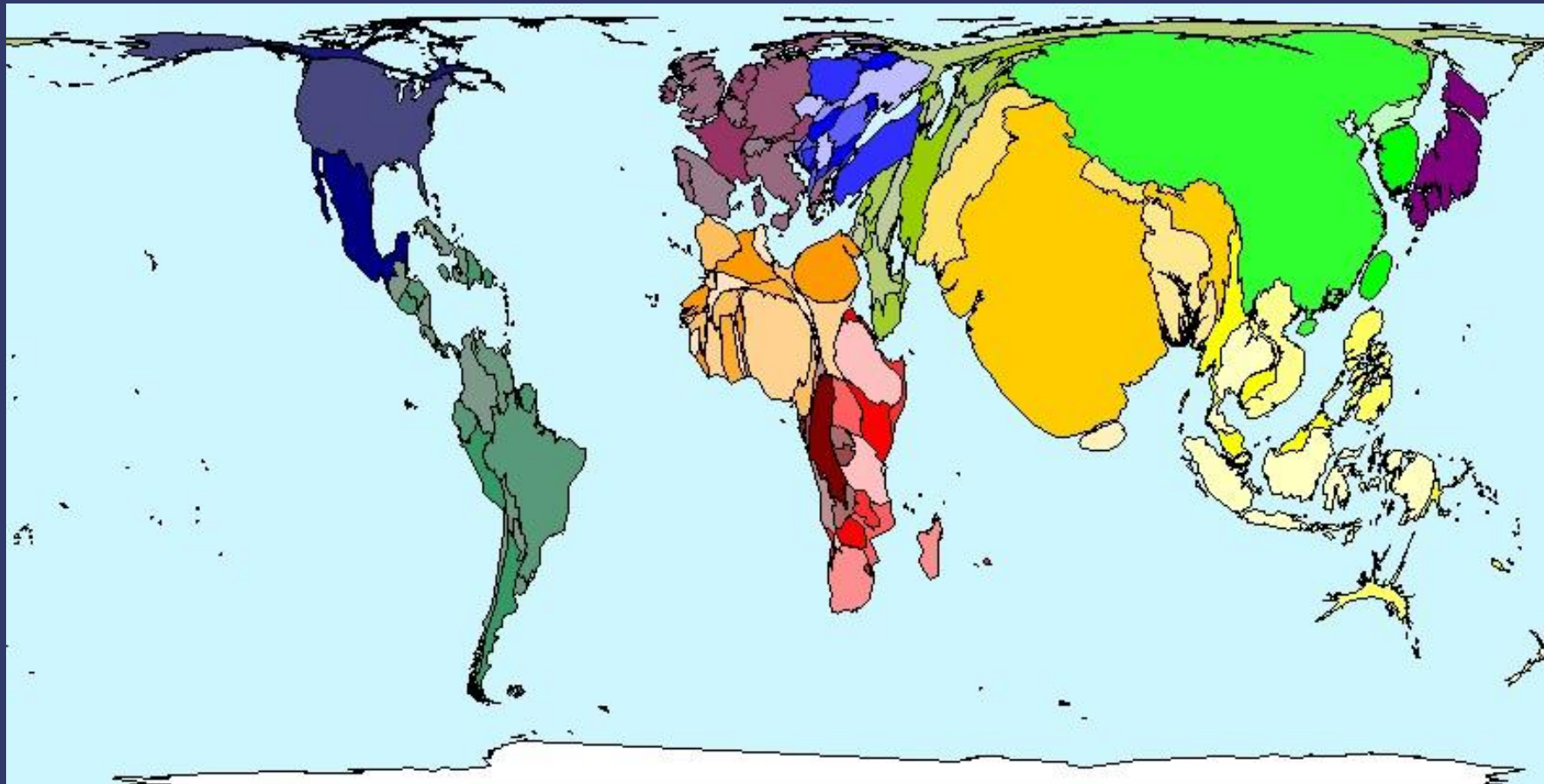
“The health industry focuses on people with the greatest ability to pay rather than the greatest need for care”

P. Baxandall, *Dollars and Sense*, 2001

The world as it is

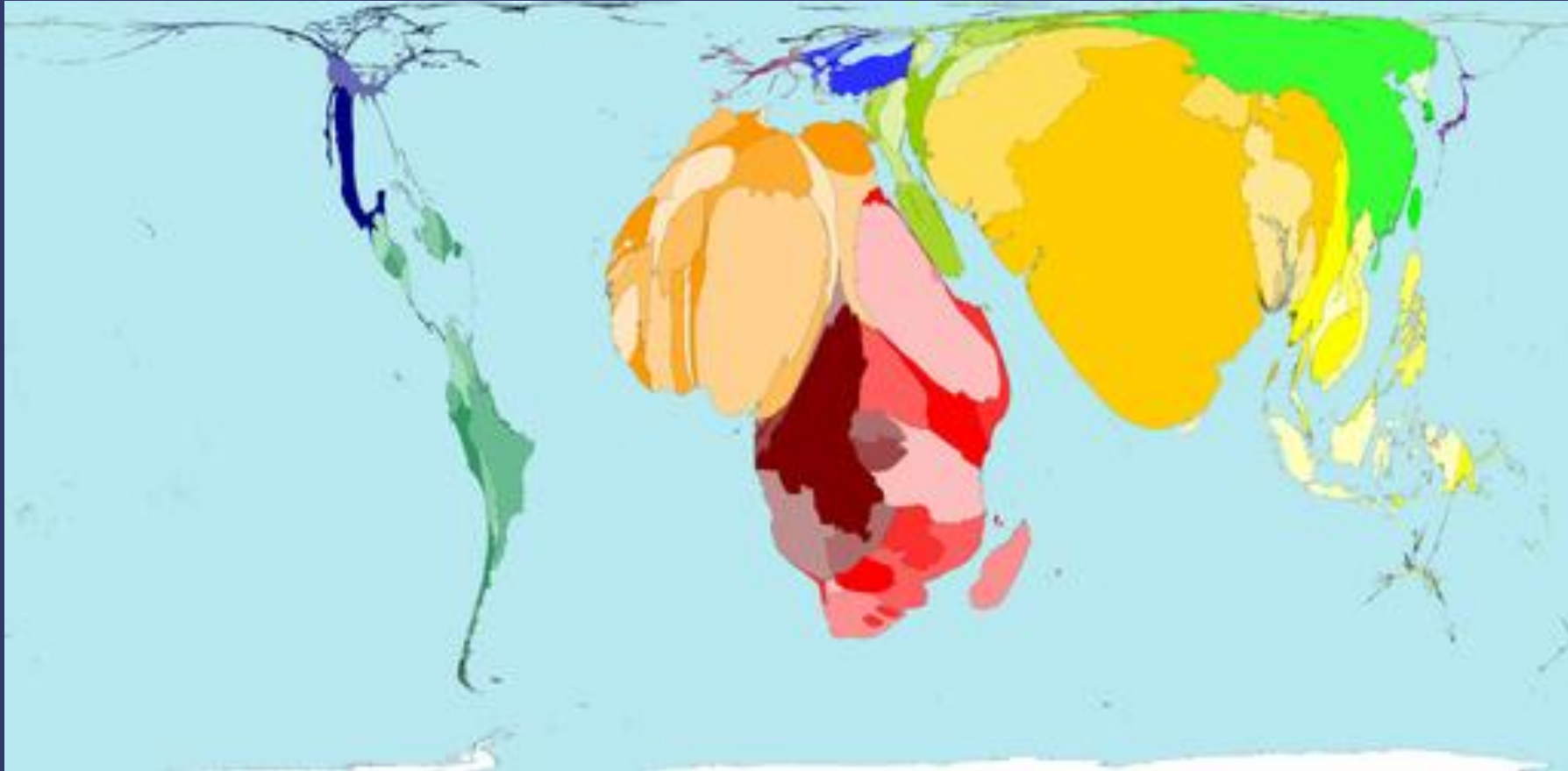


The world as it is



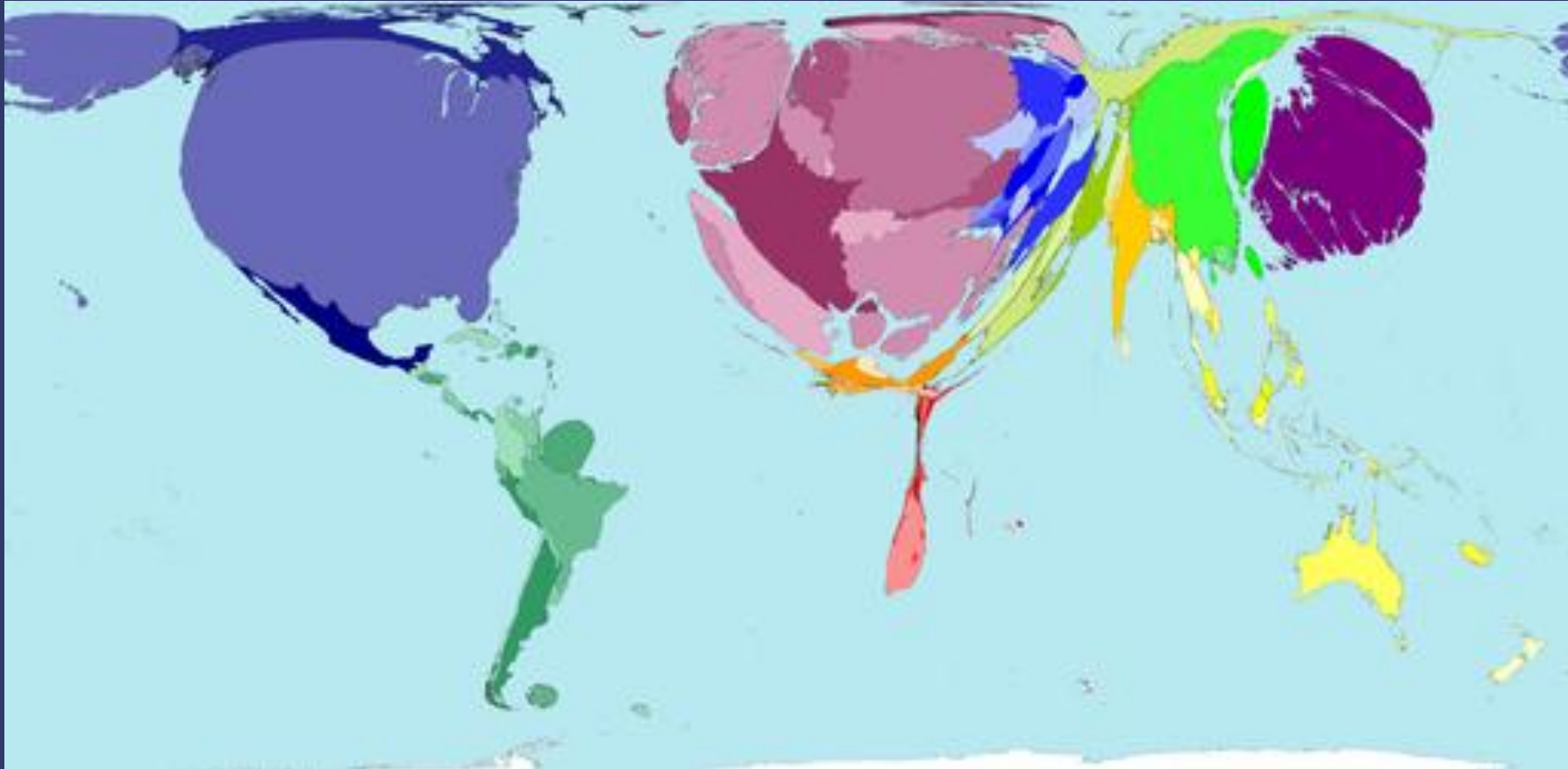
...in terms of population

The world as it is



...in terms of infant mortality

The world as it is



...in terms of government spending on health care

Global burden of hearing loss



- WHO's recent estimate (2013) is that 360 million people in the world have disabling hearing impairment
- Two-thirds of these people live in developing countries
- 10% of all people with disabling hearing impairment are *children*

