

# Brief Communication

## Pattern of Ear, Nose and Throat Diseases in Addis Ababa

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### Abstract

**Background:** Estimate of Ear, Nose and Throat (ENT) diseases is not well documented in Ethiopia. This paper describes the pattern of ear, nose, and throat diseases among patients who attended the ENT unit at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia. The purpose of this research was to provide policymakers and health planners with a description of the pattern of ENT diseases in Addis Ababa.

**Methodology:** Analysis of medical records of patients who visited the Outpatient Department (OPD) of the ENT Unit of Tikur Anbessa Specialized Hospital from September 2014 to July 2016 was conducted. Socio-demographic and disease information including age, gender, region of residence, type of visit, diagnosis, and the number of visits were retrieved from OPD records. Descriptive analysis of the pattern of ENT diseases was conducted. The pattern was also disaggregated and presented by gender, age, and type of visit (new/repeat).

**Result:** A total of 12,268 OPD records were included in the analysis. About half of patients attending the unit were children under 18 years of age while 54% of them were male. On average, each patient visited the unit 2.2 times in about two years period. The most common diagnoses were adenotonsillar hypertrophy (ATH), (32.8%) and otitis media (24.9%).

**Conclusion:** In this study, it is found that adenotonsillar hypertrophy (ATH) and otitis media are the most common ENT diseases among children under the age of 18 years. We recommend consideration of ATH and otitis media as a priority public health problem among children. We also recommend a community-level prevalence study for designing interventions targeting these priority ENT diseases.

**Key Words:** Ear, nose and throat; ENT; Tikur Anbessa Specialized Hospital; Ethiopia

### Introduction

Diseases of ear and mastoid process are among the leading causes of morbidity and mortality in Ethiopia (1). These diseases are commonly referred to as Ear, Nose, and Throat (ENT) diseases. Most commonly diagnosed diseases include, otitis media, hearing loss, rhinitis, tonsillitis with or without adenotonsillar hypertrophy, pharyngitis, foreign body in ear, nose, or throat, and mass, swelling, cyst, or malignancy that affect ENT organs (2-8).

The distribution of ear, nose, and throat diseases is not well documented in Ethiopia. This could be due to the low priority given to the diseases as compared to communicable epidemic-prone diseases (9). However, studies done in other countries show the importance of ENT diseases at the health care settings. In a study done in a tertiary hospital in Nigeria in 2013, otitis media was found to be the most common disease (10). The study also showed that the majority of cases attending the ENT unit were due to ear diseases (62.7%), followed by the nose (23%) and throat (10%) diseases. A significant number of patients with diseases of the head and neck also visited the unit. About 40% of the cases were aged 15 years or less showing that ENT diseases often occur in children.

Infection of the tonsil and adenoid was among the most common diseases of ENT in children (11). Foreign bodies in the ear, nose, or throat were also found to be among the most common diagnoses in most hospital settings (3, 4, 10, 12, 13). Otorhinolaryngeal foreign bodies usually occur in children. In a study done in Malaysia, the most common site for otorhinolaryngeal foreign bodies was the pharynx followed by ear, esophagus, nose, and laryngo-tracheobronchial tree (13).

Patients with hearing loss of different levels also visited ENT units of hospitals at different settings (8, 10, 14, 15). Hearing loss can result from otitis media, accidents, or foreign bodies. According to World Health Organization (WHO) estimates, 5.3% of the world population suffered from disabling hearing loss in 2012 (14). The prevalence is low among children (1.7%) while it is highest among adults aged 15 years or higher (7%). The burden is highest in South Asian countries followed by Sub-Saharan African countries.

Other common causes of the diseases that are managed at the ENT unit include pharyngitis (11), rhinitis including those with allergic origin (8, 10, 16, 17), epistaxis (15), upper respiratory tract infections, airway obstruction (18) and malignancies of the head and neck (8).

This paper was intended to determine the pattern of ear, nose, and throat diseases among patients attending the ENT unit of Tikur Anbessa Specialized Hospital, Addis Ababa University hospital in Addis Ababa, Ethiopia. This paper also provided a descriptive analysis of the types of diseases, disaggregated by age, gender, and number of visits. The results of this study can help decision-makers and health planners in prioritizing ENT problems and in designing interventions.

### Methodology

A cross-sectional study design was employed and hospital-based secondary data were utilised. Descriptive analysis of ear, nose, and throat diseases among patients who had been treated at Tikur Anbessa Specialized Hospital were made.

Medical records of patients treated at the ENT Unit which were complete and accessible were included in

the study. Data was obtained from the outpatient department (OPD) registration book. The registration book contained hospital registration number, date, name, age, sex, address (region), diagnosis, and type of visit (new/repeat). Available OPD registration books contained records of patients treated at the unit from September 2014 to July 2016. All records with complete hospital registration numbers and diagnoses were included in the study.

