Final Evaluation of the BMZ/CBM ENT Project:

Of the CBM Funded Project P3851

Strengthening Audiology and Ear Nose and Throat (ENT) services in Zambia

Beit Cure Hospital (BCH),
Zambia

Period under review: 2018 - 2022

April, 2022

Prepared by

Sustainable Environmental Urban Solutions
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Published date: 20th April 2022

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Table of Contents

List of tables

List of Figures

Program/Project Name, Project Number	Strengthening Audiology and ENT services in Zambia 3851 – MYP
Project Location, Country	Southern Province, Zambia
Partner Organisation	Beit Cure hospital, Zambia.
Project start & end dates, Phase of project	2018 - 2022
Total cost of project	EUR 871,850.00
Evaluation Purpose	The evaluation will assess the programme to determine: 1. What has worked well, what did not work well and why? 2. What lessons can be drawn and how they will shape the current and future ENT interventions. 3. Whether it's necessary to change the project approaches to address emerging issues.
Evaluation Type (End of Project)	End of Project Evaluation
Commissioning organisation/contact person	Beit Cure Hospital – Steven Chishimba - Project Manager
Names and organisations of the Evaluation Team members	SEUS Consult (Z) Ltd – Rikki Mumba, Lovemore Mwanza, Christopher Chitembo
Primary Methodology	Mixed methods based on desk study, beneficiary and stakeholder Interaction.
Evaluation Start and End Dates	10th February , 2022- 6TH April , 2022
Recipient of Final Evaluation Report	Beit Cure Hospital, CBM and BMZ
Date of report submission	20th April , 2022

Executive Summary

The project was able to achieve results under key area 1(one) , which was the treatment of ear disease is permanently embedded in the Zambian health system by training 10 public health planning for ENT, conducting an epidemiological survey and revision of the ENT curriculum, Conducting 88% of the planned ENT surgeries. Of the planned activities only the holding of ENT coordination meetings for national planning was not undertaken because the ENT National Committee has not been constituted.

The project managed to increase number of ear specific qualified medical and paramedical specialist as outlined in results of key area number two (2). The following activities were undertaken: three (3) ENT Specialists/Surgeons were trained in temporal bone dissection, two (2) ENT Specialists were sponsored for postgraduate program. Four (4) hearing aid technician and a total of thirty six (36) Clinical officers and Nurses have been trained in ENT diagnosis, prevention, and basic treatment against a target of thirty (30), 28 Community Health Assistants were trained in awareness raising for ear and hearing care. Lastly an additional 13 nurses were trained in speech and communication therapy. The project attained an achievement rate of 100% in terms of training completion.

The project also managed to construct and install ear medical infrastructure and equipment in the project areas. The project managed to procure and deliver the furniture and computers that were purchased for all the health facilities. The room that was provided by UTH was refurbished and converted into a Temporal bone laboratory. The lab is yet to be commissioned. Kalomo, Choma and Kabwe hospitals have fully operational audiometric booths. In order to equipping hospitals with ENT instruments all the health facilities received equipment that was procured. University Teaching Hospital and Livingstone General Hospital received a state-of-the-art ENT surgical microscope and the equipment for the Temporal Bone Laboratory.

Lastly, the project managed to conduct outreach activities and screenings to reach more patients. A total of 31,800 clinical consultation were conducted for the duration of project, indicating an achievement rate of 206%. The evaluation found that the achievement rate for school training outreach was 58%. The school screening activity was affected by the unavailability of school going children as schools closed due to Covid 19 pandemic.

Relevance - The project's intentions are very relevant and consistent with the needs of the population given that every third person receiving medical attention is diagnosed with an ENT related problem. The project intention was in conformity with the 7th National Development Plan which articulates the need to strengthen our ENT Health Services in order to attain the universal access and coverage of quality health care by all Zambians. This is further stated in the National Health Strategic Plan 2017-2021, which shows government's commitment to ensure optimum contribution of ENT to the attainment of the national health goals and Sustainable Development Goal (SDG) by 2030.

Coherence - There is coherence between the intentions of the project and the national policy framework and the National Ear, Nose and Throat Health Strategic Plan. The project contributed to the realization of the National Ear, Nose and Throat Health Strategic Plan in terms of the need to increase infrastructure and equipment for ENT services, capacity building, strengthening the ENT information system and sensitization of the public on ENT conditions. The project is well aligned towards increasing access to quality health care services for all-leaving no one behind as articulated in the national policy. In addition, activities such as the epidemiological survey /prevalence study was in line with what is proposed in the National Ear, Nose and Throat Health Strategic Plan and the recognition that information on ENT is important for planning and intervention.

Effectiveness - The project was very effective in terms of carrying out trainings for the nurses, clinical officers and surgeons. The effectiveness extended to the ENT services that the project contributed to their delivery. The beneficiaries appreciated the ENT service that was being provided by the supported health facilities with 73% reporting improvement in their condition after treatment. The challenges noted is the lack of medication after treatment, medication being expensive and not being readily available. Most of the beneficiaries were very frustrated with the referral systems which excluded the underprivileged and poor.

Efficiency - The project was very efficient in its implementation of the project activities. The overall fund utilization rate is at 83 % as at 31st December 2021 and projected to be 90% at project completion. This is commendable considering that the project started late and was carried out during the Covid 19 pandemic. The funds were available for all the project activities as BCH received the funding at the beginning of the project. The project has moderately performed generally in terms of efficiency with respect to timely completion of activities.

The project commenced in 2018 although access to the funds was only gained in 2019. So most of the procurement and project activities was carried out in 2019, 2020 and 2021.

The funds for the implementation of the ENT strategic plan had the lowest utilization rate at 13%, the delays in the implementation of the prevalence survey has negatively impacted on the development of the strategic plan. The expenditure on the school screening was at 49% which was due to the suspension of school screening due to the second and third wave of COVID-19.

Impact - The project has been able to attain positive impacts in line with the set objectives. The major positive impact was in the increase of the number of personnel who are able to do diagnosis and treatment of basic or minor ear problems as well as professional development for the surgeons. This capacity will ensure that patients receive basic diagnosis and treatment, and only referral of complex cases will continue beyond the project period.

The project was able to improve ENT service delivery by procuring and delivering equipment to health facilities as well as construction of infrastructure such as audiometric booths and the temporal bone laboratory. The audiometric service provision and surgeries will continue beyond project period. The community health assistants are expected to further contribute positively towards changing the attitudes, knowledge and practices with regards to ENT at community level beyond the project period.

Gender Inclusion - The project performed well on gender and inclusion indicators because the data for the project was segregated by gender and showed that both genders benefited in terms of training and access to ENT services. In terms of access to ENT services, the results show that there are no gender gaps in terms of ENT activities, such as clinical and school screenings and consultations among children and among adults. According the beneficiary survey carried out by the evaluation, it showed 53% were male and 47% were female in Choma, 50% were male and 50% were female in Livingstone, 43 % were male and 57% were female in Kalomo and 56 % were male and 44% were female in Lusaka. With and overall ratio of 50 % male and 50% female for all geographical areas evaluated.

Sustainability - The project has achieved key milestones by undertaking activities that are in line with the intentions of the national ENT strategic plan. However, the sustainability aspects of the project was poorly implemented. The key macro level components should have been implemented in year

one of the project to ensure there is a fair chance that the ENT services are mainstreamed in the health sector.

The aspects required engagement and discussions with key stakeholders and Ministry of Health, which ideally takes a long time. It is worth noting some activities were being undertaking during the evaluation period. Some of the engagements were with Nursing and Midwifery Council of Zambia, Zambia Ear, Nose, Throat, Audiology and Speech Society and Training institutions.

Child safeguarding - The level of awareness of child protection/safeguarding policy was very high among the senior personnel in the institutions, but very low amongst the nurses, clinician, speech therapist that were interviewed. The project provided training on the child safe guard policy in all the trainings sessions that were conducted under the project including the consultancy team went through the child safeguard policy.

1.0 INTRODUCTION

1.1 Status of ENT services in Zambia

Based on estimates for Sub-Saharan Africa by The World Health Organization (WHO) it can be assumed that between 670,000 and 1 million people are affected by hearing impairment in Zambia, which corresponds to a prevalence of 4-6 %. Zambia has one of the highest HIV prevalence in the world with 12.4% (15–49-year-olds) and a significant number of HIV/TB co-infections, increasingly with resistant tuberculosis pathogens. There are causative effects, which associate these conditions with the development of hearing loss. Therefore, a relatively higher disease burden can be assumed in the field of ENT than in countries with lower HIV and TB prevalence. Increased chronic otitis media and treatment-induced hearing damage caused by the side effects of the second and the third line of TB drugs have been documented in studies from similar contexts.

There is a link between poverty and disability. People living in poverty are exposed to a higher risk of acquiring a (hearing) impairment because they usually have less access to health care (e.g., treatment of otitis media) and are often exposed to more harmful external influences (e.g., noise, risk of accidents as a consequence of physical labour without adequate protection). Conversely, hearing impairments, in particular, make it difficult to participate in education and in economic and community life because of information and communication barriers. The risk of poverty is also increasing for the people affected and their families, who are obliged to spend additional resources for the care and support of their relatives. Although no national data on the disease burden of children are available, it can be assumed that, as in other contexts, this group is disproportionately affected by ENT diseases. In 0-6-year-olds, it is important to treat ear diseases early and effectively to exclude consequential damage and hence the exclusion from educational opportunities.

For the prevention of hearing impairment, treatment and rehabilitation of people living with hearing loss, it is necessary that several levels in the health system work together productively. This begins at the community level, where basic health services need knowledge about prevention (such as hygiene, accident prevention) and early detection of diseases.

At the district level, health care workers and general practitioners need to be able to provide simple treatments, identify more complicated cases, and deal with referrals. At the highest level, the

provincial hospitals need the capacity to carry out complex surgical procedures, especially if they are increasingly in demand due to improved diagnostics and referrals from the lower levels. In addition, there is a need for hearing aid technicians and speech, and language therapists to reduce the negative effects of hearing impairment.

