# Analysis of Pediatric Admissions at Tefera Hailu Hospital, Sekota, Amhara Region

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## Abstract

***OBJECTIVE:*** *To document the pattern of disease and outcome of pediatric admissions.*

***DESIGN:*** *a retrospective record review of the series of cases admitted at Teffera Hailu Hospital, Wag Hemera Zone North western Ethiopia was done from July 2001 to December 2004.*

***SETTING:*** *Medical pediatric ward, Teffera Hailu rural Hospital North west Ethiopia.*

***SUBJECTS:*** *All admissions in the pediatric ward from July 2001 to December 2004 were included in the study.*

*MAIN OUTCOME MEASURES: Socio-demographic features, nutritional status, clinical diagnoses, duration of hospital stay and mortality.*

***RESULTS:*** *1512 children were admitted during the study period. The sex ratio was1: 1.2; the majorities (51.8%) of the patients were one year and below, the average age was 39.2 months, the percentage of children coming from the Sekota health area was 72%. The predominant causes of admission were malnutrition and infections diseases, essentially respiratory, malaria and digestive. There were 109 (7.9 %) deaths. Forty three percent of them died within 72 hours of admission. Severe protein energy malnutrition, pneumonia dysentery and complicated malaria were the main causes of death. Most of the therapeutic decisions were made based on symptomatology and evolution of the disease.*

***Conclusion:*** *The laboratory tests contributed very little to therapeutic decisions, which were based more on symptomatology and evolution of the disease. Strictly, following the WHO guideline on the management of Malnutrition has brought a reduction in mortality at Teffera Hailu hospital in Sekota. Therefore standardization of case management especially nutritional management is an iportant and essential step towards reduction of mortality at the primary health institutions.*

## INTRODUCTION

Most deaths from infectious diseases - almost 90% - are caused by only a handful of diseases. Moreover, most of them have plagued humankind throughout history, often ravaging populations more effectively than wars. In the era of vaccines, antibiotics and dramatic scientific progress, these diseases should have been brought under control. Yet, in developing countries today, they continue to kill at an alarming rate. Every three seconds a young child dies- in most cases from an infectious disease. In some countries, one in five children dies before fifth birthday. No more than, six deadly infectious diseases-pneumonia, tuberculosis, diarrhea diseases, malaria, measles and more recently HIV / AIDS - account for half of all premature deaths, killing mostly children and young adults. (l) The health problems of children are different from those of adults and vary widely among the nations of the world (2).

The assessment of the state of health of any community begins with a description of the incidence or prevalence of illness and continues with studies that show the changes that occur with time and in response to programmes of prevention, case finding, therapy and adequate surveillance (3).If health services are to respond to the changing health needs of their local populations, then planners and managers need useful and timely information about the health status of the.se populations. Some of this information can come from routine data sources. Hospital inpatient records can be used to obtain numbers of admissions, cause of admission, and length of stay etc. Information about diseases or use of health services can help to build up a picture of the health needs of a local population (1).

Children under five bear 30% of the total burden of disease in poor countries; Malnutrition is the commonest underlying factor that increases the risk of dying from these diseases (5).

## POPULATION AND METHOD

### The study site

This retrospective hospital based descriptive study was done at Teffera Hailu hospital pediatric ward in Sekota. Sekota is the capital of Wag-Hemera zone. The zone is a special zone in Amhara regional state, Federal Democratic Republic of Ethiopia. The zone has nearly 350,000 populations. The area is mainly Kola and has been repeatedly stricken by drought. People live by subsistence farming. There is one district hospital four health center and around 30 health stations or health posts. The geographical health coverage is around 70%.

The MSF- Switzerland team had one expatriate and one national doctor and nurses. The team strictly follows the WHO guideline on admission criteria and the management of malnourished children (6).

