

Hepatitis B Infection in Pregnant Women

- Health sector budget allocation in South Sudan
- Pattern of liver enzymes in eclamptic patients
- Hoarseness of voice and accompanying symptoms
- Middle ear effusion among children with adenoid hypertrophy
- Evaluate and improve medical education
- Medical survey among the Twi Dinka
- Salisbury Sudan Medical Link visit

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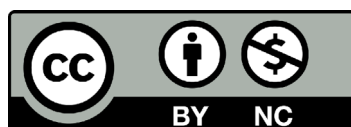
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South Sudan Doctors' Union calls for increased health sector budget

The South Sudan Doctors' Union (SSDU) recently made submissions to the National Legislative Assembly to strongly advocate for an increase in the health sector budget from the current 2.1% to at least 15% of the total national budget for 2023-2024.^[1] This call is in line with WHO recommendations and the Abuja Declaration by the African Union Heads of State to achieve Universal Health Coverage.^[2] The current national health budget covers only chapters one (salaries) and two (operation costs). Chapter three which covers infrastructure development is left out. Additional aid by development partners (donors and NGOs) supports primary health care. The urban populace has to pay for their healthcare costs and have no health insurance.

The low budget allocation has led to a shortage of health workers, facilities, equipment, and medicines, contributing to high maternal and child mortality rates and preventable diseases, such as malaria, tuberculosis, and HIV/AIDS. There is only one doctor per 65,574 people, one nurse per 3,000 people. The few available health facilities are poorly equipped and lack basic medical supplies. This has resulted in patients travelling long distances to access healthcare services, which is not only expensive but also time-consuming especially during medical emergencies. The lack of medicines has also led to patients being unable to access essential drugs for their conditions.

The consequences of underfunding the health sector are not limited to human suffering. The economic costs are also significant. Poor health outcomes lead to lost productivity, increased healthcare costs, and reduced economic growth.

To achieve the health sector budget increase, the SSDU suggests the following: 1) the government /parliament adopts the intermittent or biennial health budget increase model where the government tops health budget by 10% every other year, 2) the government supplements the health budget by imposing VAT and taxes on cigarettes, sugar, and related products, and 3) the 'oil for health' funding initiative is used to provide stable funding for quality healthcare services to all citizens.

In conclusion, the SSDU urges the government of South Sudan to increase the health sector budget. This increased budget allocation would enable the recruitment of more health workers, construction and equipment of new health facilities, and purchase of essential equipment and medicines. The SSDU is committed to working with the government in efforts to increase the health sector budget and create a healthier future for all South Sudanese people.

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Hepatitis B chronic infection among pregnant women attending the antenatal care in Bor State Referral Hospital, South Sudan

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ABSTRACT

Introduction: Hepatitis B virus (HBV) is a major public health problem affecting 400 million people worldwide, and is a common cause of chronic liver failure (cirrhosis) and hepatocellular carcinoma. Sixty-eight percent of infected people are from the African and Pacific regions. Vertical transmission from mother to newborn baby is one of the mechanisms by which chronic hepatitis virus infection spreads, besides infections from contaminated needles and syringes and sexual contact. Hepatitis B chronic infection is endemic in many poor countries, especially in Africa.

Method: A cross-sectional study was conducted between July and August 2021. Pregnant women attending the antenatal care (ANC) in Bor State referral hospital, South Sudan, were interviewed to collect information on their socio-demographic characteristics and risk factors for hepatitis B infection. The objective was to determine the seroprevalence of hepatitis B chronic infection through blood testing. Prevalence ratios for certain risk factors were calculated.

Results: Two hundred pregnant women were enrolled. The Prevalence Rate for chronic infection with hepatitis B virus, diagnosed using the rapid immunochromatographic assay for Hepatitis B surface antigen (HBsAg), was 8.5%. (95% CI; 4.7% - 12.3%). None of the suspected risk factors studied were found to be significantly associated with testing positive for HBV, except for a history of previous jaundice.

Conclusion: The prevalence of HBV chronic infection among pregnant women in Bor, Jonglei State, is high hence there is a need for established public health interventions that can lead to a reduction of HBV vertical transmission. Treatment of pregnant women with HBV chronic infection using anti-viral medications during pregnancy might curb the vertical transmission rates.

Key words: Hepatitis B virus, chronic infection, sero-prevalence, immunochromatography, prevalence ratio, South Sudan

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INTRODUCTION

Hepatitis B virus (HBV) is a deoxyribonucleic acid (DNA) virus that belongs to the family of *Hepadnaviridae* that causes acute and chronic diseases of the liver. HBV infection is a dangerous worldwide public health problem, which usually affects the liver and may cause acute hepatitis, fulminant hepatitis, hepatic encephalopathy and chronic conditions like liver cirrhosis and hepatocellular carcinoma (HCC).

HBV can be spread through blood, serum, semen, and vaginal secretions as well as from mother to new born. It also gives rise to a carrier state (chronic infection state) where the asymptomatic person can pass the infection to others.^[1] HBV is

one of the infections that should be screened for during antenatal check-ups of the mother to reduce the risk of vertical transmission to the infant,^[2] a recommendation endorsed by various countries to reduce hepatitis B new infections. The World Health Organization (WHO), in its Global Health sector strategy, suggested a reduction of hepatitis B and C new infections by 90% and hepatitis deaths by 65% by the year 2030.^[3]

In 2015, WHO estimated that 257 million persons or 3.5% of the population are living with chronic HBV infection. Of these, 68% are from the African and Pacific regions with 2.7 million people are co-infected with HIV.^[3] Vertical transmission from mother to newborn baby is commonly caused by chronic hepatitis virus infection in the expectant mother. This is a great health problem in endemic areas, and especially in Africa where resource allocation for hepatitis screening programmes is limited.

In the WHO Hepatitis Global Report 2017, most of the infants born to untreated HBV-infected mothers become infected during birth. Hence, one of the most effective ways to reduce vertical transmission is by vaccination of newborns immediately within 24 hours of life. It has been reported that the risk of getting chronic liver disease is more if the infection is acquired during childhood.^[3,4] Furthermore, this report states that those living with HBV infection are persons born before hepatitis B vaccination at birth was available and that the infection was usually due to vertical transmission.

METHOD

The research proposal was approved by Jonglei Health Sciences Institute Research Ethics Board. A cross-sectional design was used to determine the sero-prevalence of HBV infection among pregnant women who were attending the antenatal care (ANC) in Bor State Referral Hospital (BSRH) using a one-time rapid immune-chromatographic assay for hepatitis B surface antigen (HBsAg).

The objectives were to determine the number of women who will require treatment during pregnancy and the number of newborns who will require birth-dose of hepatitis B vaccine to prevent vertical transmission, and to find the most common risk factors associated with seropositivity for HBV chronic infection.

BSRH is a public hospital in Jonglei State and is one of the two teaching hospitals in greater Jonglei. It is the main referral centre in the state with 11 counties and a population of more than one million. It receives patients from the neighbouring Lake State, Pibor Administrative Area and a few foreigners. The hospital handles an average of 1,000 deliveries per year and, in the antenatal clinic, an average of 30 women are seen daily from Monday to Friday.

The study population was all pregnant women attending the ANC at BSRH. Starting 1st July 2021, all mothers who came for antenatal booking were counselled for hepatitis B screening in addition to the routine screening. Those who gave consent to be a part of the study were recruited.

The sample size was determined from data available in the country in 2021 that found that the sero-prevalence of HBV infection among pregnant women was 11%.^[5] The sample size of 200 women was chosen to determine the prevalence of hepatitis B in pregnant women with a possible 5% error and a CI of 95%. So, the first two

Table 1. Socio-demographic characteristics of the women (N = 200)

Variable		Frequency n (%)
Age (years)	15-19	52 (26.0)
	20-24	68 (34.0)
	25-29	44 (22.0)
	30-34	30 (15.0)
	35-39	6 (3.0)
Education	Illiterate	81 (40.5)
	Primary	77 (38.5)
	Secondary	36 (18.0)
	College and more	6 (3.0)
Occupation	Housewife	166 (83.0)
	Daily labourer	17 (8.5)
	Salaried	16 (8.0)
	Students	1 (0.5)
Residence	Urban	136 (68.0)
	Rural	64 (32.0)
Marital status	Married	185 (92.5)
	Single	0 (0.0)
	Divorced	2 (1.0)
	Widowed	13 (6.5)
Parity	Nullipara	56 (28.0)
	1-2	39 (19.5)
	3-4	44 (22.0)
	4-5	25 (12.5)
	>5	36 (18.0)
Gestation age	1-12 weeks	36 (18.0)
	13-28 weeks	126 (63.0)
	29-delivery	38 (19.0)

hundred pregnant women who consented were screened for hepatitis B using an immunochromatographic test to detect the presence of hepatitis B surface antigen. The required sample size was reached on 31st August 2021.

The study outcome was seropositivity using immunochromatographic testing, and the independent variables were potential risk factors for HBV infection, determined by administering a structured questionnaire during face-to-face interview of the women.

The data were entered into an Excel spreadsheet and analysed using SPSS.

RESULTS

Table 1 gives the socio-demographic characteristics of the 200 women interviewed.

HBV was positive in 17 out of 200 pregnant women indicating a prevalence of 8.5% (95% CI: 4.7% - 12.3%).

Risk factors for HBV infection

Although the sample size was not large enough to produce reliable statistically significant results, nine potential risk factors for acquiring hepatitis B infection were investigated using relative risk or prevalence ratio (PR). They were (see Table 2):

1. Previous delivery by a traditional birth attendant (TBA).
2. Previous surgical procedure.
3. Ear piercing or any other piercing.
4. Prior dental procedures.
5. Blood transfusions.
6. Having multiple sexual partners.
7. Family member with hepatitis B.
8. History of jaundice.
9. Currently positive for HIV.

The analysis compared exposed persons (persons with risk factors) who had the disease (developed hepatitis B) with the proportion of non-exposed (those with no risk factors) who did not have the disease (did not developed hepatitis B). The PR is the prevalence of the disease in the exposed over the prevalence of the disease in the unexposed. Values of PR greater than one indicate an increased risk, less than one, a reduced risk.

All the potential factors in Table 2 show PRs for hepatitis B infection above one, except body piercings, for which PR could not be calculated, and previous delivery by TBA, which had a PR just below one.

Table 2. Potential risk factors related to sero-positivity for hepatitis B surface antigen

Risk factor		Hep B +ve n	Hep B -ve n	Total n	PR (CI)	p-value
History of previous delivery by TBA	Yes	9	87	96	0.90 (0.32, 2.54)	0.842
	No	5	43	48		
History of previous surgery	Yes	1	13	14	0.83 (0.12, 5.81)	0.851
	No	16	170	186		
History of ear piercing	Yes	17	183	200		
	No	0	0	0		
History of dental procedure	Yes	10	83	93	1.64 (0.65, 4.15)	0.292
	No	7	100	107		
History of blood transfusion	Yes	3	11	14	2.85 (0.93, 8.75)	0.068
	No	14	172	186		
History of multiple partners	Yes	2	16	18	1.35 (0.33, 5.43)	0.674
	No	15	167	182		
History of family member having Hep B	Yes	5	33	38	1.78 (0.67, 4.74)	0.251
	No	12	150	162		
History of jaundice	Yes	9	53	62	2.50 (1.01, 6.18)	0.047
	No	8	130	138		
Currently tested + for HIV	Yes	1	4	5	2.44 (0.40, 14.97)	0.336
	No	16	179	195		

Table 3. Availability of essential tools in health facilities

Willingness to protect child	Frequency n (%)
No	10 (5.0)
Yes, if free	20 (10.0)
Yes, if less than 500SSP	15 (7.5)
Yes, if 500-1,000SSP	3 (1.5)
Yes, if >10,000SSP	2 (1.0)
Whatever the cost	150 (75.0)

SSP = South Sudanese pounds. 1 USD=600SSP.

