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Review Article

A Reflection on the Implementation of an EHDI Programme in a Public Central Hospital in South Africa

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Abstract

Congenital hearing loss occurs most frequently at birth averaging around 6 per 1000 births. Children develop language, communication, and cognitive skills through hearing contributing to healthy child development. With advancements in the method of assessing hearing status of newborns objectively, the adverse effects of hearing impairment can be limited by means of a universal newborn hearing screening (UNHS) programme. Early hearing detection and intervention (EHDI) focuses on the overall journey of the child from identification, diagnosis, and management [1]. The South African government recognises the value of UNHS; however, it has not been adopted within the public health sector that services the greater population. Through critical examination and reflection of our own experiences we sought to describe the processes followed in implementing an EHDI programme at a public central hospital. The aim is to provide rich, first-person information of our experience in implementing newborn hearing screening. A reflexive approach is used to describe the processes and the lessons learnt in managing a large-scale project, highlighting the importance of collaboration, teamwork, and adaptability to try new models of service delivery. Our journey may help initiate similar projects thereby increasing the access to newborn hearing screening.

Keywords: Early Hearing Detection and Intervention; EHDI; Newborn Hearing Screening; baby screening; universal newborn hearing screening; UNHS; UNHS programme; public hospital; reflection; collaboration; implementation; South Africa

Introduction

The Importance of implementing EHDI

There are approximately 16-17 infants born with congenital hearing loss daily in South Africa [1]. Children develop language, communication, and cognitive skills by hearing, the early identification of hearing loss is therefore critical for optimal child development. The World Health Organization has indicated that most children with disabling hearing loss are from developing countries. To reduce the growing number of individuals who will have disabling hearing loss by 2030, policy changes need to be implemented on preventative measures to address common causes and the early identification of hearing loss.

With advancements in the method of assessing hearing status of newborns objectively, the implementation of a universal newborn hearing screening (UNHS) programme is an effective system to identify hearing loss early [2]. The implementation of a UNHS requires much support from the government as children born with permanent childhood hearing impairment (PCHI) have the right to access services to improve their ability to communicate [3]. In

support of increasing access to services and guiding practitioners in South Africa, the Health Professional Council of South Africa (HPCSA) released a position statement that recommends UNHS to attain early hearing detection and intervention (EHDI) [4]. The South African government has not yet mandated a UNHS programme within the health care sector [5]. This could be a result of hearing impairment not being prioritized as it does not directly affect the survival of an individual [6]. There are many challenges that the lack of government mandate for UNHS must compete with, these include the greater population serviced by the public health sector, the lack of trained professionals in the country to service the demand, the increased burden of disease and the lack of resources [6]. The effectiveness of a UNHS programme can only be fully achieved when there is support from the government via policy or legislation [3].

According to Olusanya [7] children with hearing impairment who do not receive intervention will be behind their peers by 7.5 years on reading comprehension by the age of 15 and have only 50-60% reading and comprehension skill abilities of their chronological age when they leave school. If a hearing-impaired child is identified and managed early, the child may have the opportunity to attend mainstream schooling, and develop among hearing peers, as well as cost saving for the caregiver and the government in the future [7]. The disadvantage is carried out throughout life as the income rate of individuals with hearing loss is reported to be significantly less with a ratio of 2:5 to the hearing population in developed countries and will be even more pronounced in developing countries like South Africa [8]. The Chris Hani Baragwanath Academic Hospital is the largest state hospital in South Africa with approximately 22 000 births per annum [9]. This averages to about 1833 babies per month that require hearing screening. An Early Hearing Detection and Intervention (EHDI) programme, whether targeted or UNHS will assist in diagnosing and providing intervention to individuals earlier than currently, thus reducing some of the challenges for a percentage of the population, even if it is a small number at a time. As stated by Kanji [10], "doing something well is better than doing nothing at all".

