COMPARATIVE ANALYSIS OF UNIVERSAL NEWBORN HEARING SCREENING PROGRAMMING IN MALAYSIA AND NIGERIA

Abdussalaam Iyanda Ismail¹, Abdul-Halim Abdul-Majid¹, *Abdullateef Ameen²,

¹School of Business Management, College of Business, Universiti Utara Malaysia 06010 Sintok, Kedah, Malaysia

²Department of Public Administration, Faculty of Management Sciences, University of Ilorin, Ilorin 240211, Nigeria

*Corresponding author’s email: abdlateef4ever@gmail.com

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Abstract
The developing countries of the world are still lacking behind in the execution of the Universal Newborn Hearing Screening (UNHS) in term of their effort and achievement so far as compared with developed countries. In their attempts to decrease and possibly to eradicate unnecessary earshot impairments via suitable and rehabilitation processes, the developing countries need more studies and recommendations. Thus, the essence of this study is to meet this demand and bridge the gap between the developed, emerging, and developing countries (a comparative study in Malaysia and Nigeria). This study used secondary data by comprehensively reviewing published researches other relevant and related works. We found that UNHS practices in Malaysia and Nigeria have both difference and similarities. The two – countries use AABR and OAE as their protocol and the newborn hearing screening is not binding on the caregivers in both countries. However, their approaches differ in the area of a finance, follow-up interval, and years of introduction among others. The two countries have done great in implementing this program, nevertheless there are some challenges which are impending the achievement and improvement of the program such as Lack of awareness, the death of personnel, inadequate diagnostic center among others in which they need to address squarely. This paperwork will be found useful by the stakeholders as they will be able to exploit the findings of this work to approach the UNHS program in the best way. Furthermore, the accomplishment of an effective UNHS practice could require bridging employment gap since recruitment of more qualified staff would be required and provision of more screening equipment and public awareness would result to drastic reduction of the cases of avoidable hearing loss in the society in Malaysia and Nigeria.

Keywords: Universal Newborn Hearing Screening (UNHS), Malaysia, Nigeria, OAE, TEOAE, AABR.

1.0 INTRODUCTION

Universal Newborn Hearing Screening (UNHS) programme is an imperative apparatus for initial treatment and diagnosis. It is an approach that assists to recognise the inherited deafness and earshot
damage on new babies before leaving the hospital (Ahmad et al., 2011). UNHS has been adopted by virtually all the countries of the world. Meanwhile, the programme is conceded as an indispensable element of communal health upkeep in early infantile in majority of the developed countries in contrast to developing nation that have low acceptance of the UNHS programme.

However, the sum of kids universal with earshot injury is cumulative and these kids face several impediments and afflictions given that spoken linguistic is the biggest medium of message and social relations. In acknowledgement of the rising and major problem of hearing injury universally, the World Health Assembly (WHA) which is comprised health ministers of the united states member state and which liable for shaping the programmes of the World Health Organisation (WHO) met in 1995 and approved a decision on the stoppage and limit of key sources of unnecessary hearing damage and on timely discovery in kids, children and babies within the context of primary health care. But it is disheartening that while newborn earshot screening of entire newborns has become a normal of municipal health care in advanced states, the needs of infants with lifelong hearing impairment have not yet been addressed in developing countries (Olusanya, 2007). Considering the benefits of UNHS programme and given the characteristics with the problem faced by developing countries, UNHS programme is expected to be significant in these countries, there is a need for the stakeholders’ i.e government, caregivers and parent to do the needful. Therefore, this work aims at comparing current UNHS practices in Malaysia and Nigeria with a view to making useful recommendations as regards step that could make headway in the implementation of UNHS programme.

2.0 OVERVIEW OF UNHS

The reports of the World Health Organisation (WHO) estimate that universally the total of persons with hearing harm has increased from one hundred and twenty (120) million in 1995 to 278 million in 2005 (Olusanya, Wirz & Luxon, 2008). Annually, about 6 per 1000 Newborn about 798000 offspring universal experience permanent earshot injury at natal period and at least ninety percent (90%) of them are in emerging states (Olusanya, 2009). Meanwhile, in order to address this situation, the UNHS was initiated to discover early cause of hear impairment in neonates and make necessary intervention and precaution in this regard. The origin of newborn hearing screening (NHS) could be drew to the Babbidge Report (1965) in the U.S.A. The report proposed the improvement and general execution of collectively applied techniques for easy classification and assessment of hearing damage (JCIH, 1995). The major milestone in the implementation of UNHS was the establishment of a Joint Committee on Infant Hearing (JCIH) in 1969. Various recommendations have since been made by the committee to improve on methods and modalities for tackling issues relating to UNHS. This committee does from time to time in 1970, the JCIH recommended constant investigation and knowledge they require to identify hearing injury timely in lifespan.