Statistical tests of association between the risk factors and hepatitis B

Table 2 also shows confidence intervals and p-values for the PRs. Only prior history of jaundice was a statistically significant risk factor for chronic hepatitis B infection.

Women were asked about their willingness to prevent the child from getting hepatitis B infection - Table 3.

Seventy five percent of mothers were willing to spend any amount to prevent their children from acquiring hepatitis B. While 5% were not concerned if hepatitis B were passed on to their children or not, 10% were willing to take treatment to prevent transmission only if it was free. The remaining were willing to prevent the transmission only if it was affordable to them.

DISCUSSION

1. Prevalence of hepatitis B chronic infection among pregnant mothers

The overall prevalence rate of HBV chronic infections, as diagnosed by the presence of HBsAg, among pregnant women in this study was 8.5%. The global epidemiology of HBV infection has traditionally been described according to three categories of endemicity—high, intermediate, and low—depending on the proportion of the population that is seropositive for HBsAg. Countries with high endemicity are those where HBsAg seroprevalence is greater than or equal to 8%; countries with intermediate endemicity are those where seroprevalence is 2–7%; and those with low endemicity are those where seroprevalence is less than 2%.

Pregnant women are a good representation of a population hence according to this study the urban population of Bor town can be classified as an area of high endemicity for hepatitis B. Our prevalence of 8.5% is the same as among pregnant women in South Darfur State, Sudan, that was reported in a study in 2018-2019.^[6] Low prevalence in pregnant women has been reported in Libya, 1.5%,^[7] while in Rwanda a study reported 3.7%,^[8] a low intermediate prevalence rate.^[9] The highest prevalences reported were

from north Uganda, 11.8%,^[10] and Juba, South Sudan, 11% in 2017.^[11]

From this study and the standard rate of vertical transmission from other publications,^[12,13] we conclude that, in a population of 200 pregnant women with prevalence rate of 8.5% of chronic hepatitis B infection, eight infants are likely to be infected with HBV because of the absence of a strategy to prevent vertical transmission.

2. Risk factors associated with acquiring chronic hepatitis B infection

We did not find a significant relationship between mother's history of ear piercing and positive HBsAg using PR (100%). This is consistent with a similar study conducted in South Darfur state, Sudan^[6] in 2019 but was in contrast with the study conducted in Uganda in 2019.^[14] In the current study, pregnant women who had a home delivery by traditional birth attendants (TBAs) had a slight, but non-significant, decrease in HBV infection risk, in contrast to studies done in Northwest Ethiopia^[15] which showed a significant increased risk and also found that dental procedures, multiple sexual partners and household contact were predictors of HBV infection.

The association between having multiple sexual partners and HBV infection was also recorded in Ethiopia,^[16] Kenya,^[17] Nigeria^[18] and another study from Ethiopia.^[19] In our study, none of these risk factors were found to be statistically significant probably because of our small sample size.

Our choice of potential risk factors was driven mainly by knowledge of the ways that hepatitis B chronic infection is acquired.

Acute adult hepatitis is commonly due to hepatitis A virus. Acute hepatitis due to HBV is symptomatic with icterus/jaundice in one third of patients. Acute adult hepatitis (acquired by sexual practices or needle sharing) is less likely to lead to chronic infection when compared to childhood or perinatal acquisition of the virus.

Acute hepatitis B infection going on to become chronic infection depends of the patient's immunosuppression state, and on indicators of rapid viral replication as indicated by presence of Hep-e-antigen and Hepatitis B DNA activity.^[23]

CONCLUSION

With the Sustainable Developmental Goals and Global Health Sector Strategy including hepatitis B as one of the diseases to be targeted for eradication, there is a need to have a multipronged approach that includes wide spread vaccination and minimizing vertical transmission which is often neglected especially in the African region.

Screening all pregnant mothers for HBV chronic infection^[20]

and either providing the newborn infants with a birth dose of hepatitis B vaccine or providing anti-viral medications^[21] or both^[22] to all seropositive women should become part of a public health initiative in South Sudan.

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Small vulnerable newborns

Of every 10 babies born, 1 is preterm – and every 40 seconds, 1 of those babies dies

152 million babies were born preterm in the last decade. Too often, where babies are born determines if they survive. The report notes that only 1 in 10 extremely preterm babies (<28 weeks) survive in low-income countries, compared to more than 9 in 10 in high-income countries...

- <https://www.who.int/news/item/09-05-2023-152-million-babies-born-preterm-in-the-last-decade>

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- https://www.thelancet.com/series/small-vulnerable-newborns?dgcid=raven_jbs_etoc_feature_lancetsvn23

The foundations of human wellbeing are laid before birth. Unfortunately, many babies experience adversities during this intrauterine period. Consequently, they can be born preterm or suffer fetal growth restriction and be born small for gestational age (SGA). Both preterm birth and fetal growth restriction can result in low birthweight (LBW). Children who are born preterm, SGA, or with LBW have a markedly increased risk of stillbirth, neonatal death, and later childhood mortality. Additionally, these conditions are associated with multiple morbidities with short- and long-term adverse consequences, for newborns, their families, and society at-large, resulting in a major loss of human and economic capital. Prevention of preterm and SGA births is critical for global child health and for societal development. This Series presents a new conceptual framework that brings preterm birth, SGA, and LBW together under the term “small vulnerable newborns” (SVN) in order to contribute to healthier and thriving women, newborns, children, adults, and societies.

Pattern of liver enzymes and maternal outcome in eclamptic patients admitted to the Intensive Care Unit, University College Hospital, Nigeria

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ABSTRACT

Introduction: Eclampsia, a hypertensive disorder, is one of the leading causes of maternal mortality in developing countries like Nigeria. We evaluated the relationship between the pattern of liver enzymes and maternal mortality in eclamptic women.

Method: A retrospective study of 55 eclamptic women admitted to the Intensive Care Unit (ICU), University College Hospital, Nigeria, was conducted. Data were obtained on their demographic, obstetric, and clinical characteristics, liver enzyme patterns, and maternal outcome. Analysis was by descriptive statistics, univariate analysis, and non-parametric tests with level of significance set at $p < 0.05$.

Results: Maternal deaths occurred in 27.3% and elevation of liver enzymes was observed more among the dead patients compared with those who survived. Alanine aminotransferase (ALT) was the most commonly elevated liver enzyme, occurring in almost all (90.9%) the patients. Maternal mortality was significantly associated with age ($p = 0.001$), saturated oxygen levels ($p = 0.007$), elevated alkaline phosphatase ($p = 0.008$), alanine aminotransferase ($p = 0.013$), aspartate aminotransferase ($p = 0.016$), and total bilirubin ($p < 0.001$).

Conclusion: Maternal mortality due to eclampsia was clinically associated with age, elevated liver enzymes and a lower serum level of total bilirubin. Liver transaminases are therefore important prognostic indicators associated with eclampsia.

Keywords: eclampsia, liver enzymes, maternal outcome, ICU, Nigeria

INTRODUCTION

Eclampsia is one of the clinical manifestations of a hypertensive disorder of pregnancy. The American College of Obstetricians and Gynaecologists guidelines include elevation of liver enzymes as a criterion for the diagnosis of pre-eclampsia/eclampsia.^[1] The difference between pre-eclampsia and eclampsia is that a woman with eclampsia has had a seizure.

Liver Function Tests (LFTs) evaluate liver and biliary system functions. They provide insights into coagulation, haemolysis, nutrition and bone turnover and are useful for monitoring the prognosis of pre-eclampsia/eclampsia.^[2] LFT abnormalities occur in 3% to 30% of pregnancies and are associated with poor maternal and foetal outcomes.^[3,4]

In Nigeria, institution-based studies reported an overall incidence between 1.1% and 4.0% of eclampsia.^[5,6] Eclampsia continues to be one of the leading causes of maternal and perinatal morbidity and mortality, accounting for about 20% to 36.9% of the total maternal deaths.^[7-9]

Citation: Idowu and Bello. Pattern of liver enzymes and maternal outcome in eclamptic patients admitted to the Intensive Care Unit, University College Hospital, Nigeria, South Sudan Medical Journal, 2023;16(3):93-97 © 2023 The Author(s) License: This is an open access article under [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) DOI: <https://dx.doi.org/10.4314/ssmj.v16i3.3>

Eclampsia causes stillbirths, increased Caesarean Section deliveries, and intensive care unit admissions.^[5] Haemolysis with elevated liver enzymes and low platelets (HELLP) syndrome, which complicates severe pre-eclampsia, is a consequence of liver damage. Determination of LFTs has proved useful in monitoring pre-eclampsia/eclampsia syndrome.^[10]

This study examined the patterns of liver enzymes in women admitted under obstetric care to the ICU to assess it as a predictor of maternal mortality.

METHOD

A retrospective study was conducted among eclamptic women admitted to the Intensive Care Unit of the University College Hospital, Nigeria from 1st February, 2020 to 31st January, 2022. Data were obtained from the medical records of all eclampsia cases admitted to ICU within the study period.

Demographic, obstetric, and clinical characteristics, liver enzyme patterns, and maternal outcome were obtained using a proforma. Eclampsia was defined as seizures associated with hypertension (>140/90 mmHg) and proteinuria (at least +1 detectable by dipstick). Maternal death was defined as death during pregnancy or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy. Booking status was used to classify pregnant women into those who registered and had antenatal care services during pregnancy (booked) and those who did not (unbooked). It is a vital component of antenatal care as health care providers use the occasion to collect basic medical information that will form the basis to care for the patient throughout pregnancy, delivery and postnatal care. Other features of complications were defined as associated diagnosis of pulmonary oedema, renal failure, unconsciousness, stroke, HELLP syndrome, and sepsis.

The liver enzymes were classified based on the standard reference values: Alkaline phosphatase (ALP) (42–98 U/L), Gamma-glutamyl transferase (GGT) (< 30 U/L), Aspartate aminotransferase (AST) (13–35 U/L), Alanine aminotransferase (ALT) (7–35 U/L), Total protein (60–78 g/L), Total bilirubin (5–21 µmol/L) and Albumin (35–52G/L).

Normally distributed data were summarised as mean ± standard deviation, while data that were not normally distributed as median (interquartile range). Kruskal-Wallis and Mann-Whitney tests were appropriately used to determine if there was an association between variables and outcome (maternal death and others - discharged and discharged against medical advice). A p <0.05 was considered statistically significant. Those discharged against medical advice were removed from the final analysis.

RESULTS

A total of 55 eclamptic patients were admitted into ICU during the study period. Their mean age ± (SD) was 29.7 ± (6.11) years and were mainly primigravidae (36.4%). Just under half (45.5%) had antepartum eclampsia, 18.2% had postpartum eclampsia, and 16.4% had antepartum eclampsia complicated with HELLP syndrome (Table 1).

Table 1. Participants’ characteristics (N=55)

Characteristics		n (%)
Age (years)	≤ 20	4 (7.3)
	21 – 30	31 (56.4)
	> 30	20 (36.4)
Marital status	Single	6 (10.9)
	Married	49 (89.1)
Education	Secondary/lower	45(81.8)
	Tertiary	10 (18.2)
Occupation	Employed	14 (25.5)
	Self-employed	29 (52.8)
	Unemployed	5 (9.1)
Booking status	Schooling	7 (12.7)
	Booked	10 (18.2)
Parity	Unbooked	45 (81.8)
	0	15 (27.3)
Gestational age (weeks)	1 – 4	33 (60.0)
	> 5	7 (12.7)
	(Mean ± SD)	34.6 ± 4.10
Multiple pregnancy	Yes	5 (9.1)
	No	50 (90.9)
Diagnosis	Antepartum eclampsia alone	25 (45.5)
	Intrapartum eclampsia alone	6 (10.9)
	Postpartum eclampsia alone	10 (18.2)
	Antepartum eclampsia complicated with HELLP and other features*	9 (16.4)
	Others**	5 (9.1)

*Other features-pulmonary oedema, renal failure, unconsciousness, stroke, and sepsis

**Others- Intrapartum and Postpartum eclampsia with other features

Clinical and laboratory investigations were abnormal in almost all the patients, revealing elevations in ALP, AST, ALT, and GGT (Table 2).