It is against this background that BCH and its cooperating partner CBM responded to the above situation by setting out to implement the BMZ ENT project in 2018, covering Lusaka, Central and Southern provinces to strengthen the Audiology and ENT services in Zambia. The project was designed to achieve the following results:

1. Result 1: The treatment of ear diseases is permanently embedded in the health system
2. Result 2: An increased number of ear specific qualified medical and paramedical specialists are available in target provinces
3. Result 3: Ear medical infrastructure is permanently improved in Zambia.
4. Result 4: Outreach activities and screenings have reached more patients.

1.2 Project Background

In 2018 Beit Cure Hospital started implementing a 'Strengthening Audiology and Ear, Nose and Throat (ENT) medical services in Zambia' project (CBM funded project number P3851) funded by BMZ in collaboration with CBM. The project aimed to sustainably establish ENT services in Zambia by 2021.

The expected results and interventions were as follows:

Result 1: The treatment of ear diseases is permanently embedded in the Zambian health system. Intervention area, to train personnel in Public health planning for EHC; conduct Epidemiological survey; revision of the ENT curriculum; conduct ENT surgeries and conduct ENT coordination meetings for the national plan.

Result 2: An increased number of ear specific qualified medical and paramedical specialist are available in target provinces. Intervention are training of ENT surgeons (Block and Continuous); training of hearing aid technicians; training of speech therapy assistants; training of general practitioners, clinical officers, nurses, and training of other nurses.

Result 3: Ear medical infrastructure is permanently improved in Zambia.

Intervention are to furnishing of officers/treatment rooms; equipping hospitals with ENT instruments;

Establishing temporal bone lab at the University Teaching Hospital.

Result 4: Outreach activities and screenings have reached more patients.

The targeted intervention is to conduct ENT Outreaches and School Screenings

1.3 Objective of the evaluation

This Final Evaluation focused on effectiveness and sustainability of the project. The evaluation aimed at deriving lessons learned and recommendations to improve future project implementation as well as to help plan and implement the upcoming National ENT Strategic Plan (2022-2026). The evaluation shall also provide guidance to Project Number: ZM 3851. Beit CURE, BMZ, CBM and its partners including the implementing agency (BCH) on the various outcomes that have been yielded by the project (both intended and unintended) during its duration. The evaluation was intended to provide evidence of progress achieved during the life-cycle of the project with specific focus on what worked and what did not, in order to allow further maximization of the impact and sustainability.

1.4 Scope of the evaluation

The evaluation covered the entire implementation period to October, 2021.The evaluation report focused on the results for the Ear and Hearing Care medical staff, public health staff, staff from public schools and to patients that received ENT services from BCH, Primary Ear and Hearing Health Facilities as well as Hospitals. The scope included:

1. Surgeries and non-surgical treatments received by patients and how this has impacted/changed their wellbeing in the society.
2. Trained health workers in Lusaka, Choma, Kalomo, and Livingstone districts of the Southern province.
3. Trained ENT specialists based in Lusaka District currently providing surgical expertise to the general public within Lusaka and Southern Provinces.
4. On the infrastructural aspects, the consultant will be required to assess the outcome and potential impact of the equipment donated to the institutions.
5. To improve service delivery to the patients.

6. Impact of the outreach and school screening activities within the communities and schools; assessing the level of awareness about ear diseases and hearing loss.

1.5. Guiding Evaluation Principles

The assessment was consistent with the OECD evaluation criteria (which focuses on 6 specific thematic areas which include: Relevance, Coherence, Effectiveness, Efficiency, Impact and Sustainability) and was conducted based on the principles of the Humanitarian Charter and United Nations Convention of the Rights of Persons with Disabilities (UNCRPD) principles (7) including the CBM Code of Conduct and Child Safeguard Policy.

1.6. Ethical considerations

Before the data collection the evaluation team went through the CBM child safeguard policy, code of conduct and the CBM/BCH consent form to inform the practice of the consultancy team. Every member of the consultancy team in the field signed the statements of oral consent and ensured that informed consent was sought from interviewees before data collection. The CBM ethical consent form for data collection was used to acquire informed consent from the participants. All the datasets shall be surrendered to BCH/CBM and shall not be used for any other purposes apart from, the originally intended purpose, mid-term review unless permission is requested and given in writing.

2.0 METHODOLOGICAL APPROACH

The methodological approach involved strong client participation in a team environment and close dialogue in the process between the client and consultant. The evaluation used a mixed-method approach to collect both qualitative and quantitative data.

2.1. Stratification, Sampling and Sample size

Consideration was taken on the geographical dispersion of the survey and equal representation by districts and gender where possible. Thus, the four districts were the strata and from each district a distribution of beneficiaries were interviewed (See table below). Seven (7) out of 30 health facilities were purposively selected taking account of the four districts, level/status of the health facilities, location in terms of urban/ rural classification, and accessibility in view of the rainy season

2.1.1 Sample Size Calculation – Quantitative Beneficiary Survey

The sample size was determined based on the following formula:

$$\frac{z^2 \times p(1-p)}{e^2} \div \left[1 + \left(\frac{z^2 \times p(1-p)}{e^2 \times N}\right)\right]$$

Sample size=, where z=Z score at 95% confidence level=1.96; p=proportion or prevalence of hearing impairment of 0.05 (5%) the highest available based on literature; e=the error margin of 0.05 (5%) and N= beneficiaries reached by the project (31,800).

Thus, a minimum of 73 was the calculated sample value based on the above formula. To enhance confidence, the sample was increased to 80 and the distribution was based on the number of beneficiaries interviewed during the mid-term evaluation since beneficiary data disaggregated by district and facility is not readily available. The table below gives a breakdown of the sample by district and health facility

Table 1: Sample size disaggregated by district and health facility

DISTRICT NAME	HEALTH FACILITY NAME	TOTAL SAMPLE
Choma	Choma Central Hospital	12
	Mbabala Rural Health Centre	7
Lusaka	Beit Cure Hospital	16
Kalomo	Request Muntanga Hospital	21
Livingstone	Livingstone Central Hospital	14
	Simoonga Rural Health Central	10
	Total	**80**

In terms of gender, females accounted for 50.0% of beneficiaries interviewed and the rest 50.0 % were males.

Table 2: Distribution of beneficiaries interviewed by type and gender

	Gender		Total	Percentage
	Male	Female		
Choma	10	9	19	24%
Kalomo	9	12	21	26%
Livingstone	12	12	24	30%
Lusaka	9	7	16	20%
	40	40	80	100%

The sampling frame were the lists of beneficiaries at the health facilities. The participants were chosen randomly and requested through the health staff at the facilities to come to a health facility on the day of the interviews. This was made possible through advance arrangements among the parties i.e., consultant, BCH, and targeted Health facilities. A questionnaire was administered in the language of the beneficiaries' choosing i.e., English, or local language. Adherence to the set public health guidelines for COVID 19 prevention were always observed during the data collection.

In terms of the inclusion and exclusion criteria, an adult (in the case of a person above 18 years) or a child (in the case of a person below the age of 18yrs) was only interviewed if they had been screened by an ENT primary healthcare worker or an ENT specialist supported by the project in the study site/project catchment area. The number of beneficiaries that participated in the survey was 80. Of these, 41 (51%) were aged between 1 and 18; the youngest was aged 1. The remaining 39 beneficiaries accounting for 49% were aged between 20 and 81.

A total of 20 Key informant interviews from 20 respective institutions (table 3) were done mostly with institutional leadership such as hospital superintendent, district health directors, clinical in charge, and district health planners.

Table 3: Institutions where key informant interviews were conducted.

SN.	Institutions where key informant interviews were conducted
1	Choma General Hospital
2	Provincial Health Administration
3	Ministry of local government-Provincial Planning office
4	Choma District Health Administration
5	Request Muntanga Hospital administration
6	Kalomo District Health Administration
7	Livingstone Central Hospital
8	Livingstone District Health Administration
9	Mulungushi Medical University-Livingstone campus
10	Rusangu University
11	Ministry of local government-Livingstone-Planning office
12	The University Teaching Hospital
13	CBM-Zambia
14	Beit Cure Hospital
13	Ministry of Health-Office of the ENT National Coordinator
14	Kabwe Central Hospital Administration
15	Zambia Ear Nose Throat Audiology and Speech Society of Zambia

2.2. Data collection, analysis, and quality control

The methodology was reviewed by Beit Cure Hospital (BCH), discussed, and agreed during the inception meeting and all changes were made accordingly. Similarly, the tools for data collection were also submitted to-and reviewed by BCH. Enumerators were trained by the consultant using both English and local language with oversight from Monitoring and Evaluation Officer for BCH.

Documents reviewed were 2018 fourth quarter report, 2019 first, second, third and fourth quarterly reports; 2020 first, second, third and fourth quarterly reports and 2021 first, second , third and fourth quarterly reports. The filled in log-frame excel sheet and raw data excel files from Beit cure also used.

The consultant provided quality checks at the end of every fieldwork day so that errors are minimized. Data analysis was done using descriptive statistics showing the progression over time while the qualitative data was analyzed using thematic analysis.

The quantitative data was collected using paper-based tools which then be entered into Census and Survey Processing (CS-Pro). Data processing will commence immediately after the filled-in forms are verified for completeness at the end of field work, by the team leaders. The consultant provided feedback for any data collection errors and necessary corrections were made.

2.3. Limitations

The evaluations faced the following limitations:

1. Given that data was collected during the rainy season, some remote areas could not be accessed;

2. The number of Focus Group Discussions were reduced to minimize the risk COVID-19, but were enough for the purpose of the desired for triangulation;

3. The evaluation coincided with the prevalence survey; this posed a challenge as some of the key informants were part of the survey.

3.0 RESULT FOR THE END OF PROJECT EVALUATION

3.1 Result 1: The treatment of ear diseases is permanently embedded in the Zambian health system.

The evaluation of the key result area 1 on the treatment of ear disease in the Zambian health system was based on the five components of activities linked to outcomes as expressed in the log-frame. These were Training public health planning for ENT, Conducting an Epidemiological survey, Revision of the ENT curriculum, Conducting ENT surgeries and holding ENT coordination meetings for national planning. The performance of each of these is explained in the subsections below.

3.1.1. Training Public Health Planning for ENT

Ten (10) public health planners were trained by Starkey Hearing Institute in collaboration with the London School of Hygiene and Tropical Medicine. The eight (8) health planners were from southern province and 2 planners were from Central province.