Also, in 1970, the JCIH delineated the major great risk factor for earshot injury and proposed the following: description of inherited infantile hearing deficiency, inborn perinatal contamination such like rubella and other non-bacteria fetal contamination like cytomegalovirus, and herpes, chronic facial irregularities, natal heaviness fewer than one thousand and five hundred (1500) grams and a billionaire level larger than twenty (20). In 1982, microbial meningitis and terrible suffocation were included. Between 1982 and 1994 JCIH added additional risk indicator. All these were the yardsticks used by JCIH for identifying and observing newborns with the alleged earshot damage (JCIH 1982, 1994). The year 2000 JCIH’s statement involved the laws and strategies for timely hearing diagnosis and intervention programmes. It was this that recommended universal screening before hospital discharge. It endorsed screening before discharge of hospital, follow-up, and identification for babies requiring supplementary
care and the interference and rehabilitation for children recognized with earshot deficiency. JCIH also authorised timely discovery of involvement for kids with earshot injury via combined interdisciplinary community, national and federal schemes of UNHS evaluation and family-centered involvement. Executive Summary of JCIH’s statement was a supplement to that of 2007. It offers widespread rules for timely hearing discovery and involvement programmes on instituting durable timely involvement system which right proficiency to encounter the desires of the kids who are deficiency in hearing (Muse et al., 2013).

Meanwhile, two methods or stages have been identified by an expert for screening infants to detect hearing loss. The first stage is called Transient Evoked Otoacoustic Emissions (TEOAE) while the second method is Automated Auditory Brainstorm Response (AABR) (Olusanya & Somefun, 2009). In TEOAE, newborn’s ear is tested with incidences between two thousand (2000) and four thousand (4000) HZ. The effect is signified by a bend that merely displays whether optoacoustic radiation is appear or not. If the aural photoemission is appearing it implies that earshot of baby did not display deafness higher to thirty to forty (30-40) Db. It is a screening assessment repetitive more employed in the investigation of newborns babies. The AABR test is used to defect auditory neuropathy. To carry out AABR test, a caregiver places sensor, linked to a processer, on the infant’s scalp. These instruments assess the infants’ brainwave activity in reaction to slight choking echoes that are conveyed via slight ear piece. Both TEOAE and AABR take before 5-10 minutes and each is perfectly painless.

Finally, UNHS can both be hospital and community-based. The hospital-based UNHS is adopted for early detection hearing loss in a hospital before the newborn is discharged on the after side of the coin, community-based is used as a follow-up to hospital-based and to mute the needs of the infants that born outside the hospital. The community-based UNHS is relevant especially in developing countries where there is a prevalence of home deliveries.

3.0 BRIEF ACCOUNT OF UNHS PROGRAM IN THE SELECTED COUNTRIES

3.1 Malaysia

Malaysia started applying UNHS programs in 2003 (Ahmed et al., 2011). This as at then was only initiated at the non-public hospital in Malaysia. The programme was started in the public hospitals in the country in 2009 (Abdulmajid et al., 2017). Although the Malaysian Government had attempted to start the program earlier than 2003. But owing to some challenges being faced by the ministry of health, the implementation could not begin until 2003 and 2009 for non-public and public hospitals respectively. In 2005, available statistics in Malaysia “showed that 7.2% of children less than 10-year-old suffered hearing loss which was equivalent to 285,000 children” (Noor, 2013). As at 2009, two private hospitals and two teaching hospitals started implementing the UNHS programme. The hospitals are Summary Medical Centre (SMC), Pusat Perubatan University Kebangsaan Malaysia (PPUKM), Hospital University Sains Malaysia (HUSM) and Sime Darby Medical Centre (SDMC). They employed both OAE and AABR as the methods of conducting the screening, the country’s ministry of the Health is making effort to expand the implementation of UNHS programme in guaranteeing the recognition of hearing injury could be accomplished at the initial phase.