Maternal deaths occurred while on admission in

Table 2. Participants clinical and laboratory characteristics (N=55)

Variables	Mean \pm SD/Median (IQR)
Pulse	111.7 \pm 18.28
Respiratory rate	31.7 \pm 7.94
Systolic Blood Pressure	157.5 \pm 30.51
Diastolic Blood Pressure	98.8 \pm 22.09
Oxygen saturation (SPO ₂)	95.3 \pm 6.46
Temperature oC	37.3 \pm 1.38
Packed Cell Volume	30.5 \pm 7.78
Platelets (\times 10 ⁵ /L)	46 (130), Range = 94 – 268
Urea (mmol/L)	54.4 \pm 5.34
Creatinine (μ mol/L)	1.3 (1.9); Range = 0.6 - 9.0
Liver function tests	
ALP (U/L)	191 (122); Range = 68 – 1103
AST (U/L)	65 (49); Range = 10 – 6442
ALT (U/L)	56 (47); Range = 10 – 3045
GGT (U/L)	36 (73); Range = 19 – 521
TP (g/dL)	5.8 (1.53); Range = 3.2 - 7.9
ALB (g/dL)	2.9 (0.75); Range = 1.1 - 22.6
TBIL(μ moles/L)	0.5 (2.62); Range = 0.09 - 412

Alkaline Phosphatase (ALP), Gamma-glutamyl transferase (GGT), Aspartate aminotransferase (AST), Alanine aminotransferase (ALT), Total protein (TP), Total Bilirubin (TBIL), Albumin (ALB).

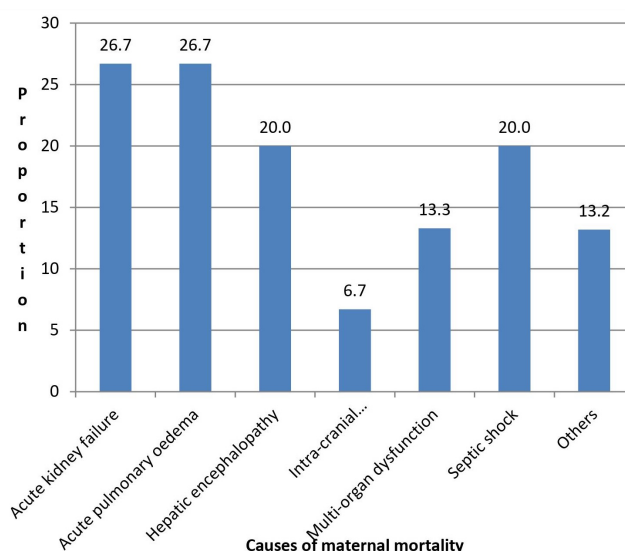


Figure 1. Causes of Maternal Mortality

27.3% and was mainly due to acute kidney failure (26.7%), pulmonary oedema, septic shock, and hepatic encephalopathy (20.0%) (Figure. 1).

ALT elevation was the most common abnormality, occurring in 90.9% of the patients. This was followed by AST (89.1%), and ALP (76.4%). All the liver enzymes were elevated in the dead patients compared with the survivors. The least frequently occurring abnormality was GGT in 32.7% of the patients (Table 3).

There was a significant association of SPO₂, elevated ALP, AST, ALT, and total bilirubin levels with maternal outcome ($p < 0.05$), (Table 4).

A significant association was found between age ($p = 0.001$) and maternal outcome (Table 5).

DISCUSSION

Liver transaminases (ALP, AST, ALT, and GGT) are good indicators for the prognosis of eclampsia.^[10,11] Their raised levels are due to the anaemic hypoxic effect of eclampsia on the liver. Monitoring of liver function is crucial in disease progression and could be prognosticative.

In our study, elevation of liver transaminases ranked higher among the liver enzymes, and ALP, AST, and ALT were clinically associated with maternal death. AST and ALT elevation ranked highest, with AST being more elevated than ALT. These findings agree with previous reports and were attributed to haemolysis and renal insufficiency.^[2,4,11]

Elevated GGT was not significantly associated with maternal death. This is similar to findings in a previous study.^[12] However, GGT is a useful biochemical marker in revealing the severity of preeclampsia and specifies endothelial vascular damage.

The plasma total protein was high in our study and this is not unexpected because eclampsia with abnormal liver function is associated with higher proteinuria and increased maternal complications than those with normal liver function.^[3] Total bilirubin activity decreases with gestational age due to haemodilution in all women. The decrease in serum total bilirubin levels, which was found to be significantly associated with maternal death may be connected to the fluid retention in severe eclampsia. Additionally, high blood pressure (BP) values are associated with preeclampsia/eclampsia death.^[11,13]

SPO₂ by pulse oximetry was the only maternal vital sign significantly associated with mortality. It has been previously reported that SPO₂ by pulse oximetry helps in the assessment of maternal risk in women admitted to hospital with preeclampsia and that a value $\leq 93\%$ ^[14] or $\leq 95\%$ ^[15] confers particular risk or results in adverse outcomes.

Antepartum eclampsia was the dominant diagnosis,

Table 3. Pattern of Elevated liver enzymes between the survivors and dead (N=55)

Variable	Outcome		Total n (%)
	Died n (%)	Survived n (%)	
ALP (U/L)	14 (93.3)	28 (71.8)	42 (76.4)
AST (U/L)	14 (93.3)	35 (87.5)	49 (89.1)
ALT (U/L)	14 (93.3)	36 (90.0)	50 (90.9)
GGT (U/L)	9 (60.0)	9 (22.5)	18 (32.7)
TP (g/dL)	10 (66.7)	22 (55.0)	32 (58.2)
ALB (g/dL)	10 (66.7)	16 (40.0)	26 (47.3)
TBIL(μmoles/L)	14 (100.0)	35 (87.5)	49 (90.7)

Table 4. Association between maternal vitals, LFTs and outcome

Variable (n=53)	p-value
SBP	0.670
DBP	0.596
SPO2	0.007
ALP (U/L)	0.008
AST (U/L)	0.016
ALT (U/L)	0.013
GGT	0.057
Total protein	0.903
Total bilirubin (μmoles/L)	<0.001

Table 5. Association between maternal characteristics and outcome

Variable	p-value
Age	0.001*
Education	0.561
Occupation	0.204*
Parity	0.298*
Booking status	0.832
Referral status	0.653
Diagnosis	0.181*

*= Kruskal-Wallis Test

a finding consistent with another Nigerian study.^[16] The majority of women studied were unbooked and demonstrated poor health-seeking behaviour, along with the observed late referral. This is in keeping with the National Demographic Health Survey report that a third of Nigerian pregnant women did not receive antenatal care, thus exposing them to a higher risk of maternal mortality.^[9]

The mean gestation age of eclamptic patients was 34.1±4.78 weeks. This agrees with previous studies with reports of a higher proportion of deaths among pregnant women with abnormal liver function tests between 30 and 40 gestational weeks.^[4,13]

The maternal mortality rate of 27.3% in our study falls within the 20% to 36.9% previously reported in Nigeria.^[7,8] The commonest causes of death were acute kidney failure and acute pulmonary oedema, intra-cranial haemorrhage, septic shock, and hepatic encephalopathy, which is in line with the report of other researchers.^[17]

One of the strengths of this study is that a higher proportion of the women were discharged despite the abnormal liver function test readings, thus, implying that maternal mortality is not always the outcome of abnormal liver function test results. On the other hand, the study is limited by its small sample size.

CONCLUSION

Maternal mortality due to eclampsia was more prevalent with elevated ALP and low total bilirubin, however, maternal death could still occur due to other complications even in the presence of hypobilirubinaemia. The significant effect of low serum bilirubin on maternal outcome indicates that there might be a change in pattern of liver function test at presentation in this category of women, we therefore suggest that in managing women with eclampsia, any deviation from the normal values of liver enzymes should not be ignored but considered as equally important.

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Hoarseness of voice and accompanying symptoms among patients at a tertiary hospital, Tanzania

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ABSTRACT

Introduction: Hoarseness of voice is a common complaint in otolaryngological practice and is an early manifestation of a large variety of conditions directly or indirectly affecting the larynx, ranging from inflammatory to malignant. Hoarseness has a prevalence of 6% in the general population, rising to 11% for professional voice users (30% of the patients whose work requires excessive voice use). Despite the high prevalence many people are unaware that persistent hoarseness may be a red flag indicating cancer. Any patient with hoarseness lasting longer than two weeks, in the absence of an apparent benign cause, requires a thorough evaluation of the larynx by direct or indirect laryngoscopy. The purpose of this study was to determine the prevalence of hoarseness among patients attending otorhinolaryngology services at a tertiary hospital in Tanzania.

Method: A descriptive cross-sectional study was conducted. A total of 427 patients were recruited. Standard questionnaires were used to collect clinical and socio-demographic information. If hoarseness was identified, further evaluation was carried out including indirect and direct laryngoscopy. Biopsies were taken from the patients with laryngeal mass after direct laryngoscopy under general anaesthesia. Data were analysed using SPSS version 20.0. Confidentiality was maintained.

Results: The prevalence of hoarseness was 65 (15.2%), which was more common in males 40 (17%) and the age group above 60 years. Common laryngoscopic findings among patients with hoarseness were laryngeal mass 47 (63%) and the leading accompanying symptom was difficulty in breathing 25(32%).

Conclusion: Hoarseness of voice is a common complaint and accompanies various symptoms. It can also be a red flag for upper aero-digestive malignancies. Therefore, these patients should be evaluated with a high degree of suspicion.

Keywords: Hoarseness of voice, accompanying symptoms, laryngoscopy, tertiary hospital, Tanzania

INTRODUCTION

Hoarseness of voice is the disturbance of normal voice pitch by an abnormal vibration of the vocal cords, it is a term used to describe an unnaturally harsh, rough or deep voice.^[1] It is a common symptom in otolaryngological practice and it is an early manifestation of a large variety of conditions directly or indirectly affecting the larynx, ranging from inflammatory to malignant.^[2] Hoarseness has a prevalence of 6% in the general population, rising to 11% for professional voice users (30% of the patients whose work requires excessive voice use).^[3] It affects approximately 20 million people in the United States of America (USA) at any given time, and about one in three individuals will become hoarse at some point in their life. In addition to the impact on health and quality of life, hoarseness leads to frequent healthcare visits and several billion dollars in lost productivity

annually from work absenteeism.^[4] Good vocal function is estimated to be required for around one third of the labour force to fulfil job requirements.^[5] Despite the high prevalence, many people in the USA lack knowledge of the possible causes and appropriate treatment of hoarseness. According to a recent survey by the American Academy of Otolaryngology Head and Neck Surgery Foundation (AAO-HNSF), nearly half of adults are unaware that persistent hoarseness may indicate cancer.^[6]

Hoarseness may develop in newborns, infants, children, and adults of all ages. Prevalence in women is 50% higher than men. Groups at increased risk include children, especially at ages eight through 14 years, the elderly population, and professional voice users such as teachers, performers, telemarketers, and aerobics instructors.^[4]

The aetiology of hoarseness can be divided into acute and chronic onset. The acute onset is more common and mainly caused by inflammation such as viral laryngitis. Other causes include bacterial infection, smoking, excessive voice use, laryngeal trauma, or thyroid surgery.^[6]

Chronic causes include vocal polyps, vocal cord nodules, laryngeal papillomatosis, laryngeal neoplasms, tumours of vocal cords, functional dysphonia, smoking, voice abuse, gastro-oesophageal-laryngopharyngeal reflux, post nasal drip, malignant neoplasms of thyroid, oesophagus, lungs and neurological involvement by systemic diseases like diabetes mellitus, and chronic granulomatous diseases such as tuberculosis.^[7,8]

