



Federal Democratic Republic of Ethiopia
Ministry of Health

**Ear, Nose, Throat, Head and Neck Health
Services Strategic Plan 2019-2023**

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Addis Ababa

Theme

Establishing universal access and coverage for Ear, Nose, Throat, Head and Neck health services in Ethiopia

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Foreword

The Ethiopia Federal Ministry of Health (FMOH) has launched the Health Sector Transformation Plan (HSTP) as part of the second Growth and Transformation Plan of the Ethiopian government. The HSTP has set targets toward realizing the sustainable development goals and identified four transformation agendas: Quality and Equity, Woreda Transformation, Information Revolution and Compassionate, Respectful and Caring (CRC) health workforce.

The Otolaryngology- head and neck surgery specialty is one of key intervention disciplines which needs to have proper strategies to assure quality and equity as a transformation agenda.

The launching of this strategic plan is in line with the ministry's dedication to establish universal access and coverage for ear, nose, throat, head and neck health services in Ethiopia.

I would like to take this opportunity to extend the ministry's sincere appreciation to all individuals and organizations who have actively participated in the development of the ear, nose, throat, head and neck surgery strategic plan.

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Federal Ministry of Health

Acronyms/Abbreviations

AIDS	-	Acquired Immunodeficiency Syndrome
AR	-	Allergic Rhinitis
ART	-	Anti Retroviral Therapy
BOD	-	Burdon of Disease
CASH	-	Clean and Safe Hospital
CBM	-	Christian Blind Mission
CHW	-	Community Health Worker
CME	-	Continuous Medical Education
CRC_PC	-	Compassionate respectful patient care
CSOM	-	Chronic Suppurative Otitis Media
DALYs	-	Disability Adjusted Life Years
DHMT	-	District Health Management Team
DHS	-	Demographic Health Status
EFY	-	Ethiopian Fiscal Year
EHAQ	-	Ethiopian hospitals alliance for quality
ENT	-	Ear, Nose and Throat
ENTHN	-	Ear, Nose, Throat, Head and Neck
ENTHNDs	-	Ear, Nose and Throat Diseases
EPHI	-	Ethiopian Public Health Institute
FMHACA	-	Food Medicine Health and Control Authority
FMOH	-	Federal Ministry of Health
GDP	-	Gross Domestic Product
HIS	-	Hearing Instrument Specialist
HIV	-	Human Immunodeficiency Virus
HMIS	-	Health Information Management System
HSSP	-	Health Sector Strategic Plan
HSTP	-	Health sector transformation plan
IEC	-	Information Education and Communication
IR	-	information revolution
M&E	-	Monitoring and Evaluation
MDGs	-	Millennium Development Goals
MMC	-	Millennium Medical College
MoH	-	Ministry of Health
MoU	-	Memorandum of Understanding
NCD	-	Non-Communicable Diseases
PFSA	-	Pharmaceutical Fund Supply Agency
PHC	-	Primary Health Care
PLC	-	Private Limited Company
SALT	-	Safe Life Through Safe Surgery
SDGs	-	Sustainable Development Goals
SNHL	-	Sensorineural hearing loss
SNNPR	-	Southern Nations, Nationalities and People's Region
SWOT	-	Strength Weakness Opportunity Threat
USD	-	United States Dollars
WHO	-	World Health Organization

WTP - Woreda transformation plan

Executive Summary

According to Johan J. Fagan and Marian Jacobs (2009), burden of disease (BOD) is extremely high in resource-starved regions such as Africa. Even though hearing disability ranks third on the list of non-fatal disabling conditions in low- and middle-income countries, Ear, Nose, and Throat disorders are not specifically coded for within the framework governing global BOD estimates, and in discussions about health challenges, non-communicable diseases receive scant attention. Implementing cost-effective interventions to address conditions largely neglected by global estimates of BOD such as hearing loss are important contributors to health and economic development.

Moreover, based on reports of WHO, about 15% of the Entire population of the world has hearing impairment. Incidences of hearing loss in third world countries are very high. In Ethiopia, hearing impairment is assumed to be 4.7 million. Hence, it is necessitated to combine efforts of increasing advocacy, prevention and treatment against such hearing impairments. It is also surveyed that hearing impairment has effects across lifespan: slows language development and school progress, causes job problems, social isolation, stigmatization, and poverty. To this end, Federal Ministry of Health has a great concern in the Health Sector Transformation plan, as part of areas of focus of Sustainable Development Goals.

The overall objective of this document is to assist the FMOH in the development of the ENTHN sector in Ethiopia. The specific objective emphasize on provision of in-depth analysis of the main gaps of the ENTHN services currently provided, and assisting the FMOH in the formulation of the ENTHN National Action Plan.

The ENTHN Strategic Plan 2019-2023 will, therefore, provide strategic direction for ENTHN services over the next five years to ensure that the sector in Ethiopian continues to build on its well-grounded reputation as a world-class health service. The Strategic Plan provides strategies on service delivery aimed at addressing hearing impairment, chronic otitis media, and throat, nose and paranasal conditions. Others are head and neck neoplasms and tonsillitis which can cause complications of the heart and the kidney. It also focuses human resource development; research and development; partnerships; Leadership and governance.

The ENTHN Health Strategic Plan will provide direction for all ENTHN health care services. Therefore, there will be a great need to adhere the set commitments in order to conform to the provisions, recommendations and aspirations of this Ear, Nose, Throat, Head and Neck Health Strategic Plan (2019 to 2023).

The estimated budget for the ENTHN Strategic Plan 2019 to 2023 is **USD 300,850,354** for the period of five years. At the present (April 2018) value ETHB 27.24 per USD 1.00, this translates to **ETHB 7,292,612,581** for the same period.

PART ONE: SITUATION ANALYSIS

1.1. Country Profile

Ethiopia is a country surrounded by 6 neighboring countries; West- Sudan, East- Djibouti, North and north East- Eritrea, South west -South Sudan, South- Kenya and South East -Somalia. It has 9 regional states and 2 city administrations. Ethiopia is the second most populous country in Africa, after Nigeria. It has a population of about 100 million (2016), with 18.6% of the population living in urban areas. The most populous regions of the country are Oromia, Amhara and SNNP, accounting for over 70% of the population. It is growing at an annual rate of 2.6%: if current demographic trends continue, the population will double over the next 40 years. The age distribution of the population is typical of a developing country, with a very high percentage of children and women of reproductive age.

Ethiopia's population is subject to major migrations throughout the country, with rural-rural migration being the predominant form (46.9%), followed by rural-urban (26.9%), which is gradually increasing, by around 6-7% per year. 81.4% of the population live in rural zones, but there is significant migration from the country to cities: this is a threat, as urban areas are not ready to absorb an increase in their population and guarantee adequate social-health services.

The country's Human Development Index (HDI) stands at 174 out of a total of 179, down 5 places since the initial report in 2010. Despite this, its economy has seen sustained growth since 2003 of 11%, mainly in agriculture, 6.6%, industry, 20%, and the services sector, 10.7%. Foreign aid is one of the main contributors to Ethiopia's GDP, being one of the 10 largest aid recipients worldwide.

The percentage of the population living in extreme poverty has declined. At present, 22% of the population lives on less than USD 1.25 per day. It is expected to be a middle income country by 2025.

Geographically, the country is structured into four levels of government: state or federal, regional, district (or "woreda"), and municipal ("kebele"). The 1994 constitution introduced a federal government structure divided into 11 administrative units: 9 regions (Tigray, Afar, Amhara, Oromia, Somali, Benishangul- Gumuz, Southern Nations, Nationalities and Peoples Region (SNNPR), Gambella and Harari, and 2 administrative cities (Addis Ababa and

Dire Dawa)), which are in turn divided into woredas and kebeles, with a total of 934 woredas and 15,000 kebeles. This decentralization means that each federal state is responsible for implementing national policies,



Figure 1 Map of Ethiopia

1.2. National Health Sector Development Situation

The health system in Ethiopia is facing multiple challenges due to many factors, including the shortage and high turnover of qualified professionals, lack of resources (including drugs and supplies), lack of infrastructures and gaps in terms of financial coverage services. Since 1998, the Government launched the first Health Sector Development Plan (HSDP), which has now come to the III Edition (now called Health Sector Transformation Plan (HSTP), covering the period between 2010 and 2016.

Table 1 Population Based Health Facilities Expansion in 2015, 2020 & 2025

Health Institution	Standard	Baseline Year (2015)	Mid-term (2020)	End-line (2025)
		Population 90,142,000	Population 102,486,220	Population 116,520,484
Health Post	1:5,000 ²⁹	16,477 ³⁰	21,741	29,130
Health Center (Total)	1:25,000	3,542 ³¹	3,792	4,224
Primary Hospital	1:100,000	153 ³²	820	874
General Hospital	1:1,500,000	54	102	117
Specialized Referral Hospital	1:5,000,000	20	26	77

Source: [Informe_Assitencia_Tecnica_Ethiopia \(2017\)](#)

Table 2 Health facility to population ratio by Region

Region	Population	Functional Health Center		Functional Hospital		Health Post	
		Number	Ratio	Number	Ratio	Number	Ratio
Tigray	5151998	202	25505	38	13559	712	7236
Afar	1769002	90	19666	6	294834	325	5443
Amhara	20769985	840	24726	57	364386	3392	6123
Oromia	34575008	1363	25367	6	531923	6519	5304
Somali	5598002	183	30590	9	622000	1069	5237
Ben-Gum	1033999	37	27946	2	516999	391	2645
SNNPR	18719008	696	26895	47	398277	3849	4963
Gambella	422002	32	13188	2	211001	133	3173
Harari	240000	8	30000	2	120000	30	8000
A. Ababa	3352000	96	34917	11	304727	-	-
Diredawa	453000	15	30200	2	226500	33	13727
National	92206005	3562	25886	241	382598	16480	5596

Population distribution by age group

< 15 years old: 46%; Between 15 and 65: 51%; >65: 3%.

Women 15-49: 23.4 %.

Ratio of men to women: 1.02

Birth rate: 35.7/1000

Fertility rate: 4.1 (2.2 in Urban and 4.7 in Rural areas)

Source: [Health and Health Related Indicator \(EFY 2008\)](#)

The country has shown momentous progress in access to primary healthcare and basic health services. Yet, its health sector still faces major challenges; specifically in terms of professionals for medical services. The principal reason is the inadequate number of qualified human resources. Even worse, majority of the existing qualified professionals' tendency to concentrate in Addis Ababa. Ethiopia's epidemiological health profile follows the classic pattern for developing countries, with substantial maternal and perinatal problems, malnutrition and infectious diseases. Over the last decade, the country has seen a considerable increase in non-infectious diseases and trauma injuries, with the three types of conditions achieving similar weights. The Government has developed national strategies to control non-infectious diseases and trauma. However, the country has experienced a significant improvement in its main health indicators.

Table 3 Evolution of main health indicators

Indicator		2009	Objectives for 2015	2016	Objectives for 2020
Life expectancy (years)		54.4	-	64	69
Infant mortality rate (deaths/1000)	< 5 years	123	68	64	30
	< 1 year	77	31	44	20
	Neonatal		-	28	10
Maternal mortality rate (deaths/100,000)		590	267	420	199
Institutional birth rate		15.7%	62%	72%	

Source: Informe_Assitencia_Tecnica_Ethiopia (2017)

The major causes of infant mortality < 5 years are: respiratory infections, diarrhea, meningitis, measles, trauma, malnutrition and neonatal problems, with the last two of these being the most important at present. Over recent years, the importance of infectious diseases as causes of mortality has fallen, compared to neonatal problems, which have increased from 22% to 43% (The Lancet, 2012). This is a common pattern, with gradually decreasing infant mortality and increasing neonatal problems. The increased coverage of immunization programs is satisfactory, although deaths from measles remain worrying (coverage of 86.5%). At present, acute and, in particular, chronic infant malnutrition is a massive problem in Ethiopia, affecting up to 40% of the infant population (Mini DHS, 2014), although there are wide regional variations, from 22% in Addis to 49.2% in Afar. The chronic problem of malnutrition among the population is regularly exacerbated by humanitarian crises caused by famine.

Maternal mortality stood at 871 in 2000. It has since fallen, but not as quickly as desired in terms of the objectives set, and remains one of the highest in the world. This is mainly due to hemorrhages, high blood pressure, abortion and blood poisoning. A number of programs have been put in place to address this, such as those for the Health Extension Programme, Provision of Emergency Surgical Obstetric Care, Safe Blood Transfusions, Ensuring Medical Supplies and Increased Institutional Childbirth. Although there has been significant progress in institutional childbirth, major regional differences remain (Gambella 20.8% and Addis Ababa 85%). 15% of pregnant women are estimated to suffer obstetric complications: in addition to mortality, these also include obstetric fistulas, prolapsed uterus and chronic pelvic pain.

Obstetric fistulas (rectal or vesicovaginal) are a particular problem for women in Ethiopia. According to figures for 2013, there are some 3500 new cases every year, with some 37,500 untreated women. The country has nine specialist centers for treatment of this condition, treating 2450 women per year: however, this is insufficient to control this problem. The prevalence of such conditions is expected to decline as childbirth conditions improve and the productivity of surgical treatment centers increases.

In the past 15 years, the maternal mortality rate and infant mortality rates have been decreasing. Infant mortality rate have been reduced to 44/1,000 births in 2016. Maternal mortality has been reduced from 590 per 100,000 live births in 420 per 100,000 live births in 2016.

Infectious diseases: Mandatory reportable tropical diseases. Ethiopia has 8 of the 17 declared by the WHO, adopting the strategies recommended by the WHO. Dracunculiasis (Guinea worm disease): Ethiopia is one of the 12 countries worldwide where this is endemic, although its incidence has decreased very significantly; Trachoma, one of the main causes of blindness, which is very common; Onchocerciasis (river blindness); Visceral (Kala-azar) and cutaneous leishmaniasis, one of the main public health problems; Lymphatic filariasis, schistosomiasis, helminthiasis and podoconiosis.

The prevalence of human immunodeficiency virus (HIV) infections has improved over recent years, from 2.4% (men 1.8%, women 2.8%) to 1.2% (men 0.8%, women 1.6%) (MoH/EPHI, 2012), Incidence 0.28%. There are currently around 750,000 people living with HIV/AIDS. Coverage of ART treatment is 79.8% (MoH report 2014). Although the incidence of tuberculosis (TB) has fallen by 5.5% due to the measures adopted since 2000, and particularly over the last 5 years,

outpacing the global average of 1.9%, it remains a serious public health problem, with an increase in multi-drug-resistant TB. Leprosy is a characteristic health problem in Ethiopia, but has improved significantly, from a prevalence of 2007 per 100,000 in 1983, to 0.5 in 2012. However, 3080 new cases of leprosy are discovered every year, particularly in the Amhara and Oromia regions (MoH annual report, 2014).

Mental problems make a major contribution to the burden of illnesses, reaching 11% in rural areas, particularly schizophrenia and depression (*National Mental Health Strategy, 2012*). These are supplemented by harmful habits, such as alcoholism, affecting 0.5-1.5% of the population, and poor urban social conditions that impair the individual's psycho-social state.