3.1.2. Conduct Epidemiological survey

At the time of the evaluation the epidemiological survey /prevalence study had been commissioned whose main objective is to determine the prevalence, and severity of hearing loss in Zambia. The study was being undertaken in collaboration with the Zambia Ear, Nose, Throat, Audiology and Speech Society (ZENTAS). Data collection was scheduled for the 10th February 2022 to the 18th of March 2022. The draft report is expected on the 31st of March 2022.

The Epidemiological survey should have been done in 2019. It was however deferred to allow the project to train ENT staff who would have the necessary competence and experience in providing ENT service to be able to participate in the epidemiological survey.

3.1.3. Revision of the ENT curriculum

The results from discussions with key informants indicated that ENT is already embedded in the revised existing curriculum, but the challenge is the small number of specialized personnel to adequately teach the ENT component at various levels.

Beit Cure organized a consultative meeting with nursing and medical training schools offering revised ENT curriculum training in the country. The workshop was held on the 11th of March 2022. As shown in the picture above.

A training workshop is planned for the week beginning the 14th March 2022 for all the nursing and medical training schools. This will be accompanied by the donation of equipment for the schools.

Some site visits will be undertaken by the project team to assess how the ENT content is being taught and practicals are being managed

Figure 1.0 - Workshop at Radisson blue hotel in Lusaka for Health training center

3.1.4. Conduct ENT surgeries

The project carried out a total of 1,742 of the targeted 1,970, which represented an achievement of 88 % of the target. The table below shows the surgeries number of each of the project years

Table 4: Showing the number of surgeries conducted during the project years

2018 Target	2018 Achieved	% Progress	2019 Target	2019 Achieved	% Progress	2020 Target	2020 Achieved	% Progress	2021 Target	2021 Achieved
400	0	0	450	359	80	500	367	73	620	0

In 2019 surgeries were only conducted by Beit Cure, while in 2020 surgeries were conducted by both Beit Cure and UTH. However, UTH only started conducting surgeries in the third quarter of 2020. All the hospitals Livingstone, Beit Cure, UTH hospitals conducted surgeries in 2021. The project achieved 88% (1,742/1,970) against the project set target for the 3-year period of 1,970 as at 31st December 2021. A further 2,013 surgeries has been done as at April 2022 representing 102 % achievement. .

3.1.5. Conduct ENT coordination meetings for the national plan.

There has been no National ENT Coordinating Committee over the last three years. The key informant interview revealed that it is the responsibility of the Permanent Secretary of the Ministry of Health (PS-MOH) to constitute the committee. The delay has been attributed to the Covid- 19 pandemic and the change of Government in 2021. At the time of the evaluation the names of the proposed committee members had been forwarded to the PS-MOH for scrutiny and approval.

3.2. Result 2: An increased number of ear specific qualified medical and paramedical specialist

3.2.1. Training of ENT surgeons

Three (3) ENT Specialists/Surgeons (Dr Harrison Phiri, Dr Alex Malambo and Dr Rachael Hapunda) trained in temporal bone dissection in Zimbabwe and Kenya. Two (2) ENT Specialists were sponsored for their post graduate program. Dr Harrison Phiri (full), Dr Alex Malambo (Partial) in head and neck surgery from the University of Nairobi, Kenya in 2021. The surgeons have not been able to commence teaching temporal bone dissection courses to prospective ENT Specialists as the lab has not been commissioned (Certificate *attached in the appendix).* They have however been conducting otologic surgery that have enabled them to fully appreciate the training they received.

3.2.2. Training of hearing aid technicians

Four (4) hearing aid technician have been trained at the Starkey Hearing Institute of Lusaka and are currently practicing. There are two at Livingstone Central Hospital, one at Request Muntanga Level 1 Hospital (Kalomo District) and Choma General Hospital (Choma District). This implies an achievement rate of 100% in terms of training completion.

3.2.3. Training of General Practitioners, Clinical Officers, and Nurses

A total of 36 Clinical officers and Nurses were trained in ENT diagnosis, prevention, and basic treatment against a target of 30. Additional 13 nurses were trained in speech and communication therapy (Target was 12). One of the trainees in Livingstone passed away. This gives an over

achievement rate of 120% for Clinical officers and Nurses and 108% for those trained in speech and communication therapy

3.2.4. Training of community health assistants:

A total of 28 Community Health Assistants were trained out of the targeted 30 in the last phase of the fourth quarter of 2020. This shows an achievement rate of 93 %. This pool of community health assistants is vital for community based inclusive development and improving the ENT services outreach. This ensures that health services are brought close to the people at the primary care level.

The interviews with some of the Community Health workers indicated that most of them work as volunteers, while some of them are paid a monthly stipend. The major issue raised is they do not feel appreciated despite the heavy workload.

4.3. Result 3: Ear medical infrastructure is permanently improved in Zambia.

4.3.1. Furnishing of offices treatment rooms

At the time of the evaluation all the Furniture and desktop computers were purchased for all the health facilities. The UTH provided a room which was converted and equipped into a Temporal bone laboratory. Kalomo, Choma and Kabwe had fully kitted audiometric booths although the one in Choma was undergoing renovations.

Figure 1.1 – Equipment in Livingstone General Hospital

Figure 1.1 – Equipment in Livingstone General Hospital

Figure 1.2 – Audiology booth at Request Muntanga Hospital in Kalomo

Table 5 – Inventory List of the equipment bought by the project

QTY	ITEM	LOCATION	VERIFIED
1	HP Laptop 250 G6	Beit Cure Hospital	✓
1	Camera System	Operating Theatre	✓
1	Toyota Hilux	Beit Cure Hospital	✓
1	Water Tank (Contribution)	Beit Cure Hospital	✓
1	HP Laptop Intel Core13	Livingstone Central Hospital	✓
1	HP Laptop Intel Core13	Beit Cure Hospital	✓
3	Kuduwave Audio Equipment	Southern Province	✓
37	LED Light ENT Equipment	Southern Province	✓
50	Sound Reducing Panel	University Teaching Hospital	✓
1	SOM62 ENT Microscope with Accessories	Livingstone Central Hospital	✓
1	SOM62 ENT Microscope with Accessories	UTH	✓
1	SOM62 ENT Microscope with Accessories	Kabwe Central Hospital	✓
3	SOM82 Table Mounted -Temporal Bone Lab Microscope with Accessories	University Teaching Hospital	✓
2	Myringotomy Set	University Teaching Hospital	✓
1	Mastoidectomy Set	University Teaching Hospital	✓
1	Tympanoplasty Set	University Teaching Hospital	✓
1	Adenoidectmoy Set	University Teaching Hospital	✓
2	Tonsillectomy Set	University Teaching Hospital	✓
1	Endoscope Set	University Teaching Hospital	✓
4	Myringotomy Set	Livingstone & Kabwe C H	✓
2	Mastoidectomy Set	Livingstone & Kabwe CH	✓
2	Tympanoplasty Set	Livingstone & Kabwe CH	✓
2	Adenoidectomy Set	Livingstone & Kabwe CH	✓
4	Tonsillectomy Set	Livingstone & Kabwe CH	✓
2	Endoscope Set	Livingstone & Kabwe CH	✓
3	Equipment for Lab	University Teaching Hospital	✓
3	Tympanometer	Livingstone Central Hospital	✓

Table 6 – Inventory List of the equipment bought by the project

QTY	ITEM	LOCATION	VERIFIED
1	Harp Model Basic - Diagnostic Audiometer	Livingstone Central Hospital	✓
1	OTOPORT LITE Handheld -New Born	Livingstone Central Hospital	✓
1	Otis - Virtual Patients ,Edition Expert	Beit Cure Hospital	✓
3	Desk Top Computers	University Teaching Hospital / Livingstone & Kabwe CH	✓
2	Drills and accessories	University Teaching Hospital /Livingstone Central Hospitals	✓
3	Hipro 11 USB,Programming cables (BTE Set)& Panels for Audio Booths	Livingstone, Kalomo and Choma	✓
1	Samsung 12000BTU Air-conditioned	Livingstone Central Hospital	✓
2	Endoscopy system	Livingstone /UTH	✓
2	Diathermy	Livingstone /UTH	✓
1	Endoscopy system	Beit Cure Hospital	✓
1	Diathermy	Beit Cure Hospital	✓
2	Piano Model Basic - Clinical Audiometer	Kalomo and Choma Hospitals	✓
2	Timpani - Handheld Tympanometer	Kalomo and Choma Hospitals	✓
2	Box with Assorted Tips for Tympanometer	Kalomo and Choma Hospitals	✓
2	OTOPORT LITE Handheld -New Born	Kalomo and Choma Hospitals	✓
2	Samsung Air- Conditioner	Kalomo and Choma Hospitals	✓
1	Microscope	University Teaching Hospital	✓
4	Drills and Micro-Derider	University Teaching Hospital	✓
1	Bone Dissection Instrument	University Teaching Hospital	✓
1	Surgery -Tympanoplasty	Livingstone Central Hospital	✓
4	Swivel Stool	University Teaching Hospital	✓

Note:

✓ Represents equipment that has been verified as bought and accounted for during the evaluation

4.3.2. Equipping hospitals with ENT instruments

The University Teaching Hospital received a state-of-the-art ENT surgical microscope and the equipment for the Temporal Bone Laboratory lab. The Surgical microscope is currently being used in the surgeries at UTH.

Figure 1.3 - Showing the Temporal bone laboratory at the University Teaching Hospital (UTH)

Figure 1.4 - showing the equipment that was donated to Simoonga Health center in Livingstone

1. Simoonga Health Center, Livingstone district

Status of the equipment

a) The equipment was well received and most were in good working order, although the headlamps were found not to be working and there was an urgent need of more tips for the Otoscope. It was difficult to conduct outreach activities with very few tips.

2. Choma General Hospital

Status of the equipment

a) The equipment was well received and most were in good working order. There is an urgent need of batteries for the Otoscope. There were issues with the syringe, they preferred plastics ones as the metal syringe gets stuck during the procedure.

b) The ENT unit was found to be equipped and had a functional audiometric booth, although some Adjustments to the door to improve sound proofing were being undertaken at the time of the evaluation.

c) There is need for a large mat and more toys for speech therapy room

d) There is need to decorate the room to make it child friendly

3. Kalomo Request Muntanga Hospital

Status of the equipment

a) The equipment was well received and was in good working order. They do not have a speech therapy room and very few and toys for the kids.