### Study Population

We reviewed the records of all pediatric patients admitted and discharged in the pediatric ward from July 2001-January2003. Information was extracted based on prepared questionnaire. Some of the variables collected includes: demographic variables, date of admission, admission weight and height, the lowest weight in hospital stay, discharge weight, and height, date of discharge or death, vaccination status, diagnoses, causes of death, presence and degree of edema, vaccination status, final outcome of the patient etc.

### Data entry and analysis

Data collected using the data collection form was edited and entered into a computer and analysis was made using EPI-info 2002 soft ware. Results are presented using proportions, frequency tables and graphs.

## RESULTS

During the stud period, there were 1512 admissions to the pediatric ward. The sex ratio was 1: 1.2; the average age at admission was 39.2 months. 81. % of the admissions are the under five-year age group. The age rages from 1 month to

180 months. Table: There was an average of 374 admissions per year. There was more admission during the dry season than the rainy seasons (fig 1).

The percentage of children coming from the Sekota health area was 72% and the rest came from other two Woredas of the zone called Dehana and Zequala. The most common diagnosis was severe malnutrition, 30.6 % of had severe degree of wasting and 57 % had severe degree of stunting. The other predominant diagnoses made were infectious diseases, essentially respiratory Pneumonia, tuberculosis, malaria and digestive Table2.

At admission, many of children were malnourished; the mean weight at admission was 8.8 kg. The age group most affected by malnutrition is 11-23 months. 52.7% of the severely malnourished children are in this age group and 78.9% of children admit d in this age group are malnourished. Table3. After admission, patients gained an average weight of 1.4 kilograms roughly 7.4 gram/kg /day, on average duration of 21.5 days. The duration of hospital stay is a bit longer for the under fives, which is 22.5days.

Many patients had multiple diagnoses. More than 60 % have two diagnoses,30.3 % had three diagnoses 4.8%have four diagnoses and few patients (around 1%) have five diagnosis at discharge. The average diagnoses or problems identified per child was 1.7. One hundred forty patients disappeared from hospital without the consent of the attending physician after a mean hospital stay of 16.2 days mean weight at disappearance was 6.5kg, which was lower total patients mean weight, but during their stay they gained average of 200 grams, which is 1.9 grams/kg/ day. Of the 1372 children who were followed in the hospital, 109 children died, the overall fatality was 7. 9 (excluding those who discharged themselves with out medical advice). Slightly more males than females have died. Deaths occurred after a mean hospital stay of 12 days. The fatality in severely malnourished children was 11.3 %. Of the deaths, 43.3% of them occur with in 72 hour of admission. Severe protein energy malnutrition, pneumonia dysentery, complicated malaria were the main causes of death. The deaths occurred after they have lost an average of 400 grams.

## DISCUSSION

Children under five years of age are at risk of developing severe malnutrition and infectious disease. The major difference found in the patterns of admission of this series from other studies (7, 8) is the high rate of severe malnutrition, which accounted for over 57% of the study population. This is probably due to the frequent and successive drought that affected the area and the commitment of MSF-Switzerland on the management of malnutrition and active case finding of malnourished children. Most of the patients came from one of the Woreda called Sekota. It is merely because of the accessibility of the service to the community and the awareness of the community to the service given by the hospital.

Because distance and awareness are influencing factors for utilization of the health service (8, 9).

There is a tendency that children is more in the dry season than the rainy season. It is most probably because physical obstacles like river are low during the dry season. In additions peasants have harvested their crop and there is no farm activity during the dry season (9).