Blindness is a serious problem in Ethiopia, exceeding the average for Sub-Saharan Africa with a prevalence of 1.6%, and partial vision loss of 3.7% (EFY 2005-2006), mainly due to trachoma and cataracts, which account for over 60%. 90% of the causes of blindness in Ethiopia are preventable and/or treatable. Almost 10% of the population has diminished vision due to uncorrected refractive problems. Given their importance, there is a National Plan for the Control and Care of Eye Diseases, the National VISION Plan 2020, and a National Committee for Blindness Prevention.

Non-transmissible diseases and injuries are becoming more prevalent, accounting for 34% of the causes of mortality (WHO, 2010a). These are mainly cardiovascular, malignant and respiratory diseases, diabetes and, in particular, trauma. Other studies put the figure for this group at up to 51% (Misganaw, Mariam&Araya, 2012), particularly for those aged 44-72. A study carried out in Addis Ababa in 2007 found that trauma accounted for 27% of all emergencies at the hospital level, 5% of all admissions and 3% of deaths. There is a significant increase in trauma injuries from traffic accidents, as access to paved roads has become more common. There has been a significant increase in the road network, which has increased six-fold since 1990, to 105,000 km. The Universal Rural Road Access Programme has resulted in more than 10,765 kebeles now being linked to roads, with the average distance to a road for the rural population having fallen from 21.4 km in 1997 to 11.3 km in 2010 and 6.7 km today.

There are high rates of disability in the country. The main causes are: prenatal problems 7.7 %, war injuries and anti-personnel mines 4.1%, polio 3.2%; accidents and injuries 10.5%, and other diseases such as leprosy, diabetes and meningitis 28.2%.

1.3. ENTHN Health Services Situation Analysis

Ethiopia has a high incidence and prevalence of communicable diseases such as HIV and TB, malaria as well as an increasing load of Non-Communicable Diseases (NCDs). As a result, the burden of diseases in Ethiopia remains high. In fact, as life expectancy increases and communicable diseases are more effectively monitored and treated, NCDs increase in incidence and prevalence. The most common NCDs in Ethiopia include road traffic accident, cancer, diabetes and hypertension (with its complication), cardiac disease, chronic obstructive respiratory disease, and stroke to mention. ENTHN service plays a major role in the management of these diseases, either in prevention or in treatment.

Currently, there is one [1] physician for every 16,000 inhabitants. The scenario is worse for delivery of ENTHN health care services where one [1] ENTHN Surgeon is responsible for 3,000,000 inhabitants, and no Audiologist and very few deaf schools for sign language in the Country.

ENTHN Health Promotion and Primary Health Care

This will be exercised in enabling the people to increase control of their own health and improve their ENTHN health seeking behavior. Reliable community actions in terms of ENTHN health promotion and disease prevention are the most effective and sustainable approaches of ensuring better health results. To this end, the emphasis would be on individual behavior for an extensive range of social and environmental interventions.

Infrastructure, Equipment and Logistical Support

Infrastructure

The delivery of better ENTHN service is highly reliant on the accessibility and functional level of infrastructure, equipment, and supplies. Moreover, to provide the necessary ENTHN health care, the basic requirements must be available constantly, which requires an efficient, predictable and flexible supply chain.

A number of medical institutions can be converted into centers of excellence where people will access highly specialized ENTHN health services, thereby saving their related costs. Currently infrastructure for ENTHN health services exists at the following institutions.

I. Addis Ababa City Administration

1. Black Lion Hospital
2. Saint Paul Millennium Medical College (MMC)
3. Yekatit 12 Medical College Hospital
4. Minilik –IIReferral Hospital
5. Ras Dasta Damtew Memorial Hospital

II. SNNPR State

1. Hawassa Comprehensive Specialized Hospital
2. Garabet Tehadiso Mahber Hospital [1]

III. Amhara Region

1. Felegehiwot Specialized Comprehensive Hospital (Bahir Dar University)
2. Gondar University Hospital

IV. Tigray Region

1. Ayder Specialized Comprehensive Hospital (Mekele University)

Equipment

There are relatively modern and adequate ENTHN health services equipment in Ayder and Saint Paul MMC but all the rest are lacking modern and adequate ENTHN health services equipment. Black lion comprehensive specialized hospital is one of the first hospitals for training residents in various specialties including ENTHN with limited ENTHN Service Equipment.

Table 4 Basic and Modern ENTHN Equipment Availability in Assessed Hospitals

Type of ENTHNEquipment	Black Lion	St. Paul	Yekatit 12	Minilik II	Ras desta	Hawasa	Felege Hiwot	Ayder
1) Basic								
Tympanoplasty set	1	5	2	0	0	1	0	3
Mastoidectomy set	1	5	0	0	0	1	0	3
Nasal polypectomy set	1	2	1	1	1	1	1	3
Septoplasty set	1	2	0	1	0	1	1	2
Rhinoplasty set	0	2	1	1	0	0	1	2
Sinus surgery set	1	2	2	1	0	1	1	2
Adenotonsillectomy set	2	5	3	1	0	2	1	2

¹In addition to the eight ENTHN health service providing institutions, it was realized that there have been the ENTHN health services as Ear Operation campaign (3-4 times per year) at Girarbet Tehadiso Mahber Hospital in Butajira, SNNPR. However, the statistical data were not considered in this assessment due to inconsistencies of data obtained from the ENTHN health service delivery through campaign operations. It was confirmed for future it has been planned by FMOH to run ENTHN activities with St. Paul Millennium Medical College.

Tracheostomy set	2	2	2	1	4	2	1	2
Laryngeal surgery set	1	3	1	0	0	0	0	2
Operating microscope	1	3	2	0	1	1	0	4
Headlight with light source	1	2	2	0	0	2	0	4
Flexible nasopharyngolaryngoscope	1	0	1	0	0	0	0	3
Autoclave machine	2	1	2	1	2	1	1	3
Out Patient Equipment	1	3	2	2	2	2	1	3
2) Modern								
Otology drill	0	1	1	0	0	0	0	1
CO2 LASER	0	0	0	0	0	0	0	1
Neck Ultrasound	1	1	1	1	1	1	1	1
CAT -SCANNING	1	1	1	1	1	1	1	1
MRI -SCANNING	1	1	0	0	0	0	0	1
PET SCANNING	0	0	0	0	0	0	0	0
RADIATION THERAPY	1	0	0	0	0	0	0	0

Source: ENTHN Assessment, 2017

Logistic Support

Majority of the hospitals get medicines and medical supply from PFSA, from budget allocated, others equipment which are not available in the stock are tendered from importers of pharmaceutical companies.

Service Delivery

An extensive effective and efficient service delivery in ENTHN is of paramount importance to a healthy country. By and large, the health services must be brought close to the people with a routine point of Entry to the service network at the primary care level. The services must be equitable, safe, timely, and centered on the patients' needs. Most of the disease of ENTHN are affecting children, and young adult infectious disease like otitis media with hearing loss, tonsillitis, adenotonsillar disease recurrent infection with serious complication if not diagnosed and treated earlier by trained professionals. An inclusive package of ENTHN health services is a compulsory complement to primary care service delivery in offering health promotion, disease prevention, cure, palliation, and rehabilitation.

Human Resource

Human resource is crucial in delivering health service especially in ENTHN evaluation which needs thorough history, proper physical examination.

Diagnostic equipment is very important to perform this activities needed for skilled health personnel in terms of both theoretical and practical skill. The current severe shortage of ENTHN personnel in Ethiopia in provision of quality ENTHN health services as close to the people as possible is a critical issue. Therefore, task shifting must be prioritized by training of ENTHN health personnel for primary and secondary health care services.

It is highly required to increase uptake of residents in universities with medical schools by well equipping by medical equipment, infrastructure, and full filling trainers. This should be supported with the creation of positions within the healthcare system. International standards recommend a minimum of 2 ENTHN surgeons per 1,000,000 people. Hence, Ethiopia needs about 200 ENTHN –which is tenfold to the current number. The gap is partially addressed in Ethiopia by task-sharing and broader scopes of practice of many healthcare providers especially pediatricians, on children with ENTHN problems, head and neck disorders with surgeons and plastic surgeons. However the existing gap remains large.

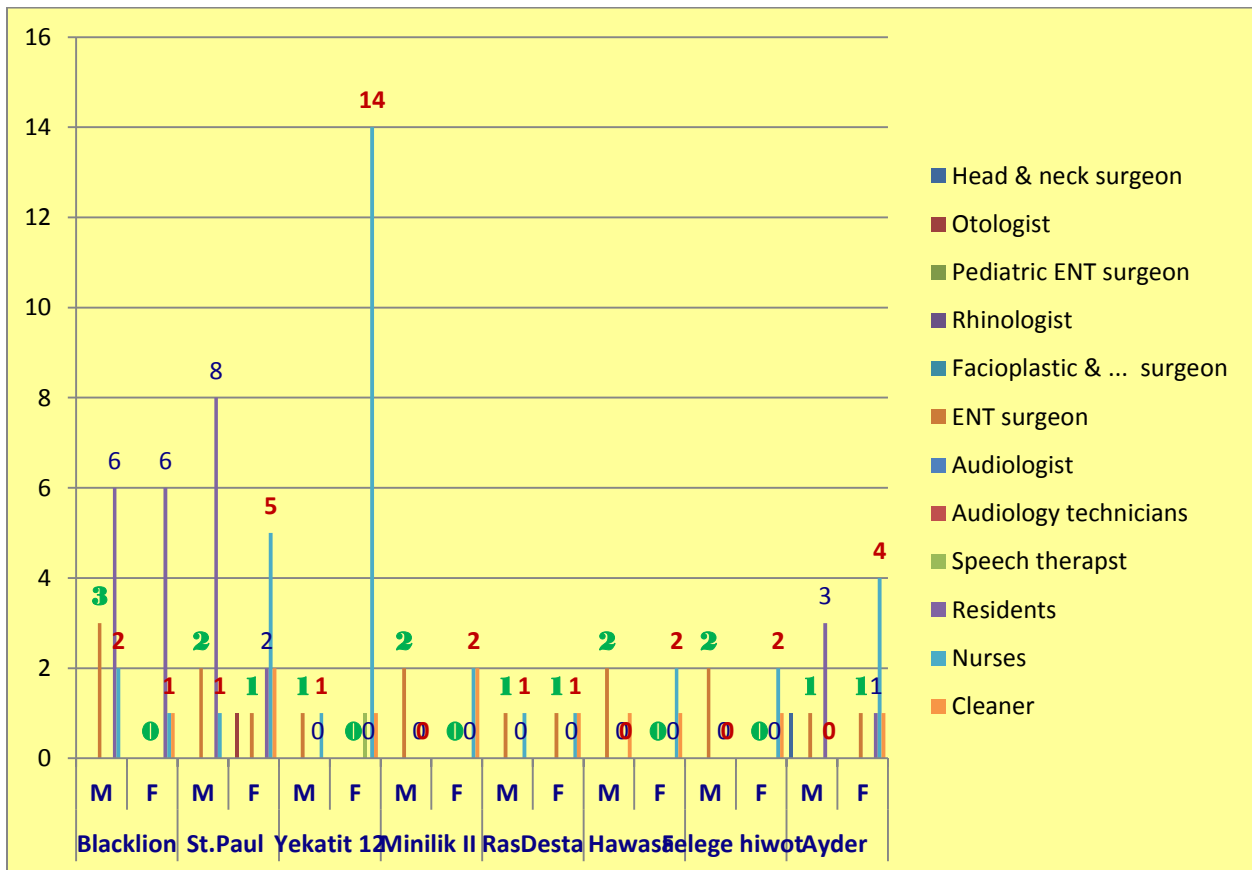
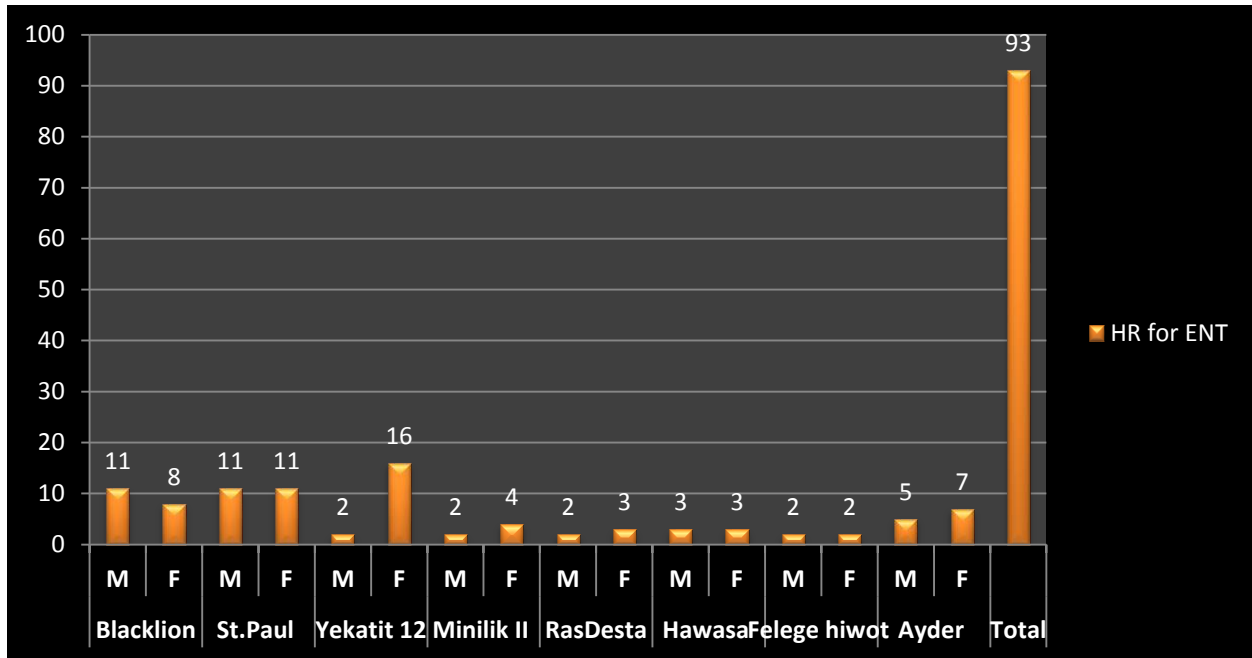


Figure 2 HR Stratified by Profession, Hospital, M & F



NB: Numbering in the column axis indicate No of Staff

Figure 3 All HR in ENTHN Department by Hospital

Source: ENTHN Assessment, 2017

Medicine and supplies

ENTHN medicine and medical supplies are important to perform ENTHN procedures, minor and major surgeries. Without these supplies procedure may be postponed or referred depending on the condition of the patient. There are general and specific medical supplies for ENTHN currently few drugs are listed in essential national drug lists, other supplies are like gelfoam, surgicele, balloon catheter for nasal bleeding are not available. There are no continuous consumable surgical supplies and medicine for ENTHN.