Global burden of hearing loss

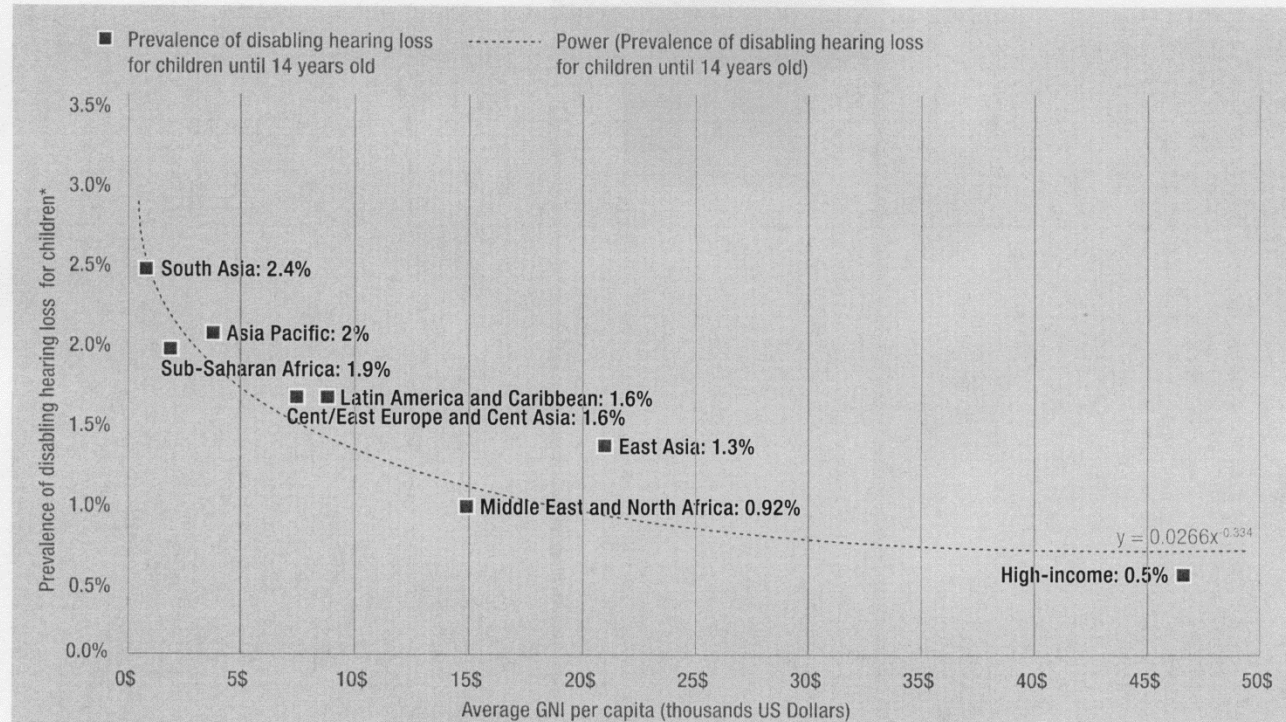


FIG. 1 Comparison of hearing loss prevalence in children with gross national income, WHO, 2011 estimates

Global burden of hearing loss

“The health industry focuses on people with the greatest ability to pay rather than the greatest need for care”

- This is also true for **hearing health care**
- Less than 2.5% of the potential market in developing countries is now supplied with hearing aids



Global burden of hearing loss



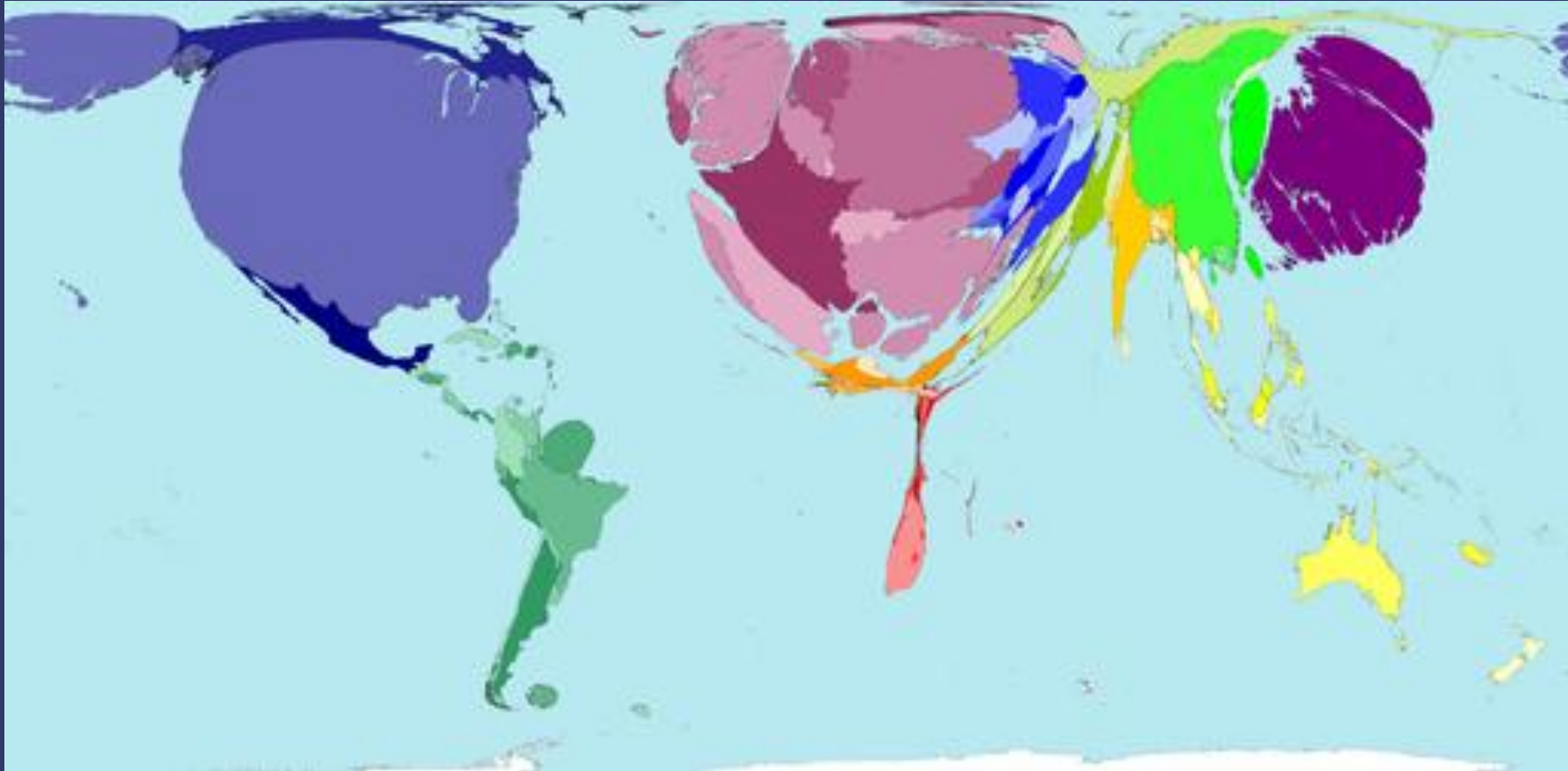
- Less than 10% of children in developing countries have access to *any* early intervention
- Less than 2.5% have hearing aids
- How to improve this situation?



Global burden of hearing loss

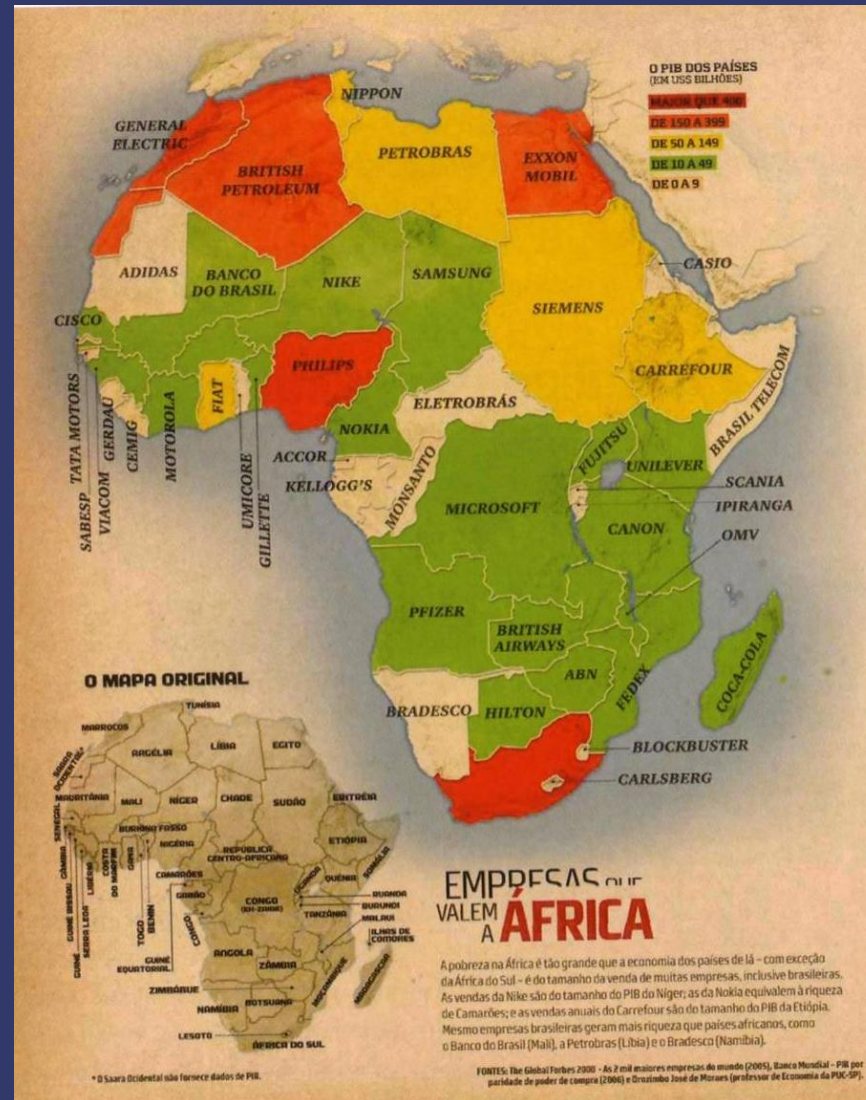
- Three main barriers to access to hearing aids:
 - Cost
 - Skilled hearing health workers
 - Public awareness