Possible causes of the hoarseness of voice are estimated by asking patients about main complaints, medical history, degree and quality of hoarseness, past history, occupation, daily lifestyle habits and social background related to phonation. Just listening to the voice often will give a clue to the underlying cause. Indirect or direct laryngoscopy enables diagnosis of many laryngeal disorders.^[9]

True hoarseness from a laryngeal origin usually results in a rough raspy voice.^[7] The aetiological classification of hoarseness has been grouped into two broad categories which are organic and functional voice disorders.^[12] Patients may present with organic voice disorders (OVD) which refers to an aphonia/dysphonia due to mass lesions, structural changes to the vocal folds or cartilaginous structures, or interruption to neurological innervations of the laryngeal mechanism. However, many patients present with non-organic or functional voice disorders (FVD) which may be defined as an aphonia/ dysphonia that exists in the absence of structural or neurological pathology.^[13] Many of the pathologic changes are associated with more than one of these underlying causes.^[8, 11, 14, 15]

Vocal cord paralysis, which may be unilateral or bilateral, causes hoarseness. Unilateral vocal cord paralysis is mostly caused by injury to the recurrent laryngeal nerve

during thyroid, neck, or cardiothoracic surgery, and with mediastinal or apical involvement from lung cancer (Pancoast tumour). Bilateral vocal cord paralysis is commonly caused by bilateral thyroid surgery. In addition to causing hoarseness as a result of direct trauma to and inflammation of the vocal cords, endotracheal intubation can also cause vocal cord paralysis.^[15]

Psychogenic voice disorders generally occur as a reaction to stress and other psychiatric disorders, including malingering.^[13,14]

Hoarseness may occur with several endocrine disorders, most notably hypothyroidism and acromegaly. Inflammatory arthritis may affect the larynx and result in hoarseness. Laryngeal papillomatosis can also occur in adults, as well as in children.^[14] Hoarseness is often the first manifestation of squamous cell carcinoma of the larynx, and may have associated cough, haemoptysis, laryngeal pain, or dysphagia.^[8] The patient's perception of hoarseness as a change in voice quality may be entirely different from the physician's understanding of the symptom.^[14]

Definitive diagnosis depends on thorough history taking and careful general physical examination with particular attention to the head and neck.^[14] If it does not resolve with appropriate intervention, prompt evaluation with laryngoscopy should be undertaken.^[14] The management of hoarseness requires identification and treatment of any underlying conditions, vocal hygiene, voice therapy, and specific treatment of vocal cord lesions including surgical intervention.^[15]

METHOD

This was a prospective descriptive cross-sectional study carried out in the ORL Department in a tertiary hospital, in Tanzania. A total of 427 patients were recruited over a period of eight months.

Data were collected using a structured questionnaire. Thorough history taking followed by ENT examination including laryngoscopic examination were done. Patients who failed to tolerate indirect fiberoptic laryscopy underwent direct laryngoscopy under general anaesthesia. Biopsies were taken from patients found with a laryngeal mass. The results were traced and these patients managed accordingly. Data analysis was done using SPSS (Statistical Package for the Social Sciences) version 20.

Ethical clearance was obtained from University Institutional Review Board (IRB). Confidentiality of the information was observed.

RESULTS

Of the 427 participants, 235 (55%) were males and 192 (45%) were females. M:F=1.2:1 The largest group was

aged below 10 years (44.3%) and 11.2% were aged above 60 years (table 1).

Among the 427 participants 65 (15.2%) had hoarseness of voice, the most affected age group was above 60 years old (45.8%), p-value =0.00 (table 2).

Hoarseness of voice was more common in males 40 (17%) compared to females 25 (13%), but this difference was not statistically significant with p value =0.156 (table 3).

Among patients with hoarseness, breathing difficulty was the leading accompanying symptom (32%) followed by foreign body sensation (16%). On laryngoscopic examination a laryngeal mass was revealed to be the common feature in 47(63%) patients, followed by redness and oedema of the vocal cords in 16 (21%) patients (figure 1).

DISCUSSION

Hoarseness of voice was found to be a common complaint in patients attending ENT services at a tertiary hospital and tended to be more common in males than females. In this study the overall prevalence of patients with hoarseness of voice was 15.2%. The most affected age group was above 60 years (45.8%) and there were more males, 40 (17.0%), compared to females, 25 (13.0%). The majority of patients presented in the 4th (24.0%) and 6th decades (21.0%) of life followed by the 3rd decade (18.0%).

Difficulty in breathing was a leading accompanying symptom accounting for 32% followed by the sensation of a foreign body in the throat (16.0%). Laryngoscopic examination revealed a laryngeal mass 47(63.0%) to be the most common finding followed by redness/oedema of vocal cords 16 (21%) and vocal cord immobility 12 (16%). Patients with laryngeal masses confirmed to be malignancies were the most common histopathology result 33 (70%) and benign lesions were 14 (30.0%) the commonest malignant lesion were laryngeal carcinoma, whereas benign lesions were laryngeal papilloma.^[8]

CONCLUSION

Prevalence of hoarseness is high, and a large proportion of patients had neoplastic causes. Since hoarseness could be a symptom of a malignancy it is concerning that most patients seek medical attention late. Many patients presented with breathing difficulties which often signified advanced disease. The aetiology of hoarseness ranges from trivial infections to life threatening malignancies A detailed history taking and full physical examination of patients presenting with hoarseness can lead to earlier diagnosis to minimize mortality due to malignant conditions, and facilitate early management of underlying disorders for better outcomes.

Conflicts of interest: None

Table 1. Distribution of participants by age and sex

Age group – years	Sex		Total n (%)
	Male n (%)	Female n (%)	
0-10	104 (24.4%)	85(19.9%)	189 (44.3%)
11-20	17 (4.0%)	18 (4.2%)	35 (8.2%)
21-30	18 (4.2%)	17 (4.0%)	35 (8.2%)
31-40	21 (4.9%)	29 (6.8%)	50 (11.7%)
41-50	18 (4.2%)	16 (3.7%)	34 (8.0%)
51-60	19 (4.4%)	17 (4.0%)	36 (8.4%)
>60	38 (8.9%)	10 (2.3%)	48 (11.2%)
Total	235 (55.0%)	192 (45.0%)	427(100%)

Table 2. Prevalence of hoarseness by age

Age group – years	Hoarseness		Total n (%)
	Yes n (%)	No n (%)	
0-10	3 (2.0%)	186 (98.0%)	189 (44.3%)
11-20	0 (0.0%)	35 (100%)	35 (8.2%)
21-30	5 (14.3%)	30 (85.7%)	35 (8.2%)
31-40	9 (18.0%)	41 (82.0%)	50 (11.7%)
41-50	10 (29.0%)	24 (71.0%)	34 (7.9%)
51-60	16 (44.0%)	20 (56.0%)	36 (8.4%)
>60	22(45.8%)	26 (54.2%)	48 (11.2%)
Total	65(15.2%)	362 (84.8%)	427(100%)

Table 3. Prevalence of hoarseness of voice by sex

Age group – years	Hoarseness		Total n (%)
	Yes n (%)	No n (%)	
Male	40 (17.0%)	195 (82.0%)	235 (55.1%)
Female	25 (13.0%)	167 (87.0%)	192 (44.9%)
Total	65 (15.2%)	362 (84.8%)	427 (100%)

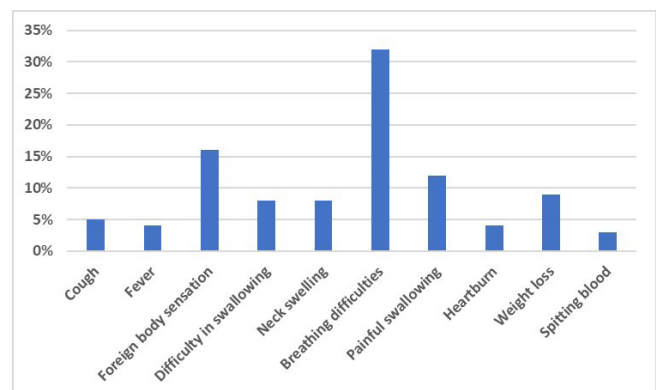


Figure 1. Distribution of other symptoms accompanied with hoarseness of voice

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Heads of the Rome-based UN food and agriculture agencies call for greater investments in South Sudan to avoid a catastrophic food crisis

- https://www.wfp.org/news/heads-rome-based-un-food-and-agriculture-agencies-call-greater-investments-south-sudan-avoid?utm_source=twitter&utm_medium=media+card&utm_campaign=SSN+joint+PR&utm_id=SSN+joint+PR

Juba – The cost of inaction in addressing South Sudan’s complex food, climate, and insecurity crises will be felt in the loss of lives, livelihoods and futures for millions of people across the young nation, the heads of three United Nations agencies, the Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) warned today as they wrapped up a three-day visit to the country.

.....“South Sudan has the potential to be the breadbasket of east Africa, but the climate crisis, poor agriculture infrastructure, instability, and economic shocks continue to disrupt agricultural and livestock productivity and food availability. Investments and enabling policies that will improve on longer term food security, resilience and climate adaptation are urgently needed,” said FAO’s Qu.

Prevalence of middle ear effusion among children with adenoid hypertrophy at a national referral hospital in Tanzania

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ABSTRACT

Introduction: Middle ear effusion (MEE) is a common childhood disorder that causes hearing impairment due to the presence of fluid in the middle ear which reduces the middle ear's ability to conduct sound. Temporary or persistent hearing loss as a result of MEE causes speech, language and learning delays in children. There are few studies on MEE in Tanzania despite the huge burden of hearing loss among children with adenoid hypertrophy which is a known risk factor for MEE.

Method: A cross-sectional study was conducted among 420 children aged nine years and below having adenoid hypertrophy with or without MEE. The diagnosis of adenoid hypertrophy was confirmed with a lateral view x-ray of the nasopharynx and tympanometry for cases with MEE. The primary objective of the study was to assess the prevalence of MEE among children with adenoid hypertrophy.

Results: The prevalence of MEE among children with adenoid hypertrophy was 61.7%, with 218 (51.9%) males and 202 (48.1%) females. The most affected age group was 2-4 years with an incidence 193 (46%) and in this age group, males (53.9%) were more affected than females (46.1%). Generally, males, 134 (51.7%) were more affected by MEE than females, 125 (48.3%) of all 259 children with MEE. In terms of age group predominance by MEE, children aged 3-4 years, 107(41.3%) were more affected than all other age groups. Additionally, 4 (1.5%) children with MEE presented with hearing loss.

Conclusion: There is a high prevalence of MEE among children with adenoid hypertrophy but no significant association with hearing loss.

Keywords: Adenoid hypertrophy, middle ear effusion, prevalence, Tanzania

INTRODUCTION

Middle ear effusion (MEE) is a common childhood disorder characterized by the presence of fluid in the middle ear which causes hearing impairment due to reduced ability of the middle ear to conduct sound. This necessitates prompt and appropriate management to avoid the associated complications of speech and learning delay which is detrimental to the quality of life of affected children who are mostly of pre-school age. Globally, the prevalence of MEE is 1.3 to 31.3% among primary school children^[1-3] but there are two peaks of incidence, at 6 months-2 years and 5-6 years.^[4]

At least 90% of children experience a single episode of MEE before starting school.^[5] MEE is common in preschool children because of their poorly developed immune system, the anatomy of their eustachian tube that appears more horizontal and wider compared to those of adults and also the fact that the eustachian tube of pre-school children is surrounded by lymphoid follicles and adenoids.^[4] There

are more than thirty documented risk factors for MEE, and including cigarette smoking, poor socio-economic status, climatic changes, day-care attendance, race, sex, adenoid tissue hypertrophy, eustachian tube dysfunction in genetic conditions like Down's syndrome, cleft palate, congenital immunodeficiencies and allergic disorders.^[6-8]

A systematic review and meta-analysis on the prevalence of otitis media with effusion and associated factors in Africa found a prevalence of 6% in Africa and 2% in East Africa. The most common associated childhood factors in the meta-analysis were age, cleft palate, adenoid hypertrophy and allergic rhinitis.^[9] On the other hand, a recent study that was conducted in Tanzania found the prevalence of MEE among pre-school children to be 24% in one or both ears and higher (24.5%) among children aged 5 to 6 years as compared to 22.5% among children aged 2-4 years.^[10]

Despite the burden of paediatric MEE being high in Tanzania there are no annual or national paediatric screening programmes that offer opportunities for diagnosing MEE and thus preventing associated hearing impairment and poor school performance. This study was conducted to address such gaps.