PART TWO: THE EAR, NOSE, THROAT, HEAD & NECK HEALTH SERVICE STRATEGIC ASSESSMENT

2.1. Vision

To see a productive, healthy Ethiopian people with free of Ear, Nose, Throat Head and Neck diseases

2.2. Mission

To promote health and wellbeing of Ethiopians through establishing and providing a progressive and sustainable Ear, Nose, Throat, Head and Neck health services that is accessible, inclusive, and responsive to all irrespective of the status, geographical location as well as cultural differences of the people.

2.3. Overall Goal

To provide equitable, accessible and adequate coverage of cost effective quality health services for Ear, Nose, Throat, Head and Neck health care as close to the people as possible in Ethiopia.

2.4. Guiding Principles

Table 5 Guiding Principles

Human rights	People with ENTHN conditions including hearing impairment should enjoy full human rights including the right to appropriate health care and free of stigma in society
ENTHN conditions	ENTHN health care should be holistically integrated in general health care throughout the country. Capacity building must be conducted to all health workers in order for them to have basic skills to detect ENTHN disorders, provide treatment and refer when necessary.
Community Ownership	ENTHN health care should be provided in the community whenever possible. Communities and families should take an active role in the care of people with hearing impairment and other ENTHN, Head and Neck conditions.
Quality	ENTHN health care should be of highest standards. Services should be provided according to the established treatment protocols. ENTHN health services should be delivered effectively and efficiently, with prudent management of valuable resources.
Inter-Sectoral collaboration	Ear, Nose and Throat conditions cut across all sectors. These include health, education, justice, welfare, communities and Civil Society Organizations. Inter-Sectoral collaboration is cardinal.
Respect for local culture	Whilst respecting beliefs and traditions of people, communities should take keen interest in raising awareness of ENTHN conditions. These should be accompanied by good health practices.

Protection of vulnerable groups	The ENTHN health needs and rights of vulnerable groups should be upheld including those of persons with disability, women, children, adolescent and the elderly.
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2.5. SWOT Analysis on Building Blocks

Table 6 gives a detailed SWOT analysis of the situation regarding ENTHN services in the Country – covering the 6 WHO building blocks for health care.

Table 6 SWOT Analysis on ENTHN Services

STRENGTH	WEAKNESS	OPPORTUNITY	THREATS
SERVICE DELIVERY-Reduction and Rehabilitation of preventable and curable ENTHN diseases			
<ul style="list-style-type: none"> • ENTHN service has already started in nine hospitals • Both training and medical service is delivered in three hospitals • cochlear implantation and training of neurotology fellow ship started before a year 	<ul style="list-style-type: none"> • inadequate service in majority of the hospitals specially ear and laryngeal surgery • inadequate medical equipment • in adequate ENTHN consultancy room • lack of auditory service in the five hospital • lack of priority for ENTHN service by governing bodies in the institution 	<ul style="list-style-type: none"> • health extension workers are involved in primary health care • mobile ENTHN service • collaboration of St.Paul MMC • Initiation of fellow ship otology 	<ul style="list-style-type: none"> • inadequate medical supplies • inadequate medical equipment most of them were gotten by donation • maintenance of medical equipment is great challenge • cultures and beliefs in disease prevention • rapid migration of people from rural to urban
2.Health Work Force- ENTHN Health personnel to provide excellent ENTHN service			
<ul style="list-style-type: none"> • continual training on ENTHN specialty • General medical practitioner (GMP) are involved in medical treatment of ENTHN patients under supervision of senior consult 	<ul style="list-style-type: none"> • inadequate consultant ENTHNsurgeons • few uptake of residents per year • inadequate space for the training service • No curriculum for middle level training on ENTHN for task shifting 	<ul style="list-style-type: none"> • collaboration of teaching hospitals with other universities abroad skill transfer • short training course were delivered to consultants 	<ul style="list-style-type: none"> • inadequate training materials • incentives and retention mechanism for ENTHN surgeons • the cost of training due financial crisis
MEDICAL PRODUCTS – procurement of all essential drugs and supply for ENTHNDs			
<ul style="list-style-type: none"> • Medical guidelines prepared by FMHACA 	<ul style="list-style-type: none"> • Drugs are not prescribed according the national guideline • drug sensitivity are 	<ul style="list-style-type: none"> • Medical reference are available on digital library 	<ul style="list-style-type: none"> • inadequate supply chain in PFSA • Bidding technical committee • procurement process and

	<ul style="list-style-type: none"> not routinely done for most of ENTHNDS no research has been conducted on ENTHN disease and their management weak quantification and planning of ENTHN drugs inadequate pharmaceutical companies and less priority of ENTHN drugs weakness of drug and therapeutic committee to execute their mandate on drug procurement policy 		<p>bureaucracy</p> <ul style="list-style-type: none"> cost of the brand drug items from private importers
INFRASTRUCTURE, EQUIPMENT AND TRANSPORT – providing infrastructure and equipment			
<ul style="list-style-type: none"> Availability of equipment and infrastructure at the training institution 	<ul style="list-style-type: none"> Inadequate infrastructure and equipment for rent, including diagnostic tools and equipment for intervention at the health institutions Shortages of skilled personnel For processing and sterilization of ENTHN equipment. 	<ul style="list-style-type: none"> Donation from partners in few medical institutions 	<ul style="list-style-type: none"> Cost of the equipment maintenance and spare part availability handling problems micro equipment difficulty in preparation of specifications for ENTHN equipment transportation and custom clearance foreign currency for procurement
Information -Building Health Information System (HIS) with integration of different data sources for evidence-based decision making			
<p>Presence of HIMS Registration of patient data</p>	<ul style="list-style-type: none"> poor documentation of patient card, CSOM, Allergic Rhinitis, Foreign bodies no standardized data collection by existing ENTHN diseases 	<ul style="list-style-type: none"> Information revolution initiatives launched by FMOH Revision of previous HIMS training of HIT has been started by AARB 	<ul style="list-style-type: none"> most diseases are coded as "other nonspecific " Loss of patient data Inadequate information delivered by the patient inadequate human (HIT) resource on data entering

Leadership and governance- Integration according to the principles of harmonization: "One Plan-One-Budget-One Report"			
Development of specialty road map at MOH including training priority area	<ul style="list-style-type: none"> Lack of adequate policy on ENTHN no standardized care plan developed at national level 	<ul style="list-style-type: none"> The existence Ethiopian society of ENTHN 	<ul style="list-style-type: none"> In adequate priority given for ENTHN service Inadequate multisectoral collaboration on ENTHN Insufficient partners and international support to ENTHN. Weak involvement and participation of communities.

Source: Consultancy Assessment, 2017

2.6. Stakeholder Analysis

Involvement of all stakeholders is necessary for successful implementation of various aspects of this strategy. The Federal Ministry of Health, international organizations, development partners, non-Governmental organizations, Ethiopian Society of ENTHN, Faith-based-organization (FBOs) and Community Based Organizations (CBOs), communities and families all share a responsibility to ensure fulfillment of citizens' rights to adequate ear and hearing care services. Partners need to work together to achieve the objectives of this strategy by information sharing, adopting innovative approaches, avoiding conflict of interest and duplication of efforts to maximize use of available resources.

Table 7 Stakeholder Analysis

Stakeholders	Behaviors we desire	Their needs	Resistance issues	Institutional response
Community	Timely seek health care Comply with treatment and advice Participation, engagement Ownership and Healthy life style	Access to health information and service, empowerment, quality of health care stewardship	Dissatisfaction Opting for unsafe alternatives Underutilization Incapacity	Community mobilization, ensure participation Quality and equitable service and information
Parliaments, Prime Minister's Office, Council of Ministers, Regional Governments	Ratification of Policy proclamations, policies, etc. Resources allocation	Implementation of proclamations, Policy, etc. Equity & quality Plans & Reports	Administrative measures Organizational restructuring Influence on budget allocation	Put in place strong M&E system and comprehensive capacity building mechanisms

Strategic Plan for ENTHN Health Services 2019-2023

Line Ministries (Education, Finance, Construction, Environmental protection etc.)	Inter-sectorial collaboration Consider health related to ear, nose and throat in all policies and strategies	Evidence-based plans; Reports Effective and efficient use of resources and coordination Technical support	Disappointment Considering ear, nose and throat health as low priority	Collaboration Transparency Advocacy
Health professional training institutes	Knowledgeable, skilled and ethical ear, nose and throat health professionals produced Maintenance of quality health care ensured Operational and outcome research conducted and disseminated	Technical, policy support, guidance	New curriculum Curriculum revision Monitoring and evaluation Unidentified Community health Problems	Policy and leadership support
Development Partners	Harmonized and aligned Participation More financing Technical support Place ENTHN Health Services on the global public health agenda Capacity building Social mobilization	Financial system accountable, transparent, efficient and effective Involved in planning, implementation and M&E	Fragmentation High transaction cost Inefficiency and ineffective	Government leadership Transparency Efficient resource use Build financial management capacity
NGOs, CSO, ENTHN society and other professional associations	Harmonization & alignment Resource & technical assistance Licensing and accreditation Promote professional code of conduct Partnership	Involvement in planning, implementation & M&E Participation Transparency Direction	Dissatisfaction Fragmentation	Memorandum of understanding Good Governance and leadership Capacity building
Diaspora, Expat and Private for profit	Quality of care; Client oriented; Knowledge and technology transfer	Conducive environment Transparency Accountability	Dissatisfaction Mistrust RENT seeking	Dialogue Knowledge sharing system ENTHN service guideline
Health professionals	Commitment, Participation Continuous professional development	Conducive environment Transparency Direction Incentive Capacity building	Dissatisfaction Unproductive Attrition	Engagement Motivation package Leadership and good governance

PART THREE: STRATEGIC PLAN FOR ENTHN HEALTH SERVICE

ENTHN Health Strategic Plan places a framework for the planning, provision, and management of quality ENTHN health care services at all levels of ENTHN health delivery system in Ethiopia. The plan is guided by the principles and approaches as indicated in the WHO framework; universal access and equity, human rights, evidence-based practice, a life-course approach, and empowerment of people with ENTHN conditions.

3.1. Customer Value Proposition

Table 8 Customer Value Position

Product or service attributes	Image	Relationship
<p>Products and services the Health Sector provides have these characteristics:</p> <ul style="list-style-type: none"> • Accessibility—information, physical, financial, etc. • Timeliness of services • Quality of health care services and information, • Safety and healthy environment • Empowering community & employees • Conducive environment 	<p>The image that the Health Sector wants to portray has the following characteristics:</p> <ul style="list-style-type: none"> • Trustworthy: <ul style="list-style-type: none"> ○ Transparent/Accountable ○ Supportive ○ Professional ○ Customer-Friendly/Oriented ○ Committed 	<p>The relationship the Health Sector wants with its community could be described as:</p> <ul style="list-style-type: none"> • Complementary • Cooperative (participatory) • Respectful and ethical • Harmonious (Mutual Understanding) • Transparent relationship • Dependable (Stewardship) • Responsive • Equitable

3.2. Strategic Perspectives

Table 9 Strategic Perspectives

Perspective	Key Concept	Key Questions
Community	“Ownership” “Empowerment”	How can we enable the Community to produce its own Ear, Nose, Throat, Head and Neck health?
Financial/ Stewardship	“Efficiency”	How do we mobilize and utilize more resources effectively and efficiently?
Internal process	“Quality”	How can we enhance our integration & responsiveness in order to improve quality, timeliness & functionality?
Learning Growth	& “Capacity”	To excel in our processes, what capacities must our organization have and improve?

3.3. Strategic Objectives and Strategy Map

Table 10 List of Strategic Objectives

Perspective	Strategic Objectives (SO)
Community	C1: Improve the Ear, Nose, Throat, Head and Neck Health Status of the community C2: Enhance Community Ownership
Financial Stewardship	F1: Improve efficiency and effectiveness
Internal process	P1: Improve Equitable Access to Quality ENTHN, Health Services P2: Enhance Leadership and Good Governance P3: Improve Regulatory System P4: Improve Supply Chain and Logistic Management P5: Improve Partnership and Collaboration P6: P8: Improve Research and Evidence for Decision Making
Learning Growth	CB1: Enhance use of Technology & Innovation CB2: Improve Development & Management of HRH CB3: Improve the ENTHN health service Infrastructure CB4: Enhance Policy and Procedures

3.4. Objective Commentary

C1 Improve the ENTHN Health Status of the community

Description:

This objective describes the achievements in health status related to Ear, Nose, Throat, Head and Neck of the population and factors affecting these. It is meant the reduction of morbidity and mortality so that all people living in Ethiopia will be healthier, more productive and socially active.

It helps to understand what makes a community healthy or unhealthy and learn more about strategies that could work to improve the health status.

Therefore, measuring Ear, Nose, Throat, Head and Neck health outcomes and their upstream determinants will help to coordinate the efforts of public health agencies, the healthcare delivery system, and many other Entities in the community to improve health. These measures monitor how well we are managing the responsibility that we all share, and help to set priorities.

Outcome:

Enhanced quality of life, reduced morbidity, disability and mortality secondary to Ear, Nose, Throat, Head and Neck diseases

Key components:

- Analysis of the Ear, Nose, Throat, Head and Neck health status of individuals, families and communities
- Defining factors that threaten the health of the population as well as best practices that promote ENTHN health.
- Addressing social determinants of ENTHN health

CB3 Improve the ENTHN health service Infrastructure

Description

This strategic objective encompasses the expansion and standardization of ENTHN health facilities. It involves development of standard design of ENTHN health infrastructures, carrying out their construction, maintenance, renovation, rehabilitation as well as equipping and furnishing them in a user-friendly manner. It also includes enhancing medical equipment management and developing basic ICT infrastructure for speedy and reliable services.

Outcome:

- A standardized and functional ENTHN health service facilities

Key components

- a) Establish an ENTHN consultation room at all primary hospitals
- b) Establish comprehensive ENTHN units at all second level hospitals. These shall include Audiology services

Identified problem

- No standardize infrastructure for ENTHN service

Performance measure

Maintain effective ENTHN health service care coverage by percentage

Strategic Initiative

- a) Expand ENTHN health facilities to meet the national standard and improve access to quality care
- b) Construct one ENTHN Center of Excellence
- a) Establish ENTHN facilities towards equitable distribution of these facilities
- b) Maintain an annual plan for infrastructure development, maintenance and financial needs
- c) Adoption of medical equipment, construction and ICT standards

2.5. Improve the quality of Equipment for ENTHN service

Description

This strategic objective is designed to ensure that all health institutions are equipped with minimum ENTHN equipment according to the standard list of equipment for various institutional levels.

Outcome: health institutions at various levels having ENTHN equipment according to the standard

Key components

- Establishment of the gap between the available and the needed equipment in all facilities.
- Procurement of quality ENTHN equipment with minimum 2 years' service contracts
- Conducting periodic checks to identify the gaps in the area of equipment at all ENTHN health facilities
- Ensuring that all equipment is in working condition, routine maintenance is conducted and inventory report Health institutions without the minimum ENTHN equipment

Performance measure

- The proportion of facilities equipped with ENTHN medical equipment as per the essential medical equipment list

Strategic Initiative

- Develop an essential medical equipment list based on clinical guidelines to promote access to quality medical devices
- Strengthen regulations to encourage technology transfer
- Strengthen the human and laboratory capacity of research institutions and linkages with industries.
- Strengthen and scale-up the training of biomedical engineers and technicians
- Establish a medical equipment refurbishment center
- Build national capacity to do health technology assessment to contextualize global knowledge, support transparent and accountable decision-making.
- Prioritize and implement strategies to promote biotechnology in health, including traditional medicine, in Ethiopia
- Establish Grand Challenges Ethiopia, a mechanism to promote innovation and transfer of knowledge and technology from the global innovation market place.