Through critical examination of our own experiences as audiologists working within a central public hospital, we sought to describe our journey of implementing an EHDI programme at CHBAH in South Africa. The aim of the article is to share our story with rich, first-person information of the events, processes and lessons learnt. We employed a reflexive approach to describe the process of events and lessons learnt [11]. Researchers have been urged to use reflective practice in qualitative designs to highlight the various adaptations and decisions that are made while exploring and examining a phenomenon [11]. Heffron et al. [12] advocate for the use of self-reflection when writing to increase the capacity to observe and be aware of "thoughts, feelings and behaviours, as an important source of communication in a variety of clinical experiences" (p. 324). Reflective writing also helps practitioners to engage in professional development by navigating through these experiences [11]. This process facilitates the development of new, practice-based knowledge and an opportunity to test potential changes within practice as well as develop ways of moving forward [13].

The initiation of the EHDI programme at Chris Hani Baragwanath Hospital

In 2015 the paediatric audiology team and the head of department developed a business plan for the implementation of UNHS at our hospital. This was a challenging task as we are not trained to write business proposals and have no training in health economics. The plan provided an overview of our paediatric audiology service, as well as an analysis of the current targeted newborn hearing screening service at the hospital. We motivated the UNHS programme with a phased approach to reach a 100% coverage rate within 4 years with an incremental growth of 25% each year. The plan highlighted that a UNHS programme would have economic and social advantages for individuals born with hearing impairment in the wider community. The plan included information as depicted in Tables 1 & 2 below on the ideal requirements for human resources and equipment needs.

Table 1: Staffing requirements to implement UNHS and management for HL.

Staffing level	Qty required	Currently available	Still required
Chief posts	2	1	1
Production level posts	10	4	6
Community health workers (Mid-level worker)	5	2	3
Audiology assistant	3	1	2

Table 2: Equipment requirements.

Equipment requirements	Total Qty required	Currently available
Otoacoustic emission (OAE) screening systems:	6	3
Automated auditory brainstem (AABR) response equipment	8	4
Trolley in each ward required for equipment & admin.	1	0

PCs for administration.	4	1
1 x printer (stand-alone)	1	0
Printer/photo copier	1	0 (shared need own)
Diagnostic tympanometer	4	2
RM500SL (HA verification equipment).	2	1
Soundfield speakers	2	2
Otoscope	7	7
Hi-pro box for programming hearing aids	2	1
Diagnostic audiometer including Headphones, Insert phones, Bone conductor, Response button, CD/DVD for recorded speech testing	3	2
computer for hearing aid programming (NB PCs should be networked to one another & to printer in workstation).	2	1
Therapy toys and resources.	1	1
Advance tympanometry (i.e., includes high and low frequency tympanometry)	2	1
Electrophysiological equipment with following features: ABR, MLR, LLR, eCochG, Free field aided testing capacity, Diagnostic DPOAEs, Diagnostic TEOAEs, ASSR	2	1

Our business plan was not supported by hospital management and on reflection, we expected this within an overburdened, underfunded healthcare system where the focus is often on health and not well-being [6]. The South African healthcare system, like many in middle to low-income countries, is faced with many resource constraints, and the burden of disease which places the implementation of UNHS at the bottom of the list of improvements that are required [6]. We were disappointed since no alternative solutions or support was provided. In high income countries NHS is something that is routinely carried out as an "essential and mandatory intervention for the early detection of infants with permanent congenital or early onset hearing loss" however, in majority low-income countries, the service is rarely performed [14]. We have developed a solution-based culture within our department that is focused on developing solutions to meet the needs of our patients. We reviewed what was possible in terms of our current resources. The paediatric audiology team at that stage consisted of 7 audiologists who were providing services to all children under the age of 6 within the Soweto area. The services we offered included hearing screening; paediatric diagnostic hearing assessments; electrophysiological testing; hearing aid fitting and follow up and aural rehabilitation services.

From the years 2010 to 2018, NHS could only be offered to two high-risk baby wards namely high care and kangaroo mother care. The coverage percentage ranged between 3-4% per month. Many institutions in developing countries choose to conduct high risk newborn hearing screening due to resource constraints [15]. According to Das et al. [2], high risk newborn hearing screening becomes the only option when there are limitations such as insufficient personnel and equipment. It is important to move towards UNHS as congenital hearing loss can be found in approximately 1 to 3 out of 1,000 healthy infants [15]. This proves that high risk NHS is not sufficient in achieving early childhood intervention. UNHS could not be achieved with the staffing and equipment capacity at the time, but our aim was to reach at most 10% of the babies in the high care and KMC ward.