METHOD

This was a hospital based cross sectional study that was conducted in the Department of Otorhinolaryngology at Muhimbili National Hospital where 420 children aged nine years and below and with confirmed diagnosis of adenoid hypertrophy were recruited using convenience sampling technique. The diagnosis of adenoid hypertrophy was established by a lateral view x-ray of the nasopharynx. A clinical audiologist conducted tympanometry and type B tympanogram with normal ear canal volume was regarded as diagnostic for MEE. After approval by Muhimbili University of Health and Allied Sciences (MUHAS) research ethics committee, the study protocol was fully explained to guardians/carers and written informed consent was obtained from each guardian/carer

Data were analysed using Statistical Package for Social Sciences (SPSS) version 23 and a p value <0.05 was considered to be statistically significant.

RESULTS

Age and sex distribution of study participants

In this study, a total of 420 children aged nine years and below, with confirmed diagnosis of adenoid hypertrophy, were recruited where majority, 218 (51.9%) males and 202 (48.1%) females. The predominant age group was 3-4 years accounting for 46% and the least affected age was 9 years (2.4%). (Table 1)

Prevalence of middle ear effusion among children by their sex (n=420)

Out of 420 children with adenoid hypertrophy, 259 (61.7%) had MEE in at least one ear and there were slightly more males, 134 (51.7%) with MEE than females 125 (48.3%). The p-value was significant at 0.00. (Table 2)

Prevalence of middle ear effusion among children by age (n=420)

Majority of children with MEE, 107 (41.3%) were aged 3-4 years and the least 5 (1.9%) affected age group was 7-8 years with a p-value of 0.00. (Table 3)

Lateralization of middle ear effusion among children (n=259)

The majority of children with MEE, 216 (83.4%) had bilateral involvement while the left ear was affected by effusion in 24 (9.3%) patients and the right ear was affected by effusion in 19 (7.3%) patients. The age group, 3-4 years, exhibited bilateral predominance in 98 (91.6%) patients. The p-value was 0.00. (Table 4)

Prevalence of hearing loss among children with middle ear effusion

In this study, out of 259 children with MEE, hearing loss was found in only 4 (1.5%) patients.

DISCUSSION

Middle ear effusion is one of the most common causes of paediatric hearing impairment and needs prompt diagnosis and treatment to prevent the accompanied psychosocial impact and poor school performance. This

Table 1. Age and sex distribution of the children

Sex	Age groups (years)					Total n (%)
	0-2	3-4	5-6	7-8	9	
Female	39 (9.3)	89 (21.2)	55 (13.1)	14 (3.3)	5 (1.2)	202 (48.1)
Male	44 (10.5)	104 (24.8)	51 (12.1)	14 (3.3)	5 (1.2)	218 (51.9)
Total	83 (19.8)	193 (46)	106 (25.2)	28 (6.6)	10 (2.4)	420 (100)

Table 2. Prevalence of middle ear effusion by sex of children

Sex	Middle ear effusion present n (%)	Middle ear effusion absent n (%)	Total n (%)
Female	125 (48.3)	77 (18.3)	202 (48.1)
Male	134 (51.7)	84 (20)	218 (51.9)
Total	259 (61.7)	161 (38.3)	420 (100)

Table 3. Prevalence of middle ear effusion by age of children

Age group (years)	Middle ear effusion present n (%)	Middle ear effusion absent n (%)	Total n (%)
0-2	68 (26.2)	15 (9.3)	83 (19.8)
3-4	107 (41.3)	86 (53.4)	193 (46.0)
5-6	69 (26.7)	37 (23)	106 (25.2)
7-8	5 (1.9)	23 (14.3)	28 (6.7)
9	10 (3.9)	0 (0)	10 (2.4)
Total	259 (61.7)	161 (38.3)	420 (100)

Table 4. Lateralization of middle ear effusion by age group

Age group (years)	Bilateral MEE n (%)	Left-sided MEE n (%)	Right-sided MEE n (%)	Total n (%)
0-2	48 (70.6)	15 (22.1)	5 (7.3)	68 (26.3)
3-4	98 (91.6)	4 (3.7)	5 (4.7)	107 (41.3)
5-6	60 (87)	5 (7.2)	4 (5.8)	69 (26.6)
7-8	5 (100)	0 (0)	0 (0)	5 (1.9)
9	5 (100)	0 (0)	5 (1.9)	10 (3.9)
Total	216 (83.4)	24 (9.3)	19 (7.3)	259 (100)

study serves to highlight the burden of MEE among children with adenoid hypertrophy at a national referral hospital in Tanzania.

The prevalence of MEE among children with adenoid hypertrophy in our study was 61.7%. Such findings correlate with that found in Nigeria where the prevalence of MEE was 55.9%.^[11] Dissimilar findings appeared in a study that was conducted in India where the prevalence of MEE was 4.3%.^[12] Such discrepancy may be attributed by the fact that the Indian study was conducted in an urban area and with good health care seeking behaviours favouring a reduction in the prevalence of MEE.

Regarding gender and MEE, our study found a slight male predominance (51.7%) compared to females (48.3%). This finding is similar to findings in Turkey where males (63%) were more affected than females (37%).^[12] Dissimilar findings appeared in a study conducted in Nigeria where the proportion of males with MEE was not significantly different from that of the females in both the adenoid hypertrophy and control groups with p values of 0.69 and 0.33 respectively.^[13]

With regards to the laterality of MEE, most of the children (83.4%) had bilateral MEE while 9.3% had left sided MEE and 7.3% had right-sided MEE. Such findings are similar to those from Iran among pre-school children where bilaterality of MEE predominated followed by involvement of the right side (33.9%) and left side (25.0%).^[4]

Children aged 3-4 years were found to be the most commonly affected by MEE (41.3%) and the least affected age group was 7-8 years (1.9%). This finding correlates to what has been established in a study conducted in Israel where 3-6 years was the peak age group for adenoid hypertrophy, and which corresponds to the age at which MEE tends to peak in children.^[4]

Pertaining to hearing loss in children with MEE, our study found a prevalence of 1.5% hearing loss. Such findings are in line with findings from a study in the United States of America where upon comparing hearing loss over time, 2% of children had hearing loss at both 3 and 8 years, 5% had hearing loss at 3 but not at 8 years and 3% had hearing loss at 8 but not at 3 years.^[15]

CONCLUSION

Middle ear effusion was found to be prevalent among children with adenoid hypertrophy in this study. It is important to identify children with hearing loss due to MEE or any other causes to avoid its associated lifetime consequences. Despite the remarkable prevalence of MEE, hearing loss among the studied children was found to be uncommon and there was a bilateral predominance in the pattern of ear involvement by effusion.

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Conflicts of interests: None

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Handheld pulse-oximeters can save lives

Malaria Consortium July 2023

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How to evaluate and improve a medical education programme

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ABSTRACT

The evaluation of any medical education programme is an important and continuous task. The information gathered will inform strategic decision making and programme improvement. Using an established and widely recognised evaluation model helps structure and support the process.

Key words: evaluation, framework, evidence.

INTRODUCTION

Improving the quality of medical education programmes contributes to higher quality healthcare and an improved patient experience. A well-structured evaluation process will ensure programmes evolve and improve based on carefully sourced evidence of actual practice. This article introduces a model for evaluation and provides some suggestions for how it could be used. It is the sixth in a series of articles aiming to offer practical guidance to healthcare educators.^[1]

PURPOSE AND PRINCIPLES OF EVALUATION

The challenges facing medical programmes in sub-Saharan Africa range from issues with resources to changes in political priorities,^[2] but these are not exclusive to this region.^[3] All programme leaders have a responsibility to make sure that they are providing the best educational experience possible, and one that meets the needs of their local situation. Programme evaluation is a continuous process that involves exploring a programme's attributes from several perspectives, encompassing the quality of the education offered, and the extent to which it meets its wider role in its community.^[4]

Evaluation models provide a framework to analyse the effectiveness of a programme using a number of standardised metrics. For example, they may focus on aspects such as the quality of the students' learning experience, the validity and reliability of assessment approaches, or how well the curriculum delivers the desired outcomes.

There are a number of established evaluation models used across a range of professional environments^[5] but the model developed by Kirkpatrick in 1959^[6] is one of the most widely used, particularly in medical education.^[7] Kirkpatrick's framework has four levels for evaluation, namely reaction (the learner experience), learning (the quality of the learning), behaviour (to what extent the learning is applied), and results (the wider impact of the learning).^[8] Whether Kirkpatrick's levels are fit-for-purpose for evaluations within education has been widely debated^[7] with some arguing that it is too simplistic for something as complex as medical education.^[9] Others have developed the model further in search for a better alignment, including Kaufman, in 1994, who considered that Kirkpatrick's model gave insufficient emphasis on the influence of the teacher, and the programme's impact on the institution and wider community. He proposed a six-level model based on the original, to address these issues.^[10]

KAUFMAN'S MODEL OF LEARNING EVALUATION

It is important to recognise that while the organisation of Kaufman's model (Figure 1) suggests a hierarchy of the different levels, they can be approached in any sequence. There may be some aspects considered within one level that also align closely with another. It is only when the conclusions drawn from each level are brought together that the overall evaluative picture will emerge.

Level 1 - Input

Focus: Programme resources and their impact on the learning experience

Suggested areas to consider

Arguably the most important resource to be considered is the quality of the teaching team. Students will participate in the programme for a relatively short time, but the teaching staff could be involved for decades, and so have a significant influence on the programme at every level of the Kaufman Model. The programme's management not only needs to recruit and retain inspirational teachers, but they also need to ensure that they are used where they are most effective.

- Do staff have the expected qualifications and experience?
- Do staff teach within their specialisms?
- Are staff active in improving their own teaching?
- Is the staff to student ratio appropriate?
- How good is staff morale and teamwork?
- How long do staff tend to stay on the programme?
- When we recruit, what is the quality of the candidates?

It is also important to review the materials used during teaching sessions, and the resources that are available to support students during self-study.

- Are there sufficient training materials in quantity and quality to meet the needs of the teaching?
- Do the materials meet the learning objectives, and encourage active learning?

- Are the materials planned around student needs and interests?
- Are the materials accessible for all students?
- Is the content relevant to local needs and contexts, including clinical priorities, social and economic factors?
- What are the strengths and limitations of the materials?

Level 2 - Process

Focus: Teaching

Suggested areas to consider

The students' views of their own learning experience are a widely used, valuable and cost-effective source of information, but we should be aware that cultural and hierarchical traditions may limit the sharing of some views. There is some debate about whether students have the experience and perspective necessary to make considered value judgements about their teachers,^[11] but others argue that it plays an important part in establishing the overall picture.^[12,13]

- What do students feel about their method of instruction, formative assessment strategies, and mentoring?

Observations of teaching by line managers can provide valuable information about the quality and effectiveness of practice, but they must be organised carefully to avoid undermining the teacher's confidence. Different observers will evaluate different criteria unless careful guidance is used to direct their attention to criteria that reflect the programme's values. A single observer will provide their own subjective viewpoint, and a single observation provides only a snapshot of reality, but thoughtful planning (for example, using two observers) can limit these biases.^[13]

- Is the teaching approach (for example, a formal lecture or active learning) appropriate to the context, and does it meet institutional standards?
- Is the subject matter appropriate to achieve the learning objectives?
- Are the particular learning needs of the students considered?