2.7. Objectives

1. Improve ENTHN health service delivery through:
 - i. delivery of infrastructure, equipment and logistical support for ENTHN health services at the health centers,
 - ii. training of ENTHN Health Personnel and capacity building of existing health personnel to provide excellent ENTHN health care at all levels,
 - iii. provision of all the necessary medical and surgical supplies for ENTHN health services
 - iv. alleviation of preventable and curable ENTHN diseases,
 - v. rehabilitation of persons with disability as a result of ENTHN conditions
 - vi. Improve community participation and ownership
2. Enhance ENTHN knowledge to improve the quality of ENTHN health services
3. Develop good governance and mobilize the resource for ENTHN service

2.6. Priority Areas

1. Promotion of ENTHN health services and disease prevention
2. Minimize preventable deafness and other ENTHN related complications through
 - Improving delivery of ENTHN health services at all levels
 - Initiation of school ENTHN health services
2. Training of human resources
3. Development of infrastructure for ENTHN health service delivery
4. Provision of equipment, surgical instruments, medical and surgical supplies
5. Initiate quality data collection and research

2.7. Human Resource Development

An extreme shortage of ENTHN professionals has been sorted out as a major challenge to providing the required ENTHN services for Ethiopia. Among the existing few number of ENTHN surgeons only 22 are functional and there are no audiologists and audiology technicians.

This needs training of human resource in the following areas to fulfill the gaps

- ENTHN surgeon
- Middle level health personnel to take care of ENTHN problems at primary and district health instructions
- Audiologist
- Audiology technician
- Speech language therapist
- Registered ENTHN nurse
- CHW for health education & promotion of ENTHN disease
- Subspecialists: otologists, head and neck surgeons, pediatric ENTHN surgeons, rhinologists, facial plastic surgeons

Table 11 Human Resource Plan

No	Position	Recommended number of health professionals	Tertiary	General	Primary	Needed by 2023
1	ENTHN surgeon [2]	3/1000000	3	2		80
2	Middle level ENTHN Professionals	10/1000000		1	1	100
3	ENTHN Nurses	12/1000000	6	4	12	100
4	Audiologist	2/1000000	2	1	-	20
5	Hearing instrument specialist	5/1000000	6	3	1	130
6	Speech language therapist	4/1000000	6	3		48
7	Speech language assistant	8/1000000	6	4	2	222
8	ENTHN sub-specialty (includes	1/1000000				30*
	Otologist		2			
	Rhinologist		2			
	Head & Neck surgeon		2			
	Pediatrics ENTHN surgeon		2			
	Facioplastic & Reconstruction surgeon		2			

*Distribution to be reviewed during implementation

² The recommended number of health professionals was based on WHO standards

It is of paramount importance that adequate number of ENTHN professionals be trained to achieve these HR Strategic Plan objectives and to bridge the gaps indicated. In order to address this need, the following training program needs to be prioritized and budgeted for. Trainees should be identified, selected, and supported side by side fulfilling the medical equipment for the service before they graduate.

Table 12 Plan for Training for ENTHN Professionals

Training program	Candidate of trainee	Duration of training	Place of the training
ENTHN surgeons	General practitioners(MD)	48 Month	Ethiopia
Audiologist	Professional nurse(health officer)	48 month	South Africa Kenya
Speech and language therapist	Professional nurse	48 month	South Africa
Speech and language assistant	Diploma nurse	18 month	Zambia, South Africa Ethiopia
Mid-Level ENTHN Professionals	Health Officer, BSc Nurse	18 Month	Ethiopia
Hearing Instrument Specialist	BSc Nurse	18 months	
ENTHN nurses	Professional nurse	6 Month	Ethiopia
ENTHN sub-specialty (includes Otologist, Rhinologist , Head & Neck surgeon, Pediatrics ENTHN surgeon, Facioplastic & Reconstruction surgeon	ENTHN Surgeon	24 Month	USA, Germany

Table 13 Budget for ENTHN Professionals Training

Training program	Candidate trainee	Number of trainees	Cost/Trainee /Year	Total cost	Duration of training	Place of the training	Budget				Total
							2019	2020	2021	2022	
ENTHN surgeons	General practitioners(MD)	80	13400	1,072,000	48 Month	Ethiopia	1072000	1072000	1072000	1072000	4288000
Audiologist	Professional nurse(health officer)	20	5000	100,000	48 month	South Africa Kenya	100000	100000	100000	100000	400000
Speech and language therapist	Professional nurse	10	10,000	100,000	48 month	South Africa	100000	100000	100000	100000	400000
Speech and language assistant	Diploma nurse	200	2500	500,000	18 month	Ethiopia	166666.67	333333.33	500000		1000000
Mid-Level ENTHN Professionals	Health Officer, BSc Nurse	100	4000	400,000	18 Month	Ethiopia	133333.33	133333.33	133333.33	-	399999.99
ENTHN nurses	Professional nurse	100	2000	200,000	12 Month	Ethiopia	40000	40000	40000	40000	160000
ENTHN sub-specialty											
Otologist	ENTHN Surgeon	6	50,000	300,000	24 Month	USA, Germany	150000	150000	-		300000
Rhinologist	ENTHN Surgeon	6	50,000	300,000	24 month	USA/Ger many	150000	150000	-		300000
Head & Neck surgeon	ENTHN Surgeon	6	50,000	300,000	24 month	USA/Ger many	150000	150000	-		300000
Pediatrics ENTHN surgeon	ENTHN Surgeon	6	50,000	300,000	24 month	USA/Ger many	150000	150000	-		300000
Facioplastic & Reconstruction surgeon	ENTHN Surgeon	6	50,000	300,000	24 month	USA/Ger many	150000	150000	-		300000
Total cost of training											8,148,000
contingency 10%											814800
Total cost estimation											8,962,800

The **aim** of training program for HR is train ENTHN health personnel and build capacity in existing health personnel in order to provide excellent ENTHN health care services at all levels with following **strategies**.

- a) Source scholarships for all ENTHN health personnel
- b) Strengthen the curricula for all training institutions to enhance and broaden the ENTHN knowledge
- c) Regularly conduct refresher courses for existing health professionals in ENTHN health care
- d) Design curricula for training of ENTHN nurses in Ethiopian institutions
- e) There should be plan for ENTHN residency program in other university hospitals
- f) Middle level ENTHN professional training program should be planned
- g) Incentive package for retaining mechanism should be sought for

2.8. Special Skills Transfer

Continuous additional training is needed in order to advance professional skills for ENTHN health workers. One way of doing this is through the special skills transfer programs. This will be provided through sponsoring training of staff at highly specialized centers. Such arrangements will have clearly defined objectives and timelines for the skills transfer.

The **aim** of special skills transfer is to enhance continuous development of special skills of ENTHN health personnel and **strategies** to attain the aim are:

- Organize skills exchange programs on various local ENTHN health aspects
- Encourage developing local and international Links for skills transfer
- Provide structured skills transfer programs for all ENTHN health staff at every level
- Participate in ENTHN,Head and Neck related Tele health and e-learning programs at teaching hospitals

2.9. Continuous Medical Education

To inspire continuous medical education, an ENTHN society shall be empowered to provide guidelines and recommendations for service delivery in the Ethiopia. The **aim** of this CME is to enhance capacity building for ENTHN health personnel. This aim would be realized through the following **strategies**:

- Strengthen Ethiopian ENTHN Society to full participate in developing CME guide line
- Organize seminars, workshops and symposia on various local ENTHN health topics at least quarterly
- Participate in international workshops and forum on ENTHN health

- Develop staff certification process in supervised programs
- Provide structured CME to all levels of ENTHN health staff
- Participate in ENTHN related Tele health and e-learning programs

2.10. Infrastructure

In the development of ENTHN health service delivery, infrastructure development is a crucial. Hence, this strategic plan endeavors to provide a number of aims and strategies to develop the needed infrastructure in ENTHN.

The **aims** are:

- a) To provide Infrastructure for ENTHN health services at Primary, secondary and tertiary levels of ENTHN health care
- b) To ensure the standards of ENTHN infrastructures are in accordance with the FMHACA
- c) To increase ENTHN health infrastructure capacity nationwide

The **strategies** are:

- c) Establish an ENTHN consultation room at all primary hospitals
- d) Establish comprehensive ENTHN units at all second level hospitals. These shall include Audiology services
- e) Construct one ENTHN Center of Excellence. This shall include Audiology services, Training services including subspecialty and ENTHN surgeon
- f) Engage the Ministry of Health, the Ministry of Construction, the Ministry of Finance Economic Co-operation the development of infrastructure.
- g) Maintain an annual plan for infrastructure development, maintenance and financial needs

2.11. Equipment

The provision of ENTHN equipment for all levels of ENTHN service delivery is very important and plays a pivotal role in service delivery. During the assessment of the out of 8 facilities, only 3 facilities have basic equipment and mainly from donation from other partners with no accessories. If they get damaged due to different reasons, surgical procedures would be cancelled especially tympanoplasty, mastoidectomy, and laryngeal operation.

The **aim** of this strategic plan in terms of need for ENTHN Equipment is to ensure that all health institutions are equipped according to the standard list of equipment for various institutional levels.

Strategies for this would lie on:

- Establishment of the gap between the available and the needed equipment in all facilities.
- Procurement of quality ENTHN equipment with minimum 2 years' service contracts
- Conducting periodic checks to identify the gaps in the area of equipment at all ENTHN health facilities
- Ensuring that all equipment is in working condition, routine maintenance is conducted and inventory report

2.12. Medicines, medical and surgical consumables

A continuous provision of medicines, medical and surgical consumables takes a principal place in ENTHN health service delivery. To achieve this, there shall be a standard list of medicines and proper guidelines on medical and surgical consumables for procurement.

The **aim** of this is to procure all essential medicines, medical and surgical consumables for ENTHN health services. For this the following **Strategies** are to be employed:

- Develop and submit for approval the essential list of medicines for ENTHN health Services
- Provide ENTHN essential medicines, medical and surgical consumables for all levels

2.13. Disease Control

In order for this strategic plan to be implemented successfully, the ENTHN disease control situation is to be understood properly. Nevertheless, local and global data on ENTHN diseases is scanty. Some studies give information about common ENTHN conditions seen in different areas globally. There is still need for further research as there is no baseline study available for ENTHN diseases in the country.

The **aims** of disease control in this plan are:

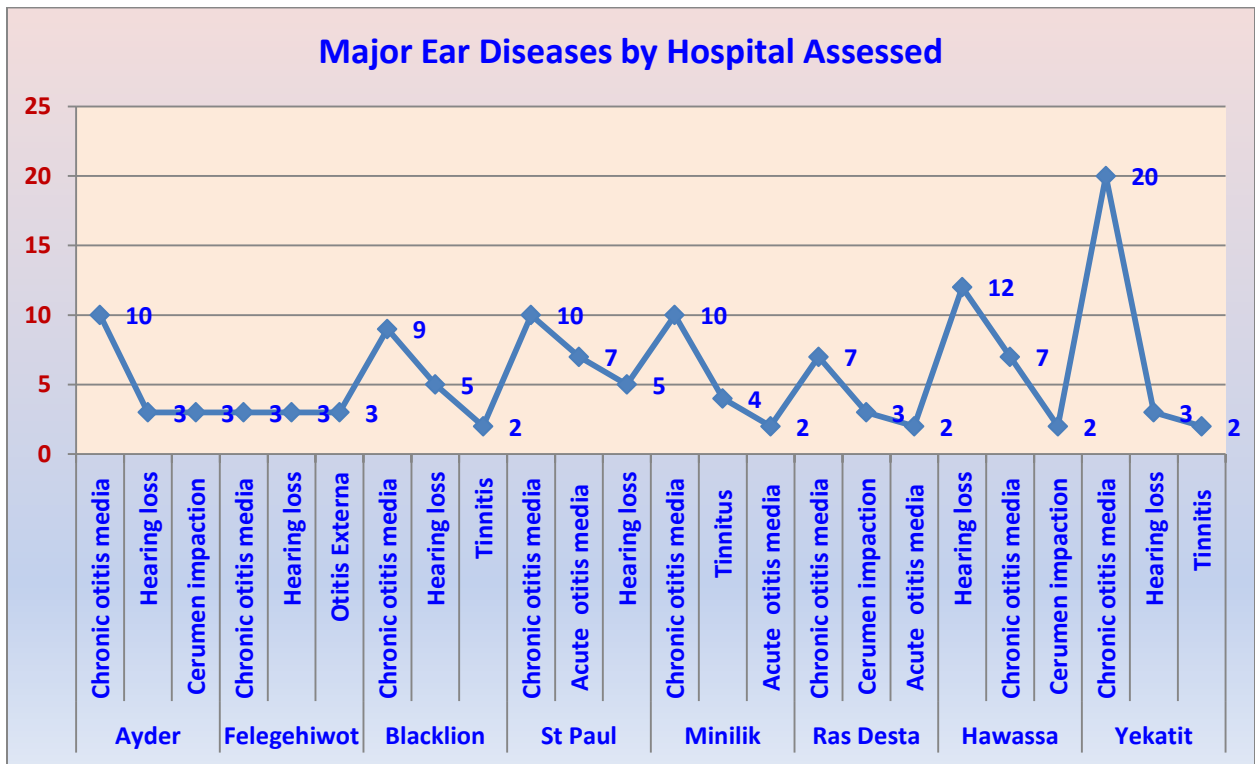
- To reduce the burden of ENTHN disease
- To rehabilitate the disability

The **Strategies** of this strategic plan in terms of disease control are:

- Significantly increase the management of all the ENTHN diseases
- Improve access for ENTHN health services to the Entire Nation
- Increase awareness and prevention of ENTHN diseases

Ear Diseases

Figure 2 is all about the major diseases of Ear in the hospitals where the situational assessment conducted. Among the sample patients in the eight sample hospitals, chronic otitis media is of the highest frequency from the top identified three ear diseases in each hospital as can be seen in the figure.



NB: Numbering in the column axis indicate No of patients by cases assessed

Figure 4 Major ear diseases by hospital assessed

Chronic otitis media

Chronic otitis media is an inflammation (frequently an infection) of the middle ear lasting more than 8 weeks with a perforation of the ear drum, with discharge or without discharge. Most of the patients have associated hearing impairment and require conservative treatment and/or surgery for repairing the perforation. There can be serious complication following the middle ear infection, meningitis, subdural and brain abscess if left untreated.