The team increased clinical time dedicated to neonatal screening by reducing time for other clinical areas such as diagnostics, hearing aid fittings and follow up. However, this change caused the overall waiting time for clinical areas to increase rapidly from 5 weeks to 13 weeks in a matter of 4 weeks. This meant that children requiring middle ear monitoring were not being seen for months before receiving treatment from ENT and inevitably delaying the diagnosis of hearing loss in paediatrics by 8 to 12 weeks. There was the additional challenge of staff stress and fatigue which resulted from lack of sufficient audiologists to meet the needs of patients, lack of support from nursing personnel, equipment malfunctioning, lack of funds for repairs of equipment as well as poor acceptance of hearing screening by parents and caregivers ."Work-related stress disproportionally affects healthcare workers and is linked to excessive workloads, working in emotionally charged environments and where demand outweighs capacity. According to Brand et al., healthcare professionals compared to other working sectors throughout the developed world report higher levels of sickness, absence, dissatisfaction, distress and burnout at work. Stressors in the workplace can impact staff morale and performance, contributing to increased absenteeism and burnout and all these factors are detrimental to patient satisfaction and care. This made our plan to increase the NHS with current staffing and resources unsuccessful.

Das et al. [2] indicated that the stakeholders identified to be actively involved in the implementation of an EHDI programme had lacked information and knowledge regarding the importance of such a programme, even in countries where UNHS had already been implemented. The study indicated that there is a significant need for education programs among healthcare professionals and

caregivers on the importance of EHDI. To raise awareness of EHDI among healthcare workers and parents/caregivers in the hospital, the team implemented hearing care talks within antenatal care units and parent waiting rooms in the hospital. The audiologists provided information on the importance of hearing in children, high risks for hearing loss in children, impact of hearing on speech and language development and the positive effects of having children receive hearing screening after birth. The talks are conducted in every ward before screening begins as a way of encouraging and providing information to encourage parents to get their infants hearing screened. This helped audiologists in wards to receive a better response from both nurses, and parents. The hearing care talks helped in achieving health promotion and prevention of newborn hearing screening and parents/caregivers were bringing their infants for hearing screening. However, it was not significant in achieving early intervention overall from a statistical view as the average age of diagnoses and intervention remained the same.

The lack of an EHDI programme continued to impact the early diagnosis and initiation of intervention with children who had hearing loss. The average age of hearing aid fitting should be 6 months old for congenital or early acquired hearing loss [4], however, the average age of hearing aid fitting at CHBAH since 2010 to current is between 3.5 and 3.9 years of age. According to a study in Belgium, less than 23% of the children requiring audiological intervention received care before 12 months with UNHS in place. The study concluded that early intervention was reached, however, the recommended expert age of intervention was not met [16]. This proves that achieving early intervention is difficult even in developed countries. Hence, we should start somewhere to close the gap of late intervention and further highlight the importance of obtaining government mandate and legislation endorsing UNHS in the public health sector. It was evident that we were not able to meet the needs of patients in our hospital and therefore had to look at ways of increasing the number of babies screened. To achieve this, we looked at the possibility of recruiting and training non-professional personnel to conduct hearing screening.

Use of non-professional personnel to achieve EHDI

There were many barriers to implementing a hearing screening programme in our setting, but we were determined to find a sustainable solution. The speech therapy and audiology department at CHBAH hosts its annual planning and evaluation meeting to identify and develop creative ways to look at challenges. EHDI was discussed in terms of finding solutions towards implementation. According to Khoza-Shangase & Kanji [6], the discussions should include the costs involved with NHS, the equipment needed, and personnel required. In 2018, the head of the department suggested of networking with outside stakeholders to find additional personnel to conduct hearing screening. The African Recruitment agency whose core philosophy is to take the time to understand both the clients' and applicants' individual needs so that they are able to tailor the recruitment and selection process to suit these. The company recruits people between the ages of 18-35 years old with or without disabilities to complete a learnership programme. These learners were identified as potential screeners who could be trained, monitored, and supervised by audiologists. Training non-audiologists to provide newborn hearing screening was recommended in the HPCSA's revised EHDI guidelines (2018). This meant that recruiting learners as newborn hearing screeners would resolve one of the challenges of having a lack of personnel to provide services. A study conducted in Gauteng indicated that hearing screening programmes can be successfully applied by community healthcare workers and provide patients with access to hearing healthcare services [17].

