

# **A QUALITATIVE APPROACH TO THE SUCCESS FACTORS OF UNIVERSAL NEW-BORN HEARING SCREENING (UNHS) PROGRAM IN SELECTED MALAYSIAN HOSPITALS**

**Nor Azimah Chew Abdullah**

School of Business Management, UUM College of Business, Kedah, Malaysia

**Abdussalaam Iyanda Ismail** 

School of Business Management, UUM College of Business, Kedah, Malaysia

iyandaismail@yahoo.com

**Abdul Halim Abdul Majid**

School of Business Management, UUM College of Business, Kedah, Malaysia

**Mohd Normani Zakaria**

School of Health Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan,  
Malaysia

**Sulaiman Hamzah**

Department of Otorhinology, Hospital Raja Permaisuri Bainun, Ipoh Perak, Malaysia

**Siti Zamratol-Mai Sarah Mukari**

I-HEARS – Institute of Ear, Hearing & Speech, Universiti Kebangsaan, Malaysia

## **Abstract**

*Success of UNHS models in Malaysia is indispensable, given that UNHS program plays crucial role in reducing and/or preventing hearing impairment associated with deficits in language, social, emotional, and cognitive growth of newborns, regardless of the existence of risk indicators. Against this background, the study aims to provide a profound insight and advance knowledge in the universal newborn hearing screening (UNHS) research field, the current study,*

*using qualitative approach, examines success factors of UNHS practices in selected Malaysian Hospitals. This aspect of research is deemed imperative, given the indispensability of successful UNHS models in Malaysia. For this, open-ended interview was conducted to elicit information regarding UNHS practices from the respondents of the current study. The respondents are the matrons from Hospital Raja Perempuan Zainab 2, Kota Bahru, Kelantan, Hospital Sg, Buluh, Selangor and Hospital Taiping, Perak. Transcription of the information elicited from the interview was done manually, and the transcribed data was analyzed to determine the factors that would guarantee successful UNHS. UNHS model, which comprises of screening coverage and screening equipment, should enhance screening outcomes and reduce the cases of avoidable hearing loss. However, accomplishing successful UNHS program requires screening coverage, which is induced by knowledgeable and motivated staff, top management support, and teamwork, and adequate, movable and accessible screening equipment. Furthermore, the findings of the study highlight that UNHS program is being practiced in the selected Malaysian hospitals, but it suffers a myriad of challenges, which include dearth of staff, inadequate screening equipment, inadequate screening coverage, and difficulty in securing top management support. The overall findings of the current study accentuate that accomplishment of effective UNHS practices could require recruitment of more qualified staff, provision of more screening equipment and ensure enhanced screening coverage, as this would result to drastic reduction of the cases of avoidable hearing loss in the society. Also, the current study has contributed towards the enrichment of the relevant literature.*

*Keywords: Universal Newborn Hearing Screening, UNHS model, Malaysia, OAE, AABR*

## **INTRODUCTION**

The research conducted by De Kock, Swanepoel and Hall (2016) hinted that Malaysian healthcare system should be enhanced with successful UNHS model characterized with improved screening outcomes. A successful UNHS program would reduce and/or prevent hearing impairment associated with deficits in language, social, emotional, and cognitive growth of newborns, regardless of the existence of risk indicators (Kemp et al., 2015). In addition, a typical UNHS program is expected to make a distinction between the newborns with good hearing and those with impaired hearing, make early discovery and intervention of hearing loss, and evaluate hearing capability of children with and without risk factors for congenital hearing loss (Abdul-Halim et al., 2017a; Clemens et al., 2000; Kemp et al., 2015).

Malaysia is among the countries of the world that adopt the UNHS programs. The astonishing level of prevalence of UNHS programs in the world has signified that the program is really a revolution in health care. In Malaysia, an attempt to initiate UNHS program was made by the Audiology services department at the Malaysian Ministry of Health in 2002, but the department could not initiate the program due to several reasons and problems. UNHS program was then introduced in 2003. The program started with Malaysian non-public hospitals, and it was later introduced in the public hospitals in 2009 (Abdul-Halim et al., 2017a).

The focus of the current research, which borders on success factors of UNHS practices in selected Malaysian Hospitals, is underscored by the fact that UNHS program in Malaysia is faced with some pressing issues, and continuous evaluation of the program is required to ensure that the pressing problems are dealt with effectively, and then ensure successful program (Abdul-Halim et al., 2017a). Thus, the current study, by examining the success factors of UNHS practices in selected Malaysian Hospitals, would provide a profound insight and advance knowledge in the universal newborn hearing screening (UNHS) research field, and this aspect of research is deemed imperative, given the indispensability of successful UNHS models in Malaysia.