4. Livingstone General Hospital

Status of the equipment

a) The equipment was well received and was in good working order. The audiometry booth needs a table which can accommodate all the equipment and the carpet was not of good quality. It was torn and needs replacing.

5. Lusaka – University Teaching Hospital

Status of the equipment

a) The equipment was well received and was in good working order.

4.3.3. Establishing bone lab at University Teaching Hospital.

Inspection at the University Teaching Hospital showed that the temporal bone laboratory was completed and Beit Cure Hospital procured equipment for the lab. At the time of the evaluation the temporal bone lab had not been commissioned, because of the Covid -19 pandemic and the unavailability of a high ranking Government official to commission the lab. The commissioning was scheduled for April 2022.

3.4. Outreach activities and screenings have reached more patients.

3.4.1: Conduct Clinical Outreach Activities

The total clinical outreach for the duration of project was 31,800, indicating an achievement rate of 206%

Table 7 – Community screenings during the project

Description	Baseline	Target Total	Total Achieved	*Cumulative % Progress*
Number of person's screened during outreach screening activities	7,500	31,800	65,354	206

Table 8 – Community screenings during the project

2018	2018 Achieved	% Progress	2019 Achieved	%Progress
7900	0	8200	8964	109

Table 9 – Community screenings during the project

2018	2018 Achieved	% Progress	2019	2019 Achieved	% Progress
7900	0	**0**	8200	8964	**109**
5400	0	**0**	5600	7554	**135**

Table 10 – Showing the total school screenings during the project

2020	2020 Achieved	% Progress	2021	2021 Achieved	% Progress
8300	20,152	243	7400	36,238	490

Notes:

1. There were no outreach activities for both Clinical and School screening in 2018 as the project logistics such as the administrative tasks such as conducting a feasibility study, hiring a dedicated project manager.

2. There were minimised outreach activities for both Clinical and School screening in 2020 and 2021 due to Covid 19, all the schools were closed and there were restrictions on gatherings

3.4.2: Conduct School Screening Activities

The evaluation found that the achievement rate for school screening outreach was 58%. A check in the quarter reports and interviews with the project implementing team revealed that School Screening activity was affected by the unavailability of school going children as schools closed in the awake of Corona Virus.

The outreaches and school screenings were adversely affected by the COVID-19 regulations instituted by the government through the Ministry of Health. The project could not conduct the planned outreaches and school screenings from end of March up to around October, 2020 when the government reviewed the restrictions.

Table 11 – Showing the total school screenings during the project

2018	2018 Achieved	% Progress	2019	2019 Achieved	% Progress
5400	0	0	5600	7554	135

Table 12 – Showing the total school screenings during the project

2020	2020 Achieved	% Progress	2021	2021 Achieved	% Progress
5,900	2,618	44	5,200	2,585	49.7

Table 13 – Showing the total school screenings during the project

Description	Baseline	Target Total	Total Achieved	*Cumulative % Progress*
Number of children screened during school screening activities.	5,360	22,100	12,757	58

4.0 SYNTHESIS AND DISCUSSION

4.1. Relevance

The project's intentions are very relevant and consistent with the needs of the population given that every third person receiving medical attention is diagnosed with and ENT related problem. WHO estimates that the prevalence of hearing impairment for adults older than 15 years was 15.7% whilst that for children aged between 5 and 14 years was estimated at 1.9% in sub-Saharan Africa (Mulwafu et al., 2016).

The Government of the Republic of Zambia in its 7th National Development Plan articulates the need to strengthen our ENT Health Services in order to attain the universal access and coverage of quality health care by all Zambians. This is further highlighted in the just ended National Health Strategic Plan 2017-2021, which shows government's commitment to ensure the optimum contribution of ENT to the attainment of the national health goals and Sustainable Development Goal (SDG) by 2030.

The projects **first objective** was "The treatment of ear diseases is permanently embedded in the Zambian health system" with the associated activities-training Public Health Planners, conducting an Epidemiological study, conducting of ENT surgeries and facilitation of coordination meetings for the National ENT coordination committees is still valid and relevant.

The project recognized that health planners were cardinal in ensuring that ENT is included in the National Health planning processes and implementation of the ENT strategic plan. The involvement of planners was meant to lead to planning of community actions towards ENT health promotion and disease prevention which is the most efficient and sustainable ways of ensuring better and equitable health outcomes. Some of the planners who were trained actively lobbied for the creation of ENT units in their respective facilities. Examples are those for Kalomo and Choma. The project should have also included provincial and district administration as they are the decision makers.

The project also recognized that information on ENT is vital for planning and raising awareness. The project had planned for an Epidemiological study to provide national wide status of ENT conditions to inform policy and practice. This was in line with the National Ear, Nose and Throat Health Strategic Plan as outlined in the ENT health Research and Publications section.

The need to embed ENT into the training curriculum for healthcare professionals such as nurses and clinicians is key to train competent people to ensure that ENT services are accessible and affordable to the Zambian population including the poorest communities and persons with disabilities in isolated geographical locations.

The evaluation was informed that the General Nursing Council has revised the curriculum but there has been very little consultation among various stake holders on the content. The project has made efforts to bring together stakeholders in order to harmonize the curriculum although the evaluation team are of the view that this activity should have been prioritized.

The project needed to have engaged higher learning institutions to promote ENT related programs who are better positioned to offer recognized qualifications. The universities are also able to partner with other internationally recognized institutions that offer ENT courses and programs.

The nursing and medical training schools offering revised ENT curriculum training mentioned that they did not have equipment for teaching and undertaking practical lessons.

The **second objective** "An increased number of ear-specific qualified medical and paramedical specialists are available in the target provinces" is still valid and relevant because the strategy states that currently, there is one (1) physician for every 17,000 inhabitants. The scenario is worse for delivery of ENT health care services where one (1) ENT Surgeon is responsible for 3,000,000 inhabitants, and only one (1) Audiologist for the whole Country.

This scenario means there is great need to build capacity in terms of the number of ENT Surgeons, speech therapy assistants, general practitioners, clinical officers and nurses trained. The project was able to achieve the intended objectives as regards the increasing the number of ear specific qualified medical and paramedical specialist but more effort should have been placed on the advocacy and engagement with Government (Ministry of Health) so that more resources can be channelled to ENT services. The scale of resources needed to make significant impact on the Zambian population can only come from the government.

The **third objective** was: “Ear medical infrastructure is permanently improved in Zambia”. The final evaluation is in agreement with the proposal of the mid-term evaluation that the objective should be recast to read as Ear medical infrastructure is significantly improved in the project areas”.

The argument is that the project had very limited coverage to have an impact on the whole of Zambia. The supply of furniture for offices and treatment rooms, construction of audiometric booths, construction of the temporal bone laboratory did however have a significant improvement of infrastructure in project areas which also included the main referral hospitals. The equipment and infrastructure is fundamental to the provision of quality health care as demanded in the national health policy.

There is however an urgent need to put in place a system of calibration and maintenance of the equipment. At the time of the evaluation the recipients of the equipment did not know where to take the equipment for service and calibration.

The **fourth** objective is “Outreach-activities and screenings have reached more patients”. The school outreach and clinical outreach activities are important public health proactive strategies for early diagnosis, preventions and treatment of ENT conditions. The people benefited from outreach activities because it brought the services closer to the people, although the activities were greatly hampered by the Covid 19 pandemic. The Ministry of Health had banned gatherings and schools were closed.

4.2. Coherence

There is coherence between the intentions of the project, the national policy framework and the National Ear, Nose and Throat Health Strategic Plan. This project contributed to the realization of the National Ear, Nose and Throat Health Strategic Plan in terms of need to increase infrastructure and equipment for ENT services, capacity building, strengthening the ENT information system and sensitization of the public on ENT conditions. The project is well aligned towards increasing access to quality health care services for all - leaving no one behind - as articulated in the national policy.

In addition, activities such as the Epidemiological survey /prevalence study was in line with what is proposed in the National Ear, Nose and Throat Health Strategic Plan. The project recognizes that

information on ENT is important for planning and intervention. The study was being undertaken in collaboration with the Zambia Ear, Nose, Throat, Audiology and Speech Society (ZENTAS).

The project should have targeted higher institutions of learning to mainstream ENT in the education curriculum and ensuring that there is a sustainable road map for increasing the ENT personnel in the health sector. Institutions such as University Teaching Hospital, the University of Zambia-, Mulungushi University and the Copperbelt University School of medicine present strategic partnerships/networks for capacity building for ENT staff.

This approach has the added advantage of tapping in to university academic linkages which would address the challenge of lack of specialized personnel to adequately teach ENT courses. The institutions can also be used to lobby government and agencies such as Health Professional Council of Zambia and the General Nurses Council (now called Nursing and Midwifery Council of Zambia) to officially recognize ENT, Audiology and Speech trainings and qualifications.

4.3. Effectiveness

The project was very effective in terms of trainings for the nurses, clinical officers and surgeons. In addition, the project effectiveness extended to the ENT services delivery. To assess the level of effectiveness of the capacity built among the nurses and clinical officers the beneficiaries were asked to state the level of the problem before and after the treatment.

The beneficiary survey results showed that 73% of beneficiaries reported not having any difficulty in hearing after treatment. Of the 56% of beneficiaries who reported having a lot of difficulty reduced to 20%, while those the 32% who had some difficulty reduced to 7% after treatment

The results for nasal conditions showed that 71% of beneficiaries reported not having any difficulty with nasal condition after treatment; of the 27% who reported a lot difficult reduced to 14 % and 36% who reported as having some difficult with their nasal condition before treatment, reduced to significantly low rate of 9% and about 14% still reported some difficulty after treatment.

The results for the throat conditions showed that 56 % of beneficiaries reported not having any difficulty throat condition after treatment; the 27% who reported having a lot difficult reduced to 8

% while 36% of the beneficiaries with some difficult with their throat condition before treatment reduced to significantly low rate of 11 % .