The learnership system was introduced in South Africa as a practical component of implementing the National Skills Development Strategy (NSDS). The system was meant to assist South Africans by offering the chance to obtain a National Quality Framework (NQF) level and work-based skills training. With the introduction of the Skills Development Levies Act (1999), employers contribute a portion of payroll towards training and development in the workplace [18]. The individuals in the learnership system receive an allowance, which is not viewed as a salary but rather as a stipend to cover travel and meal costs [19]. The organisations appoint recruitment companies to recruit learners and find host sites for workplace experience while being governed by the Sectoral Education and Training Authority (SETA). With an unemployment rate in South Africa of 32.5% [20], the learnership system is a way of training and developing young adults to build a strong reference for future work and employment. This system can be used to fulfil the human resource gap that we face by allowing learners to complete their work-based training at our department and training them to conduct NHS. Recruiting learners to conduct hearing screening implied that there would be no cost implications for the hospital while we gained personnel to perform NHS.

Several requirements had to be met before the learners could start such as permission from the Gauteng Department of Health and hospital management; a motivation was developed stating the envisioned collaboration with the recruitment company and a detailed programme to train the learners to engage in NHS. The permission was granted, and all parties involved in the collaboration signed a memorandum of agreement (MOA). The overall process took approximately four months to finalise. This timeline was not within our control as we were dealing with outside stakeholders.

The process of training non audiology personnel for UNHS

Eight learners were recruited into the programme. The training of the learners included the completion of the Newborn Hearing Screening Training Curriculum (NHSTC) 2020. The course includes the updated standard of care for performing NHS in line with the Joint Committee on Infant Hearing (JCIH) 2019 Position Statement. The course provides learners with a comprehensive understanding of practicing NHS and providing quality services. The NHSTC is an online course with video learning available. However, hands-on training is recommended concurrently. This took one weeks

as other presentations related to hearing screening were also included: how to handle premature infants, what is a high-risk baby, Orientation to Road to health book and what to look for in a hospital file, Infection control practises and Occupational health and Safety practices. The learners then did a week of observation, they were paired with an audiologist who was conducting hearing screening. This was essential as it gave them an opportunity to ask questions and get exposure to the ward experience. The coordinator could determine where the learners needed more assistance and guidance once observation week was completed. There was also a session to reflect and discuss their experiences and difficulties after the practical to ensure that any misunderstandings were cleared. The learners were then paired with an audiologist for another two weeks where they conducted hearing screening under direct supervision. Another practical session was conducted to help refine their skills. After the training and practical the learners were more confident and were able to conduct hearing screening independently. They were initially paired amongst themselves, but this was changed when we realised that they needed more experience observing audiologists handling and screening high risk babies. Their skill improved with direct supervision, and they were assessed as competent to independently conduct hearing screening in the high-risk wards. The training has highlighted the importance of an adaptable training programme to ensure independence and accuracy. According to Gupta et al., one of the challenges in UNHS set up is having dedicated staff to perform the universal screening of infants. By partnering with a private recruitment company to recruit learners we were able to overcome this challenge and increase our coverage rate from 4% to 15%.

Ensuring the success of the EHDI programme: Learners with a purpose

All eight learners entering the EHDI programme were interviewed and chosen by the coordinating audiologists. The learners had to meet specific criteria as per the EHDI guideline (2018) which they all completed and achieved. However, many of them were straight out of school, had no working experience and were taken directly into a public health setting. The eight new team members brought about various working styles, personalities and life experiences which impacted the dynamic of a team. These dynamics had to be addressed at team level through individual meetings, team building activities and addressing any conflict immediately. After approximately one month of completing the training, the learners were eager to work independently. There were challenges that we were not well prepared for with the first intake of learners. This included equipment wear and tear as the equipment was being used more often, developing individual responsibility and accountability for the handling and safety of equipment and the dynamic between learners. For the second intake of learners, we ensured there was a comprehensive interview questionnaire that included case studies surrounding topics such as conflict management, teamwork, channels of communication and handling of equipment. The recruitment agency became familiar with our needs and tried to assist by recruiting individuals who were driven and interested in working within a hospital context. We also improved our security and monitoring measures for the equipment used to increase accountability and responsibility from the learners.