## **METHODOLOGY**

Being a qualitative research approach, open-ended interview was employed to elicit information regarding UNHS practices in the selected hospitals, because The interview remains the most common method of data gathering in qualitative research field, and it has been employed in various forms by every main theoretical and methodological approach within qualitative research field (King, 2004). Matrons from Hospital Raja Perempuan Zainab 2, Kota Bahru, Kelantan, Hospital Sg, Buluh, Selangor and Hospital Taiping, Perak participated in the interview exercise.

The interview was done three times, and the participants were asked to share their expertise and knowledge on the factors that could contribute to the success of UNHS practices in their respective hospitals. Afterwards, the information elicited form the interviews were transcribed to merge participants' responses. The transcription was done manually through repeated listening. The transcribed data was analyzed to conduct a first-level of coding into category. Through the coding methods, themes were generated, and consequently to create sub-theme from each theme.

## RESULTS AND DISCUSSION

Information regarding HPWS practices was elicited from three participants as follows:

P1: “The first screening is conducted by ward staff. So, the coverage rate must be at best good, because I need to present it in the meeting. Here we start with a pilot program in 2013. For the second year of 2014 the coverage rate has increased to 50%. Then, coverage increased to 87% in 2015 and highest in 2016 was 98%” (Hospital Raja Perempuan Zainab 2).

P2: “For the initial stage, we use existing staff and equipment. Pilot Study was done so that we can present new improvements. We asked audiologist to run the pilot study ... if any audiology student, will help doing the pilot study ...” (Hospital Sungai Buloh).

P3: “Now the program we've got more than 95% coverage. Before this, our coverage reached 60% to 65%, only. What we noticed, an increase is due to the staff. What I mean is "dedicated staff". Dedicated staff is very helpful so that no baby will be dropped out of the program. We also work closely with the labor room. It is to identify how many births each day.” (Hospital Taiping).

“Dedicated” staff as mentioned by participant 3 is the “assigned” staff to do hearing screening. Based on interviews, for good coverage of UNHS, best practiced hospitals implemented several strategies to ensure 100% coverage of UNHS, and they must ensure their survival long lasting.

From the first-level of coding, it is indicated that “coverage of UNHS” and “equipment” were significant aspects of effective UNHS program. The second-level of coding showed relationship of the themes with sub-themes. Figure 1. shows the full model and themes of UNHS model while Figure 2 shows the sub-themes from the staff factor.

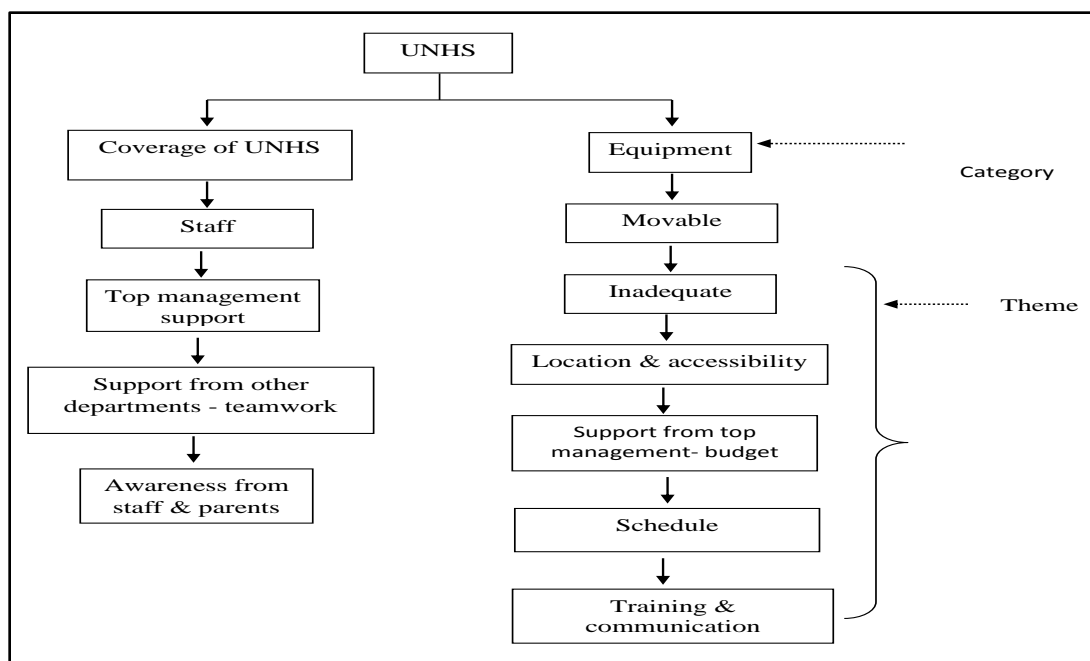


Figure 1: Content-analysis of UNHS model.