At present in Malaysia and according to Malaysian Health Director General Datuk Dr. Noor Hisham Abdullah, “the UNHS programme was an increasingly best strategy for early detection of hearing loss, and to date had been implemented at Kuala Lumpur Hospital, Sultanah Bahiyah Hospital in Alor setar, Putarajaya Hospital and all the university hospital in the country” (Noor, 2013). He said, “with the
implementation of the UNHS, the ministry hopes that hearing loss among infants can be identified by the age of 3 months while the intervention can be introduced at the age of six months”. Meanwhile, there are numbers of challenges and obstacles faced in implementing UNHS programme in Malaysia. These challenges range from the death of equipment and personnel, lack of awareness as regards the importance of the programme among the parents and hospital workers among others.

3.2 Nigeria

One cannot specifically say when Nigeria started implementing the UNHS programme. But Nigeria like many other developing countries was not unaware of the prevalence of hearing the loss in the country. For instance, a study was conducted in 1995 among school-age children in regular schools. This study showed that about 14% of the country’s population suffering from hearing loss. The 2002 national survey also showed that there is an excessive occurrence of earshot injury in the country. The two studies concluded in the major initial infant earshot discovery and interference strategy for Nigeria in the year 2004 (WHO 2009). As to this report, one can conclude that UNHS program started in 2004 in Nigeria.

But actual implementation of the programme started in the year 2005, when a native non-governmental association (Hearing International Nigeria) in alliance with the central and State of Lagos Health Ministries introduced the major trial newborn earshot screening programme between May year 2005 and April year 2005 an aggregate of three thousand, three hundred and thirty-three (3333) babies were assessed in the clinic (n=1330) or in four (4) community hospitals when they obtained Bacille de Calmette- Guerin (BEG) vaccination (n=1330). About ninety-nine percent (99%) of qualified neonates were fruitfully examined at a mean age of one-point-three (1.3) days in the infirmary (hospital) equated to eighty-eight percent (88%) of in facts at a mean age of one seventy-seven (177) days in the municipal where the majorities were born outer hospital amenities. First phase appointments were thirty-two point two percent (32.2%) in the clinic equated with fourteen-point-three percent (14.3%) in the municipal-based program, while the second phase appointments were three-point-three percent (3.3%) and four-point-two percent (4.2%) respectively, yet, only fifty (50) out of eighty-two (82) newborns (61%) examined in the community reverted for diagnostic assessment. Of these, forty-five (45) which is ninety percent (90%) were substantiated with hearing injury. Moreover, eleven (11) babies who had formerly performed the first phase screening were likewise proven with the earshot damage resulting in a yield of twenty-eight (28) for one thousand (1000) (56 out of 2003).

There are no specific hospitals that are implementing UNHS in Nigeria. The studies that were carried out were done by individual researchers, in collaboration with a non-governmental organization. Okhakhu et al. (2010) of the University of Benin in Benin City carried out a study titled “Neonatal Hearing Screening in Benin City”. The study identified the fact that inborn hearing injury is a crucial healthcare problem cultivates to impede the developmental indicators of offspring. The screening prevalence six-point-five percent (6.5%) of bilateral newborn earshot damage in “Benin City” requiring validation and Involvement. The investigation supports the requirement for earshot screening amid entire newborn in emerging republics (Okhakhu et al., 2005). In 2008, community-based infant earshot screening for timely discovery of the permanent earshot harm in Lagos (Nigeria) as conducted by Olusanya, Wirz, and Luxon (2005a).

The cross-sectional investigation was done in the internal Metropolis part of Lagos (Nigeria) with an inhabitant of two hundred and forty-three thousand, seven hundred and seventy-seven (243777). The zone is assisted by a general and a maternity hospital and seven (7) health centre which are owned by government. The accessibility of a recognized audiological centre that could offer suitable intervention
for kids is PCEHC which was discovered as a significant factor in taking this investigation location and ethical support for the investigation was gotten from University College London the United Kingdom and the Lagos State Health Management Board, Nigeria (Olusanya, Wirz & Luxon, 2005b). We can, however, infer that the current development of UNHS in Nigeria is not encouraging as the number of hospitals implementing the programme is not increasing. The duo of professor Abayomi and professor Julius Ademokoya expressed their sadness that while there is an emphasis on UNHS screening and management in the developed world, it is not the case in Africa particularly Nigeria (Ogundipe, Obinna & Oawale, 2016).

Professor Julius Ademokoya, the president of Speech Pathologist and Audiologist in Nigeria (SPAAN) said, “Many Children in Africa continue to suffer undetected and unmanaged hearing and Speech disorder”. He also revealed that lack of diagnostic and rehabilitative equipment, inadequate manpower and training facilities among others as the problems militating against the implementation of UNHS in Nigeria (Ogundipe, Obinna & Oawale, 2016).