Due to the nature of the EHDI programme other stakeholders had to be consulted throughout this process. This included nurses, doctors, and other rehabilitation professionals. Finding a space in the already overburdened wards was a challenge. The nurses felt overwhelmed by this because space is limited, and it was additional work for them to avail the room. To avoid resistance from nurses, the coordinator personally cleaned rooms, added informational posters, and met with nurses regularly to develop a good relationship for continued collaboration. The successful implementation of an EHDI programme is significantly dependent on coordinated collaborations by regular contact and communication among each other [21].

3.6. Crucial reflections of lessons learnt

Selecting individuals who had an interest in the healthcare setting, who wanted a career in health and with communication and conflict management skills helped us recruit the appropriate learners. We realised that as much as we wanted many screeners in the programme, having small dedicated and zealous individuals was sufficient. crucial that the learners had training in communication skills, how to give results to the caregivers and practical sessions to evaluate their screening skills. This helped to give the learners confidence in their skills so direct supervision could be reduced. The orientation of newborn hearing screeners must include the purpose and goals of the EHDI programme and their role in identification for children born with congenital hearing loss. Additionally, the programme should include aspects of continued engagement and development opportunities such as issuing assignments, skills training and building intergroup relations within the team and the department. We also learnt the importance of making the learners feel that they belong to the department. Even though meeting the target and goals for the programme is important, their well-being and involvement in the department played an essential role in the outcomes of the EHDI programme. The learners were therefore included in team building activities and skills building to contribute to their overall professional growth. According to Wilder-Davis the programme manager is the key to quality and enhancement of student learning and areas that can impact student satisfaction. Having one designated person to train the learners and oversee the programme made it easy for us especially with regards to team communication. Understanding the context of your facility and your stakeholders is important. WE suggest developing stakeholder engagement which would assist in identifying the stakeholders and the strategies for engagement. Informing the nurses in the neonatal wards about the importance of the NHS programme was vital before starting NHS in the wards. This helped to build rapport and to establish a relationship with the nurses.

The audiologist who coordinates the EHDI programme was able to provide direct support to the learners when they reported any difficulties experienced which allowed for effective communication and development of their clinical skills. Some of their concerns included communication with nurses in wards; difficulty understanding abbreviations used by medical professionals in patient files; and various disabilities/syndromes infants may present with. This was addressed by means of a skills development schedule arranged for learners specifically to enhance their knowledge and skills. Many hospitals in developed countries have tried to implement programmes for UNHS by using different types of personnel to perform the actual infant hearing screening test such as having audiologists, nurses or trained assistive staff. However, the disadvantage of using audiologists and nurses only is the cost implications for employment and additional tasks allocated to an already understaffed public health care sector [22]. Therefore, many healthcare facilities have resorted to training non-audiology personnel to perform newborn hearing screening by means of passing specific competency criteria and having an audiologist manage the programme [22]. This seems like a better and more cost-efficient way to implement a UNHS programme and the audiologist performs all diagnostic evaluations and management [23].

Conclusion

In essence, we acknowledge that our programme is not yet supported by a government mandate and sustainability can therefore not be guaranteed. However, this should not prevent audiologists from looking at solutions towards implementing a programme. Our programme typically highlights a collaborative approach towards attempting to achieve processes and systems for ensuring a newborn hearing screening programme. We hope the strategies and processes identified in this article will assist audiologists in getting a step closer towards achieving EHDI at their facility. The full effectiveness of the NHS is expected to be increased by governmental mandates, guidance by the ministry of health and the establishment of national committees with broad stakeholder involvement [24-26].