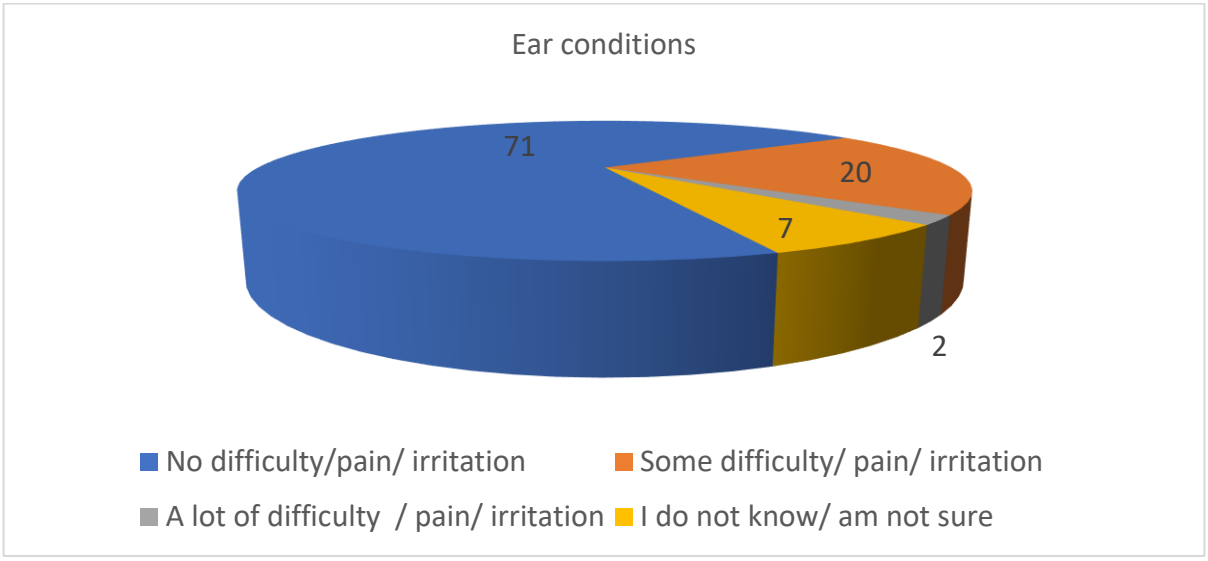


Figure1.5 Reported effect of ENT treatment on hearing conditions

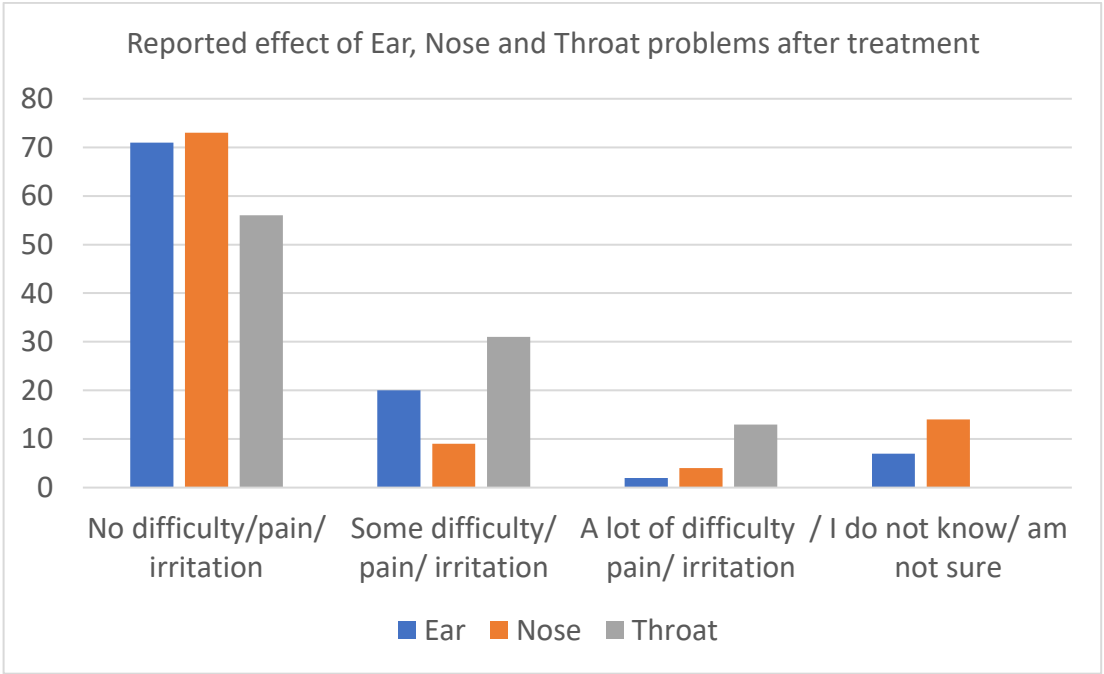


Figure1.6 Reported effect of ENT treatment for all the conditions

The services that the beneficiaries received under the project included having hearing aids fitted, surgical treatment, speech therapy service, medication for identified conditions, removal of excessive wax in the ear and removal of foreign body such as flies, cockroaches and maize and bean seeds.

The major impediment to the effectiveness of the project was the lack of awareness of ENT services by the public in the project areas. This was an issue identified by the beneficiaries who stated that very few people know that the ears can be cleaned. 69% of the people interviewed only knew about ENT services after coming to the hospital with a problem.

5.4. Efficiency

The overall fund utilization rate was at 83 % as indicated in (table 13) during the project evaluation and is projected to be at 90% at the end of the project on the 30th of April 2022. This is commendable considering that the project started late and was carried out during the Covid 19 pandemic. The funds were available for all the project activities as BCH at the beginning of 2019.

The project has performed moderately well in terms of efficiency with respect to timely completion of activities. The project commenced in 2018, although access to the funds was only gained in 2019. So most of the procurement and project activities was carried out in 2019, 2020 and 2021. The project outlined that the major challenge was in obtaining the correct specifications for the equipment as the access to ENT surgeons was limited.

The funds for the implementation of the ENT plan had the lowest utilization rate at 13%. The delays in the implementation of the prevalence survey has negatively impacted on the development of the strategic plan. This has been further compounded by the not having an ENT national committee to initiate the review of the ENT strategic plan. The project team informed the evaluation team that most of the funds have been spent on activities that were conducted in the period from 1st January to March 2022.

Secondly, the utilization of the budget on the school screening was at 49% which was due to the suspension of school screening due to the second and third wave of COVID-19. This was in accordance to the Statutory Instrument No 022 of 2020 of the Public Health Act

The project was implemented at the same time as other projects which enabled Beit cure Hospital to increase the number of beneficiaries to Lusaka and Central Province which was an efficient model for resource use and sustainability. Most of the project activities were complimented by another project that was being undertaken by World Vision international in Choma who donated additional equipment for the ENT unit.

The project accounts were audited for the years 31st December 2019 and 31st December 2020, and 3st December 2021. The evaluation was availed with the audited Project Financial Statements of Project No. CBM/BMZ P3851.

The audits indicated that the project financial statements were presented fairly and represented the financial position of the project, and its financial performance and cash flows for the period under consideration conformed to International Financial Reporting Standards and the Project Contract.

Some of the queries in the audits of note are the lack of a stand-alone computerized accounting system for the project. The audit found that the project did not have a stand-alone computerized accounting system and was using the Beit Cure Hospital X-Ledger Accounting System. The project accepted the idea of a computerized accounting system although there was no funding and it required project funders to authorize the project partner to procure a separate computerized accounting system such as Quick Books to be used for purposes of project accounting.

The audit also noted that there was lack of hedging against depreciation of the local currency. The project approached the funders for permission to open a dollar account, which was declined. The project was only able to buy most of equipment because of saving from other budget lines and reserves for the project after approval.

It was noted that the local ZMW currency is subject to significant depreciation against major international currencies due to the inherently weak nature of the Zambian economy. Therefore, when project funds are received in kwacha as a lump -sum (front –loading) and kept in the bank account over prolonged periods they are subject to significant loss in value. The equipment was mostly sourced from Germany and bought in Euros or Dollars.

Budget Expenditure BMZ –P3851 Project

Table 14 – Showing the Budget Expenditure BMZ –P3851 Project as 31st December 2021

SN	DESCRIPTION	APPROVED BUDGET (EUR)	ALL YEARS TOTAL EXPENDITURE (EUR)	ALL YEARS BALANCE (EUR)	BUDGET UTILIZATION RATE (%)
A	**Investment Cost**	**436,302.00**	445,085.56	-8,783.56	102%
1.1.1	Medical Equipment	369,052.00	377,542.56	-8,490.56	102%
1.1.2	Furniture and Learning Equipment	7,160.00	6,431.41	728.59	90%
1.1.3	Project Vehicle	34,200.00	34,115.19	84.81	100%
1.1.4	Construction at University Teaching Hospital	25,890.00	26,996.39	-1,106.39	104%
B	**Running Cost**	**319,408.00**	192,690.84	126,717.16	60%
1.2.1	Implementation ENT Plan	52,953.00	6,962.74	45,990.26	13%
1.2.2	Trainings	129,300.00	109,358.18	19,941.82	85%
1.2.3	Project Monitoring (Local)	37,050.00	27,443.95	9,606.05	74%
1.2.4	Outreaches and School Screenings	76,149.00	37,356.63	38,792.37	49%
1.2.5	Audit and Bank Costs	13,700.00	6,587.54	7,112.46	48%
1.2.6	COVID-19 Preventive Measures	10,256.00	6,164.37	4,091.63	60%
C	**Personnel Cost**	**119,890.00**	97,465.05	22,424.95	81%
1.3.1	Project Management	74,388.00	61,376.24	13,011.76	83%
1.3.2	Medical Personnel	45,502.00	36,088.81	9,413.19	79%
D	**Evaluation**	**27,000.00**	10,061.95	16,938.05	37%
	TOTAL	**902,600.00**	**745,303.40**	**157,296.60**	83%

4.5. Impact

The project has been able to attain positive impacts as shown by the number of activities that it has been able to undertake. The major positive impact was the increase in the number of personnel who are able to carry out some diagnosis and treatment of basic ear problems as well as professional development for the surgeons. This increased capacity in basic diagnosis and basic treatment will ensure that only complex cases are referred to the hospitals by the nurses and clinical officers. This will invariably continue beyond the project period.