Barriers to access: costs of hearing aids



government spending on health care

Barriers to access: costs of hearing aids



- Most African nations have smaller GDP than many large (and not-so-large) corporations

Barriers to access: costs of hearing aids





Barriers to access: costs of hearing aids

- in the 49 least-developed countries, per capita income is \$US760 or less
- average cost of hearing aids is \$200-\$500 in developing countries
- annual cost of hearing aid batteries \$36
- 32 million hearing aids needed in DCs each year – only 750,000 distributed



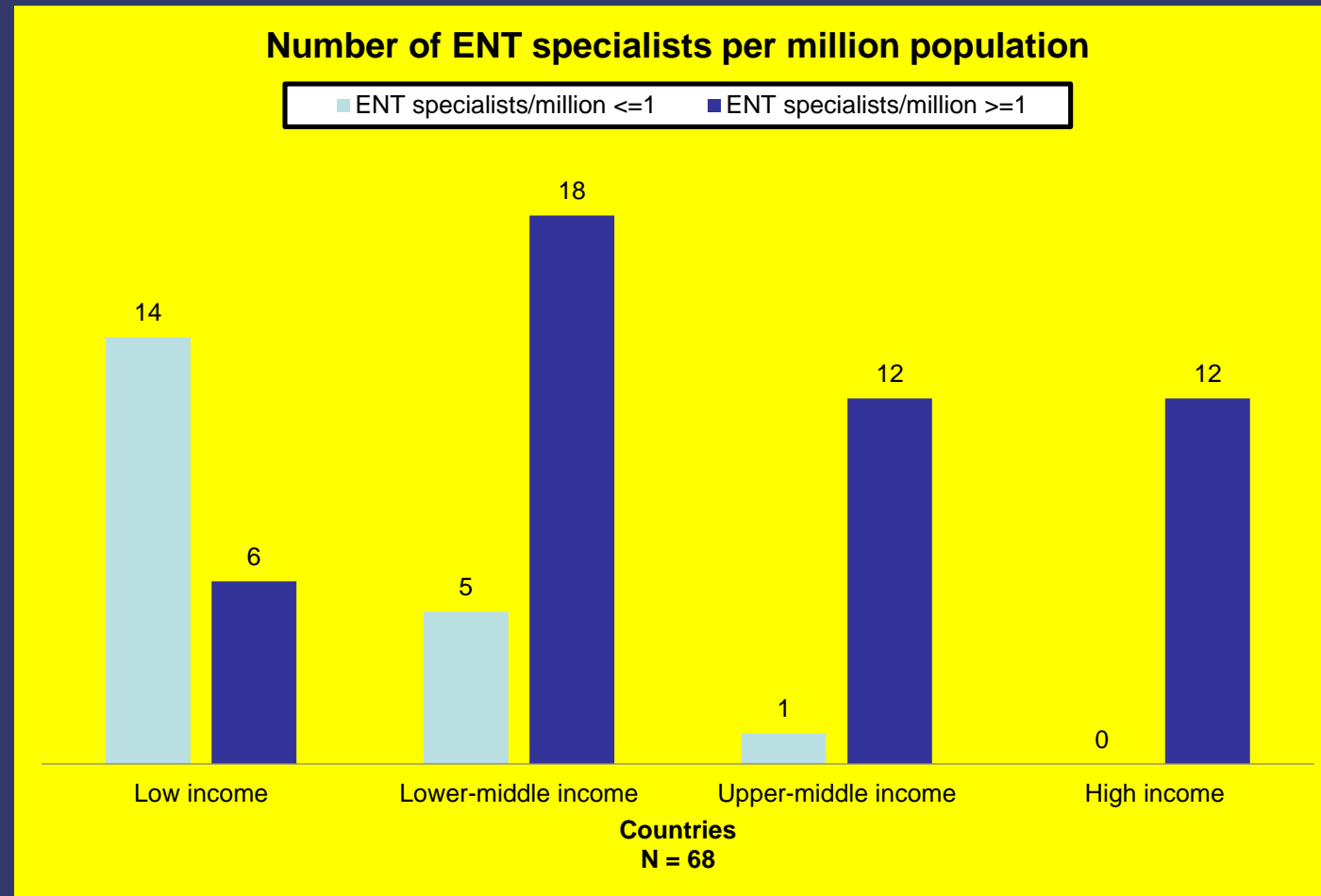
GDP and target hearing aid cost*

United States	\$51,704	\$1,550
Switzerland	\$44,864	\$1,350
South Korea	\$31,950	\$950
Brazil	\$11,747	\$350
China	\$9,055	\$270
Sri Lanka	\$6,046	\$180
Vietnam	\$3,788	\$115
Uganda	\$1,424	\$45