The aim here is: to reduce the prevalence of CSOM and its complications

The strategies for implementation are:

- To determine CSOM prevalence rate and its risk factors in Ethiopia

- To prevent avoidable complications that arise from CSOM
- Ensure that tympanoplasty and mastoidectomy surgeries are performed at general hospitals and comprehensive hospitals center
- Increase awareness of CSOM in the community
- To ensure constant provision of equipment, surgical instruments, medical and surgical Consumables

Acute otitis media

Acute otitis media is an inflammation of the middle ear of less than three weeks. It is a common disease of childhood due to immature immunity and anatomical risk of Eustachian tube which in children favors the propagation of Upper Respiratory Tract Infections into the middle ear cavity. Children are prone to viral and bacterial infection this predispose them for acute otitis media. Complication if not treated promptly is the progression to chronic otitis media, other serious complications, hearing loss and delay in language development in infants and toddlers.

Aim: To reduce the prevalence of acute otitis and prevent short and long term complication

Strategies

- To provide health education on prevention of disease of upper respiratory infection personal and environmental hygiene
- Early diagnosis and treatment of the disease
- Provision of adequate medicine for the treatment

Sensorineural hearing loss (SNHL)

The cause of Sensorineural hearing loss can be congenital or acquired. Acquired causes of SNHL include noise, trauma, ototoxic drugs, or infections. Common infections leading to SNHL are meningitis and viruses like measles and mumps due to missed vaccinations bacterial and viral middle ear infections. There is no cure for SNHL other than providing rehabilitating devices such as hearing aids, cochlear implants and other assistive devices. Therefore prevention of SNHL should be the main focus.

Aim:To reduce the prevalence of SNHL

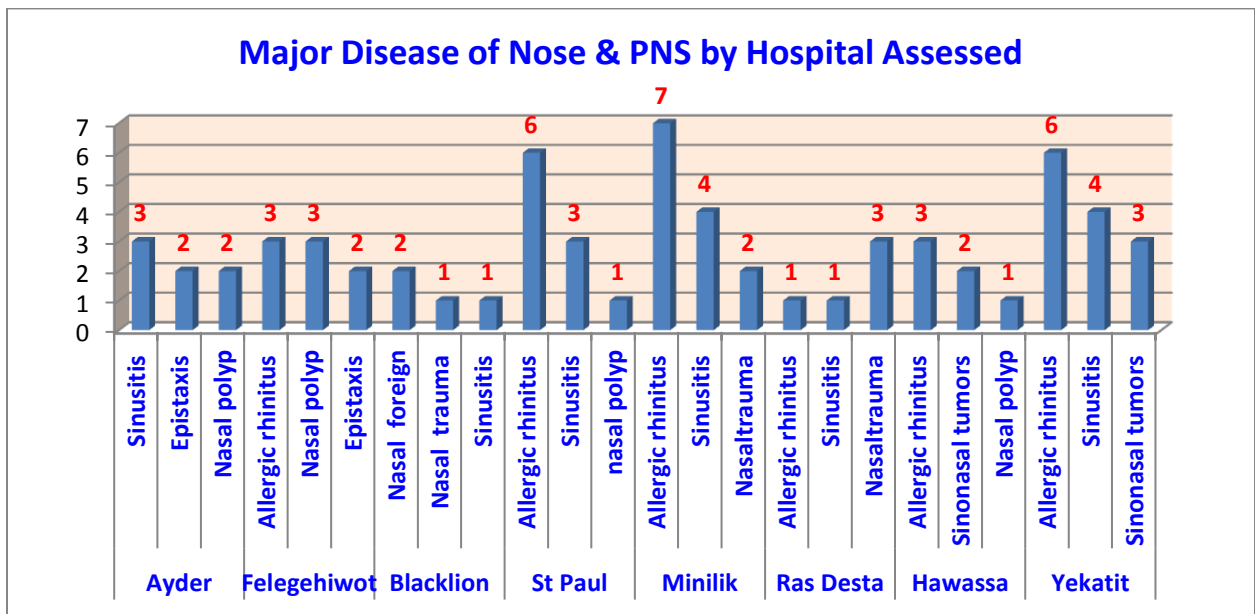
Strategies:

- Develop preventive programs to reduce the prevalence of SNHL

- Develop a hearing screening programs for the newborn, school going and the elderly
- Provide comprehensive hearing services in Ethiopia

Disease of the Nose and Para Nasal Sinus

In Figure 3, the major diseases of nose and para nasal sinus were pointed out the top three occurrences in the hospitals where the situational assessment conducted. Among the sample patients in the eight sample hospitals, Allergic rhinitis is of the highest frequency from the top identified three nose and para nasal sinus diseases in each hospital as can be seen in the figure.



(NB: Numbering in the column axis indicate number of patients for the indicated cases)

Figure 5 Major diseases of nose and para nasal sinus

Allergic rhinitis

Allergic rhinitis is allergic inflammation of the nasal mucosa. Allergies are common. It is roughly estimated that one in three people has an active allergy at any given time and at least three in four people develop an allergic reaction at least once in their lives. In Western countries, between 10–25% of people are affected by allergic rhinitis annually (Dykewicz & Hamilos, 2010). Treatment is with topical Steroids, if necessary in combination with oral antihistamines.

Aim:To effectively treat allergic rhinitis

Strategies:

- Ensure that effective anti-allergic treatment is available at all levels of health facility
- Educate health workers on effective treatment of AR at all levels
- Continuous community awareness on prevention of AR

Rhinosinusitis

It is the inflammation of the nasal cavity and paranasal sinuses. Rhinosinusitis is one of the most common conditions for which patients seek ENTHN clinic.

Aim: To reduce the prevalence of rhinosinusitis and its complications

Strategies

- Effectively treat Rhinosinusitis at all levels of healthcare and refer whenever necessary
- Offer comprehensive treatment for Rhinosinusitis at all general and specialized hospitals

Epistaxis

Epistaxis is bleeding from the nose and is a very common condition. Up to 60% of the general population is said to have had at least 1 episode of epistaxis at some point in their lives but, only 6% seek treatment for this. Most cases of epistaxis occur in children younger than 10 years. Major etiologies include uncontrolled Hypertension, inhaled medications, mucosal breakdown caused by infiltration by malignancy or granulomatous disease and nasal trauma. Epistaxis is treated after determining the cause, with compression, cautery and/or nasal packing.

Aim: To reduce incidence of epistaxis and promptly treat it

Strategies

- Create awareness about Epistaxis and its causes
- Ensure adequate equipment and supply for treatment of Epistaxis at each health care level

Throat Diseases

Figure 4 portrays the major diseases of throat as the top three occurrences in the hospitals where the situational assessment was carried. Among the sample patients in the eight sample hospitals, adenotonsillar is of the highest frequency from the top identified three throat diseases in each hospital as can be seen in the figure.

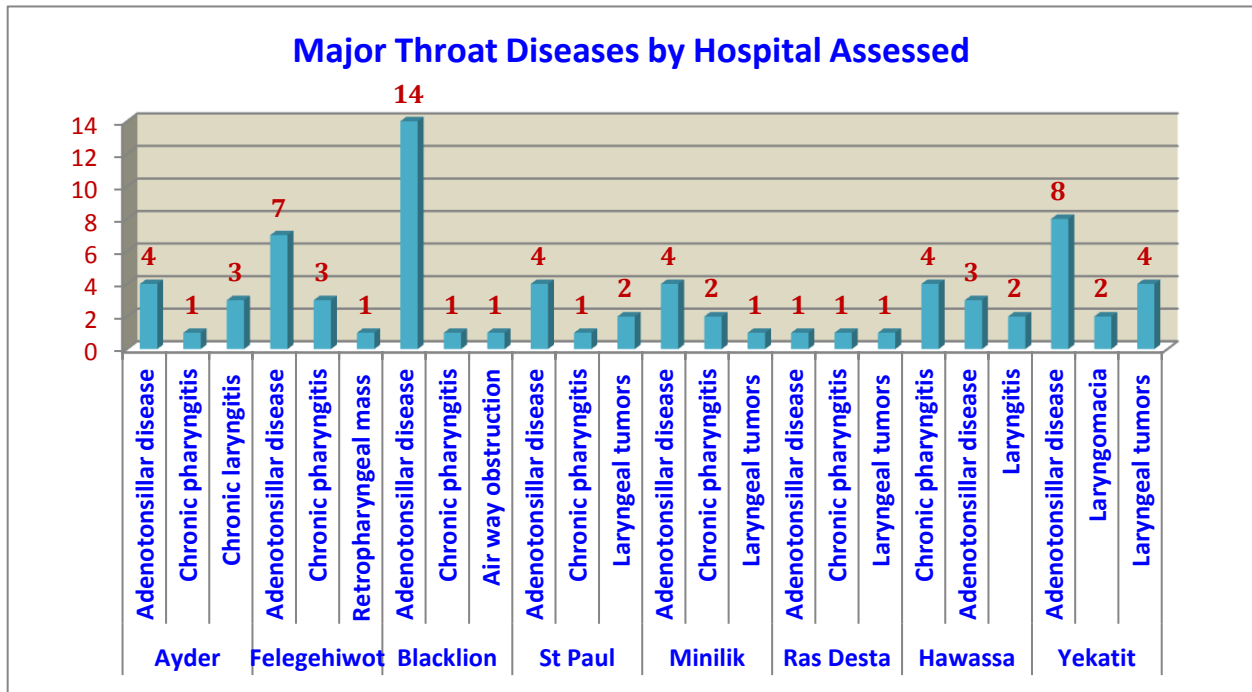


Figure 6 Major diseases of throat in the assessment hospitals

Hypertrophic Adenoids, Hypertrophic Tonsils and Tonsillitis

Hypertrophic adenoids and Hypertrophic tonsils are common in children and people who are immune-compromised. The common disease of pediatric age who visits ENTHN clinic is children mainly with sleep disturbance and recurrent sore throat treatment mainly antibiotics and /or surgical removal adenoid hypertrophy and tonsils

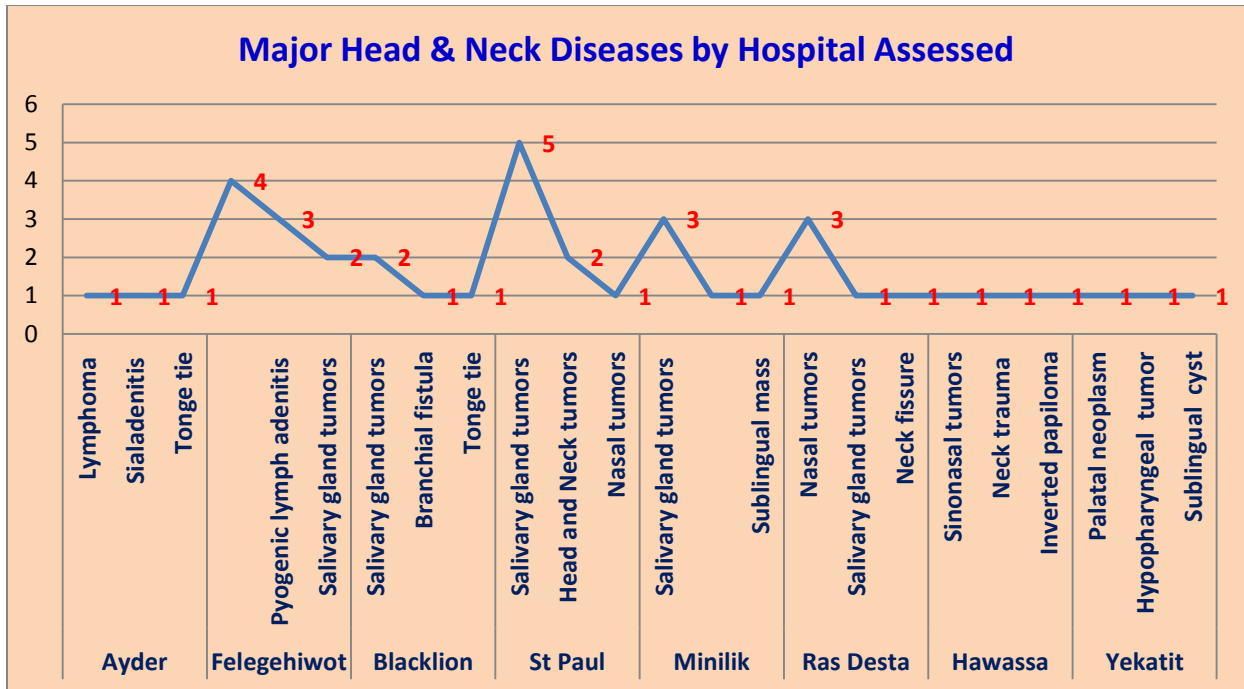
Aim:To reduce the morbidity and complications associated with adenoidal and tonsillar hypertrophy and chronic tonsillitis

Strategy

- To train clinicians at all levels of health care with the ability to diagnose and effectively treat adenotonsillar disease
- To provide adenotonsillectomy surgical services at all general hospitals and specialized hospitals.

Head and Neck Tumors

The top major disease occurrences in the assessment hospital are indicated in Figure 5. Among the sample patients in the eight sample hospitals, salivary gland tumor is of the highest frequency from the top identified three throat diseases in each hospital as can be seen in the figure.



(NB: Numbering in the column axis indicate number of patients for the indicated cases)

Figure 7 Major diseases of head and neck in the assessment hospitals

There are various head and neck neoplasms presenting with ENTHN problems. They could either arise from the ENTHN or could be metastasizing to the ENTHN areas. Benign tumor of the head neck region mainly arise from salivary glands, and malignant tumor are mainly from nasopharynx, larynx.

Squamous cell carcinoma of the hypopharynx/larynx is the most prevalent malignant neoplasm in the pharyngolarynx in adults. Tobacco use and alcohol intake are the risk factors for Cancer of the pharyngolaryngeal area. Most of the patients are diagnosed in a late stage of disease, which leads to poor prognosis. Treatment depends on the stage of the cancer and comprises surgery, radiotherapy and/or chemotherapy.

Aim: To reduce morbidity and mortality associated with head and neck neoplasms

Strategies

- Create awareness in the community about head and neck neoplasms and their risk factors
- Improve knowledge of head and neck neoplasms at all levels of health care for early diagnosis and treatment
- Strengthen cancer treatment center at specialized hospitals in managing head and neck neoplasms

- Train surgeons in head and neck cancer surgery

Other ENTHN Related Health Problems

Foreign Body in ENTHN Practice

Foreign bodies in ENTHN Practice are common inserted incidentally, into ear, nose, throat or bronchus or esophagus by young children and mentally ill patients. The most common foreign bodies are seeds, coins, fish bone and other non-organic foreign bodies. In appropriate manipulation of these foreign body may end with serious life threatening condition. The management may involve pharyngolaryngoscopy, oesophagoscopy or tracheobronchoscopy to remove the foreign body. Currently in the country we have insufficient facilities to manage aerodigestive tract foreign bodies.

Aim: To reduce morbidity due to foreign body in the upper aerodigestive system

Strategy

- To provide training to manage foreign body remove from upper aerodigestive system
- Provide equipment and instruments at all second and third level hospitals to ensure pharyngolaryngoscopy, oesophagoscopy and trachea-bronchoscopy procedures are performed
- Increase awareness about the dangers and complications of aerodigestive tract foreign bodies and their morbidity

Traditional malpractice and habits

There are a number of traditional malpractices and habits realized through the assessment carried out. Among these the following are a few.