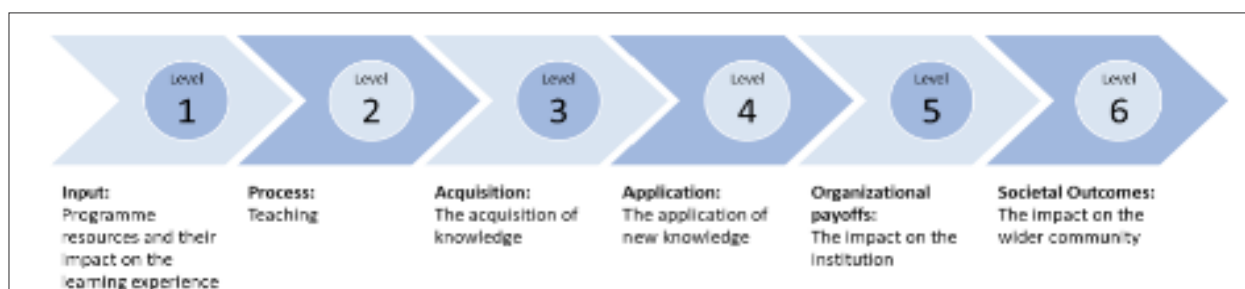


Figure 1. Kaufman's Model of Learning Evaluation (Credit: Gwyndaf Roberts).

- Has assessment data informed the planning of the session?
- Are there gaps in staff training that should be addressed?

Level 3 - Acquisition

Focus: The acquisition of knowledge

Suggested areas to consider

At its most straightforward, this aspect can be measured using the summative assessment data at the end of each set of formal exams. Set against established professional standards, these will help you judge how successful the teaching team have been at meeting the programme's learning objectives.

- Are there sub-groups of students that share areas of weakness?
- Are there aspects of the programme that have underperformed and might need further resources?

It is important to remember that effective teaching is supported by an assessment strategy that monitors the student's progress. Careful monitoring of progress will help identify if additional support is needed by individuals or groups of students, or whether a teaching approach needs to be adjusted.

- How well is the student doing compared to where they started?
- Can you identify a student, or a group of students, that need more support?
- Are there differences between students from different backgrounds, between the genders, or other sub-groups?
- Are there categories of student who need extra support?

Level 4 - Application

Focus: The application of new knowledge

Suggested areas to consider

The early years of a medical programme require our students to take in vast amounts of information, but it counts for little if they are unable to apply this knowledge later in their training. The teaching programme should be relevant to the realities of their future practice.

- Do the students apply their knowledge in the clinical environment?
- Do they have the confidence to contribute to workplace discussions?

The Hidden Curriculum is the name given to the

unspoken rules and values expected within the professional environment that are learnt informally by students. As with all learning, the rate at which they display these attributes may depend on their background and past experiences, but they can be helped by effective role modelling from teaching and clinical staff.^[14]

- Is the students' professional behaviour developing at the expected rate?
- Do they interact with other healthcare workers and patients appropriately?
- Do they conduct themselves professionally away from patients?
- Do staff act as good role models?

Level 5 - Organisational Payoffs

Focus: The impact on the institution

Suggested areas to consider

There are many different elements of a programme that contribute to building an institution's reputation and collective pride, both of which are important to sustain the motivation to deliver high quality education. It may be possible to compare your current evaluation with a previous one, to recognise improvement. It may also be possible to compare the evaluation with those of similar sub-Saharan institutions, to recognise comparative strengths, and to identify weaknesses that need to be addressed. A continually improving programme will lead to a vibrant learning community that will help to develop and maintain a positive institutional ethos.^[15]

- How do student outcomes compare to similar institutions, and what can be learned to improve outcomes?
- How much of a problem is academic misconduct?
- What links have staff established with other institutions?

Level 6 - Societal outcomes

Focus: The impact on the wider community

Suggested areas to consider

Every medical education programme exists within the context of its own local and national healthcare priorities. How well it addresses these can influence its reputation and long-term success.

- How well is the programme, and the opportunities and experiences it provides for students, aligned with national healthcare realities and priorities?
- Do the programme's graduates take up posts that serve the healthcare needs of the country?

- Do the programme's graduates continue to develop their clinical skills, and teach others, in the postgraduate setting?

USING THIS FRAMEWORK

This framework can be adopted and adapted to meet your needs and context. The goal is improvement. The process is a rolling schedule of evidence collection, review, and improvement action. This can be organised at the level of the individual programme, department, or institution. Your particular context may prompt you to ask different or additional questions relating to each of the six levels described. Having settled on the right questions to ask, the next step is to determine what evidence is available to answer those questions, and to organise how and who to collect it. Reviewing the evidence will allow you to more fully understand your strengths and weaknesses, and to set priorities for action planning, informed by your knowledge of education and by the good practice of others in similar contexts. Reference to earlier articles in this series^[1] may help inform your action planning.

CONCLUSION

While there are a number of established evaluation frameworks^[5] available to help programme leaders, we have described one that reviews the involvement of all stakeholders involved in medical education. Programme evaluation should be an ongoing process, where different aspects of the framework are updated as new data is collected. Programme leaders will need to compile a timetable for data collection, and they will be responsible for bringing the different aspects together to establish the overall picture. However, it can often be an advantage to delegate the responsibility for the data collection and its interpretation, so that there is a wider sense of ownership of the overall judgement.

Excellence maybe the ultimate goal, but along the way an effective evaluation process will help embed a culture of continuous improvement. It provides the opportunity to identify and celebrate achievement, and provides a structure to identify and examine areas that require further development. Some of the questions we must ask, and the answers we uncover, are difficult and challenging. However, an honest and comprehensive evaluation process will help a medical education programme stay responsive to the needs of the community it serves.

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A medical survey among the Twi Dinka in 1930

**Edited from Report No.MI/UNP/6.6.1.
written by Dr Arthur Pring Farmer in
Malakal, March 1931.**

*Edited by Ann Burgess, Dr Farmer's
daughter in 2022. Thanks to Charles
Bakheit for interpreting some words.*

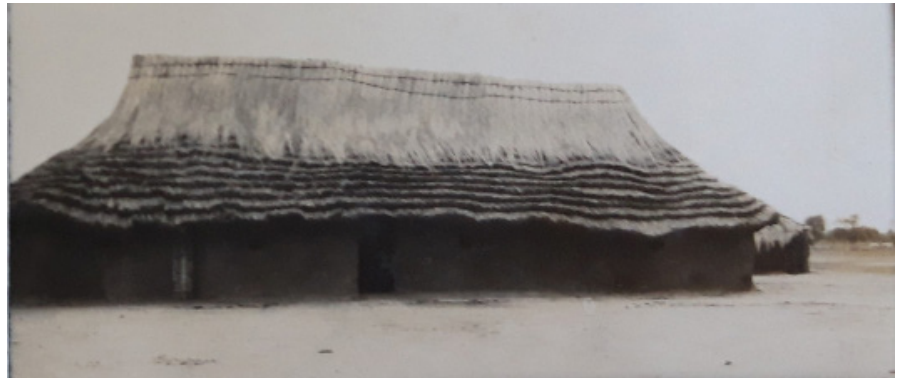


Figure 1. Kongor Dispensary 1930 (Credit: Arthur Farmer)

A. VACCINATION

Small Pox had been reported from the Kongor area and this place was used as my headquarters.

When I arrived at Kongor, one case of Small Pox remained, a dresser from Kongor dispensary, who had contracted it while looking after a case; it was fairly severe with a copious rash but he recovered completely. Three other cases were seen at Deishwek about seven miles south of Kongor, all occurred in the same family, were mild in type, and all recovered. The source of the infection was not trackable.

An attempt was made to vaccinate the whole of the Twi Dinka area which extends from a short distance north of Kongor to a little south of Jongoli and extends on both sides of the Bor-Kongor road. See Table 1.

Although the chiefs were friendly and the people keen to be vaccinated, it was impossible to get them to come back again so we could see the results; this was particularly disappointing as both wet and dry lymph was used and it had been hoped to compare results.

Table 1. Numbers vaccinated by sex, age and village

Village	Men	Women	Boys	Girls	Total
Kongor	647	660	860	916	3083
Aywal	203	212	241	267	923
Adiok	914	842	1198	1059	4013
Deishwek	188	335	426	409	1358
+ Aulian	110	136	169	144	559
x Abek	17	13	22	14	66
Niaping	370	248	519	367	1504
Fyom	361	173	434	282	1250
Total	2810	2617	3869	3458	12756

+ In this village the chief made no effort to get his people to come. As it was a large village, numbers should have been much bigger.

x This village was situated in the centre of a group of villages and most people were vaccinated in other villages and included under their figures.

Citation: Farmer. A medical survey among the Twi Dinka in 1930. South Sudan Medical Journal 2023;16(3):110-113 ©2023 The Author(s) **License:** This is an open access article under [CC-BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) DOI:<https://dx.doi.org/10.4314/ssmj.v16i3.7>

A few figures were obtained of the results of dry lymph but they were not sufficiently large to be of any real value. Of those vaccinated with dry lymph 87 were seen again and 42 were successful and 45 unsuccessful.

No definite figures for the wet variety were obtained but the impression gained was that, when the lymph was reasonably fresh, the results tallied closely with those of the dry variety, but when it was old, the dry variety was superior.

The main advantage of the dry lymph is its ease of carriage, especially on trek, where carrying lymph in a Gullah (a vessel made of clay used to keep water, or lymph, cool). Its disadvantages are that when vaccinating small numbers of people such as 10 or 20 it is wasteful as it is impossible to make up an amount for less than 100 and once made up it does not keep; also preparing the lymph takes some time and requires some skill.

B. MEDICAL SURVEY

The method of survey was that after vaccinating a batch of people, they filed past one by one, were counted and any defects noted and any requiring or asking for treatment were put on one side and examined further. In addition, all children up to the age of approximately twelve years were examined for enlargement of the spleen.

I. General remarks

The total number of the Twi Dinka has been estimated by the District Commissioner at about 20,000, of these 11,643 were examined.

The general physique of the people is good, especially the young adults. Children appear well cared for. Infants are all breastfed and owing to the native habit of carrying them in covered baskets, do not suffer from eye disease or other fly-borne conditions. The common diet of the Dinka is dura and milk with occasional meat. A marked feature is the very large amount of keloid formation which takes place after any cut and even more so after burns.

II. Malaria

Very few cases of fever were seen, but fever is said to be rife in the rains.

When we visited, most of the villages, except those actually bordering on the toitch, were free of mosquitos, but in the rains, it is reported that mosquitos abound.

Spleen count:

- Number of children examined 5074
- Number with enlarged spleen 688
- Splenic index 13.6%

The enlargement varied in size from just palpable to five figures. No facilities were available for examining blood slides from these cases.

Table 2. Cases of eye conditions

Condition	n
Cataract	27
Conjunctivitis	23
Blepharitis ^x	46
Entropion ^x	16
Corneal ulcer ^x	2
Corneal scaring ^x	35
Corneal scaring c Anterior Staphyloma ^x	1
Complete cicatrisation of eye	2
Trachoma	0

X In most of these cases more than one condition was present and the conditions merged into one another, the cases being listed under the most marked condition.

III. Eye conditions

Most of those suffering from eye conditions were old people with a preponderance of women and the condition of long standing, fresh infections were rare. The commonest condition was blepharitis which, from neglect, had given rise to entropion followed by corneal ulceration and corneal scaring leading to partial or complete blindness. Table 2.

Of the cases of cataract, the majority were over mature and the people blind. No cases of trachoma were seen.

Two cases of squint were seen and one case of wound of the upper eyelid caused by the blow from a bull's horn.