*3% of GDP

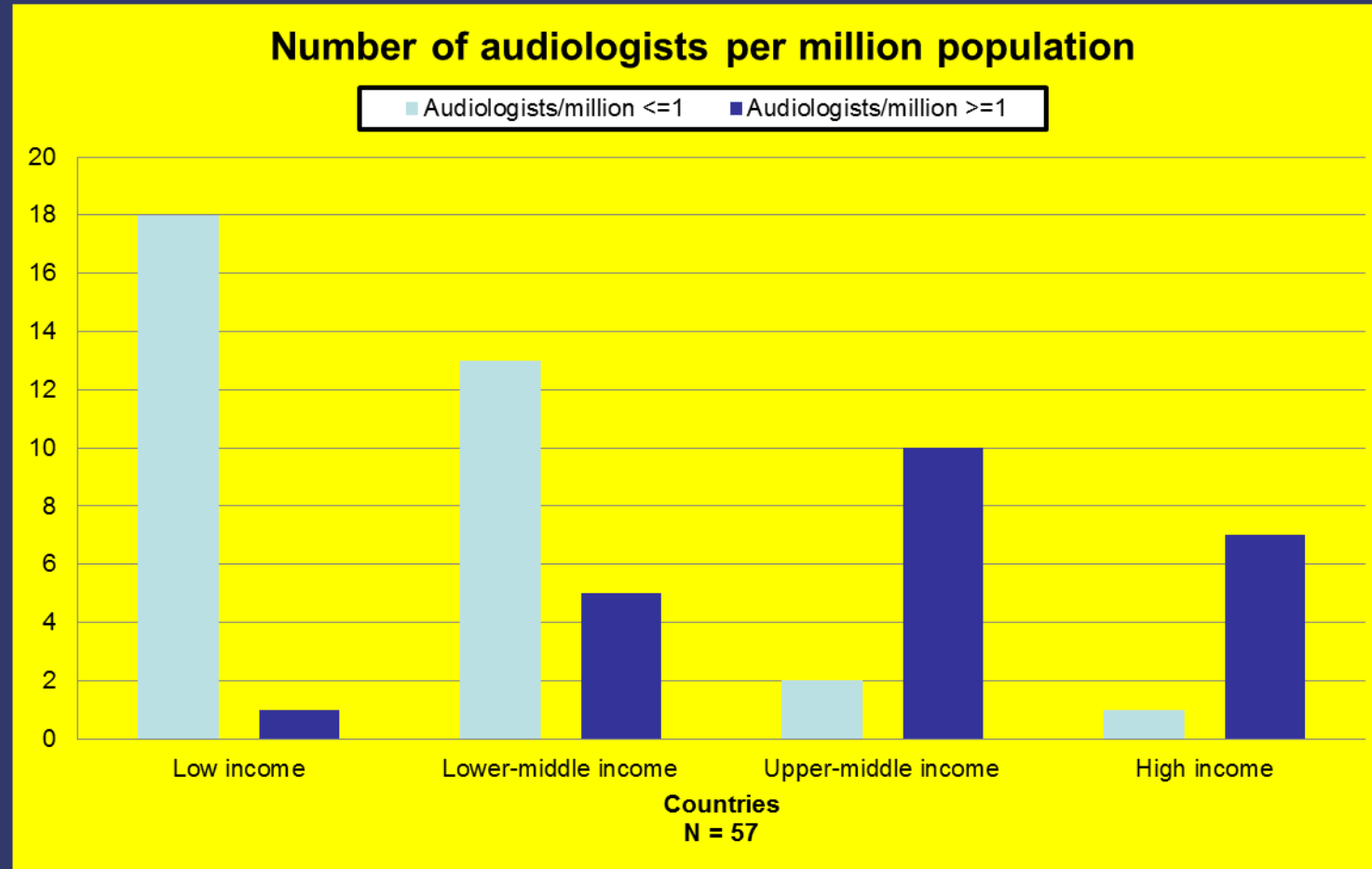


Barriers to access: lack of trained personnel



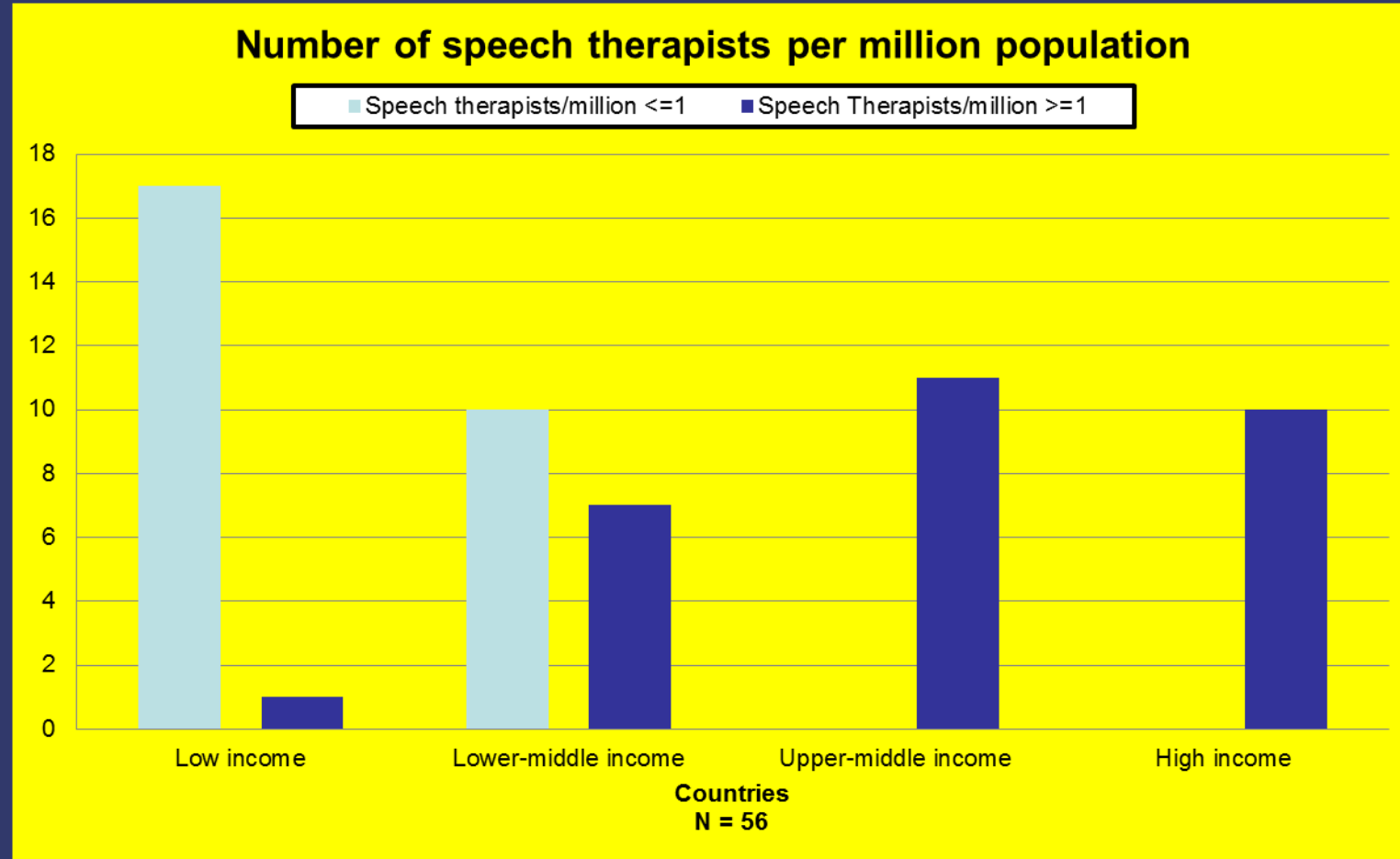


Barriers to access: lack of trained personnel

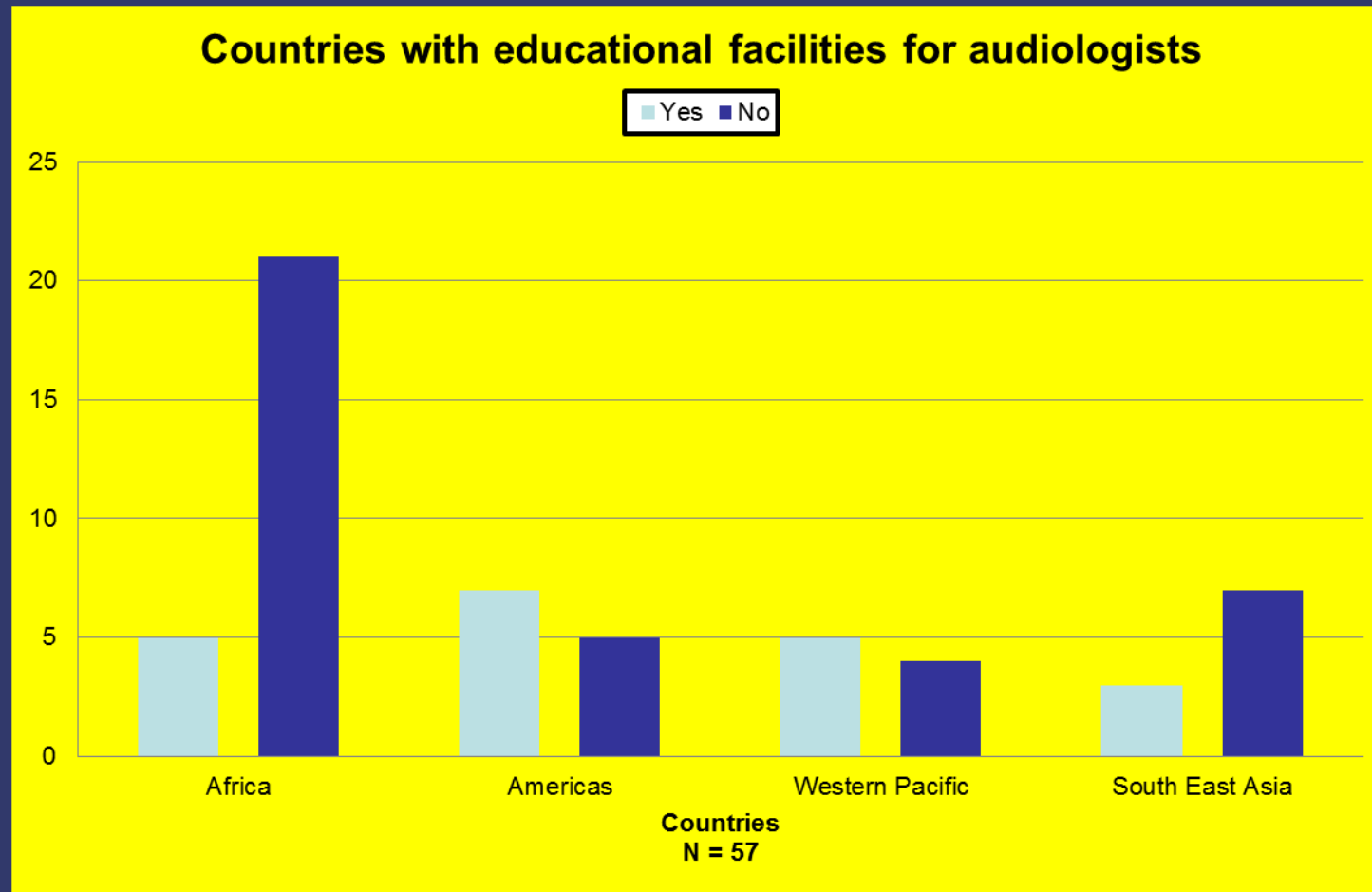




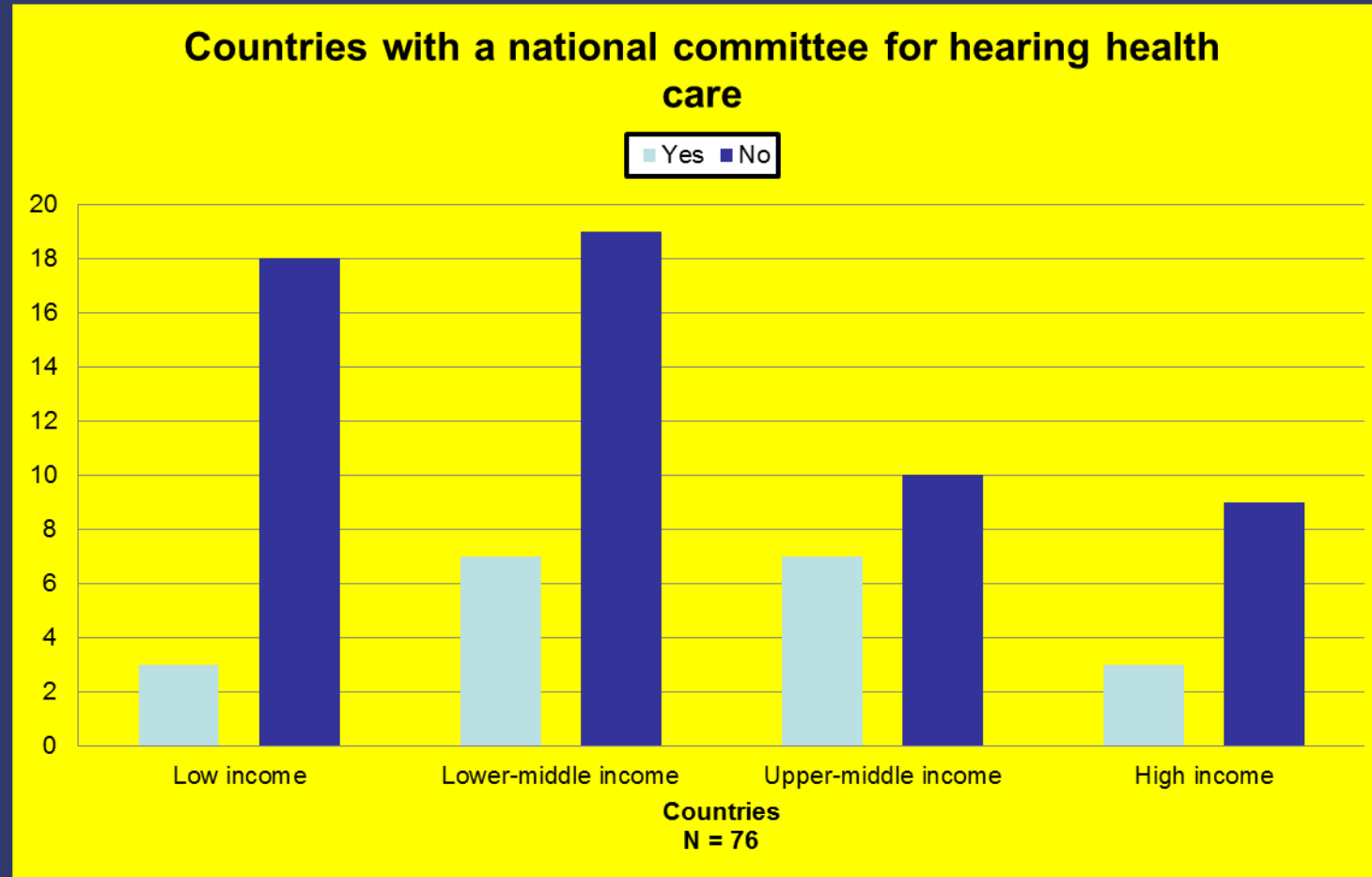
Barriers to access: lack of trained personnel