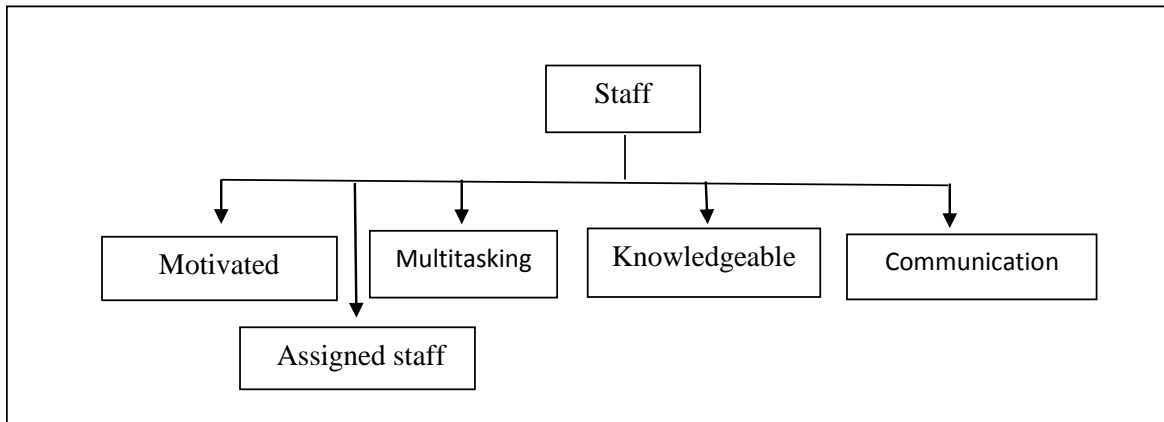


Figure 2: Content-analysis of staff.

For the second-level of coding, four (4) themes emerged from “coverage of UNHS”. The themes are staff, top management support, support from other departments – teamwork, and awareness from staff and parents. Out of these themes, the most critical are staff and support from top management. On the other hand, six (6) theme were generated from equipment. The six themes are movable, inadequate, location & accessibility, support from top management–budget, schedule, and training and communication.

Regarding the “coverage of UNHS” in relation to top management support, the following is indicated by the participants:

*P1: “After that, and with regards to the screening meeting, the deputy director of the hospital does join the meeting and he would give support ... So, if there are more budget, he would inform us to buy whatever tool that are needed.” (Hospital Raja Perempuan Zainab 2).*

*P2: “The most helpful factor is teamwork. We here are thankfully ... very supportive bosses. Although at the beginning, the bosses do not understand the importance of this program. How do we increase our knowledge is the outcome connected with the cochlear implant program at our hospital” (Hospital Sungai Buluh).*

*P3: “Ooo yeah ... do not forget ... Director give directions to the matron to appoint staff. AAAAA .... Really. The instruction from the Director was given to the matron. Our statistics show that patients have hearing loss. We do screen and diagnosis of hearing problems. There is high workload, and it is not easy to convince the boss that we cannot do alone.” (Hospital Taiping).*

Based on the interviews conducted, top management support is critical to ensure the success of UNHS program. Top management support, as indicated in the interview, represents allocation of appropriate budget for the program, commitment and involvement toward the UNHS program.

For the staffing function, participants indicated the critical role a staff must play for an effective UNHS program.

*P1: "Staff ward for 1st screening ... The same people who make the BCG ... So, for the first screening was 1 to 1 ward. All are 5 wards, so 5 staff who do screening every day. At ENT, there are 2 special staff for this screening. Add the 5 staff ... thus, 7 la." (Hospital Raja Perempuan Zainab 2).*

*P2: "create awareness among hospital staff regarding Newborn Hearing Screening. We call nurses from HKL and Putrajaya Hospital to share their experiences. When information is given by the same level, it might deliver an understanding among nurses. Another factor that is important is the need to have a nurse or PIC (Person-In-Charge) for hearing screening program only."(Hospital Sungai Buluh).*

*P3: "ward staff needs to cover weekend, too. But we have pity for the staff, especially those in O & G. Lack of staff is often the cause. After that, we propose to take mobile staff to cover weekend. Mobile staff always go to cover mobile clinics and others. So, we asked for 2 to 4 persons. This mobile staff cover weekend. And we claim overtime for them. So, ward nurses cover weekdays while mobile nurses cover weekend. All nurses were given credentialing and privileging." (Hospital Taiping).*

Overall, as in Figure 2, staff are divided into five (5) sub-themes: motivated, assigned staff, multitasking, knowledgeable, and communication. Staff are involved in multitasking tasks, where they work in the ward and at the same time doing hearing screening.