The project was able to improve ENT service delivery by procuring and delivery of equipment to health facilities as well as construction of infrastructure such as audiometric booths and the temporal bone laboratory. The audiometric service provision and surgeries will continue beyond the project period. The community health assistants (trained at the end of 2020) are as well expected to further contribute positively towards the changing the attitudes knowledge and practices with regards to ENT at community level beyond the project period.

The fact that the clients in rural settings are able to access services such as removal of foreign bodies like beans and maize is testimony that the people have come to appreciate and value the importance of ENT services.

Secondly, among the primary beneficiaries, the reported impacts were increased happiness and peace of mind followed by the increased ability to communicate, the increased participation in social activities such as playing with others and participation at church. Other reported positive impacts were increased sense of self-esteem and improved education performance.

While the beneficiaries appreciated the availability of ENT services at the health facility, it was felt that more could have been done to increase awareness in the community. The awareness of ENT/Audiology/Speech Services provided at the facility by the beneficiaries was low as the survey showed that 69% of the beneficiaries came to know about the services after receiving other medical services at facilities. The beneficiary's survey indicated that the most commonly used communication channels in the communities was radio and community health meetings. Literacy was identified as the most important socio-cultural factor that hinder and facilitate effective communication of ENT service messages.

The survey revealed that 66% clients who visited the health facilities had ear related conditions while 14% had nose conditions and 15 % had throat conditions.

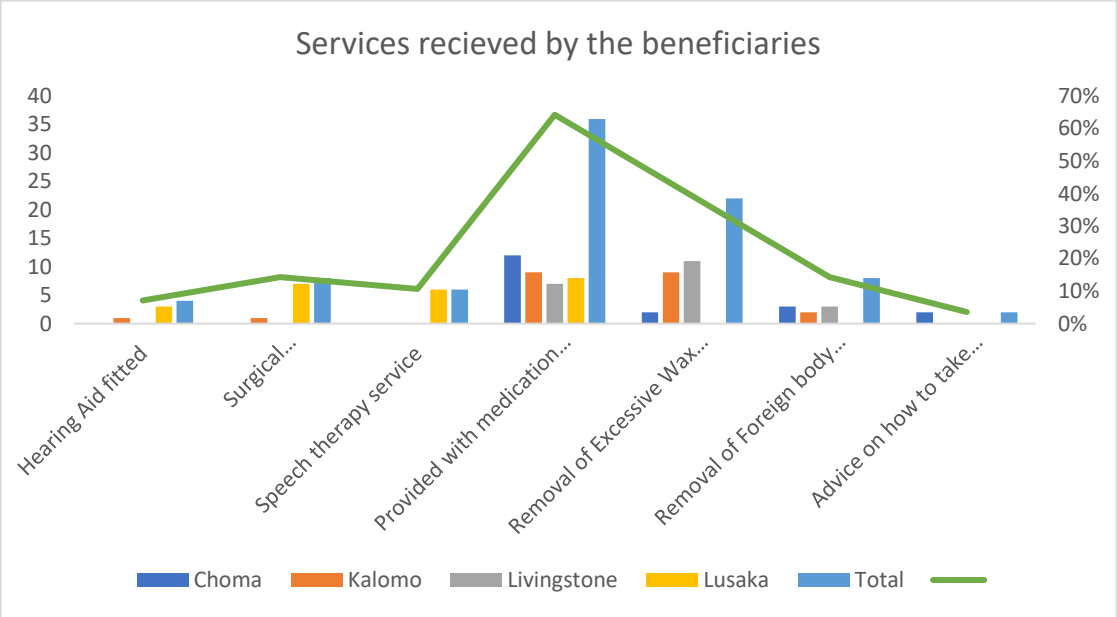


Figure1.7 Service received by the beneficiaries

4.6. Gender and Inclusion

The project performed well on gender and inclusion indicators because the data for the project was segregated by gender and showed that both genders benefited in terms of training and access to ENT services.

Of the Nurses and clinical officers trained in primary ear and hearing care 43% were male and 56% were female. 75% of the nurses and clinical officers trained as audio-technicians/hearing instrument specialists by the Starkey hearing institute were male, 25% being female.

However, it was noted that all the speech therapists trained were women as most of the nurses and clinicians are female and it could be an area that interests women. The community health workers who were trained in awareness raising for ear and hearing care 32% were male and 68% were female. 1 out of the 3 ENT Specialists/Surgeons who was trained in temporal bone dissection was female.

In terms of access to ENT services, the results show that there is no gender gaps in terms of ENT activities such as clinical and school screenings and consultations among children than among adults. The project carried out outreach-activities and screenings to reach more patients, the outreach-activities reached 31,800 patients. 7,900 patients were screened in 2018, 8, 200 in 2019, 8,300 in 2020 and 7,400 in 2021. The outreach activities resulted in 5,814 consultations comprising of 1,182 males, 1,708 females, 1,469 boys and 1,455 girls.

In addition, the project carried out a total of 22,100 children school screenings, the project carried our 5,400 screening in 2018, 5,600 screening in 2019, 5,900 and 2020 and 5,200 in 2021. During the fourth quarter of 2021 the project successfully provided 57 males, 58 females, 523 boys and 550 girls with ear and hearing consultations.

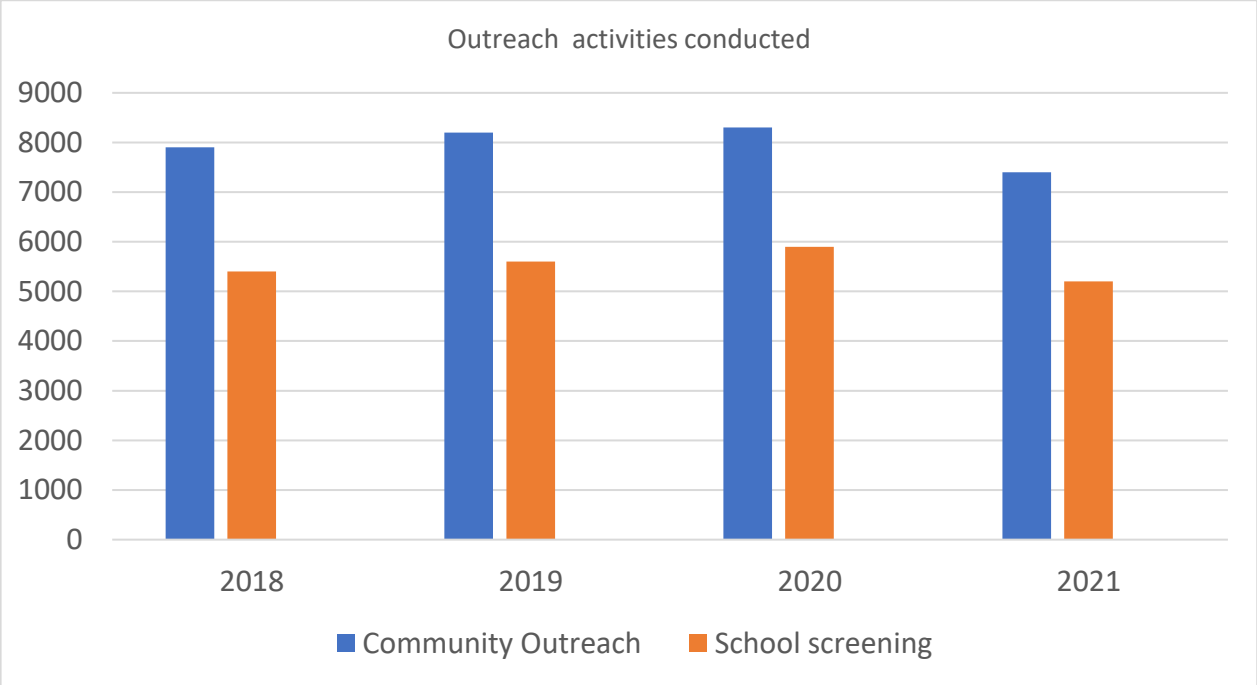


Figure 1.8 –Showing the outreach activities undertaken during the project period

According the beneficiary survey carried out by the evaluation, the gender distribution was 52% male and 47 % female in Choma, it 50% male and 50% female in Livingstone, it 43% male and 57% female in Kalomo, it 56% male and 44% female in Lusaka, with an overall ratio of 50 % male and 50% female for all geographical areas evaluated.

The project did not desegregate data on the persons with disabilities but the information on various ear and hearing related conditions such as Hearing Loss, Otitis Media, Nose and Throat related conditions were adequately captured.

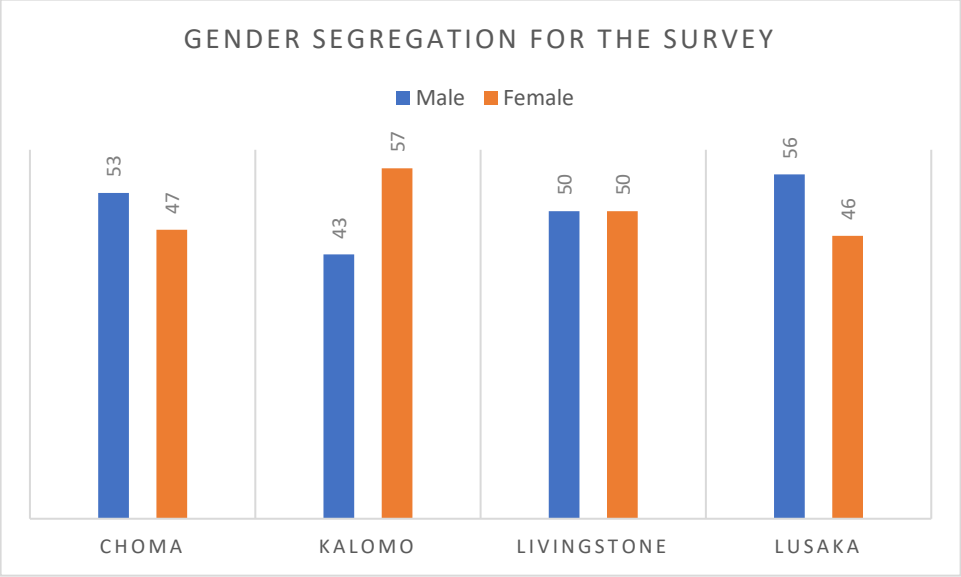


Figure 1.8 Access to ENT services by gender groups

4.7. Sustainability

The project has achieved key milestones by undertaking activities that are in line with the intentions of the national ENT strategic plan. However, the sustainability aspects of the project could have been implemented a lot better. The key macro level components should have been implemented in year one of the project to ensure there is a fair chance that the ENT services are mainstreamed in the health sector. The aspects required engagement and discussions with key stakeholders Such as the Zambia Ear, Nose, Throat, Audiology and Speech Society and the Nursing and Midwifery Council of Zambia and Ministry of Health, which ideally takes a long time. It is worth noting that some

engagement activities were being undertaking during the evaluation. Some of these are meetings with engagement with the Nursing and Midwifery Council of Zambia, Ministry of Health and training institutions

The evaluation wishes to highlight some of the key elements that had an impact on the sustainability aspects of the project.