- Uvelectomy by local healer in early infantile period
- Herbal medication application to the ear and tumor around head and neck region
- Tobacco chewing in some rural farmers

Aim: To reduce morbidity and mortality associated with harmful traditional practices and beliefs

Strategies

- Create awareness in the community about harmful traditional practices and beliefs
- Improve knowledge on dangers of harmful traditional practices and belief

Neonatal Hearing Screening Programme

The essence of controlling of hearing loss is early detection and treatment as well as prevention.

Aim: To manage and control hearing loss of infants in the very neonatal stage.

Strategies

- Early detection and intervention
- Treatment
- Prevention

Early Detection

Early detection and intervention are crucial to minimizing the impact of hearing loss on a child's development and educational achievements. In infants and young children with hearing loss, early identification and management through infant hearing screening programs can improve the linguistic and educational outcomes for the child. Children with deafness should be given the opportunity to learn sign language along with their families. Pre-school, school and occupational screening for ear diseases and hearing loss is an effective tool for early identification and management of hearing loss.

Treatment

People with hearing loss can benefit from the use of hearing devices, such as hearing aids, cochlear implants, and other assistive devices. They may also benefit from speech therapy, aural rehabilitation and other related services. However, global production of hearing aids meets less than 10% of global need and less than 3% of developing countries' needs. The lack of availability of services for fitting and maintaining these devices, and the lack of batteries are also barriers in many low-income settings. Making properly-fitted, affordable hearing aids and cochlear implants and providing accessible follow-up services in all parts of the world will benefit many people with hearing loss.

People who develop hearing loss can learn to communicate through development of lip-reading skills, use of written or printed text, and sign language. Teaching in sign language will benefit children with hearing loss, while provision of captioning and sign language interpretation on television will facilitate access to information. Officially recognizing national sign

languages and increasing the availability of sign language interpreters are important actions to improve access to sign language services. Human rights legislation and other protections can also help ensure better inclusion for people with hearing loss.

Prevention

Over fifty percent of all cases of hearing loss can be prevented through primary prevention. Some simple strategies for prevention include:

- immunizing children against childhood diseases, including measles, meningitis, rubella and mumps;
- immunizing adolescent girls and women of reproductive age against rubella before pregnancy;
- screening for and treating syphilis and other infections in pregnant women;
- improving antenatal and perinatal care, including promotion of safe childbirth;
- following healthy ear care practices;
- screening of children for otitis media, followed by appropriate medical or surgical interventions;
- avoiding the use of particular drugs which may be harmful to hearing, unless prescribed and monitored by a qualified physician;
- referring infants at high risk, such as those with a family history of deafness or those born with low birth weight, birth asphyxia, jaundice or meningitis, for early assessment of hearing, prompt diagnosis and appropriate management, as required;
- reducing exposure (both occupational and recreational) to loud sounds by raising awareness about the risks; developing and enforcing relevant legislation; and encouraging individuals to use personal protective devices such as earplugs and noise-canceling earphones and headphones.

PART FOUR: LEADERSHIP, GOVERNANCE, PARTNERSHIP AND RESEARCH

Ethiopian Government through Ministry of Health (MoH) has committed itself to providing health services to the nation as close to the family as possible through the Primary Health Care (PHC) approach. This is achieved through the provision of promotive, preventive, curative rehabilitative and palliative health services.

The overall objective over the medium term is to have exemplary leadership and good governance in the practice and delivery of all health services including ENTHN services. Relevant personnel shall ensure efficiency, effectiveness, transparency, accountability, and equity in provision of services

Currently the FMoH has established Specialty Coordinating Team (SCT) try to scale up the service delivery with high quality of standard care. There are four transformation agenda for the health service delivery. In the five year health sector transformation plan (HSTP)

These transformation agenda include:

1. Woreda transformation plan(WTP)
2. Compassionate respectful patient care(CRC_PC)
3. Ethiopian hospitals alliance for quality (EHAQ)
4. Information revolution (I R)

Other initiatives include:

- CASH initiatives
- SALT initiatives

The health service delivery facility falls into:

1. Primary health care
2. General hospitals
3. Comprehensive specialized hospitals

Partnership and Collaboration

ENTHN,Head and Neck health services delivery system in the country requires a robust partnerships and Collaborations with key stakeholders. These will, *inter alia*, include other government departments, local communities, the private sector, CSOs/CBOs, and ENTHN cooperating partners both local and international. These partnerships will significantly contribute to the ENTHN health sector development through leveraging of financial, technical, material and logistical support. International partnerships and local alliances will be instrumental in developing and strengthening effective public health responses for the enhancement of ENTHN health services. Proper mapping of stakeholders shall be strengthened.

Aim

To enhance collaborations between government and all stakeholders in the ENTHN health sector

Strategies

- Ministry of Health to provide leadership in the identification of stakeholders and in the provision of a conducive environment for the development and implementation of ENTHN health services
- Ministry of Health to provide guidance and leadership in the operations of stakeholders in ENTHN health care in order to ensure equity and quality resource distribution
- Ministry of Health to facilitate statutory obligations with partners through signing of MOUs between government (MoH) and partners
- Ensure accountability, transparency and integrity among all the ENTHN health care stakeholders and government
- Map stakeholders' area of operations regarding ENTHN health service provision. This to continue as more stakeholders come on board.
- Ensure that all the MOUs signed with cooperating partners include a well-defined exit strategy for programs supported by them

3.1. ENTHN Health Research

Currently, there is a serious shortage of information/statistics involving the status of ENTHN health conditions in Ethiopia. Due to lack of data in the Sub-Saharan African region, and in particular Ethiopia, WHO and global data have been inferred to apply to the Ethiopian context. By and large, research has to be done on ENTHN diseases so that the findings can inform the development of effective interventional and preventive strategies. All research papers must be published for knowledge dissemination.

Aim:To enhance ENTHN knowledge in order to improve the quality of ENTHN health services in Ethiopia

Strategies

- Establish baseline statistics of ENTHN diseases in Ethiopia
- Build research capacity of the Ethiopian ENTHN community
- Create a Knowledge Resource Centre to serve as a common pool for gathered information
- Publish articles relating to ENTHN in local and international journals

3.2. Monitoring and Evaluation

The tools for monitoring and evaluation of the quality and quantity of ENTHN, Head and Neck health services to offer in the country should be developed in detail. The Specialty/ ENTHN Team in collaboration with regional and institutional ENTHN team will carry out biannual monitoring and evaluation of the implementation plan and later conduct an end-term evaluation of the Strategic Plan (see Annex C for M&E Log frame).

Aims

- To monitor the prevalence and causes of ENTHN morbidity
- To assess the effectiveness of ENTHN health care service delivery in responding to disease burden

Strategies

- Establish standards for ENTHN health care practice
- Conduct comprehensive annual audits of ENTHN health service delivery
- Monitor the supply chain for medicines, medical and surgical consumables
- Monitor the procurement and inventory of equipment and instruments

3.3. Policy Guidelines and Protocols

The Ethiopian health sector policy and strategic direction is guided by the 20 year health sector vision (March, 2015), the Constitution, and Ethiopian Health Sector Strategic Plan. The citizens of the country have a right to the highest standard of health. ENTHN Health service is the most challenging one and it has functional, social, emotional impacts on individuals, families, communities and the economy.

ENTHN Health services are therefore important at all levels. The provision of such services need trained human resources, the necessary infrastructure, equipment and essential medicines and medical supplies.

Therefore, policy guidelines and protocols should be developed by pertinent health professionals targeting to health care managers, doctors, clinical officers and nurses at various levels of service delivery. The envisaged health care managers should be able to provide appropriate equipment and supplies for service delivery. The health workers at lower levels should also be able to diagnose, manage and refer patients appropriately by using these guidelines.

3.4. Budget

Table 13 below portrays the summary of ENTHN Health Services Strategic Plan 2019-2023. The breakdown of the total budget can be referred in Annex A.

Table 14 Budget Summary

	Summary of Items	Total USD
a	General Equipment for Primary Hospitals/health Center	170,560.00
b	Audiology equipment and consumables for primary hospital/health center	40,500.00
c	General Equipment for General Hospitals	465,450.00
d	Surgical equipment at general Hospitals	2,076,640.00
e	Office Equipment/Furniture for general hospital	56,600.00
f	Clinic Equipment for general hospital	465,450.00
g	Audiology equipment and consumables for general hospital	245,000.00
h	Surgical equipment for tertiary hospital	661,992.00
i	Clinic Equipment tertiary for hospital	410,787.00
j	Tertiary clinical equipment (continued)	560,025.00
k	Office furniture for Tertiary Hospitals	32,700.00
l	Audiology equipment and consumables for tertiary hospitals	466,650.00
m	Hearing aids and cost estimation	213,750,000.00
n	Estimate of establishment cost for ENTHN Center of Excellence	42,000,000.00
o	Budget for Training of ENTHN Professionals	9,448,000.00
p	Budget for medicine and supplies and consumables	20,000,000
q	Budget for IEC, BCC	10,000,000
	Grand total	300,850,354.00

According to the previous plan of FMOH (Informe_Assistencia_Tecnica_Ethiopia,2017), the total planned health institutions across the country for 2020 will be: Primary hospitals 820, General Hospitals 102 and tertiary hospitals 26. To this end, the ENTHN health service facilities provision were proposed considering 10% of each (i.e. 82 primary health centers, 10 general hospitals and 3 tertiary hospitals) shall be improved/established in the country for ENTHN health services. All the budget calculations for facilities were taken based on these data. Locations are to be decided through the key responsible bodies of this strategic plan implementation.

The estimated total cost for the five-year strategic plan 2019-2023 is **USD 300,850,354** Equivalent to **ETHB7,292,612,581** at ruling rate of ETHB27.24 per USD 1.00 (April 2018). The expected sources of funding are the Government of Ethiopia through the Ministry of Health and the rest from the cooperating partners.

Aim:

To provide guidance on allocation and utilization of ENTHN health funds

Strategies:

- Ensure there is correct allocation, transparency and accountability for all the resources invested into ENTHN health care
- Enhance financial record keeping for efficient and effective monitoring of the financial flow of the various ENTHN health services
- Conduct audits on the disbursed resources

ANNEXES

Annex A Detailed Estimated Budget

A) General Equipment for Primary Hospitals/health centers

Detailed list of the equipment/furniture needed at the different health levels

a) List of ENTHNEquipment Primary Hospital/health centers

The ministry has planned to build around 820 primary hospital/health center in the next five year. Assuming the ENTHN service will be started in ten percent of the hospitals. The primary hospital/health center to be included in the ENTHN service in the 82 hospitals/health centers

No	Item Description	Where to get (Company)	Amount per hospital	Price/unit (USD)	Number of hospital	Total price
1	Otoscope Heine Beta 2,5 V K 180	Heinemman	1	200.00	82	16400
2	Tunning fork 512 Hz		3	140	82	11820
3	50 reusable Otoscope tips for Heine Beta K 180	Heinemman	1	200.00	82	16400
4	Ear syringe Rudolf/Tumed	Germany	1	60.00	82	4920
5	Nasal specula Rudolf/Tumed	Germany	5	40.00	82	16400
6	Bajonett forceps Rudolf/Tumed	Germany	10	12.00	82	9840
7	Ear wax hooks Rudolf/Tumed	Germany	20	10.00	82	16400
8	Cotton wool holder Rudolf/Tumed	Germany	20	6.00	82	9840
9	Kidney dishes Rudolf/Tumed	Germany	2	8.00	82	1312
10	46070R Solid-State Portable Headlight H/Rigid Band and direct Power	Welch Allyn	1	500.00	82	41000
11	Metal tongue depressor	Rudolf/Tumed Germany	10	6.00	82	4920
	Total			2080	82	170,560

B) Audiology equipment and consumables for primary hospital/health center

	Item description	specification	Amount	Price /unit (USD)	Total (USD)
	Screening Audiometer	Maico, Interacoustics,GN,Rion,	1	3000	3,000.00
		Inventis, medRx, Ortovation,			
		Audioscan, Welsh Allyn			
	Warble tone generator	Maico, Interacoustics,GN,Rion,	1	2000	2,000.00
		Inventis, medRx, Ortovation,			
		Audioscan, Welsh Allyn			
	Screening OAE	Maico, Interacoustics,GN,Rion,	1	7000	7,000.00
		Inventis, medRx, Ortovation,			
		Audioscan, Welsh Allyn			
	Tympanometry Tips		5	150	750.00
	OAE tips		5	150	750.00
	Sub Total				13,500.00
Total 82x13,500					40,500.00

C) Equipment for general hospital

The ministry has planned to build around 100 general hospitals in the next five year, Assuming the ENTHN service will be started in ten percent of the hospitals the General Hospital to be included in the ENTHN service are 10 hospitals

	Description	Where to get (Company)	Amount	Price/unit (USD)	Number of hospitals	Total (USD)
1	Surgical stool (Swivel stool) Ecco-Pedes, soft castors, with backrest, height adjustment synthetic leather	Simplex	1	450.00	10	4500.00
2	Suction tips 2 mm	Rudolf/Tumed Germany	20	11.00	10	2200.00
3	Suction tips 1,5 mm	Company	10	11.00	10	1100.00
4	Suction connector	Rudolf/Tumed Germany	3	13.00	10	39.00
5	Rosen micro sharp needles	Rudolf/Tumed Germany	10	35.00	10	3500.00
6	Punch biopsy forceps for nose/throat biopsies	Rudolf/Tumed Germany	4	50.00	10	2000.00
7	Otoscope Heine Beta 2,5 V K 180	Heinemman	2	200.00	10	4000.00
8	Nasal specula	Rudolf/Tumed Germany	20	40.00	10	8000.00
9	Myringotomy knives	Rudolf/Tumed Germany	5	60.00	10	3000.00
10	Microcrocodile forceps	Rudolf/Tumed Germany	10	120.00	10	12000.00

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	(delicate 6 mm)					
11	Metal tongue depressor	Rudolf/Tumed Germany	20	6.0	10	1200.00
12	Laryngeal mirror	Rudolf/Tumed Germany	10	5.00	10	500.00
13	Kidney dishes	Rudolf/Tumed Germany	2	8.00	10	160.00
14	Flexible Endoscope model 11101RP	Karl Storz	1	6000.00	10	60,000.00
15	ENTHN units modula with suction 4 cold light source, syringing and irrigation system	Heinemman	1	28,000.00	10	280,000.00
16	Tuning fork 512 Hz		3	140	10	4200
17	Ear wax hooks	Rudolf/Tumed Germany	20	10.00	10	2000.00
18	Ear syringes	Rudolf/Tumed Germany	2	50.00	10	1000.00
19	Ear currate	Rudolf/Tumed Germany	10	15.00	10	1500.00
20	Ear biopsy forceps (delicate 4mm)	Rudolf/Tumed Germany	4	150.00	10	6000.00
21	Dry heat sterilizer Type 75	Melag	1	600.00	10	6000.00
22	Cotton wool holder	Rudolf/Tumed Germany	20	6.00	10	1200.00
23	Bajonett forceps	Rudolf/Tumed Germany	10	12.00	10	1200.00
24	90° Endoscope model 8707DA	Karl Storz	1	2000.00	10	20,000.00
25	50 reusable Heine Otoscope tips	Heinemman	2	200.00	10	4000.00
26	30° Endoscope	Karl Storz	1	2000.00	10	20,000.00
27	0° Endoscope	Karl Storz	1	2000.00	10	20,000.00
	Total					469,650.00