IV. Syphilis and Yaws

The number of cases of active syphilis and yaws was small. With regard the late stages of these conditions a number of people were seen and treated for bone pains who gave a previous history of yaws and syphilis.

- Active syphilis: one case of penile chancre, six of dermal syphilis and one of gumma (a swelling characteristic of the late stages of syphilis) of the testicle were seen.
- Active yaws: 112 cases were seen, of these the majority consisted of solitary yaws or ulcers with a definite history of yaws, only four cases of florid yaws were treated, two consisted of a mother and her child, the others occurred in separate families.
- Ninety-two cases of bone pains were treated.
- 162 injections of 606 were given.

V. Tuberculosis

Surgical tuberculosis is more common than the pulmonary form and both are not common. The following cases were seen:

a. Pulmonary Tuberculosis:



Figure 2. Dr Farmer with medical staff in Sudan 1930 (Credit unknown)

- One case of clinical pulmonary tuberculosis in a man aged circa 40 years.
- b. Surgical Tuberculosis:
 - Three cases of marked kyphosis, all in adults with a history dating from childhood. Clinically they were cases of healed caries of the spine.
 - Spinal caries in a man who had received treatment in Malakal hospital, this man still had pain and limitation of a movement.
 - Arthritis of the knee in a boy aged ~15 years - clinically Tb.
 - Tuberculosis of the testicle in a boy aged ~8 years.
 - Tuberculous adenitis in a boy aged ~4 years.

VI. Leprosy

One very doubtful case was seen at Deishwek - a woman aged ~30 years with slightly leonine features and some loss of skin pigmentation but no deformities. It was impossible to test for anaesthesia. No other members of the family were affected.

VII. Chronic ulcers

There was a large number; 826 of these were treated and of these more than 90% occurred on the legs. In the majority of cases no cause could be ascertained, in a few there was a history of trauma. They varied in size from a piastre piece to four or five inches in diameter and many were of long history. It is interesting that the intensity of bad ulcers varied from village to village.

VIII. Snake bite

This was reported to be comparatively common with a

mortality of about 50%. One case of recent snake bite was seen which had recovered. Ten cases of old snake bites were seen leading to various deformities and in some cases loss of limbs. The prevalence of snake bites in this area is increased by the Dinka veneration of snakes, which they will not kill and which they allow to live in their huts and luaks (big huts in Dinka cattle camps).

IX. Guinea worm

Very little Guinea worm was seen and this was confined to an area near Jonglei on the torch (or toich - grazing lands available during the dry season when floods from the rainy season recede). Two cases of active infection and five cases of old infection were seen and treated. In all cases the infection occurred on the leg.

X. Tumours

- a. Simple: Cases seen were: four of non-toxic adenoma of the thyroid, all in adult women; eight of lipomata in various parts of the body; one of multiple fibromata; one of bilateral fibrolipomata of the pinnae.
- b. No cases of malignant tumours were seen.

XI. Abdominal disease

- a. Constipation: a very large number of cases were seen and treated.
- b. Dysentery: According to the chiefs, dysentery is not common. Seven cases were seen who complained of blood and mucus in the stools, and one case of clinical amoebic dysentery in a chief from Dinka Faweil which was treated with a course of emetine.

- c. Hernia: Inguinal hernia was not common, cases seen varied from a slight inguinal swelling to large scrotal hernia; 15 cases of single inguinal and one case of double inguinal hernia were seen. Umbilical hernia was comparatively common in young children sometime accompanied by enlargement of the spleen; 34 cases were seen. One case of ventral hernia, cause unknown, was seen.

XII. Skeletal system

- a. Bone: cases seen were: One of healed rickets in a child in Kongor; five of chronic osteomyelitis, all of the tibia and associated with and probably secondary to chronic ulcers of the leg; one of scoliosis. Four cases of fractures were observed – one was a recent fracture of the humerus that was seen and treated. The other three were old fractures: one in the region of the elbow joint leading to partial ankylosis, one of the forearm with malunion and one of the lower end of the femur also with malunion.
- b. Joints: three cases of arthritis of the knee and one of the shoulder were seen, all were osteo-arthritic in type.
- c. Bursae: seen were two cases of prepatellar bursitis, two of semimembranosus bursitis - one unilateral and one bilateral – and one of ganglion of the wrist.
- d. Tendons: four cases of talipes equinus were seen, two showed no cause, but, from the history, were certainly not congenital; one was associated with a healed leg ulcer and the other with an open ulcer of very long standing.

XIII. Congenital deformities.

The only congenital deformity seen was a hare lip in a boy.

XIV. Urogenital

Cases seen were four of hydrococele of the tunica vaginalis, and two of chronic gonorrhoea near Kongor, sources of infection unknown.

XV. Nervous system

Cases were very rare. Two cases of paralysis of the leg were seen, one was suggestive of infantile paralysis, no cause could be assigned the other.

XVI. Ear conditions

The only one seen was one of external otitis due to dirt. No cases of otitis media were observed.

XVII. Skin diseases

Apart from syphilis and yaws, the only case seen was one of leucoderm of the shoulders, and this may have been syphilitic. No cases of scabies were seen, possibly because the vast majority of the people wear no clothes.

XVIII. Respiratory system

A large number of cases of cough were treated, a few showed signs of chronic bronchitis, but the majority had no physical signs.

Nurses and midwives need to be empowered with digital skills

4 July 2023 Juba: “The world is going digital, our nurses and midwives need to be empowered with digital skills to be able to generate evidence, the roles of nurses and midwives are undeniable” These were the words of the undersecretary of the national ministry of Health, Dr. Victoria Anib Majur during the national event to mark the International Day of Nurses and Midwives 2023 in Al Sabah children’s hospital.

Nurses and midwives in South Sudan under their umbrella body, South Sudan Nurses and Midwives Association (SSNAMA) through their president used the occasion to call for better pay and working conditions throughout the country.

- <https://southsudan.unfpa.org/en/news/journey-evidence-reality-begins-strong-foundation-education>

Salisbury Sudan Medical Link visit to Western Equatoria

Robin Sadler

Salisbury Medical Link

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INTRODUCTION

Since 1972, the Salisbury Diocese has been linked with the Episcopal Church of Sudan, and since 2011 with the Episcopal Church of Sudan and South Sudan (ECSS). It is one of the oldest Diocesan Links set up by the then Bishop of Salisbury George Reindorp and his colleagues in Sudan. Unlike any other aid agency, the Salisbury-Sudan link is a partnership: that two organisations separated by distance and culture can care for each other in sharing resources and experience. Central to the link is prayer for one another and helping the ECSS. The Salisbury Link includes assistance in the areas of Education, Primary Healthcare, Advocacy and Communications.

We do this by working with Governments, Non-Governmental Organizations (NGOs), the churches, and international partners to lobby for sustained peace and security to end conflict and rapidly respond to security and humanitarian crises, and to encourage the provision of better education and health for all. The Salisbury Sudan Medical Link (SML) is involved in Primary Health Care helping to support the ECSS clinics manage common illnesses and encouraging health promotion and additional training of clinical staff.

The SML was started in the late 1980s and representatives from UK have since visited many times. Visits were curtailed during the covid pandemic.

Three team members of the SML travelled to Western Equatoria for two weeks in November 2022. It was the 7th trip for myself (a retired G.P.), but a first visit for Dr Karen Mounce, a recently retired doctor, and Mrs Anne Salter, a senior nursing officer. Both of whom were great supporters and travelling companions.

WHY DID WE VISIT?

We were all renewing friendships, bringing greetings to Bishops, Clinical Officers, students and other staff which was especially important as four years had elapsed since the last visit. All trips are entirely self-funded.

Our priorities were:

- Monitoring pharmaceutical supplies given by the Charity three times a year.
- Reviewing the training of clinical officers, midwives, nurses and laboratory technicians and the impact of their skills on the health of the people.
- Taking pictures to show people back in England that their money was well spent so encouraging them to give more! In other words, confirming the lines of accountability.

We travelled 450 miles in a Toyota Landcruiser from Ezo to Olo in Western Equatoria visiting 16 ECSS clinics as well as the Maridi Health Training Institute where we are supporting the training of 14 students. When I first visited with my wife, a teacher, in 2008 we travelled from Juba to Wau, then Juba to Torit, Yei, Rokon, Mundri and all places along the road to Ezo and back. Now at SML we realise that we were too thinly spread. So, now we just concentrate on a smaller area and try to give better support to a smaller number of clinics. A difficult balancing act.



Figure 1. A clinic in Western Equatoria.



Figure 2. Reverend Tito, Clinical Officer, in Bethsaida Clinic, Maridi. (published with permission)

WHAT DID WE FIND?

A wonderfully warm welcome with much singing and dancing, sometimes from as many as 200 school children.

We found the drugs we had ordered had arrived in good condition from a pharmaceutical agent in Juba by road. From 2013 to 2022 delivery had been by air to local airstrips due to the insecurity. This, of course, had been much more expensive and limited our ability to send, for example, intravenous fluids. Also, we only pay for the medicines (from our English fund raisers) once we get feedback that drugs have arrived and are complete. Fortunately, communication by mobile phone is good but the internet connections outside the main centres is still very poor and has not improved over the last 15 years.

We found some clinics were lacking basic clinical equipment such as sphygmomanometers. Some did not even have a stethoscope or thermometer. Some clinics were very clean and in a good state of repair while others needed repair and cleaning as shown in Figure 1.

Staff needed uniforms and scrubs. In all the clinics we found our medicines were desperately needed and, for most, our supply every four months was all they received.

A few did receive Government supplies and there was one clinic, which regularly sees over 100 patients a day, which works closely with government health professionals as well as those working for the ECSS. Figure 2.

The average clinic saw around 15-20 patients per day. Remuneration was often non-existent so clinical officers would often work 3-4 days in the clinics and then spent the rest of their week growing food.

We found good record keeping and, although not involved in direct medical care ourselves, difficult cases were brought for our attention like this case of Kaposi's sarcoma. Figure 3.

The Mothers' Union still plays a vital role in Health Education and disease prevention, but we were very sad not to find many, if any, mosquito nets. This is strange as 10 years ago international charities donated generously and the provision of nets, so necessary with widespread malaria, was ubiquitous. However, they did find three for us! Figure 4.

Only having a bed, chair and 10 litres of water for the day was challenging. However, we were given plenty of bottled water unlike the South Sudanese who consequently often suffer the side effects of gastrointestinal infections.



Figure 3. Kaposi's sarcoma in Ezo.



Figure 4. Typical sleeping accommodation for visitors across Western Equatoria

The clinics varied in staffing levels and numbers of patients seen. This was governed by proximity of schools, army personnel, Internally Displaced Persons, and government clinics (if any).

SML encourages our clinical officers to give patients a talk on health promotion and we work alongside the wonderful Mothers' Union in this respect. We are not involved in immunisations, HIV treatment or TB treatment but of course encourage and promote it. One of our team is working to find funding for mosquito nets.

LIFE IN SOUTH SUDAN

Living in South Sudan is difficult with 90% of the population not having access to clean water or electricity, and 60% being on "food aid". Life expectancy is not even 60 years, 20 years less than in England. The maternal mortality is nearly 2%, infant mortality is 5.8% and child mortality 7.8%, rates which have not changed significantly over the last 10 years. Our drugs are life saving for the common diseases of malaria, typhoid, pneumonia, gastrointestinal infections, and dehydration, all frequently superimposed on malnutrition. These drugs are relatively cheap and readily available. However, recently, the Minister of Health, Yolanda Awel Deng, is reported as saying; "The Ministry is financially incapacitated and cannot stock the hospitals with essential medical drugs". This was reported to be the case in Yambio Hospital. Also, clinics that used to be supplied are no longer given drugs because there are now less funds available from agencies such as World Vision and the Health Pooled Fund.