1. **Importance of the prevalence survey**

   The prevalence survey was set out to determine the prevalence rate of persons living with hearing impairment, and severity of hearing loss among the general population in Zambia. Data generated from this population-based study on hearing impairment will inform the nation of the magnitude of ear disease and hearing loss in Zambia.

   The available information on ENT related diseases are estimates which are not based on local studies. A population-based survey on hearing impairment will provide better understanding of the scale of the problem for planning of planning for intervention measures and reinforce what is contained in the national health strategic plan for Ear Nose and Throat.

   Of all the key of the macro level components, this is essential as it will provide justification for increased awareness, funding, training of additional manpower and it should have been a priority activity.

2. **Recognition of ENT training programs**

   The evaluation found that there was no recognition of Audiology qualifications at technician level for Nurses by the General Nursing Council (Now called the Nursing and Midwifery Council of Zambia) and for Clinical Officers through the Health Professionals council of Zambia (HPCZ). At the time of the evaluation the clinicians and nurses who received the audiology technician/Hearing Instrument Specialist certificate, speech therapy certificate and Primary Ear and Hearing Care Course were not recognized by practicing medical bodies and MOH. They are no ENT and Audiology professional qualification incentives or any remunerations/salary grade structures that recognize advanced training acquired by a nurse of clinical officer in these fields, which offers a big impediment to personnel venturing in ENT as a career option

a prospective career opportunity. Some of the personnel that were trained has since abandoned ENT to be trained in more recognized programmes such as midwifery which is perceived to be more rewarding and recognized.

3. **Capacity building and mainstreaming of ENT in the curriculum and training institutions.**

The project was of the opinion that it was no longer relevant to implement the curriculum review activity because a new curricular already exists that adequately incorporates ENT. What was needed was to build the capacity of the trainers / Lecturers and institutions to introduce ENT and Audiology specializations at various levels of qualifications. This will in turn foster institutional change to recognize such qualifications in the Zambian health sector by the Government and private sector employers.

The project team held a successful stakeholders deliberation meeting with the National Midwifery and Nursing Council of Zambia (NMNCZ) formerly known as the General Nursing Council of Zambia (GNCZ). In addition, Beit Cure has organized a consultative meeting with nursing and medical training schools offering revised ENT curriculum training in the country. The workshop was held on the 11th of March 2022.

These meetings are very critical for ensuring that all the stakeholders embrace mainstreaming of ENT in the curriculum and to include tangible actions in the next Strategic plan. The following were the resolutions for the meeting held by BCH and NMNCZ:

a) BCH to help support the NMNCZ (National Midwifery and Nursing Council of Zambia) orient all training schools and other health partners in a stakeholder's engagement on the revised Nursing Curriculum which covers in ENT so as to operationalize the training of nurses in ENT as they train in Nursing.

b) NMNCZ to look into accrediting BCH as a practicum training center site in ENT as well as look at recognizing the Audiology/Hearing instrument training for Nurses so as to accredit them and be recognized in the nursing fraternity.

c) To incorporate Continuous Professional Development (CPD) Training points for ENT and make BCH an accredited provider of CPD points to all nurses in the country. BCH would have to provide CPD points to nurses who are actively participating in ENT service provision.

4. **Procurement of appropriate equipment**

There were concerns was raised over the accessories and consumables that were bought without consulting the end users. Some of the consumables that was procured were single use, and not autoclavable and were not readily available within Zambia.

a) There is a need for the project to have discussions on sustainability of the equipment including options for integrating the maintenance, repair, and procurement of accessories on the existing health facility funding systems. These initiatives and discussions should have been done much earlier, preferable at the project proposal stage between Beit Cure Hospital and Ministry of health as budget changes take time to be affected in government.

b) There has been no evidence of a systematic facility for the provision of hearing aids and batteries at the main Audiology centers constructed by the project which is vital to Audiology service provision. In order to ensure sustainability the consultant recommends that the project works with the National ENT Coordinator's office to lobby support towards Hearing Aid acquisition through the National Health Insurance Management Authority (NHIMA.)

c) The audiology technicians were not aware of a system in place for the calibration of equipment for all the facilities that were visited. The project team informed the evaluation team that the suppliers of equipment were unwilling to allow them to calibrate their own equipment. They have tried to have our own BCH Bio-Medical Technician to be trained to handle all future calibration needs for both BCH and all government centres.

In the interim the project and Beit Cure hospital is currently relying on the system of having South African Technicians come into the country to calibrate until a long term and sustainable solution is found.

5. **Collaboration and awareness**

The project has brought about great collaboration with the office of the ENT national coordinator which adds value to sustainability through institutionalization of the ENT service provision and education at National level. The office of the ENT national coordinator seemed to have mammoth task in dealing with all the ENT issues. Additional manpower in her office to implement programs could help. Without the ENT National committee, the ENT national coordinator has a difficult job of implementing activities. We would also recommend that the project works with the National ENT coordinator to foster a human resource cadre such as provincial ENT coordinators (appointed by MOH) to help support ENT service provision at Provincial and district level. The consultant also recommends that future projects should consider providing support to the Zambia Ear, Nose, Throat, Audiology and Speech Society to help the society raise awareness about its mandate in the country.

There was lack of awareness and linkages at district level of ENT programmes resulting in the situation where there are staff transfers which do not take into consideration the trainings that staff underwent.

There was no clear plan of creating ENT units and in the institutions visited, in most cases, it was as a result of the BCH project. Institutions which had management that appreciated the importance of ENT services tended to be better organized. A case was Choma General Hospital which had a well-structured system of support for the ENT unit.

4.8. Child safeguarding

The evaluation assessed the awareness level of the stakeholders of child protection / safeguarding policy and degree to which the CBM child safeguarding standards are known and understood by the various stakeholders. The level of awareness was very high among the senior personnel in the institutions, but very low amongst the nurses, clinician, speech therapist who were interviewed. The project included training on the child safe guard policy in all the trainings sessions that were conducted under the project including the consultancy team went through the child safeguard policy.

Inspection of the facilities showed that the consultation rooms provided a degree of privacy for the clients and there were benches outside for the waiting clients. The pictures below show the ENT waiting areas in Choma and Livingstone General Hospital.

Figure 1.9 - Showing the privacy and waiting facilities in Choma and Livingstone General Hospital

It is recommended that all the medical staff should be reoriented on ethics and protection of patients including children. If a similar project is undertaken in the future, awareness training should be implemented alongside the ENT training to reinforce and remind the staff of the need for child safeguard measures.

It is also worth incorporating an element of ethics and protection of patients in the new curriculum or nurses and clinical officers.

5.0 LESSONS LEARNT.

The following are lessons learnt:

1. It is important for the project at the project conceptualization and planning stage to involve key stakeholders such as the Ministry of Health, key medical/health training universities, Zambia Ear Nose and Throat Association, National Midwifery and Nursing Council of Zambia and Health Professional Council of Zambia. These institutions are mandated to carry out their respective function which are critical for the sustainability of ENT service delivery.
2. Awareness raising should have been a key component of the project as most of the beneficiary interviewed alluded to not knowing that ENT services existed before being attended to at the facility.
3. Equipment should also be procured after extensive consultation with the users. There is need to ensure that accessories for the equipment are reusable, so that the beneficiaries get the value for money.
4. The project should have put in pace a strategy for calibration of equipment. Most of the equipment in the audiometric booth is are not usable after a specified period of time. The project should have considered establishing a site for calibration with the cooperation of the manufactures.
5. The consumables used in ENT and provided by the project are not part of the essential drugs that are procured by the facilities through the Ministry of Health and so there is need to lobby Ministry of Health for this change to be made so that ENT units can operate and provide this service.
6. ENT medication is not locally available in pharmacies and it is not affordable for most of the beneficiaries.
7. Capturing of data at facilities was not systematic, it ranges from writing in notebooks, ledger books and using the Smart Care system. There is need to orient staff on the usage of the Smart Care system as it is a more reliable option for the hospitals.
8. Deployment of trained staff by government does not take into consideration the training that the staff have received. There is need to communicate with District and Provincial office whenever a training is done.

6.0 CONCLUSION

The project generally has managed to meet its intended objectives and the project was generally well managed and implemented, resulting in achieving key results to ensure that the treatment of ear disease is permanently embedded in the Zambian health system, there is an increased number of ear specific qualified medical and paramedical specialist, ear medical infrastructure and equipment is constructed and installed in the project areas and lastly the project managed to conduct outreach activities and screenings to reach more patients. The project attained an achievement rate for most of the activities ranging from 80 to 100% despite encountering challenges that have negatively impacted progress towards the achievement of some of the intended project goals. The challenges included: COVID-19 which reduced the number of school outreaches and generally delayed the implementation of project activities due to lockdown imposed by the Ministry of Health.

The evaluation found that the project's intentions are very relevant and consistent with the needs of the population and was in conformity with the 7th National Development Plan which articulates the need to strengthen our ENT Health Services in order to attain the universal access and coverage of quality health care by all Zambians. The project was also coherent with the intentions of the national policy framework and the National Ear, Nose and Throat Health Strategic Plan.

The project was very effective in terms of carrying out trainings for the nurses, clinical officers and surgeons and in the delivery of ENT services. The project was also very efficient in its implementation of the project activities with an overall fund utilization rate is at 83 % which is commendable considering that the project started late and was carried out during the Covid 19 pandemic.