D) Surgical equipment for general Hospitals

S/N	Item Description	Where to get (Company)	Amount	price/unit (USD)	Number of hospital	Total (USD)
1	0° Endoscope	Karl Storz	1	2000.00	10	20,000.00
2	30° Endoscope	Karl Storz	1	2,000.00	10	20,000.00
3	70° Endoscope	Karl Storz	1	2,000.00	10	20,000.00
4	90° Endoscope model 8707DA	Karl Storz	1	2,000.00	10	20,000.00
5	Adenotonsillectomy surgical set	Karl Storz	3	5000.00	10	150,000.00
6	Diathermy Erbotom VIO 50	Erbe	1	5000.00	10	50,000.00
7	Drill machine Chirurgie motor system MD 10 NouvagwNitho u2v Caogntra-angle	Karl Storz	1	5,000.00	10	50,000.00

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	handpiece 1:1 high5,000.00 voltage for shaft ø 235 mm L=90					
8	ENTHN theatre stool Akrus AK 445 Height adjustable	Akrus	1	2500.00	10	25,000.00
9	FESS surgical set Karl Storz	Karl Storz	1	14,000.00	10	140,000.00
10	Flexible Endoscope model 11101RP	Karl Storz	1	6,000.00	10	60,000.00
11	Grommet surgical set	Karl Storz	2	1000.00	10	20,000.00
12	Head and neck set surgical set	Karl Storz	1	4000.00	10	40,000.00
13	Headlight KS70	Karl Storz	2	500.00	10	10,000.00
14	Laryngoscopy surgical set adult	Karl Storz	1	14,000.00	10	140,000.00
15	Laryngoscopy surgical set child	Karl Storz	1	14,000.00	10	140,000.00
16	Light source	Karl Storz	1	3,000.00	10	30,000.00
17	Mastoidectomy surgical set	Karl Storz	1	4000.00	10	40,000.00
18	Microscope Kaps SOM 62 with Co observation tube monocular for secondary viewer	Karl Storz	1	14.00	10	140.00
19	Rigid bronchoscopy surgical set child1	Karl Storz	1	18,000.00	10	180,000.00
20	Rigid oesophagoscopy surgical set adult	Karl Storz	1	25,000.00	10	250,000.00
21	Rigid oesophagoscopy surgical set child	Karl Storz	1	18,000.00	10	180,000.00
22	Rigid bronchoscopy surgical set adult	Karl Storz	1	18,000.00	10	180,000.00
23	Suction pump AC30 portable mains and battery	Ratiomed	1	650.00	10	6500.00
24	Telepac X with Telepack X LED endoscopic video unit with light source	Karl Storz	2	13,000.00	10	260,000.00
25	Tracheostomy surgical set	Karl Storz	2	3,500.00	10	70,000.00
26	Tympanoplasty surgical set	Karl Storz	2	5,000.00	10	100,000.00
	Total				10	2,176,640.00

E) Office Equipment/Furniture for general hospitals

Description	Where to get (Company)	Amount	Price/unit (USD)	Number of general hospitals	Total (USD)
1. Wifi modem		1	250.00	10	2500.00
2. Scanner		1	200.00	10	2000.00
3. Printer		1	300.00	10	3000.00
4. PC		2	1200.00	10	24000.00
5. Laptop		1	500.00	10	10000.00
6. Desks		2	400.00	10	8000.00
7. Chairs		6	60.00	10	3600.00
8. Cabinet		1	350.00	10	3500.00
Total				10	56,600.00

F) Audiology equipment and consumables for general hospital

1	Warble tone generator	Maico, Interacoustics, GN, Rion,	1	2000	2,000.00	Numbers of hospitals	Total cost
		Inventis, medRx, Ortovation, Audioscan, Welsh Allyn				10	20000
2	Sound Proof diagnost Audiometer	Emoyo	1	7000	7,000.00	10	70,000
3	Tympanometer	Maico, Interacoustics, GN, Rion,	1	7000	7,000.00	10	70000
		Inventis, medRx, Ortovation,					
		Audioscan, Welsh Allyn,					
4	Screening OAE	Maico, Interacoustics, GN, Rion,	1	4000	4,000.00	10	40,000
		Inventis, medRx, Ortovation,					
		Audioscan, Welsh Allyn					
5	Hearing aid maintenance station	Drill with vacuum drill blower	1	3000	3,000.00	10	30,000
6	Tympanometry tips		5	150	750.00	10	7500
7	OAE tips		5	150	750.00	10	750
Sub Total					24,500.00	10	245,000
Total							245,000.00

G) Clinic Equipment tertiary/teaching hospital

There are three hospitals to be included in the next five years

	Description	Where to get (Company)	Amount	Price/unit (USD)	Number of tertiary hospitals	Total (USD)
1	Otoscope Heine Beta 2,5 V K 18050 reusable Heine Otoscope tips	Heinemman	2	400.00	3	2400.00
2	Nasal specula	Rudolf/Tumed Germany	30	40	3	3600
3	Bajonett forceps	Rudolf/Tumed Germany	20	12.00	3	720.00
4	Metal tongue depressor	Rudolf/Tumed Germany	40	6.0	3	240.00
5	Ear wax hooks	Rudolf/Tumed Germany	40	10	3	1200.00
6	Cotton wool holder	Rudolf/Tumed Germany	40	6.00	3	920.00
7	Suction tips 2 mm	Rudolf/Tumed Germany	40	11.00	3	1320.00
8	Suction connector	Rudolf/Tumed Germany	5	15.00	3	225.00
9	Ear currate	Rudolf/Tumed Germany	20	15.00	3	900.00
10	Tunning fork 512 Hz		3	140	3	4200
11	Laryngeal mirror	Rudolf/Tumed Germany	20	5.00	3	300.00
12	Punch biopsy forceps for nose/throat biopsies	Rudolf/Tumed Germany	4	50.00	3	600.00
13	Myringotomy knives	Rudolf/Tumed Germany	5	60.00	3	900.00
14	Rosen micro sharp needles	Rudolf/Tumed Germany	8	35.00	3	840.00
15	Ear biopsy forceps (delicate 4mm)	Rudolf/Tumed Germany	4	150.00	3	1800.00
16	Ear syringes	Rudolf/Tumed Germany	4	50.00	3	600.00
17	Microcrocodile forceps (delicate 6 mm)	Rudolf/TumedGermany	20	120.00	3	7200.00
18	Kidney dishes	Rudolf/Tumed Germany	8	8.00	3	192.00
19	Dry heat sterilizer Type 75	Melag	1	600.00	3	1800.00
20	0° Endoscope	Karl Storz	2	2000.00	3	12,000.00
21	30° Endoscope	Karl Storz	2	2000.00	3	12,000.00
22	90° Endoscope model8707DA	Karl Storz	2	2000.00	3	12000.00
23	Flexible Endoscope model 11101RP	Karl Storz	2	6000.00	3	36,000.00
24	Surgical stool (Swivel stool) Ecco-Pedes, soft castors, with backrest, height adjustment	Simplex	5	450.00	3	6750.00

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	<i>synthetic leather</i>					
25	ENTHN units modula with suction 4 cold light source, syringing and irrigation system	Heinemman	2	28,000.00	3	168,000.00
26	Telepac X with Telepack X LED endoscopic video unit with light source	Karl storz	2	13,000.00	3	78,000.00
27	Videostroscope	Karl storz	1	20,000.00	3	60,000
	Total					414,707.00

H) Surgical Equipment at Teaching/tertiary hospitals

Description	Where to get (Company)	Amount	Price/unit (USD)	Number of hospitals (USD)	Price total in USD
0° Endoscope	Karl Storz	3	3000.00	3	27,000.00
30° Endoscope	Karl Storz	3	3,000.00	3	27,000.00
70° Endoscope	Karl Storz	3	3,000.00	3	27,000.00
90° Endoscope model 8707DA	Karl Storz	3	3,000.00	3	27,000.00
Flexible Endoscope model 11101RP	Karl Storz	3	6,000.00	3	54,000.00
FESS tower including light source and Kameranysystem	Karl Storz	1	60,000.00	3	180,000.00
Light source	Karl Storz	2	3,000.00	3	18,000.00
Drill machine Chirurgie motor system MD 10 NouvagwNitho u2v Caogntra-angle handpiece 1:1 high5,000.00 voltage for shaft ø 235 mm L=90	Karl Storz	1	5,000.00	3	15,000.00
Suction pump AC30 portable mains and battery	Ratiomed	3	650.00	3	5850.00
ENTHN theatre stool Akrus AK 445 Height adjustable	Akrus	3	2500.00	3	22,500.00
Co2 Laser CO2 Laser UNILAS 10600	Limmer	2	60,000	3	360,000
Diathermy Erbotom VIO 50	Erbe	3	5000.00	3	45,000.00
Microscope with 2 binocular OPMI VARIO 700 Zeiss	Zeiss	2	15000.00	3	90,000.00
Headlight KS70	Karl Storz	4	500.00	3	6,000.00
Adenotonsillectomy surgical set	Karl Storz	8	5000.00	3	120,000.00
FESS surgical set Karl Storz	Karl Storz	3	14,000.00	3	126,000.00
Tracheostomy surgical set	Karl Storz	4	3,500.00	3	42,000.00
Laryngoscopy surgical set adult	Karl Storz	2	14,000.00	3	84,000.00
Laryngoscopy surgical set child	Karl Storz	2	14,000.00	3	84,000.00
Rigid oesophagoscopy surgical set adult	Karl Storz	2	25,000.00	3	150,000.00

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Rigid oesophagoscopy surgical set child	Karl Storz	3	18,000.00	3	168,000.00
Rigid bronchoscopy surgical set adult	Karl Storz	2	18,000.00	3	108,000.00
Rigid bronchoscopy surgical set child1	Karl Storz	2	18,000.00	3	108,000.00
Tympanoplasty surgical set	Karl Storz	3	5,000.00	3	45,000.00
Grommet surgical set	Karl Storz	5	1000.00	3	15,000.00
Mastoidectomy surgical set	Karl Storz	1	4000.00	3	12,000.00
head and neck set surgical set	Karl Storz	1	4000.00	3	12,000.00
Telepac X with Telepack X LED endoscopic video unit with light source	Karl Storz	2	13,000.00	3	78,000.00
Facial nerve monitor 1	Karl storz	2	30,000.00	3	180,000.00
Total					2,236,350.00

I) Office Equipment/Furniture for general hospital

Description	Where to get (Company)	Amount	Price/unit (USD)	Number of general hospitals	Total (USD)
Wifi modem		1	250.00	10	2500.00
Scanner		1	200.00	10	2000.00
Printer		1	300.00	10	3000.00
PC		2	1200.00	10	24000.00
Laptop		1	500.00	10	10000.00
Desks		2	400.00	10	8000.00
Chairs		6	60.00	10	3600.00
Cabinet		1	350.00	10	3500.00
Total				10	56,600.00

J) Office furniture for Tertiary Hospitals

S.No	Description	Where to get (Company)	Amount	Price unit (USD)	Total numbers of hospitals	Total (USD)
1	Desks		5	400	3	6000
2	Chairs		15	60	3	2700
3	Cabinet		5	50	3	5250.00
4	PC		5	600	3	9000.00
5	Printer		1	300	3	900.00
6	Scanner		1	200	3	600.00
7	Laptop		5	500	3	7500
8	Wifi modem		1	250	3	750
	Sub-Total					32,700

K) AUDIOLOGY EQUIPMENT AND CONSUMABLES FOR TERTIARY HOSPITALS

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Item Description		Specification	Amount	Unit price (USD)	Number of tertiary hospital)	Total price
1	Diagnostic audiometer	Maico, Interacoustics,GN,Rion, Inventis, medRx, Ortovation, Audioscan, Welsh Allyn	2	14,000.00	3	114,000.00
2	Diagnostic tympanometer	Maico, Interacoustics,GN,Rion, Inventis, medRx, Ortovation, Audioscan, Welsh Allyn	1	4,000.00	3	12,000.00
3	Screening tympanometer	Maico, Interacoustics,GN,Rion, Inventis, medRx, O5rtovation, Audioscan, Welsh Allyn	2	14,000.00	3	114,000.00
4	Screening tympanometer	Maico, Interacoustics,GN,Rion, Inventis, medRx, O5rtovation, Audioscan, Welsh Allyn	2	14,000.00	3	114,000.00
5	ABR/ASSR/OAE	Maico, Interacoustics,GN,Rion, Inventis, medRx, Ortovation, Audioscan, Welsh Allyn	1	30,000.00	3	90,000.00
6	Video nystagmogram	Maico, Interacoustics,GN,Rion, Inventis, medRx, Ortovation, Audioscan, Welsh Allyn	1	25,000.00	3	75000.00
7	Hearing aid verification unit	Maico, Interacoustics,GN,Rion, Inventis, medRx, Ortovation, Audioscan, Welsh Allyn	1	18,000.00	3	54000.00
8	Sound proof 3mx3m		1	10,000.00	3	30,000.00
9	Visual Reinforcement for Audiometry	Video VRA	1	7,500.00	3	22,500.00
10	NOAH Software	Patient integration software	1	1,200.00	3	3,6000.00
11	Programing Computer		1	600.00	3	1800.00
12	Printer		1	500.00	3	1500.00

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13	Hearing aid maintenance station	With vacuum, drill ,blower	1	3,000.00	3	9000.00
14	Warble Tone generator		2	4,000.00	3	24000.00
15	Hearing aid programmer		1	1,200.00	3	3600.00
16	Tympanometry tips		7	1,050.00	3	22,050.00
17	Neuroprep/conducting paste		5	500.00	3	7500.00
18	Insert phone tips		7	1,050.00	3	22,050.00
19	ABR/ASSR/OAE electrodes		7	3,500.00	3	73500.00
20	Drill bits and burrs for workstation		7	1,400.00	3	29400.00
21	OAE TIPS		7	1,050.00	3	22050.00
Sub Total						466,650.00 USD

L) Hearing aids and cost estimation

No	Hearing aid	Percentage of population (1Million)	Unit price in USD (average)	Total Cost	Remarks
1	BTE(Behind the ear)	70%	2500	8,750,000.00	Fully Digital
2	BAHA(bone anchored hearing aid)	1%	8000	40,000,000.00	With accessory
3	In the canal(ITC)	20%	4000	40,000,000.00	Cost is different in different countries
4	Completely in the canal (CIC)	10%	2500	125,000,000.00	Cost is different in different countries
		Total		213,750,000.00	