Barriers to access: lack of trained personnel



Barriers to access: limited public awareness

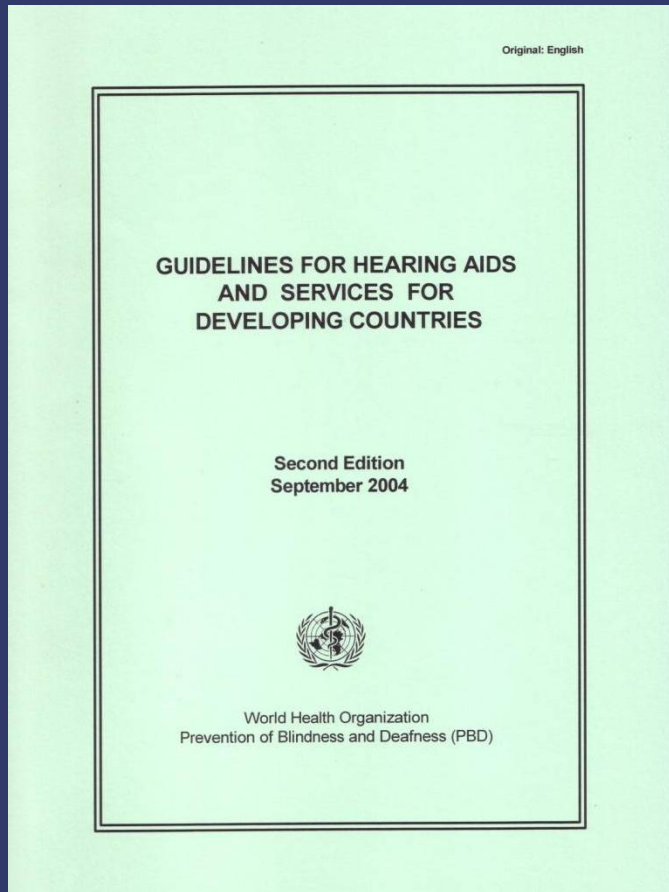


World Health Organization initiatives



- WHO campaign to “find ways to enable the provision of affordable, appropriate hearing aids and the services to fit them”
- Based on the 1995 World Health Assembly resolution to “promote and support ... the optimal prevention and treatment of major causes of hearing impairment”

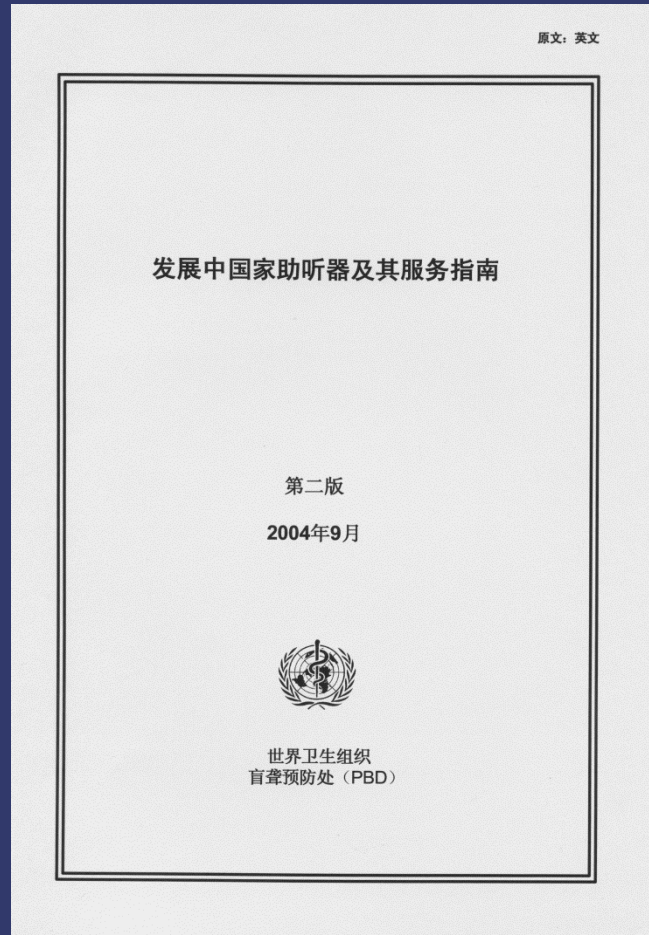
World Health Organization initiatives



- Campaign includes *Guidelines* (2004) on appropriate minimum requirements for hearing aids, earmoulds and delivery services in developing countries

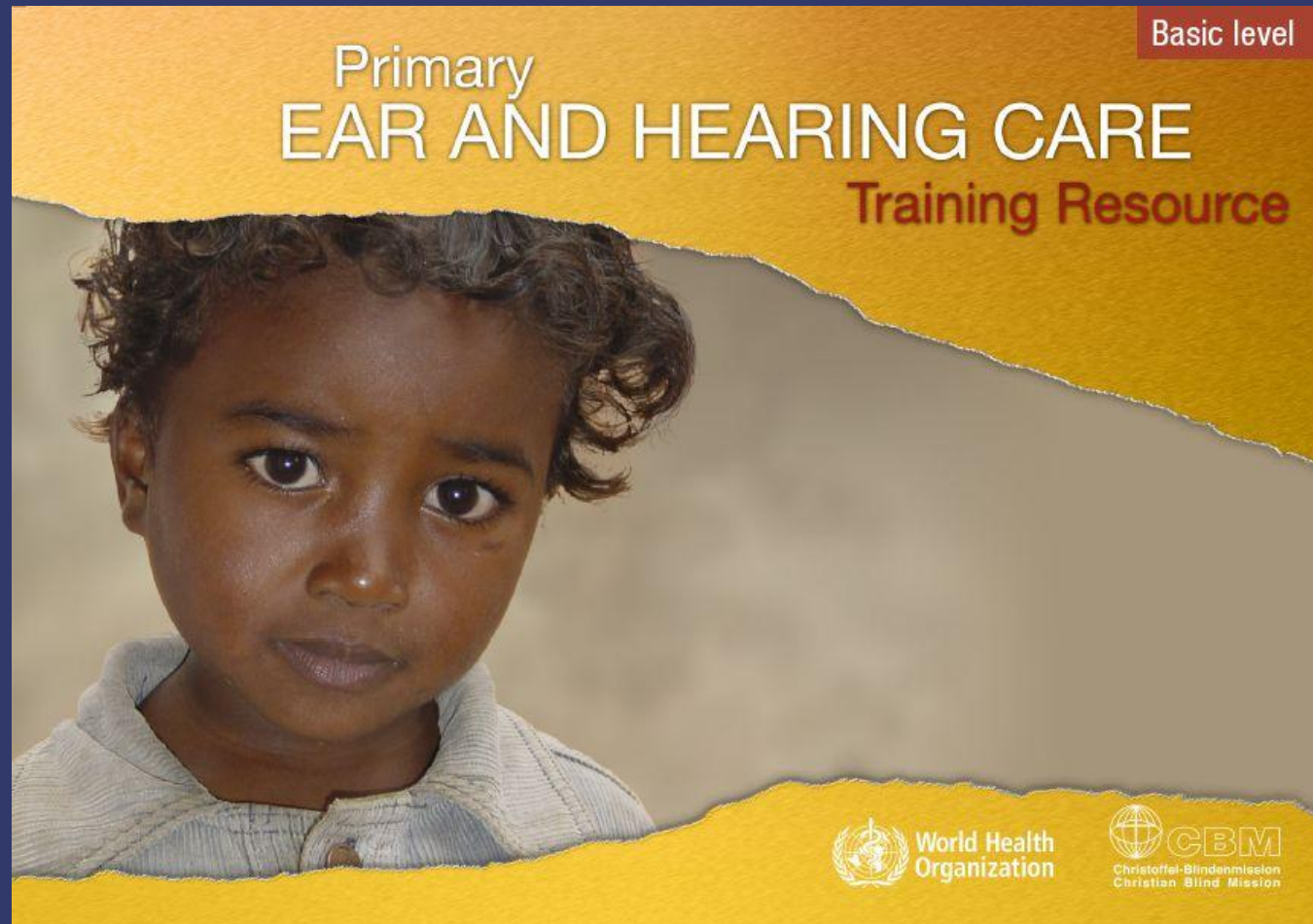


World Health Organization initiatives



- *Guidelines (2004)* have been translated into a number of languages, including Chinese

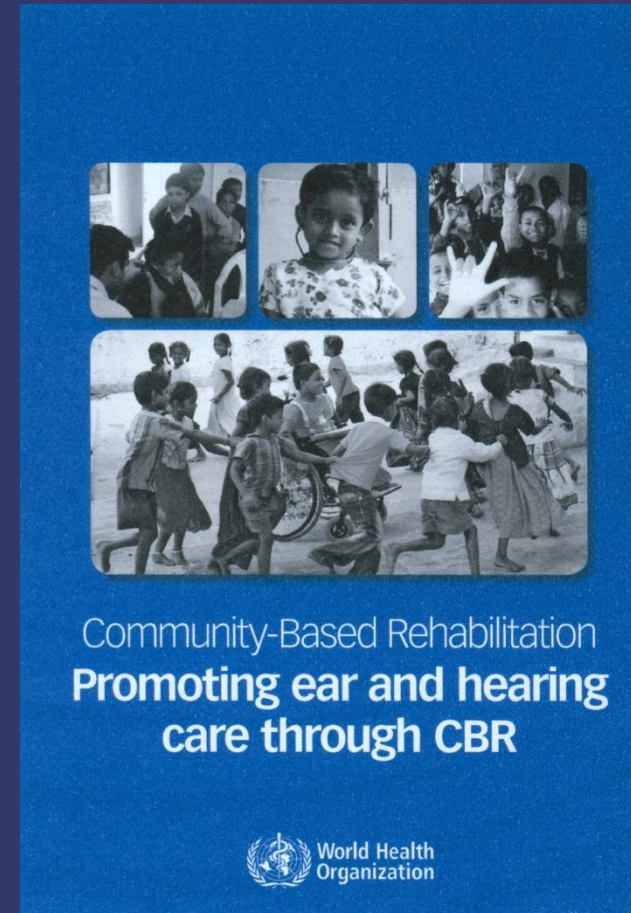
Community-based hearing health



1. Basic level
2. Intermediate level trainer manual
3. Intermediate level student workbook
4. Advanced level

Community-based hearing health

- Work in this area gives very basic support to children and families in poor communities
- Suggests practical ways to include ear and hearing health care in community programs



Community-based hearing health

- Better Hearing Philippines
- Over a five year period trained more than 3,000 rural health workers in basic hearing health care
- Organized affordable hearing aid fitting in underprivileged communities
- Developed a publicity campaign aimed at raising awareness of hearing disability and ways to reduce disability