The average diagnoses per child is 1.7 which is low when compared to other studies that reported 3 and above(10), this is due to the low capacity of the hospital to conduct different tests on the patient, and probably low index of suspicion by the physicians to pick and document additional problems by history and physical examination. Many patients are leaving the hospital before they complete their treatment. Patients and their family come to health institutions for help to solve the causes of ill health. As we know the causes of an illness or a health problem are multifactorial. The patient and his/her family may have additional nonmedical problem. To understand their problem we have to have a dialogue with the patient and or his family (11). The solution must be, affordable, acceptable and free of anxiety to the patient and his/her care takers (12, 13,). On the contrary, our tendency is to avoid dialogue and be paternalistic, offer limited options for the patient than involving the patient and his family on the decision of management. Unless we address the family, social and economical issues, giving only drugs may not solve the problem. Communication and dialogue helps the patient to solve their problem (13). Some- conditions commonly reported in developing countries were not reported in our patients; HIV/AIDS is believed to be one of the major diagnoses made in hospitals (14). The diagnosis is not made frequently in this hospital, one of the reasons being lack continuous availability of diagnostic kits.

The other, general patterns of pediatric disease requiring hospital admission are comparable to the other rural hospitals in the country and developing countries pattern of admission (15, 16, 17, and 18).

## CONCLUSION

More than 76% of the diagnoses made at Teffera Hailu hospital are just six conditions: malnutrition including anemia, pneumonia, tuberculosis, malaria, measles, and meningitis. Therefore, standardization of case management of these conditions, especially nutritional management is an important and essential step towards reduction in mortality both at the primary and referral health institutions strictly following the WHO guideline on the management of malnutrition (19) has brought a reduction in mortality at Teffera Hailu hospital in Sekota.

The laboratory tests contributed little to therapeutic decisions. Therapeutic decisions were based more on symptomatology and its evolution. Some important test kits including HIV/ AIDS tests should be continuously available in such hospitals to help diagnostic and therapeutic decisions.

Table 1: **The age and sex distribution of patients admitted to Teffera Hailu Hospital pediatric ward Sekota 2004**

| **Age group in months** | **NO** | **Percent** |
|---|---|---|
| <=6 | 121 | 8.0 |
| >6 - 11 | 152 | 10.1 |
| > 11 - 24 | 453 | 29.96 |
| >24 - 60 | 500 | 33.1 |
| >60 | 262 | 17.3 |
| Missing | 24 | 1.6 |
| Total | 1512 | 100.00% |
| **Sex** | **No** | **Percent** |
| F | 687 | 45.4% |
| M | 817 | 54.1% |
| Missing | 8 | 0.5% |
| Total | 1512 | 100.0% |