Table 1. Comparing of UNHS Practices in Malaysia and Nigeria

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>MALAYSIA</th>
<th>NIGERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence (per two life birth)</td>
<td>Total number of screening -58,000 for 2013-2014 78 out of 58,000 detected with hearing loss</td>
<td>Total Number of Screening – 12,000 8.3 infants (approximately 7 per 1000 live births we found to have hearing impair men)</td>
</tr>
<tr>
<td>Year Introduced</td>
<td>2003 in Non-Public Hospital and 2009 in Public Hospital</td>
<td>Intervention Policy – 2004 Actual implementation 2005 i.e. hospital and community based</td>
</tr>
<tr>
<td>Encouragement for coverage per personnel (HP)</td>
<td>Not legally Mandated</td>
<td>Not legally Mandated</td>
</tr>
<tr>
<td>Protocol applied</td>
<td>AABR in HKL Putrajaya Hospital OAE-Bukit Matarjam Hospital, Miri Hospital</td>
<td>AABR and TEOAE in Health Centre in Lagos and State-owned Hospitals Local</td>
</tr>
<tr>
<td>Finance</td>
<td>Non-Public Hospitals – Caregivers bears the cost Public Hospital – free screening and diagnosis</td>
<td>Local Non-governmental Organisations bear the cost</td>
</tr>
<tr>
<td>Government Support</td>
<td>Screening and Diagnosis</td>
<td>None</td>
</tr>
<tr>
<td>Mean age of Diagnosis</td>
<td>3.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Follow-up Interval</td>
<td>Within 42 Days</td>
<td>Between 3-4 Months</td>
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4.0 DISCUSSION

From the table, it can be inferred that to a certain extent both Malaysia and Nigeria differ in their approach towards implementing the UNHS program. For example, the programme was introduced in Malaysia in 2003 and 2009 in the country’s non-public and public hospitals respectively. But the implementation of the program started in Nigeria in the year 2005, and it is both hospitals based and community-based. Another area of difference in the approach of the two countries is that the cost of the hearing screening is bears by caregivers in Malaysian non-public hospitals and the screening and diagnosis are free of charge in Malaysian public hospitals. But the cost is shouldered by the local non-governmental organization in Nigeria. In fact, the programme in Nigeria is free up to the provision of hearing aids through finding support from the local non-governmental organization. In addition, while the
Malaysia government provide support in the area of screening and diagnosis, there is no support from Nigeria government.

Furthermore, the personnel involved in the screening exercise in Malaysia are Nurses/audiologists/technicians but in Nigeria, through audiologist were also involved yet community health workers are also given few weeks of training to embark on the screening exercise. More so, the mean age of diagnosis is 3.6 in Malaysia while that of Nigeria is 2.0. Also, the follow-up intervals in Malaysian is within 42 days while that of Nigeria range from 3-4 months. Meanwhile, there are some areas similarities in the approach of the two countries. For instances, both Malaysia and Nigeria use AABR and TEOAE as their protocol. Also, the UNHS program is not legally binding on anybody in both Malaysia and Nigeria i.e it is not compulsory.

5.0 METHODOLOGY

Given that the current research is qualitative in nature, the researchers carried out a comprehensive review of literature majorly on UNHS practices in Malaysia and Nigeria. Being a qualitative research, data was extracted from the secondary data sources using all-inclusive review published researches, reports, newspapers and other relevant and related works. Therefore, this study documented the current UNHS practices in the two developing countries; Malaysia and Nigeria using an all-inclusive review.

6.0 CONCLUSION

The study concludes that UNHS practices in the selected countries of Malaysia and Nigeria are feasible and viable. From this report, one can deduce that UNHS practices in the two countries in question have far commonalities and many differences. The implementation of the programme in the selected countries is hampered by low public awareness resource constraints and lack or inadequate government support and donor support. However, the fact remains that the challenges may be daunting, yet not insurmountable (May et al., 2007).

The challenges’ mentioned above and many other issues of UNHS must be addressed in the selected countries. Some of the ways by which these issues can be overcome could include the follow-up system in order to minimize default rates (Olusanya, Wirz & Luxon, 2008). There should also be a wide awareness and campaign to sensitize the public regarding the value of UNHS and its impacts more screening centers should be established to meet the needs of newborns and more dedicated and qualified personnel should be recruited and trained and retrained if all these and many more are done; the issues and challenges will be addressed. We therefore confident that this study will be useful to the stakeholders and there will be an improvement of UNHS program in the selected countries of Malaysia and Nigeria.
REFERENCES