TRAINING

It costs about £1,800 (\$2,000) a year for the 3 years needed to train a clinical student, and then they need support during an intern experience year. If we commit to this, they then agree to work in their local ECS clinic for 2-3 years. We found that, in the main training school we visited, internet connection was frequently absent for hours or sometimes days at a time. It was upsetting for me who has visited Western Equatoria since 2008 that the infrastructure has deteriorated. However, it was encouraging that this time the security was much improved.

FINANCE

Current income for SML is about £60,000 a year and there are no running costs as everyone is self-financing and the Salisbury Diocese gives us free access to accounting, paying invoices, etc. Due to the increased costs of medicines, transportation, and the inability to source any significant drugs locally we need to increase our income by at least £20,000 p.a. to just continue our current commitments.

All photographs by the Salisbury Sudan team.

If anyone who reads this article feels they have something to offer the SML or would like further information, please feel free to email me on:

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WHO urges immediate skin to skin contact for babies born prematurely

May 2023. WHO has launched new guidelines to improve survival and health outcomes for babies born early (before 37 weeks of pregnancy) or small (under 2.5kg at birth). The guidelines advise that skin to skin contact with a caregiver should start immediately after birth.

This marks a significant change from earlier guidance and common clinical practice, reflecting the immense health benefits of ensuring caregivers and their preterm babies can stay close, without being separated, after birth.

“Preterm babies can survive, thrive, and change the world – but each baby must be given that chance,” said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. “These guidelines show that improving outcomes for these tiny babies is not always about providing the most high-tech solutions, but rather ensuring access to essential healthcare that is centred around the needs of families.”

The guidelines also strongly recommend breastfeeding to improve health outcomes for premature and low birthweight babies, because it reduces infection risks when compared to infant formula. Donor milk is the next best alternative, if mother’s milk is not available, though fortified “preterm formula” may be used if donor milk banks are not accessible.

Reference:

- WHO Global Position Paper and Implementation Strategy on kangaroo mother care call for fundamental reorganisation of maternal–infant care. Gary L Darmstadt et al. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(23\)01000-0/fulltext?dgcid=raven_jbs_etoc_email](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)01000-0/fulltext?dgcid=raven_jbs_etoc_email). DOI: [https://doi.org/10.1016/S0140-6736\(23\)01000-0](https://doi.org/10.1016/S0140-6736(23)01000-0) and https://news.un.org/en/story/2022/11/1130602?utm_source=UN+News+-+Newsletter&utm_campaign=a057370b0c-EMAIL_CAMPAIGN_2022_11_16_01_00&utm_medium=email&utm_term=0_fdbf1af606-a057370b0c-107573841
- Global position paper. Kangaroo mother care: a transformative innovation in health care. <https://apps.who.int/iris/bitstream/handle/10665/367626/9789240072657-eng.pdf>
- Kangaroo mother care: implementation strategy for scale-up adaptable to different country contexts. <https://apps.who.int/iris/bitstream/handle/10665/367625/9789240071636-eng.pdf>

Letter to the editor

Concerns about describing community staff in South Sudan

Dear Editor,

I am writing in response to the article by Ajingdit et al, published in the May 2023 issue of SSMJ, on essential medicines in a sample of primary health care units and primary health care centres. What an important subject and how useful it is to look at the day-to-day practical work in health facilities of South Sudan.

When we feel
our colleagues
could improve
it is helpful to
acknowledge what
they do well

I have visited South Sudan several times and it is good that the authors point out how supplies can be inadequate because there were more patients than supplies. I was impressed at the record keeping by the staff and wondered if low supplies of petrol made rotation of overstocked medicines between facilities difficult.

I would like to know if the four pharmacy technicians did anything different from the majority of staff (who were community health workers and nurses) and therefore had better availability of medicines where they worked. The authors state a total of seven times that the staff have inadequate skills. When we feel our colleagues could improve it is helpful to acknowledge what they do well and be specific about what can be done better.

Best wishes to everyone.

Nancy MacKeith

Retired Midwife, UK

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Reference

Ajingdit DT et al., Cross-sectional study on the availability of essential medicines at public health facilities in Jur River County, South Sudan, South Sudan Medical Journal, 2023;16(2):45-49

Obituary: Sister Petronella Wawa – the visionary and mentor



When the Juba College of Nursing and Midwifery (JCONAM) was established in 2010, it was no surprise to many that Sister Petronella Wawa was the candidate of choice to be appointed as the first principal. She became the embodiment of great leadership, as she led the institution to become a shining light in the training of nurses and midwives in South Sudan.

Born in 1958 to Kamelina Muya Odopere and Remijo Habib Said, Petronella started her education in Pageri Primary School in South Sudan, and then went on to Kalogo and Mary Immaculate Primary Schools in Gulu, Uganda. In 1972, she joined the congregation of the Sacred Heart Sisters, Moyo, Uganda and took her first vow as a nun in 1975.

After completing her ‘O’ levels certificate in 1979, Petronella joined Lacor School of Nursing in Gulu, and became a certified nurse. She went on to obtain a diploma in nursing from Khartoum High Nursing College in Sudan in 1983 and then from Rubaga High Nursing and Midwifery College, Kampala, Uganda, in 1986. Petronella also held a bachelor’s degree in nursing and midwifery from the Taxile American University in Uganda.

“Her death is a loss to the nurses and midwives and the entire health fraternity. A great loss to our delivering mothers and newborns. South”

Dr Ader Macar Aciek

Sister Petronella had an illustrious career in both healthcare and religious life. She helped establish the Orussi Health Centre III in Nebbi District, Arua Diocese, Uganda in 1986. From 1987 to 1988, she served as the in-charge of Moyo Baby’s Home (Orphanage) while serving in the role of the Vicar General of the Congregation of Sacred Heart Sisters, Uganda Province.

During the years of the liberation struggle in South Sudan, Petronella worked as the chief nurse and midwife for the Catholic Diocese of Torit in Nimule from 1996 to 2001. She later worked in the Diocese of Malakal from 2002 until 2005.

In 2008, she attended a tutorship training in Arusha, Tanzania, which prepared her to take up her role as the Principal of JCONAM in 2010 until the time of her death on 21 July 2023.

Sister Petronella will be remembered for her long years of dedicated service in her nursing and midwifery career.

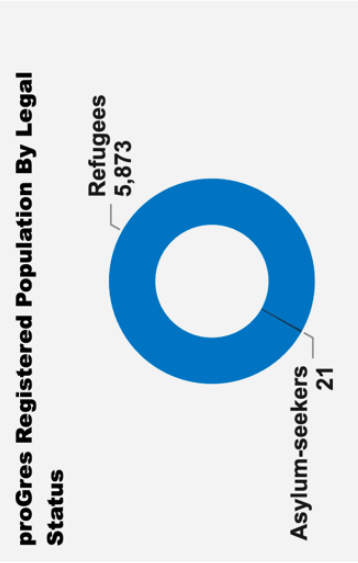
“Her death is a loss to the nurses and midwives and the entire health fraternity. A great loss to our delivering mothers and newborns. South Sudan has lost a leader,” said Dr Ader Macar Aciek, Undersecretary, Ministry of Health, Republic of South Sudan.

Refugee and Asylum-seekers Population Tracking

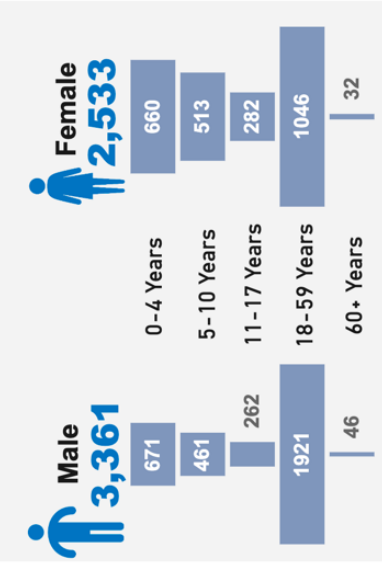


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6/1/2023
6/30/2023

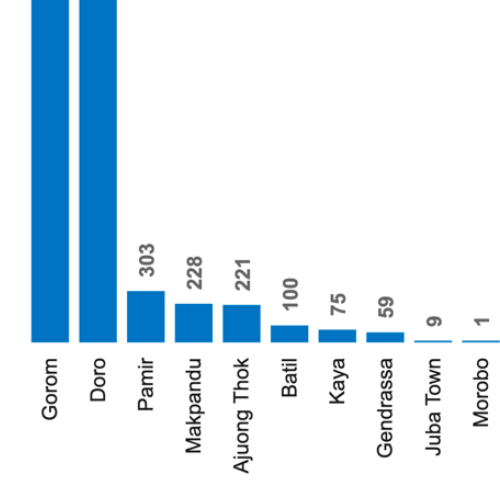
Business Unit
 Bunj
 Jam-Jang
 Juba
 Press Ctrl to select more than one business unit



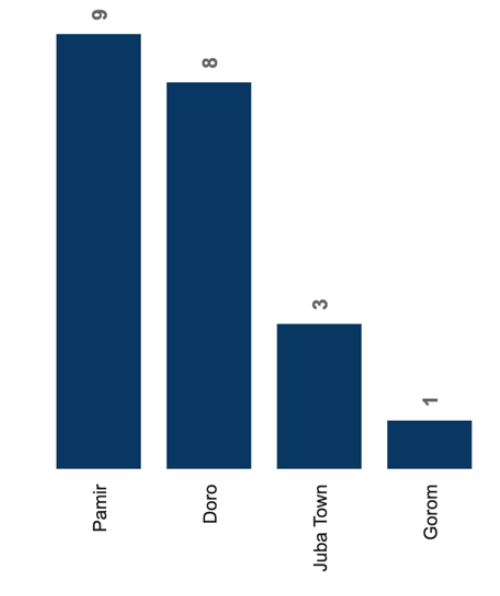
# Individuals Registered	5,894
# Households Registered	2,337
# PSN Identified	227



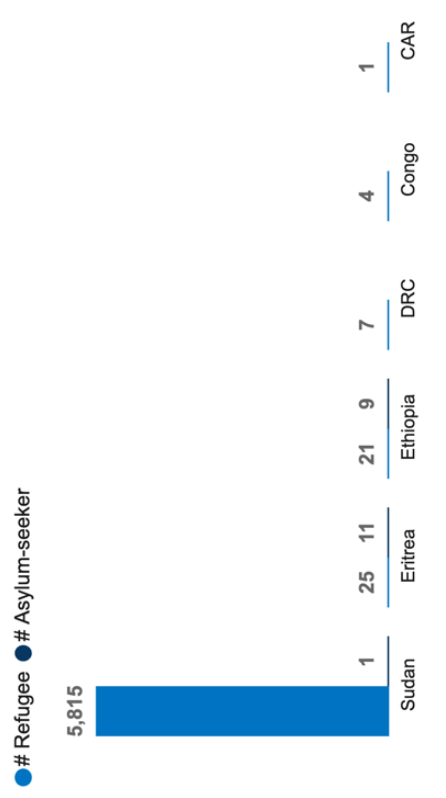
Registered Refugee by Camp Location



Registered Asylum-seekers by Camp Location



Refugee and Asylum-seekers Registered in proGres by Nationality



Registration Profiling KOBO

Registration profiling has been provisioned as a pre-registration for refugees and asylum-seekers. At the moment, registration profiling is being carried out in Aweil, Malakal, and Juba. These locations are receiving a high number of new arrivals.

6/1/2023 6/30/2023

Location	Sum of total_people
Aweil	3,299
Juba	2,775
Malakal	355
Warrap	44
# Individuals Profiled	6,473
# HHs Profiled	3,438

This dashboard shows the refugees and asylum-seekers registered in proGres in refugee camps across South Sudan. Here, we have tracked only new arrivals numbers from 16th April 2023 after the Sudan crisis started. So, the total numbers shown in this dashboard may vary from the country-wide totals reported by our ODM team from proGres for the same period.

Source: proGres & Registration Profiling Kobo

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