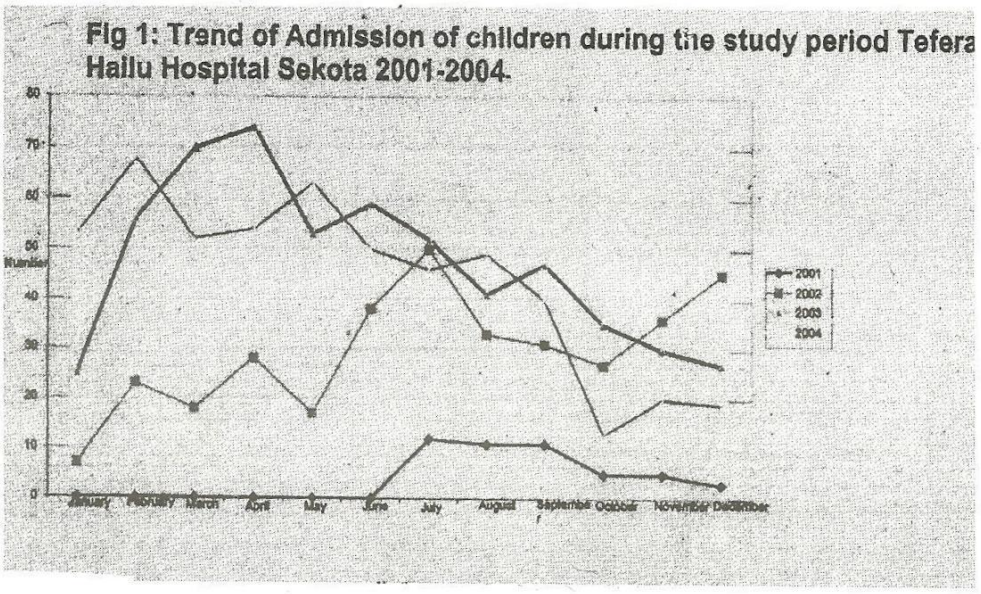

**Table 2: Diagnosis made at admission of patients at Sekota Teffera Hailu Hospital, 2001-2004**

| Type of Diagnosis | PATIENT -DIAGNOSIS | | |
|---|---|---|---|
| | IN <5 YEAS | % | Total |
| Severe Wasting | 439 | 91.1 | 482 |
| Pneumonia | 291 | 93.6 | 311 |
| TB (all) | 98 | 48.5 | 202 |
| Diarrhea | 166 | 94.9 | 175 |
| Malaria | 136 | 72.0 | 189 |
| Kwashiorkor | 111 | 76.6 | 145 |
| Measles | 72 | 64.9 | 111 |
| Dysentry | 49 | 47.6 | 103 |
| Anemia | 89 | 100.0 | 89 |
| Meniningitis | 23 | 36.5 | 63 |
| Accidental Injuries | 49 | 83.1 | 59 |
| Congestive Heart Failure | 29 | 96.7 | 30 |
| Sepsis | 30 | 100.0 | 30 |
| Others | 371 | 80.3 | 462 |
| Total | 1953 | 79.7 | 2451 |

**Table 3: Weight for height of admitted children by age group Sekota - Teffera Hailu Hospital July2001- December 2004**

| Age group months | <= -3 | >-3 - -2 | >-2 | TOTAL | %Row From Total |
|---|---|---|---|---|---|
| <=6 | 14 | 20 | 67 | 101 | 8.1 |
| >6 -11 | 27 | 43 | 64 | 134 | 10.7 |
| >11 - 24 | 201 | 221 | 113 | 535 | 42.8 |
| >24 – 59 | 102 | 82 | 107 | 291 | 23.3 |
| >59 | 39 | 61 | 90 | 190 | 15.2 |
| Total | 383 | 427 | 441 | 1251 | 100 |

**Table 4: Height for age of admitted children by age group Sekota Teffera Hailu Hospital July2001- December 2004**

| Age group | <= -3 | >-3 - -2 | >-2 | TOTAL |
|---|---|---|---|---|
| <=6 | 23 | 25 | 63 | 111 |
| % | 20.7 | 22.5 | 56.7 | 100 |
| >6 - 11 | 73 | 26 | 37 | 136 |
| % | 53.7 | 19.1 | 27.1 | 100 |
| > 11 - 24 | 387 | 70 | 78 | 535 |
| % | 72.3 | 13.1 | 14.6 | 100 |
| >24 - 59 | 172 | 50 | 69 | 291 |
| % | 59.1 | 17.2 | 23.6 | 100 |
| >59 | 80 | 53 | 83 | 216 |
| % | 37 | 24.5 | 38.4 | 100 |
| Total | 735 | 224 | 330 | 1289 |
| % | 57 | 17.4 | 25.6 | 100 |

**Table 5; out come of Patients by age, admitted at Sekota Teffera Hailu Hospital 2001-2004**

| Age group | Improved | TAFC | Referred | Self discharge | Died | Total |
|---|---|---|---|---|---|---|
| <=6 | 92 | 0 | 4 | 15 | 10 | 121 |
| >6-11 | 13 | 9 | 18 | 64 | 48 | 152 |
| >11-24 | 389 | 4 | 8 | 28 | 24 | 453 |
| >24-60 | 468 | 0 | 5 | 17 | 10 | 500 |
| >=60 | 225 | 2 | 4 | 15 | 16 | 262 |
| Total | 1209 | 15 | 40 | 140 | 109 | 1488 |

TAFC=Transferred to ambulatory feeding center

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