M) Estimate of establishment cost for ENTHN Center of Excellence

No	UNIT	COST IN USD
1	Pediatric ENTHN with full equipment	10,000,000.00
2	Otology and temporal bone dissection skill laboratory	5,000,000.00
3	Head and neck surgery unit with neck dissection skill laboratory	5,000,000.00
4	Functional Endonasal sinus surgery unit with full skill laboratory	10,000,000.00
5	Audiology unit including screening of neonate and rehabilitation with modern equipment (ABR, OAE--)	10,000,000.00
6	Vestibular system assessment tests laboratory	2,000,000.00
	Total	42,000,000.00

N) Budget for Training of ENTHN Professionals

Training program	Candidate of trainee	Place of the training (Recommended)	Duration of training	Needed No of HR (BY 2022)	Cost of training (USD)	Total Cost of training (USD) for 5Yrs
ENTHN surgeons	General practitioners (MD)	Ethiopia	48 Month	280	19,200	5,376,000.00
Audiologist	Professional nurse (health officer)	South Africa Kenya	48 month	100	100,000	10,000,000.00
Speech and language therapist	Professional nurse	South Africa	48 month	250	100,000	25,000,000.00
Speech and language assistant	Diploma nurse	Zambia, South, Ethiopia	18 month	500	12,000	6,000,000.00
Mid-Level ENTHN Professionals	Health Officer, BSc Nurse	Ethiopia	12 Month	700	6,000	4,200,000.00
ENTHN nurses	Professional nurse	Ethiopia	6 Month	1500	3,000	4,500,000.00

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ENTHN sub-specialists*	Otologist (6), Rhinologist (6), Head & Neck surgeon (6), Pediatrics surgeon (6), Facioplastic 6	USA, Germany	24 Month			5,000,000.00
					Total HR	60,076,000.00

*Subspecialists shall be recruited for those who have started the ENTHN residency program. Budget for this is according to current higher institution scale 4000 USD and 1700 USD for accommodation and air ticket two ways

Budget summary

	Summary of Items	Total USD
a	General Equipment for Primary Hospitals/health Center	170,560.00
b	Audiology equipment and consumables for primary hospital/health center	40,500.00
c	General Equipment for General Hospitals	465,450.00
d	Surgical equipment at general Hospitals	2,076,640.00
e	Office Equipment/Furniture for general hospital	56,600.00
f	Clinic Equipment for general hospital	465,450.00
g	Audiology equipment and consumables for general hospital	245,000.00
h	Surgical equipment for tertiary hospital	661,992.00
i	Clinic Equipment tertiary for hospital	410,787.00
j	Tertiary clinical equipment (continued)	560,025.00
k	Office furniture for Tertiary Hospitals	32,700.00
l	Audiology equipment and consumables for tertiary hospitals	466,650.00
m	Hearing aids and cost estimation	213,750,000.00
n	Estimate of establishment cost for ENTHN Center of Excellence	42,000,000.00
o	Budget for Training of ENTHN Professionals	9,448,000.00
p	Budget for medicine and supplies and consumables	20,000,000
q	Budget for IEC, BCC	10,000,000
	Grand total	300,850,354.00

Annex B ENTHN medicine, medical and surgical consumable

DRUGS	PREPARATION
<u>EAR DRUGS(drops)</u>	
Ciprofloxacin	Solution 0.3%-5ml
Betamethasone	Solution (Ear drop) 0.1%
Neomycinsulphate+hydrocortisone +polymixin B sulphate	Ear drop 5mg+10mg+10000U/ml,34000units +1%+10000unit/ml
Hydrogen peroxide	Solution 3%
Gentamycin	Solution 0.3%
Oxytetracycline	Ear drop 0.3%
Ketoconazole	Cream 2%
Clotrimazole	Solution (ear drop) 1%
Oxytetracycline hydrochloride +hydrocortisone acetate +polymyxin B sulphate	Eardrop 5mg +15mg+100000u/ml
Acetic Acid	Solution 2%
Chloramphenicol	Solution (ear drop) 1%,2%,5%
Ofloxacin	Ear drop 0.3%
Clioquinol +flumethasone	Solution (ear drops) 1%+0.02
Ciprofloxacin+dexamethasone	Solution 0.3%+ 1%
Gentamycin +dexamethasone	Solution 0.3%+ 1%
Triamcinolone acetonide	Injection 40mg/ml
Hydrocortisone ointment	1% 25gm tube
Nitrofurantoin ointment	2% 25gm tube
<u>Systemic antibiotics</u>	
Amoxicillin capsule	250mg,500mg
Amoxicillin syrup	125mg/5ml,250mg/5ml
Amoxicillin +clavulanic acid po	125mg/5ml +62.5mg
Amoxicillin +clavulanic acid po	250mg+125mg
Amoxicillin +clavulanic acid po	500mg+ 125mg
Cephalexin capsulepo	500mg
Ceftriaxone IV	500mg,1gm powder
Ciprofloxacin IV	200mg /100ml vial
Clarithromycin tab	250mg/500mg
Clindamycin capsule	150mg/300mg
Clindamycin iv	300mg
Amoxicillin +clavulanic acid	600mg powder /vial
Ampicillin	500mg powder /vial
Metronidazole IV	500mg/100ml vial
Cefotaxime IV	1gm powder /vial
Cloxacillin IV	500mg powder/vial
Azithromycin cap	250mg /500mg
Ciprofloxacin tab po	500mg

Cloxacillin capsule	250mg/500mg
Ceftriaxone iv	500mg,1 gm powder/vial
<u>Anti fungal</u>	
Miconazole oral gel	20g /tube
Ketoconazole tab	200mg
Amphotercin B	1gm/vi
Itraconazole	
Nystatin suspension	100000iu/ml
<u>Systemic anti histamine &anti allergic drugs</u>	
Hydrocortisone IV	Powder 100gm in vials
Dexamethasone IV	4mg/1ml
Loratidine tab	10mg
Citrizen tablet	10mg
Chlorphenaramine syrup	2mg/5ml
Chlorphenaramine 2mg + dexamethasone 1.25mg tab	
<u>Analgesics and antipyretics</u>	
Ibuprofen tab	400mg
Ibuprofen syrup	20mg/5ml
Paracetamol syrup	120mg/5ml
Paracetamol suppository	120mg
Diclofenac IM	25mg/ml
Diclofenacpo	50mg
Tramadol IV/IM	50mg /1ml ampule
Pethidine IV/IM	50mg/1ml
Morphine	2mg/5ml
<u>Local anaesthesia</u>	
Lidocaine with adrenalin	2% 1:200000 50ml vial
Lidocainewith out adrenaline	2% 25ml vial
Xylocaine spray	4% 25 ml bottle
Tetracainespray	4%
ephdrine sulphate	
Fluticasone furate	
Saline nasal drop	

Annex C Log frame for Monitoring and Evaluation

<p>Vision: To see a productive, healthy Ethiopian people with free of Ear, Nose, Throat Head and Neck diseases</p> <p>Overall Goal: To provide equitable access and coverage of cost effective, quality health services for ENTHN health care as close to the people as possible in Ethiopia</p>									
<p>OBJECTIVES:</p> <p>1: Improve ENTHN service delivery through:</p> <ul style="list-style-type: none"> • delivery of infrastructure, equipment and logistical support for ENTHN health services at the health centers, • training of ENTHN Health Personnel and capacity building of existing health personnel to provide excellent ENTHN health care at all levels, • provision of all the necessary medical and surgical supplies for ENTHN health services • alleviation of preventable and curable ENTHN diseases, • rehabilitation of persons with disability as a result of ENTHN conditions <p>2. Enhance ENTHN knowledge to improve the quality of ENTHN health services in Ethiopia</p> <p>3. Develop good governance and mobilize the resource for ENTHN service</p>									
0 PRELIMINARIES					TIMELINE				
ACTIVITY	EXPECTED OUTPUT	INDICATORS	SOURCES OF VERIFICATION	RESPONSIBILITY	2019	2020	2021	2022	2023
Establish National ENTHN coordination units	1 National and 11 regional ENTHN coordinating units established	Working units in place	Appointment letters, Meeting minutes	FMOH and Regional Health Bureaus	X				
Develop an ENTHN Health Service guidelines	ENTHN Health Service guidelines developed	ENTHN Health Service guidelines documents	Copies of documents	FMOH and Regional Bureaus	X				
Conduct National Workshop on ENTHN Health Strategic Plan and guidelines	National Workshop on ENTHN Health Strategic Plan and guidelines conducted	Workshop event in place	Workshop event report	FMOH	X				
Disseminate the ENTHN Service strategic plan and guidelines	the ENTHN Service strategic plan and guidelines disseminated	Number of dissemination meetings	Dissemination of reports	FMOH and Regional Bureaus	X				

OBJECTIVE 1: IMPROVE ENTHN SERVICE DELIVERY					TIMELINE				
ACTIVITY	EXPECTED OUTPUT	INDICATORS	SOURCES OF VERIFICATION	RESPONSIBILITY	2019	2020	2021	2022	2023
Delivery of infrastructure, equipment and logistic support for ENTHN health services at the health centers,	<ul style="list-style-type: none"> Basic infrastructure improved Basic and modern equipment procured Logistic support provided 	<ul style="list-style-type: none"> Improved infrastructure Procured equipment Logistics delivered 	Procurement documents	FMOH and Regional Bureaus	X	X	X	X	X
Establish and strengthen ENTHN units at selected hospitals	ENTHN units established and strengthened	Number of functional units	Regional Health Facility reports	FMOH and Regional Bureaus	X	X	X	X	X
Provision of all the necessary medical and surgical supplies for ENTHN health services	All the necessary medical and surgical supplies for ENTHN health services provided	Number of medical and surgical supplies in put place	Supplies report documents	FMOH and Regional Bureaus	X	X	X	X	X
Alleviation of preventable and curable ENTHN diseases	Preventable and curable ENTHN diseases reduced	Percentage of reduced preventable and curable ENTHN diseases	Progress reports	FMOH and Regional Bureaus	X	X	X	X	X
Develop protocol for New born hearing screening	New born hearing screening protocol developed	New born hearing screening protocol in place	New born hearing screening protocol document	FMOH	X	x	x	x	x
Establish a referral system for further investigations of children at risk of ENTHN Health problem for further testing and diagnosis	National guidelines for further testing and diagnoses for children at risk of ENTHN Health problem developed	National guidelines documents	Copies of the document	FMOH and Regional Bureaus	X	x	x	x	X

Rehabilitation of persons with disability as a result of ENTHN condition	Persons with disabilities as a result of ENTHN condition rehabilitated	Number of persons with disabilities rehabilitated	Monitoring reports	FMOH and Regional Bureaus	X	X	X	X	X
Set-up ENTHN Center of Excellence	ENTHN center of excellence set-up at Federal level	One ENTHN Center of Excellence set-up	Monitoring reports	FMOH	X	X	X	X	X
OBJECTIVE 2: ENHANCE ENTHN KNOWLEDGE TO IMPROVE THE QUALITY OF ENTHN HEALTH SERVICES					TIMELINE				
ACTIVITY	EXPECTED OUTPUT	INDICATORS	SOURCES OF VERIFICATION	RESPONSIBILITY	2019	2020	2021	2022	2023
Establish baseline statistics of ENTHN diseases in Ethiopia	Baseline statistics of ENTHN diseases established	Base line statistics put in place	Base line reports	FMOH and Regional Bureaus	X				
Build research capacity of the Ethiopian ENTHN community	Research capacity of the Ethiopian ENTHN community built	Number of events of capacity building programs	Research capacity building reports	FMOH and Regional Bureaus	X	X	X	X	X
Create a Knowledge Resource Center to serve as a common pool for gathered information	A Knowledge Resource Center created	Resource center in place	Monitoring report document	FMOH and Regional Bureaus	X	X	X		
Publish articles relating to ENTHN journals	Articles relating to ENTHN in journals published	Types of articles published	Published articles	FMOH and Regional Bureaus	X	X	X	X	X
OBJECTIVE 3: DEVELOP GOOD GOVERNANCE AND MOBILIZE THE RESOURCE FOR ENTHN SERVICE					TIMELINE				
ACTIVITY	EXPECTED OUTPUT	INDICATORS	SOURCES OF VERIFICATION	RESPONSIBILITY	2019	2020	2021	2022	2023
Create awareness targeting health workers, policy makers, political leaders and general public	Increased support and prioritization of ENTHN Health Services at the policy level;	No meetings with policy makers; No of policy briefs developed	Meeting records, Policy briefs,	FMOH and Regional Bureaus	X	X	X	X	X

		& disseminated							
	Increased appropriate referral of patients with ENTHN Health problems; Increased utilization of services;	Number referred, Number utilizing the services,	Health facility data sheets	FMOH and Regional Bureaus	X	X	X	X	X
	Improved Community awareness on ENTHN Health	No. of HEWs conducting community dialogue on ENTHN Health	Community Health Registers Health Extension Worker (HEW) Reports	FMOH and Regional Bureaus	X	X	X	X	X
Increase training programs for ENTHN doctors and other professionals	Training programs for ENTHN doctors, Clinical Officers ENTHN, Audiologists, Speech and language therapists and ENTHN nurses established	No of training programs	University Approved Curriculum -Health Care Professionals Training Curricula, -Graduation list	FMOH and Regional Bureaus	X	X	X	X	X
	Support for trainees increased	Number of scholarships offered	List of trainees on training	FMOH and selected Universities		X	X	X	X
Conduct pre and in-service training of health professionals ENTHN Services	ENTHN Health Services included in the basic curriculum for health care professionals	Presence of ENTHN Health Service in the curriculum,	Training curriculum	Medical Training Centers	X	X			
	In-service training materials developed	Copies of training materials	Copies of training materials	FMOH	X	X			
	Health workers trained at all levels	Number of health workers trained	Attendance list	Medical Training Centers		X	X	X	X
Develop scheme of service framework for audiologists, audiology	Regulatory framework for the audiologist, audiology officers,	Presence of an operational	Framework Document	FMOH and Ethiopian ENTHN Society		X	X		

officers, audiology technicians and speech and language therapists	audiology technicians & speech & language therapists developed	regulatory framework							
Establish budget lines at National and Regional levels,	Budget line established	Budget line on ENTHN Health Services included in National and Regional budgets	Government printed estimates	FMOH and Regional Bureaus		X	X	X	X
Allocate adequate resources	Amount allocated		Government printed estimates	FMOH and Regional Bureaus		X	X	X	X
Mobilize resources	ENTHN Stakeholders mapped Stakeholders forums held Resources Mobilized	Catalogue of ENTHN stakeholders No. Of stakeholder's forums held No. of stakeholders funding the ENTHN Strategy	Catalogue Minutes Strategy Monitoring and Evaluation Reports	FMOH and Regional Bureaus, Development Partners NGOs, FBOs	X	X	X	X	X
Conduct regular surveys on ENTHN Health Services	Surveys conducted	Reports and results from surveys	Survey reports	FMOH and Regional Bureaus, Academia		X	X	X	X
Continuously Monitor and Evaluate implementation of the Strategy	Evidence based decision making	Use of data in continuous improvement of services,	HMIS reports, Survey reports	FMOH and Regional Bureaus	X	X	X	X	X
	Mid and End term review of the Strategy		Mid and End Term review reports,	FMOH and Regional Bureaus			X		X

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