Community-based hearing health

- China Rehabilitation Research Center for Deaf Children
- Center for research excellence in China
- Conducts research into all aspects of hearing loss in children
- Actively involved as an international partner with WHO and WWHearing



Community-based hearing health

- Recent CRRCDC work with WWHearing
- An example of **health systems** research and development



Community-based hearing health

- Involved training teachers to assess children for hearing loss and fit hearing aids
- Guangxi Province, China



Community-based hearing health

- 400 children with hearing loss were fitted with free hearing aids
- Fitting outcomes were carefully followed and the economic costs of fitting in different clinics calculated



Community-based hearing health

- Health care cost per child \$US760 at primary care level
- \$US940 at secondary care level
- \$US1,120 at tertiary care level
- First work to provide clear data on costs and outcomes of fitting children with hearing aids in a developing nation

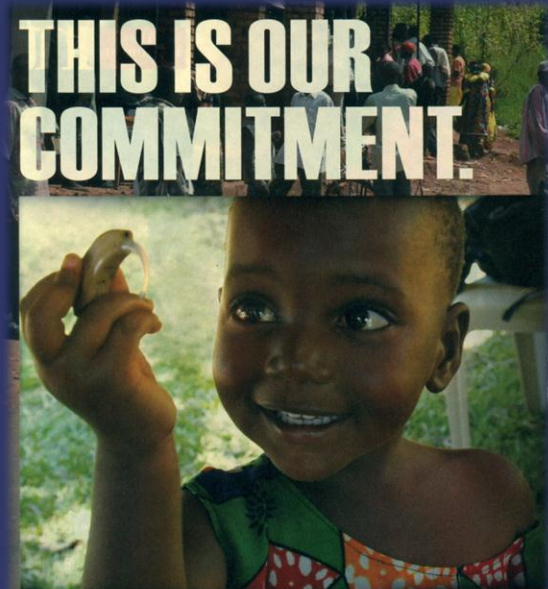


Community-based hearing health

- Mobile ear care services in Ghana, Namibia and Nigeria
- Allow rural children access to professionals
- Assessment and hearing aid fitting services

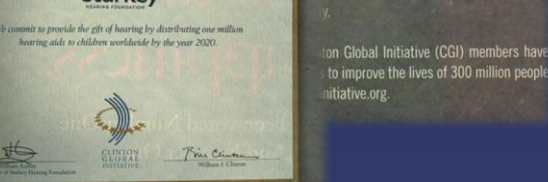


Affordable hearing aids



WHAT IS YOURS?

The Starkey Hearing Foundation commits to giving one million hearing aids to children with hearing loss worldwide within this decade. The commitment reflects Starkey Hearing Foundation efforts in every village—globally. The Foundation's on-site ear impressions, fitting children with custom ear impressions, fitting children with hearing aids, and working with local government officials to ensure that children will hear the sounds of their world.



OticonHearingFoundation™

Fostering a
Community
of **Caring**



EARS.

ONE HEARING TEST FOR YOU.
ONE FOR A CHILD IN NEED.



Affordable hearing aids

- Hearing aid purchase consortiums enable members to buy hearing aids in bulk
- Large price discounts for the organisations involved
- Consortiums purchase reliable, well known hearing aid models that are coming to the end of their sales life in developed countries
- Alternative strategy is to purchase from local manufacturers, e.g., China and India



Affordable hearing aids

- International Humanitarian Hearing Aid Purchasing Program (IHHAPP)
- Based in USA
- Low cost digital hearing aids with feedback and noise management
- 3 models currently available
- Cost: \$US59 \$US67 and \$US83

Affordable hearing aids

- Many features of digital hearing aids helpful in developing countries, for example in noisy schools:
- Wide dynamic range compression
- Noise reduction algorithms
- Directional microphones





Affordable hearing aids

- *WHO Hearing Aid Technology Preferred Product Profile*
- PPP now at final stage of development
- Lists the *essential* design features an affordable digital hearing aid needs
- Intended to be a way of stimulating the hearing aid industry to produce products that meet market needs in developing countries

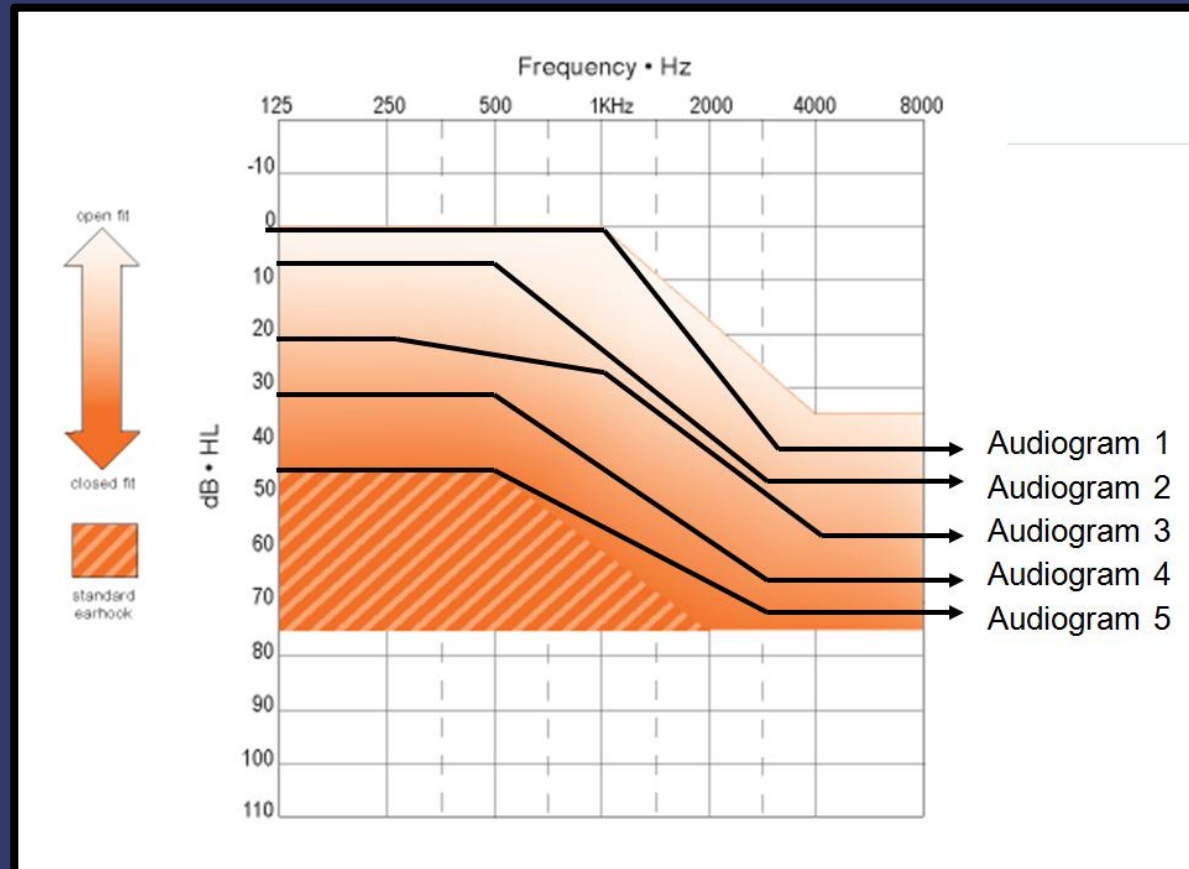


Affordable hearing aids

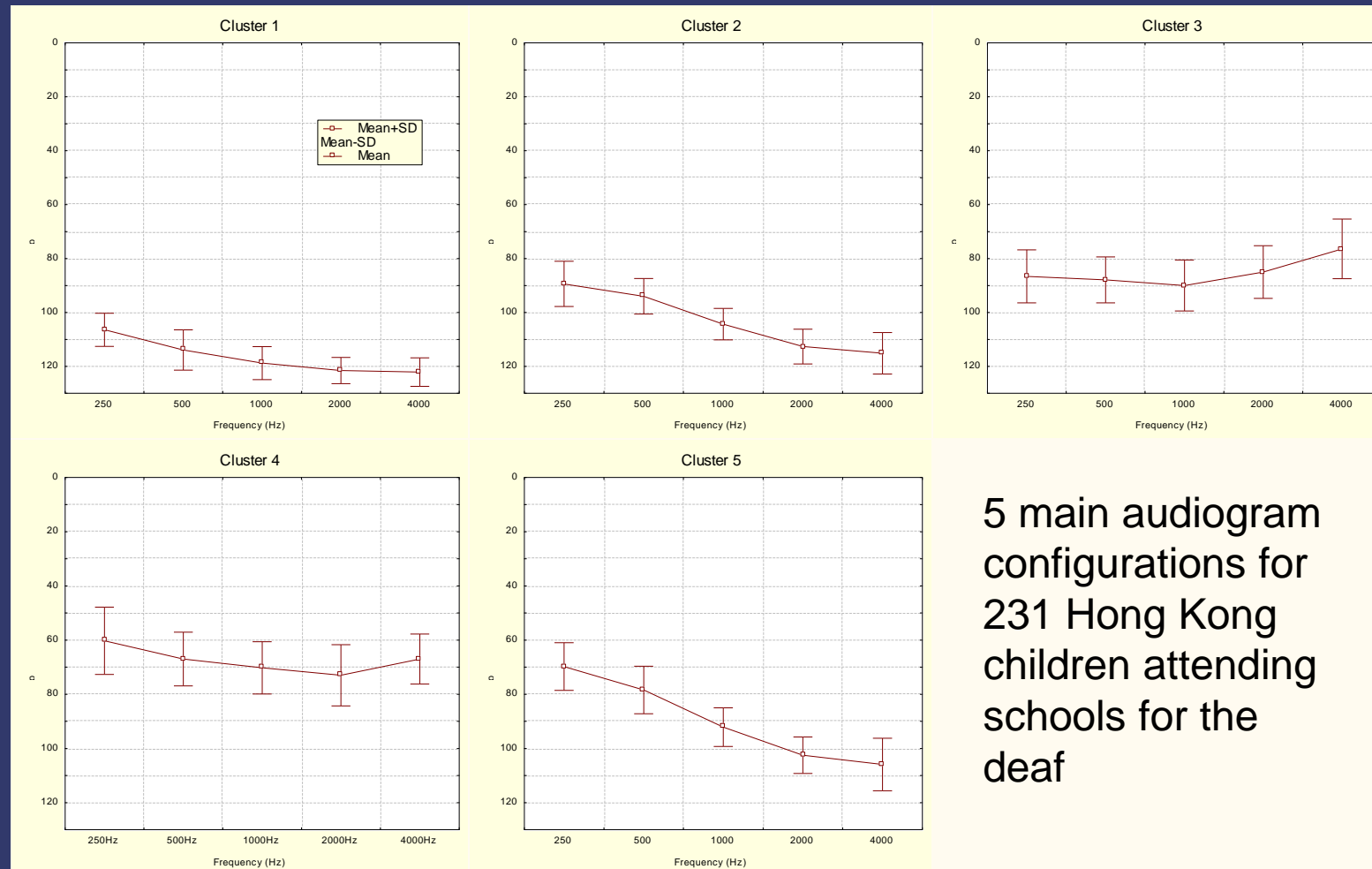
- PPP also lists *desirable* design features for affordable digital hearing aids
 - Nanotechnology for dust and water resistance
 - Trainable hearing aids
 - Hearing aids with preset prescription settings
- Other technology may help reduce costs
 - Tele-audiology
 - Instant earmold fitting systems