The project was able to attain positive impacts because most of the activities were undertaken which included increase in the number of personnel who are able to diagnosis and treat of basic or minor ear problems as well as professional development for the surgeons.

The project performed well on gender and inclusion because both genders benefited in terms of training and access to ENT services as well as a good awareness of child protection/safeguarding policy. The project was well grounded and has potential for upscaling at national level. There has to be a clear focus on advocacy and lobbying because most of the activities which relate to mainstreaming ENT services in the healthcare system requires the Government through the Ministry to Health to implement ENT strategy and policy.

7.0 RECOMMENDATIONS.

Based on the afore-explained and discussed results the evaluation presents recommendation based on decreasing order of priority. The prioritization criteria is based on the easiness of implementation coupled with high degree of control by the project.

1. **Temporal bone lab commissioning** - The project must prioritize activities such as commissioning of the Temporal bone laboratory. The evaluation team found that it had been ready for some time.

2. **National Ear, Nose and Throat Health Committee (NENTHC)** – There was need for clear course of action on how to manage or influence the Ministry of Health to put in place or appoint the NENTHC. The role of the NENTHC to formulate, coordinate, implement, evaluate and monitor ENT health services in Zambia is very critical. The NENTHC also has to advise MoH on policy direction and guidelines for the delivery of ENT health services in Zambia.

3. **Epidemiological studies** - Conducting the epidemiological study should have been a priority activity for the project and it would have helped in the engagement with various stakeholders and Ministry of Health thereby helping to increase the awareness of the ENT situation. The consultant therefore recommends that future studies in projects are prioritized with the Ministry of health through the Zambia, Ear, Nose, Throat, Audiology and Speech society encouraged to take the lead and ownership in seeing these studies conducted effectively and timely.

4. **ENT Training** - The training should have been done in partnerships with local institutions such as universities or Nursing schools instead of Beit Cure. A good model is the training that was done by the Surgeons in temporal bone dissection which was hosted by the University of Nairobi and other universities in Zimbabwe and India.

5. **Mainstreaming of ENT in the curriculum and training institutions –** While the new curriculum is in place for nursing and medical training schools, there is a lot to be done to have teachers and lecturers who can adequately teach the courses. The schools are also ill prepared to teach the courses as they do not have the necessary laboratory and equipment for practical lessons.

The project should engage Universities for them to offer higher diploma and degree Audiology programs as a clear pathway to upgrading the qualifications. This would be a sustainable approach in ensuring that there is an increase in the number of trained ENT Staff.

6. **Infrastructure and Equipment** - The provision of safe ENT is critically reliant on the availability and functional status of infrastructure, equipment, and supplies. Furthermore, to provide both essential and comprehensive ENT health care many consumables must be available consistently, which requires an efficient, predictable and flexible supply chain.

   a) A sustainable mechanism needs to be put in place for Calibration of equipment

   b) There is an urgent need to build capacity for repair and maintenance of equipment. There is no capacity for the facilities to repair the donated equipment and are entirely reliant on Beit Cure.

   c) Hearing Aids – The project needs to have a clear plan on how to manage the supply of hearing aids and associated consumable such as batteries. The project could have explored and lobbied the possibility of using NHIMA to increase access of Hearing aid accessories

7. **Lack of medication** - This evaluation found that most hospitals lack essential medication for ENT conditions as listed by the World Health Organization. The shortage of antibiotic/antiseptic ear drops may worsen the pre-existing high incidence of complications of ear infections, especially in patients. ENT medicines are not categorized as part of the essential medication for the hospitals.

   The project should have mobilized ENT stakeholders such as the Zambia Ear, Nose, Throat, Audiology and Speech Society to lobby government to categorize ENT medicines to be part of the essential medication procured by the MOH for the hospitals.

8. **Human Resource Development -** The inadequate ENT workforce (surgeons and mid-level personnel) has been identified as a key barrier to providing the necessary ENT services for Zambia. All the cadres suffer from wholly inadequate numbers. The gap is partially addressed in Zambia by task-sharing and broader scopes of practice of many healthcare providers.

However, the existing gap remains large. In order to address the issues related to shortage of qualified ENT health professionals, deliberate efforts and initiatives have been made by the project to train staff such as the mentoring of the two clinicians that is taking place at UTH and Beit cure. The consultant recommends that more of such initiatives much be should encouraged. The trained clinicians will support the provision of ENT surgeries in Livingstone and Kabwe by focusing on conducting minor surgeries to help offset the ENT disease burden so that ENT Specialists focus on more major complex surgeries.

9. The project funders should be able to allow the project to open a dollar account, which does not earn interest. This will hedge funds against depreciation of the local currency and ensure that procurement of expensive equipment that is bought in dollars is not affected

8.0 APPENDIX

1. Sample of training certificates

2. Ministry of Health Letter authorizing the prevalence survey

CERTIFICATE

Tabo Mubita

Has successfully participated in the course for

PRIMARY ENT HEALTH CARE

Beit CURE Hospital,
Lusaka, Zambia

24th February - 6th March, 2020

The training covered the following:

Basic ENT Anatomy
Structure and function of the ENT area
ENT examination
History taking
Signs and symptoms of ENT diseases
Pathology of ENT diseases
Treatment of the different pathologies of ENT
Impact of hearing loss to the patients and society
Basic hearing screening
Hearing aid care and maintenance

Awarded this 06 **of** 03 **20** 20

Dr. Rachheal Hapunda
Consultant ENT –
Head and Neck Surgeon

Dr. Felicitas Felicilda
Consultant ENT –
Head and Neck Surgeon

Certificate of Participation

Awarded to

Dr. Rachel Hapunda

for participating in the 7th Advanced Temporal Bone Dissection Course
held at Kenyatta National Hospital, Nairobi Kenya
from 22nd - 26th November 2021

Dr. Samuel Nyaga
Kenyatta National Hospital (KNH)

Dr. Chimmy Omamo-Olende
Operation Ear Drop Kenya (OED-K)

Dr. Thijs Van Hees
Ear-Drop - Netherlands

Dr. John Ayugi
University of Nairobi

International Hearing Society

awards this Certificate of Completion of Distance Learning
for
Professionals in Hearing Health Sciences
to

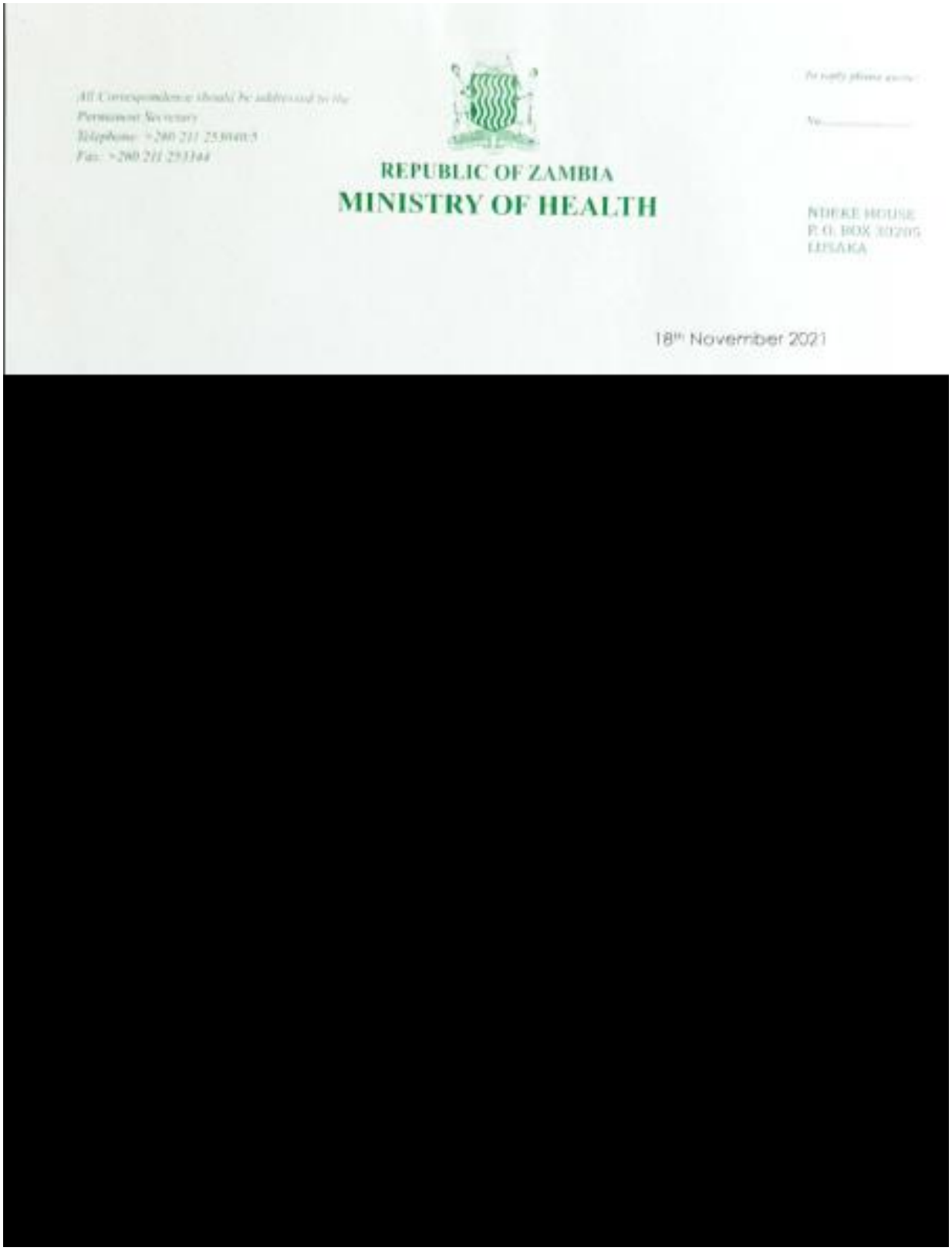
Akende Sikota Wina

presented

March 20, 2021

Kathleen Mennillo, MBA
Executive Director

This program is approved by the International Hearing Society and its educational committee, the International Institute of Hearing Instrument Studies.
There are no continuing education credits associated with this program, nor does it substitute any state certification.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REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH
NDEKE HOUSE
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18th November 2021