Database for entry of records were designed using EPI Info version 7.0. Data were entered and cleaned by a trained data encoder. All variables were checked against a valid value list. In addition, spelling errors in diagnosis were corrected in the database in consultation with the ENT specialist. Cases with no diagnosis were deleted from the database. The data were entered and cleaned in the EPI Info software and was then transferred to STATA 12 for management and analysis. Variables such as age and diagnosis were recorded to produce the final dataset. Age was grouped in such a way that results could be displayed for under 5 years and 18 years. Descriptive analysis of the entire variable found in the dataset was conducted using frequency tables. Cross-tabulation was also conducted to show diagnosis by age group and gender.

Ethical clearance to conduct the study was obtained from the Institutional Review Board of the College of

Health Sciences, Addis Ababa University. Permission to conduct the study was also obtained from the ENT unit of the hospital. Names of patients were not included in the data, i.e., it was not entered into the database to maintain anonymity and confidentiality.

## Result

### Socio-demography of the patients

A total of 5,068 patients' records were retrieved from the registration book of the ENT unit, Tikur Anbessa Specialized Hospital which included registries from September 01, 2014, to July 31, 2016. Registration was made for each patient visit with an average number of visits of 2.22 making a total of 11, 229 new and repeat records. On average, the unit has been giving service to 267 new cases and a total of 591 new and repeat cases in a month. One-quarter of patients who came to the ENT unit were children under five years of age while half of the patients were children less than 18 years. Besides, three quarters were under the age of 35 years. The median age at the first visit was 15 years. Fifty-four percent were male. About half of the patients contacted their physician only one time while about one-third of them visited 2-4 times. Patients have come from all regions and city administrations in the country, the majority being from Addis Ababa (61.9%) and Oromia (21.8%), Table 1.

**Table 1: Socio-demography of Patients, ENT Unit, Tikur Anbessa Specialized Hospital, Addis Ababa 2014-2016 (n = 5,068)**

<i>Characteristics</i>	<i>Number</i>	<i>Percent</i>
Age Group		
0-4 years	1,339	26.5
5-17 years	1,313	25.9
18-34 years	1,199	23.7
35-49 years	623	12.3
50+ years	588	11.6
Average age		20.9 years
Median age		15.0 years
Gender		
Male	2747	54.2
Female	2319	45.8
Region		
Addis Ababa	3,131	61.9
Oromia	1,103	21.8
Amhara	428	8.5
SNNPR	259	5.1
Tigray	42	0.8
Harari	27	0.5
Afar	19	0.4
Dire Dawa	17	0.3
Somali	15	0.3
Gambella	8	0.2
Benishangul Gumuz	7	0.1
Number of Visits		
Once	2,608	51.5
2-4 times	1,901	37.5
5 or more times	559	11.0

### The ENT diseases

Out of the total 11,229 visits recorded, about one-third (32.8%) were with the diagnosis of adenotonsillar hypertrophy (ATH) followed by otitis media which

accounted for about one-quarter of visits, 24.9%. Malignancies of ENT organs, rhinitis, ENT mass, polyp or cyst, hearing loss, tonsillitis with no ATH, laryngomalacia, airway obstruction, foreign bodies in

the ENT, epistaxis, tongue diseases, choanal atresia, and joint and bone abnormalities of head and neck were among the diagnosis made at the unit, see Table 2 and Figure 1. Infections of ENT such as pharyngitis,

sepsis of ENT origin, mastoiditis, glossitis, laryngitis, and upper respiratory tract infections accounted for about 2% of the visits.

Table 2: **Pattern of Diseases, ENT Unit, Tikur Anbessa Specialized Hospital, Addis Ababa 2014-2016 (n = 5,068)**

<i>Diagnosis</i>	<i>Number</i>	<i>Percent</i>
ATH	3,682	32.8
Otitis Media	2,795	24.9
Malignancies	832	7.4
Rhinitis	677	6.0
Mass/Polyp/Cyst	646	5.8
Hearing Loss	480	4.3
Tonsillitis	462	4.1
Laryngomalacia	221	2.0
Airway Obstruction	203	1.8
Other Infections	203	1.8
Foreign Body	199	1.8
Epistaxis	134	1.2
Head and Neck Joint and Bone Abnormalities	102	0.9
Tongue Diseases	61	0.5
Choanal Atresia	53	0.5
Others	479	4.3
Total	11,229	100.0

Analysis by individual patients showed that the vast majority of cases (65.9%) were diagnosed as ATH or otitis media at least in one visit to the unit. About 40% of them have also been diagnosed to have malignancies

of ENT organs, rhinitis, mass/polyp/cyst in the ENT, tonsillitis, or hearing loss, Table 3. Patients with airway obstruction and ATH were found to have the highest number of repeated visits to the unit.