Affordable hearing aids

Preset programs for common audiogram types



Affordable hearing aids



5 main audiogram configurations for 231 Hong Kong children attending schools for the deaf

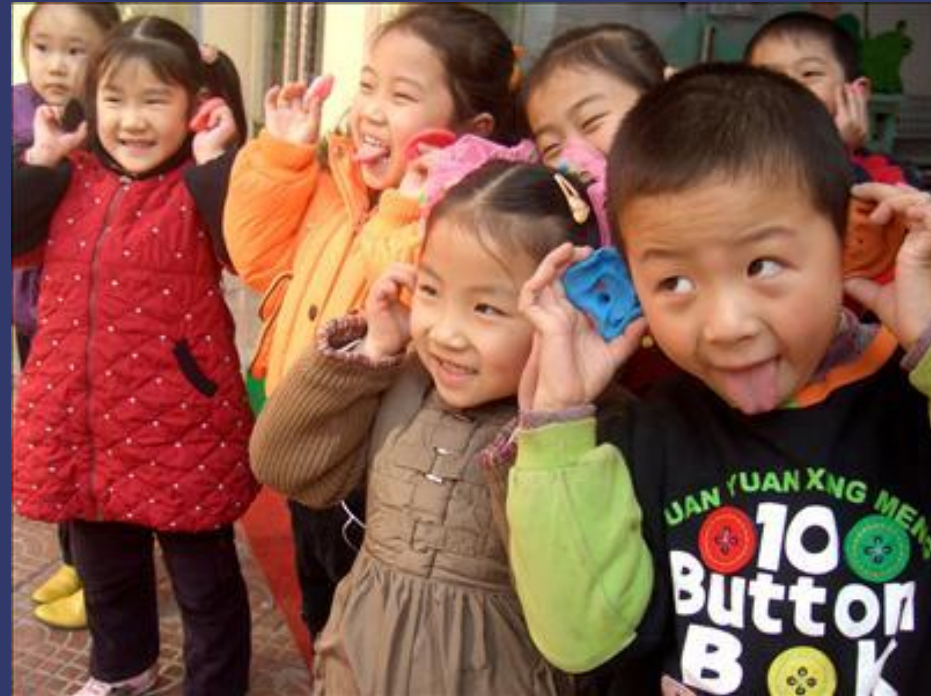
Affordable hearing aids

- In many regions hearing aid batteries are expensive and difficult to find
- Rechargeable batteries
- Solar battery chargers



Promoting public awareness

- China's National Ear Care Day an example of public awareness raising
- National committees in increasing number of developing countries





Clinical implications

- Now more interest being shown in **hearing aid fitting programs** for persons living in developing countries
- More movement of **audiologists and other hearing care professionals** between developed and developing countries, and between developing countries, to share resources and knowledge



Clinical implications

- Now more hearing health **systems research** and hearing health **technology research** to create affordable fitting solutions for children and adults with hearing loss in developing countries
- Solutions for developing countries may have a place in **developed economies** also

Thank you





PHONAK
life is on

Current Developments and New
Directions in Pediatric Audiology



Shanghai, 11 – 13 April 2014

Coming Next...

Session VI: Creating new opportunities for children with hearing loss
Moderator: Suzanne Purdy

- 13:15 Introduction to session
- 13:20 Telepractice in pediatric audiology: expanding audiology horizons for children with hearing loss
De Wet Swanepoel (University of Pretoria, South Africa)
- 13:50 Developing countries, developing hearing health
Bradley McPherson (University of Hong Kong, China)
- 14:20 Training professionals in developing countries
Ned Carter (All Ears Cambodia, Cambodia)
- 14:50 Clinical Case Studies (Panel)
- 15:40 Closing Address
- 16:00 End of Conference
Suzanne Purdy and Bradley McPherson (Chairpersons)

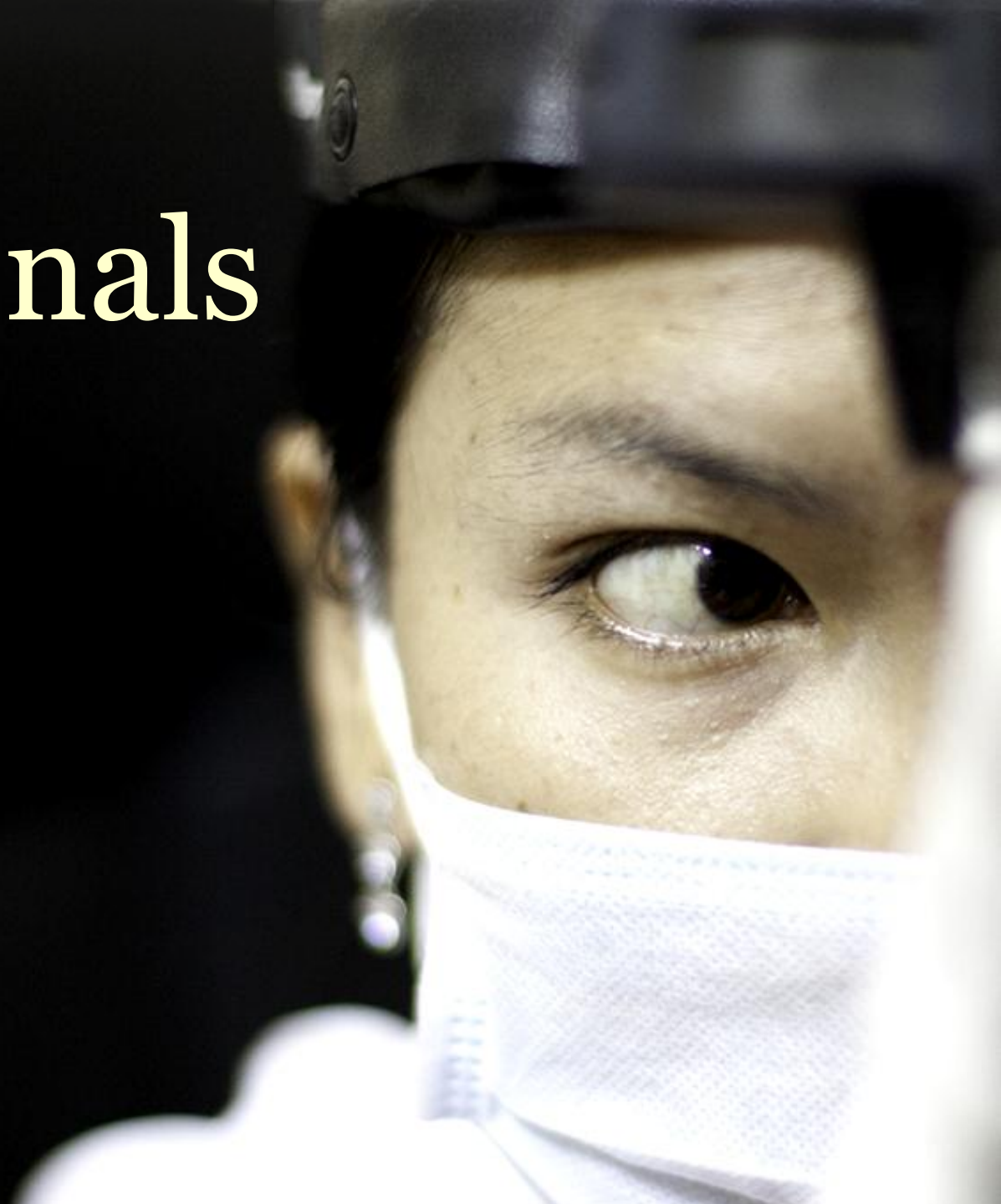
Current Developments and New Directions in Pediatric Audiology



