

Policy Brief on Childhood Deafness: Early detection is the key.

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The International classification of functioning, disability and health, recognizes hearing loss as a disability which is a complex phenomenon that embraces bodily functions and structures as well as factors related to activity, participation and context (WHO 2007). Hearing loss is the commonest disability worldwide with 466 million people — including 34 million children — suffering from disabling hearing loss (WHO 2018^a). This figure is more than 5% of the current world population and if activities are maintained at current levels, disabling hearing loss is projected to increase to 630 million individuals by 2030 and up to 900 million by 2050 (WHO 2018^a). Applying similar projections to the estimates of children with disabling hearing loss, by 2030 there could be 46 million children with disabling hearing loss and 66 million by 2050. Hearing loss imposes a heavy social and economic burden on both individuals and societies. In the communal setting of the African culture, hearing impaired individuals may suffer from social stigmatization and isolation. Children with hearing loss experience delayed development of speech, language and cognitive skills, and this can lead to slow learning and difficult progress in school (WHO 2018^b). Among adults, impairment of hearing makes it difficult to obtain and keep employment (WHO 2018b). The burden of this handicap falls mainly on the poor who are unable to afford the necessary care to prevent hearing loss or the hearing aids to ameliorate the condition. This makes escape from the vicious stranglehold of poverty harder by isolating the sufferers and slowing progress at school and work. The cost of providing special education for this people also taxes the resources available to the society. The majority of individuals with disabling hearing loss lives in low and middle-income countries, thus childhood deafness is a silent epidemic ravaging many sub Saharan African countries including Nigeria.

Screening for hearing loss is a cost-effective step in the management of deafness (Morris *et al.*, 2013) especially in children. There is clear evidence of benefits of early diagnosis and intervention programs in hearing impaired children with improved speech and language outcomes as well as better cognition and socioemotional development (Yoshinaga-Itano 2003^{a,b};

Meinzen-Derr *et al.*, 2011; Vohr *et al.*, 2011). A universal hearing screening in newborns is advocated by international recommendations (AAP 2007; WHO 2010) and this approach has been deployed in many countries with satisfactory outputs however, adoption of this approach presents multiple challenges in a developing country like Nigeria. The roll-out of pediatric hearing screening in Nigeria will require overcoming obstacles such as the lack of adequate awareness among health workers, pregnant women, parents of under-five children and the general public. There is also dearth of manpower skilled in conducting hearing screening, lack of appropriate hearing screening equipment and finally lack of coordinated policy guidelines on hearing screening. These challenges are mirrored across many countries in sub Saharan Africa, thus, it is probably not a coincidence that these sub Saharan countries also contribute significantly to the burden of pediatric disabling hearing loss in the world (Adeyemo 2012; WHO 2012). Therefore, it is necessary for developing countries to modulate the international recommendations of universal newborn hearing screening to a different approach that suits their peculiar environments.

Targeted and opportunistic hearing screening policies are twin approaches that could be institutionalized in developing countries to ensure adequate coverage of the pediatric population. Adopting a hybrid policy will utilize the existing ability of health care systems within developing countries to conduct satisfactory comprehensive coverage of children for hearing screening without immediate excessive financial investments, it will also enable organic growth of skilled manpower in hearing screening within those healthcare systems. Moreover, utilizing existing healthcare systems will enable rapid deployment of the hearing screening program within the hybrid policy approach.

Targeted pediatric hearing screening policy is designed to be deployed in instances where it can achieve the maximum population coverage. In developing countries this will be harnessing the coverage potential of immunization clinics to screen infants for hearing loss. Though the immunization coverage in many African countries is still below expected target range, there has been a significant improvement with coverage rates increasing up to 76% (Mihigo *et al.*, 2017). Recruitment of infants into hearing screening programs via the platform of the immunization clinics is a cost-effective method that will use existing personnel and infrastructure for hearing screening while benefiting from existing public health advocacies for immunization. This method has been successfully trialed in a pilot program

and it has been shown to have massive potentials for success (Olusanya *et al.*, 2008). Targeted pediatric hearing screening can be adapted into mass immunization campaigns also. Integrating hearing screening programs into these campaigns, especially when the campaigns are delivered in hard-to-reach areas, could extend significantly the coverage rate of hearing screening. Another key component of targeted hearing screening policy is regular hearing screening in primary schools. School children are a captive audience who – with appropriate consent from parents – are readily recruited into hearing screening programs. Though, school hearing programs occur at a much later age compared to guidelines issued by the Joint Committee on Infant Hearing (AAP 2007), this approach is a necessary compromise in developing countries to assure that children who miss screening during immunization periods (or who were not immunized) are recruited into the hearing screening program.

Opportunistic hearing screening policy is the provision of hearing screening services to (previously unscreened) infants who come in contact with the healthcare system. This approach aims to deliver hearing screening services at pediatric outpatient clinics, pediatric emergency rooms and intensive care units. Infants in this group are also a captive audience who with appropriate parental consent are also readily recruited included into the hearing screening program. The opportunistic hearing policy also aims to save costs by building on existing platforms and personnel providing health care to infants.

Despite the costs savings embedded in the proposed hybrid policy for hearing screening in developing countries it is pertinent to note that some degree of financial investments is still required to ensure a smooth launch and sustainability of the program. The financial outlay of hearing screening should be borne by public health funds, this will eliminate financial barriers that could exclude some infants from the program. The financial investments required include training of healthcare personnel in hearing screening at the various points of public contact within the hybrid policy. There is also need for investments in appropriate hearing screening equipment's at the various levels of interface within the hybrid policy. Finally, investment in comprehensive medical records of the highly migrant populations seen in many developing countries is required to ensure proper documentation and sharing of medical records amongst health personnel. Emerging technologies such as application of block-chains protocol may prove very useful in instituting wide scale electronic medical records. Adoption of this hybrid approach to hearing screening policy in developing countries will lead to

reduction in the burden of hearing loss in these communities as well as a swift roll-out of the hearing screening program.

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