Table 3: **Pattern of ENT Disease and Number of Visits, Tikur Anbessa Specialized Hospital, Addis Ababa, 2014-2016 (n = 5,068)**

<i>Diagnosis</i>	<i>Number</i>	<i>Percent</i>	<i>The average number of visits</i>
Otitis Media	1716	33.9	2.25
ATH	1623	32.0	2.71
Malignancies	496	9.8	2.48
Rhinitis	444	8.8	2.29
Mass/Polyp/Cyst	408	8.1	2.49
Tonsillitis	390	7.7	2.08
Hearing Loss	367	7.2	2.08
Laryngomalacia	171	3.4	2.14
Foreign Body	170	3.4	1.40
Other Infections	154	3.0	2.53
Airway Obstruction	109	2.2	3.38
Epistaxis	97	1.9	1.77
ENT Joint and Bone Abnormalities	69	1.4	1.93
Choanal Atresia	45	0.9	2.51
Tongue Diseases	39	0.8	2.13
Others	410	8.1	2.01
Total	5,068		2.41

Diagnosis at the initial visit to the ENT unit didn't show a varying pattern in diagnosis. Otitis media

followed by ATH accounted for about 55% of cases. Other diagnoses also showed a similar pattern, Table 4.

Table 4: ENT Diagnosis at Initial Visits, ENT Unit, Tikur Anbessa Specialized Hospital, Addis Ababa, 2014-2016 (n = 5,068)

<i>Diagnosis</i>	<i>Number</i>	<i>Percent</i>
Otitis Media	1,428	28.2
ATH	1,364	26.9
Malignancies	366	7.2
Rhinitis	311	6.1
Mass/Polyp/Cyst	273	5.4
Tonsillitis	232	4.6
Hearing Loss	217	4.3
Foreign Body	140	2.8
Laryngomalacia	121	2.4
Other Infections	90	1.8
Epistaxis	80	1.6
Airway Obstruction	74	1.5
ENT Joint and Bone Abnormalities	53	1.1
Tongue Diseases	33	0.7
Choanal Atresia	23	0.5
Others	263	5.2
Total	5,068	100.0

### Discussion

The study aimed to describe the pattern of ear, nose, and throat diseases among patients coming to the ENT unit of Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia. The unit provided services, on average, to 591 patients in a month. With a limited number of otorhinolaryngologists in the country (5), the unit bears the highest workload.

Adenotonsillar hypertrophy (ATH) and otitis media were found to bear half of the burden of diseases among the patients who were treated at the unit. ATH can be caused by repeated infections of tonsil and adenoid glands and allergies (17, 19); however, the epidemiology of tonsillitis is not clear in Addis Ababa. Most patients with ATH were children under the age of 18 years. Other infections of ENT such as rhinitis, pharyngitis, sinusitis, tonsillitis with no ATH, and upper respiratory tract infections were also found to be common in children. Therefore, if untreated, long-term consequences can have a negative impact on the health of the population.

Otitis media was reported among 33.9% of patients. This result is higher than a study conducted in Addis Ababa in 1999 which showed a prevalence of 22.3%, (20). The increased trend might be attributed to an increased trend in upper respiratory tract infections and resistance to commonly used antibiotics (21, 22). The proportion of otitis media might have been even higher because patients can present with complications associated with it, such as hearing loss, systemic infections, and mastoiditis (20).

Malignancies of ear, nose, and throat organs were found to be the third most common disease. Unconfirmed malignancy cases can also present as

mass, polyp, or cyst forms. The prevalence of malignancies by specific organs was not studied in these setups. However, studies show increasing trends in malignancy in the country (23-25).

Description of the presentation of ENT diseases provides significant information for policymaking. This study has also laid down basic information for further investigations in the area of Otorhinolaryngology. Data were available only for about two years; therefore, trend analysis couldn't be included in this report.

### Conclusion

This study has described the pattern and presentation of ENT diseases. It has been shown that about two-thirds of patients that present to the ENT unit were due to otitis media, adenotonsillar hypertrophy, and malignant neoplasm. This study also found that most patients were children under the age of 18 years. We recommend consideration of these ENT diseases as a priority health problem taking into consideration the burden of disease and the age group that is primarily affected. Clinical treatment that is accessible to the community, as well as public awareness-raising interventions, are recommended. A community-based survey to estimate the magnitude is also recommended to guide decision-making.

### Declarations

#### Ethics approval and consent to participate:

Ethical approval for this study has been obtained from the Institutional Review Board of the College of Health Sciences, Addis Ababa University. Confidentiality and anonymity of the data have also been maintained.

**Consent for publication:**

Not Applicable

**Availability of data and material:**

The dataset used for this study is available with the corresponding author. Therefore, upon reasonable request to the Department of Otorhinolaryngology and Head and Neck Surgery, College of Health Sciences, Addis Ababa University, the dataset can be made available.

**Conflicts of interest:**

The authors declare that they have no conflicting interests.

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**Authors' contributions:**

TK designed the database for data entry and cleaning. Data management and analysis were also performed by TK. Both authors (TK and AT) contributed to the write-up of this research. Both authors read and approved the final manuscript.

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