Training Professionals

Insights from
All Ears Cambodia

Ned Carter
Head of School



Training School

2 years, full-time

- Audiology
- Primary Ear Care

Cost-effective
mid-level clinicians

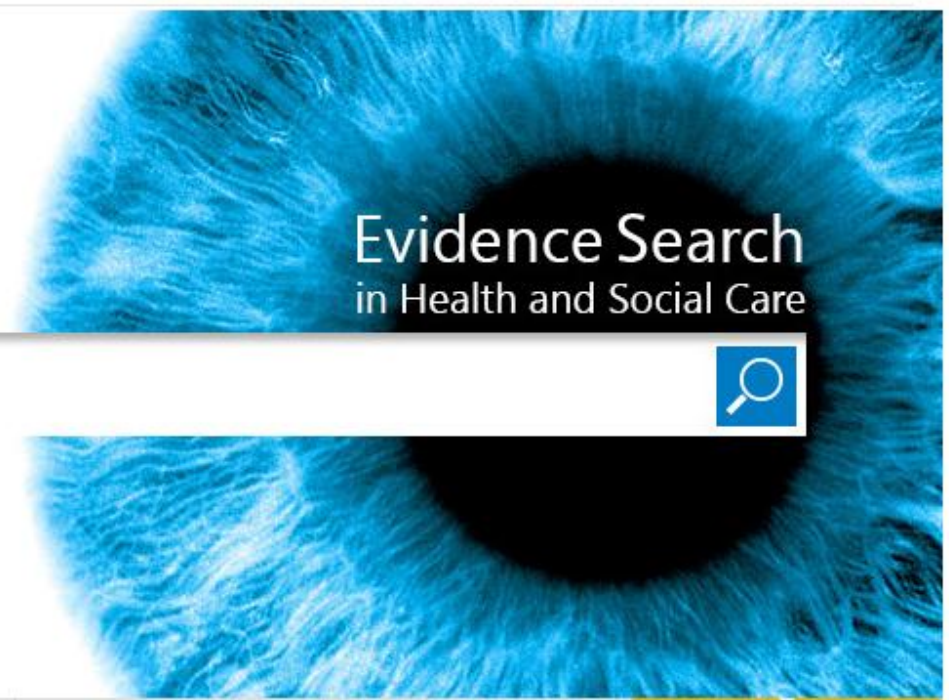




Evidence Services

NICE National Institute for Health and Care Excellence

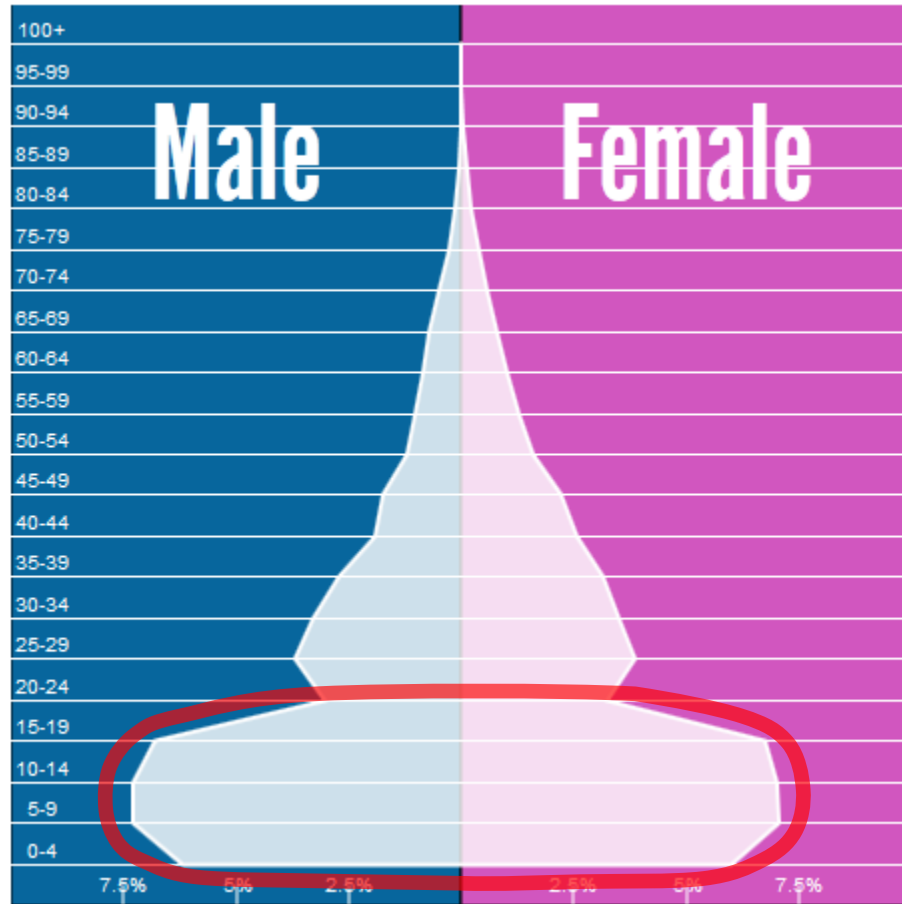
Selected, reliable information for health and social care in one place



Evidence Search
in Health and Social Care

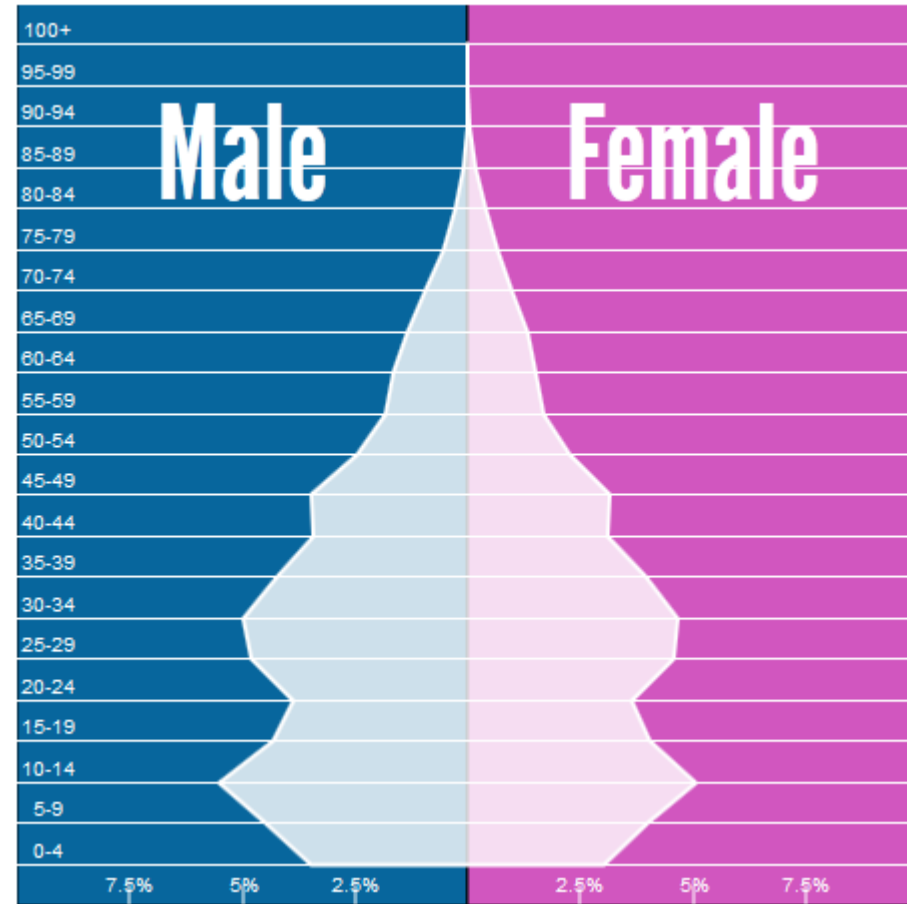


Cambodia



Under 15: **41%**

China



26%



Kampuchea

Children on the border



Top: Faces of young Kampuchean (Cambodians) — at least one quarter of refugees in border camps are under five years old.
Above: Separated from their mother, two sisters express the grief felt by many Kampuchean children in refugee camps.
Right: A young child admires four noncommunist guerrillas, on leave from fighting the Vietnamese in Kampuchea.



Photos by
Marcus Halevi
Text by
Paul Quinn-Judge

CHILDREN make up a large portion of the refugees who live in camps along the Thailand-Kampuchea border.

Many more of the 230,000 refugee-residents are under 16. At least a quarter of the border people are under five years old, relief workers say.

But there is one age group with fewer representatives: "There are nowhere near as many children between about six and nine as you would expect," said an official of the UN Border Relief Operation. "It seems as if many of the children born between 1975 and '79 died — or perhaps were never born at all."

Between mid-1975 and the end of 1979, when the communist Khmer Rouge was in power, hundreds of thousands of Kampuchean children died of malnutrition or disease, and hundreds of thousands more were executed. In 1979, Vietnamese troops invaded and pushed the Khmer Rouge back into the jungle.

But life became no more settled under the Vietnamese occupation of Kampuchea. Vietnamese troops are still there, doing battle with Kampuchean resistance fighters — guerrillas of Prince Norodom Sihanouk's two noncommunist factions as well as those of the Khmer Rouge. Many refugees have moved several times since 1979 — usually under fire.

The battle for control of Kampuchea will probably continue for some time.



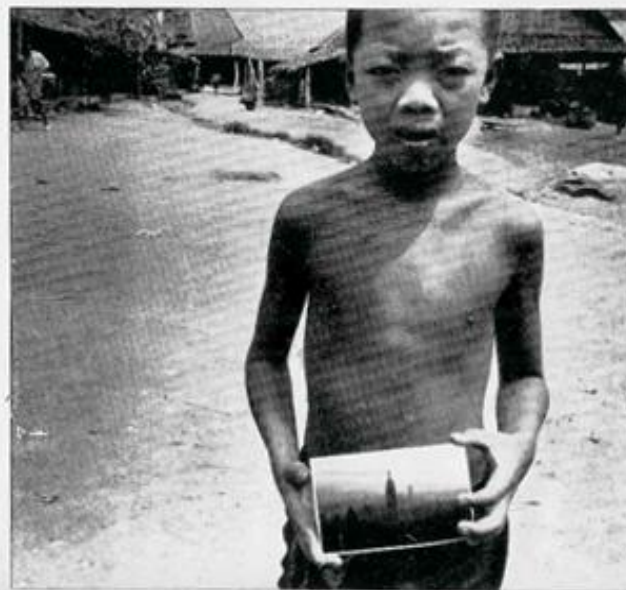
Meanwhile, the people in the camps wait. Life on the move, with a small bundle of belongings or — if they are very fortunate — a cart or bicycle, is all that most border children have known in the past six years.

They and the remnants of their families come from all over Kampuchea. For one reason or another — often because of the Khmer Rouge's murderous policies while in power — many of them are orphans.

Refugees who choose to flee to a Khmer Rouge site are stuck there. Khmer Rouge administrators will not allow them to transfer to a camp administered by one of the other two anti-Vietnam factions. And

because of the Khmer Rouge's policies, they are often held in the US.

While war continues, the children do not learn to read. Few are 15 or so, and girls will









Promotion





Rural

A young child stands on a dirt path in a lush, green rural setting. The path is surrounded by large, mature trees with dense foliage, creating a shaded canopy. The child is wearing a light-colored t-shirt and shorts. The background shows more trees and a dirt path leading into the distance.

~80% live rurally



where
no-
one
works

Rethinking Skill Mix







Task Shifting

“I see task shifting
as the vanguard for
the renaissance of
primary health care”

Dr Margaret Chan, 2008
WHO Director General



Quality of care provided by mid-level health workers: systematic review and meta-analysis

Zohra S Lassi,^a Giorgio Cometto,^b Luis Huicho^c & Zulfiqar A Bhutta^a

Myth de-bunked.

Extensive use **does not** lead to services of poorer quality.

Human Resources for Health

10-13 November 2013 | Recife, Brazil

Governments to determine the appropriate **health workforce skill mix**



... for an immediate, massive scale-up of community and **mid-level health workers**

(Kampala declaration 2008)





Key Resources

Global Health Workforce Alliance. 2008. Global Forums on Human Resources for Health. www.who.int/workforcealliance/forum

Grobler et al. 2009. Interventions for increasing the proportion of health professionals practising in rural and other underserved areas. <http://dx.doi.org/10.1002/14651858.CD005314.pub2>

Lassi et al. 2008. Quality of care provided by mid-level health workers: systematic review and meta-analysis. www.bmj.com/content/344/bmj.e615

Baltussen and Smith. 2012. Cost effectiveness of strategies to combat vision and hearing loss in sub-Saharan Africa and South East Asia: mathematical modelling study. www.bmj.com/content/344/bmj.e615

World Health Organisation. 2006. The world health report: working together for health. www.who.int/whr/previous

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