The participants shared their experience from other expert nurses on hearing screening. Furthermore, with all the workload, they must be a dedicated staff by working overtime (OT) during weekend. Hence, staff must be motivated to do their screening task and other tasks in the ward dedicatedly. They also must possess good knowledge and communicate effectively to ensure other staff and parents aware about the UNHS programs.

Concerning the support from other departments – teamwork, the participants shared their experiences as follows:

*P1: "In the meeting, there are specialists, Matron sister and representatives from each ward where nurses are involved. Emerging issues are discussed in that meeting. (Hospital Raja Perempuan Zainab 2).*

*P2: "Program looks better after a meeting involving director, matron, paediatric, HOD, HOD of O & G and Sisters in the maternity ward."(Hospital Sungai Buloh).*

*P3: "We propose to have meeting between the director, deputy director, matron, HOD paediatric, maternity and ENT itself."(Hospital Taiping).*

Generally, support from other departments like O & G and Pediatric is usually got through team work and meetings. Team work among matrons, experts, nurses, and physicians in realizing effective UNHS to get 100% coverage among parents. Team work among other departments will benefit the UNHS program and raise the full coverage.

The participants also shared their experiences on the equipment use for the screening:

*P1: "8 everything ... everything DPOAE. Hrmmm ... not very fancy but just enough la ... 5 DPOAE in ward ... 1 at the screening clinic, 1 at audio room and the one we use for visiting. They should do ABR screening in ward SCN first ... but not sufficient thus, we need to borrow the ABR machine at the Kuala Krai Hospital ... Furthermore, we train our ward staff with OAE only. New ENT staff attend the ABR training. (Hospital Raja Perempuan Zainab 2).*

*P2: "For the equipment we tackle the director ... and thankfully we got through the hospital budget. (Hospital Sungai Buluh).*

*P3: "The machine is also mobile. But must be in Audiology unit. Every morning and evening, Health Care Assistants will take and submit to the respective units. The team, comprising approximately 30 staff who have been given credentialing, would work on rotational basis." (Hospital Taiping).*

The inferences that could be drawn from the analysis signify that UNHS model, which comprises of screening coverage and screening equipment, should enhance screening outcomes and reduce the cases of avoidable hearing loss. However, accomplishing successful UNHS program requires screening coverage, which is induced by knowledgeable and motivated staff, top management support, and teamwork, and adequate, movable and accessible screening equipment. In another word, there are some critical elements required for successful UNHS program. These factors include screening coverage, staff who should be motivated, assigned, motivated, knowledgeable, and with multitasking and communication skills, top management support, teamwork between related departments, screening equipment which should be mobile, available, accessible and adequate, training and communication, proper scheduling to determine the success of the UNHS program. All these factors play an important role in realizing effective UNHS program, and they are depicted in Figure 3.