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References

1. Moodley S, Storbeck C (2015) Narrative review of EHDI in South Africa. The South African Journal of Communication Disorders = Die Suid-Afrikaanse Tydskrif Vir Kommunikasieafwykings 62(1): E1-E10.
2. Das S, Seepana R, Bakshi SS (2020) Perspectives of newborn hearing screening in resource constrained settings. Journal of Otology 15(4): 174-177.
3. Petersen L, Ramma L (2015) Screening for childhood hearing impairment in resourceconstrained settings: Opportunities and possibilities. In South African Medical Journal 105(11): 901-902.
4. HPCSA (2018) Professional board for speech , language and hearing professions early hearing detection and intervention programmes in South Africa position statement. Early Hearing Detection and Intervention (Ehdi).
5. Young M (2016) Private vs. Public Healthcare in South Africa. Honors Theses.
6. Bezuidenhout JK, Khoza Shangase K, De Maayer T, Strehlau R (2018) Universal newborn hearing screening in public healthcare in South Africa: Challenges to implementation. SAJCH South African Journal of Child Health 12(4): 159-163.
7. Olusanya BO (2008) Priorities for early hearing detection and intervention in sub-Saharan Africa. International Journal of Audiology 47(SUPPL 1): 3-13.
8. Hogan M (2013) Hearing Loss Linked to Unemployment, Lower Income. The Hearing Journal 66(2 SUPPL 1): 1.
9. Mahovo R, Velaphi S (2020) Duration of Hospital Stay and Factors Associated with Prolonged Hospital Stay in Very Low Birth Weight Infants Surviving to Hospital Discharge. Journal of Pediatrics, Perinatology and Child Health 03(04): 208-220.
10. Kanji A (2018) Early hearing detection and intervention: Reflections from the South African context. South African Journal of Communication Disorders 65(1): 1-3.
11. Ortlipp M (2015) Keeping and Using Reflective Journals in the Qualitative Research Process. The Qualitative Report 13(4): 695-705.
12. Heffron MC, Ivins B, Weston DR (2005) Finding an authentic self: Essential learning processes for relationship based work. Infants and Young Children 18(4): 323-336.
13. Ng SL, Kinsella E, Friesen F, Hodges B (2015) Reclaiming theoretical orientation to reflection in medical education research : a critical narrative review. Medical Education 4(9): 461-475.
14. Olusanya B (2015) Screening for neonatal deafness in resource-poor countries: challenges and solutions. Research and Reports in Neonatology 5: 51-64.
15. Imam SS, El-Farrash RA, Taha HM, Bishoy HE (2013) Targeted versus Universal Neonatal Hearing Screening in a Single Egyptian Center. ISRN Pediatrics 2013: 1-6.
16. Vos B, Senterre C, Boutsen M, Lagasse R, Levêque A (2018) Improving early audiological intervention via newborn hearing screening in Belgium. BMC Health Services Research 18(1): 56.
17. Yousuf Hussein S, Swanepoel DW, Mahomed F, Biagio de Jager L (2018) Community-based hearing screening for young children using an mHealth service-delivery model. Global Health Action 11(1): 1467077.
18. Mbonambi D (2009) The Effectiveness of Learnership Programes in Promoting Skills Development. University of KwaZulu-Natal, South Africa.
19. Visser M, Kruss G (2009) Learnerships and skills development in south africa: A shift to prioritise the young unemployed. Journal of Vocational Education and Training 61(3): 357-374.
20. Statistics South Africa (2020) Jobs in the SA formal sector up in the 3rd quarter of 2020 | Statistics South Africa.
21. Blaiser KM, Bargen GA, Amestoy A, Coleman L, Fors G, et al. (2020) EHDI System Effectiveness: The Impact of Community Collaboration. The Journal of Early Hearing Detection and Intervention 2020(1): 54-61.
22. Brennan RA (2004) A nurse-managed universal newborn hearing screen program. MCN. The American Journal of Maternal Child Nursing 29(5): 320-325.
23. Pitathawatchai P, Khaimook W, Kirtsreesakul V (2019) Pilot implementation of newborn hearing screening programme at four

hospitals in southern Thailand. Bulletin of the World Health Organization 97(10): 663-671.

24. Gina A, Bednarczuk NF, Jayawardena A, Rea P, Arshad Q, et al. (2021) Universal newborn hearing screening in South Africa: a single-centre study. BMJ Paediatrics Open 5(1): 976.

25. Khan NB, Joseph L, Adhikari M (2018) The hearing screening experiences and practices of primary health care nurses: Indications for referral based on high-risk factors and community views about hearing loss. African Journal of Primary Health Care & Family Medicine 10(1): e1-e11.

26. Tull K (2018) Effectiveness of leadership capacity building in the health sector.

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