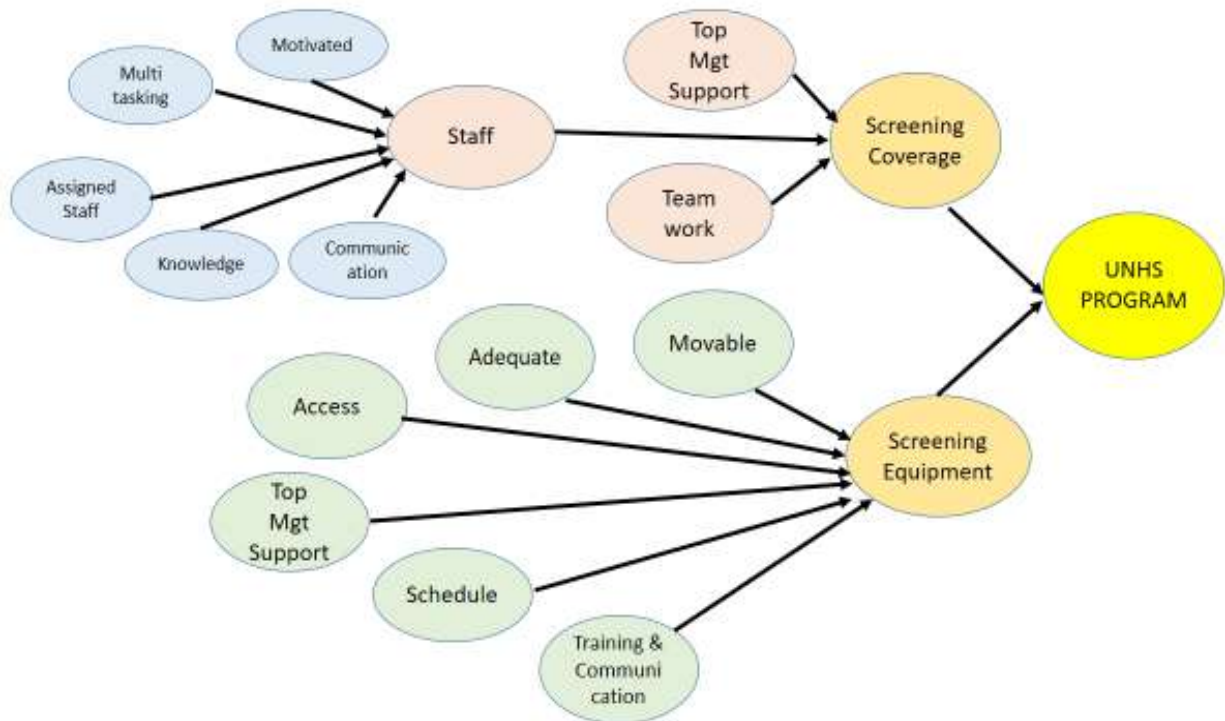


Figure 3: UNHS model in Malaysia

## CONCLUSION

Overall, the overall findings of the current study accentuate that accomplishment of effective UNHS practices could require recruitment of more qualified staff, provision of more screening equipment and ensure enhanced screening coverage, as this would result to drastic reduction of the cases of avoidable hearing loss in the society. Also, the current study has contributed towards the enrichment of the relevant literature. However, the result from the interviews signify that the hospitals practicing UNHS program are still facing a myriad of challenges, which include dearth of staff, inadequate screening equipment, inadequate screening coverage, difficulty in securing top management support. Moreover, the problem regarding screening coverage may not be unconnected with caregivers' attitude in which caregivers may not believe in early detection of hearing impairment in children, thinking that their babies are too young to be tested for hearing loss (Abdul-Halim et al., 2017b). The current study has identified the factors that are critical to the successful UNHS. However, the current study did not cover all the hospitals that practice UNHS program in Malaysia, future research can expand the scope of the current study by replicating it in other parts of the world, because this will improve the generalizability of the findings of the current study.



## ACKNOWLEDGEMENT

The authors wish to thank RACE for providing financial assistance to carry out this study and the Research and Innovation Management Centre (RIMC) with S/O Code 12972, Universiti Utara Malaysia for providing the research assistance.

## REFERENCES

- Abdul Halim A.M., Zakaria M.N., Nor Azimah C.A., Sulaiman H., & Zamratol-Mai S.M. (2017a). Current development, issues and challenges of universal newborn hearing screening program in Malaysia. *International Educational Scientific Research Journal*, 3, 27-32.
- Abdul Halim A.M., Zakaria M.N., Nor Azimah C.A., Sulaiman H., & Zamratol-Mai S.M. (2017b). Determinants of caregivers' awareness of Universal Newborn Hearing Screening in Malaysia. *International Journal of Pediatric Otorhinolaryngology*, 101, 107-111. DOI: 10.1016/j.ijporl.2017.07.036
- Clemens, C. J., Davis, S. A., & Bailey, A. R. (2000). The false-positive in universal newborn hearing screening. *Pediatrics*, 106(1), 1–5. Retrieved from /content/106/1/e7.full.html
- de Kock, T., Swanepoel, D. W., & Hall, J. W. (2016). Newborn hearing screening at a community-based obstetric unit: Screening and diagnostic outcomes. *International Journal of Pediatric Otorhinolaryngology*, 84, 124–131. <http://doi.org/10.1016/j.ijporl.2016.02.031>
- Kemp, A. A. T., Delecrode, C. R., da Silva, G. C., Martins, F., Frizzo, A. C. F., & Cardoso, A. C. V. (2015). Neonatal hearing screening in a low-risk maternity in São Paulo state. *Brazilian Journal of Otorhinolaryngology*, 81(5), 505–513. <http://doi.org/10.1016/j.bjorl.2015.07.010>
- King N (2004). Using Interviews in Qualitative Research, in Cassell, C., & Symon, G. (Eds.), *Essential guide to qualitative methods in organizational research*. Sage.