

# SSMJ

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**DOUBLE ISSUE**

## Healthcare psychosocial support in South Sudan

- COVID-19: A crisis within a crisis
- Mothers' knowledge of mother-to-child transmission of HIV
- Factors associated with neonatal sepsis in Tanzania
- Diabetes mellitus primary care in Uganda
- Postpartum and post abortion family planning in South Sudan
- Essential care of the newborn

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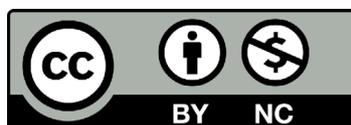
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**FRONT COVER:** A woman whose baby is receiving treatment in Unity State, South Sudan. (Credit. Medair/Sue O'Connor)

# COVID-19: A Crisis Within a Crisis

**Nyakomi Adwok**

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The outbreak of COVID-19 (Coronavirus disease 2019) was declared an international public health emergency on 30 January 2020. Global efforts so far have been focused on optimising healthcare systems and preventing fatalities, but brewing underneath the surface of this pandemic is a social crisis of unprecedented dimensions.

There have been a growing number of reports on the increasing psychological burden caused by the COVID-19 outbreak on patients, healthcare workers and society at large.<sup>[1]</sup> Families around the world have been faced with the bereavement of loved ones; many have lost jobs and once thriving businesses have been destroyed in a matter of months. Such traumatic losses are amplified by the fact that the nature of this disease has forced us to stay apart instead of coming together. The philosophies of Harambee (all pull together) and Ubuntu (I am because we are) represent the centrality of community in many African cultures. How will we rise to the challenge of a disease that not only threatens our lives and livelihoods but also the very essence of our identity?

Countries in Sub-Saharan Africa have learned many lessons from tackling deadly infectious diseases like HIV, Lassa fever and Ebola. The response to these epidemics has been largely centred on community engagement and raising awareness, often in public gathering places like churches, mosques and schools. COVID-19 presents a unique challenge because mitigation strategies to curb the spread of this disease include spatial distancing and confinement.

Proposed solutions to the issue of social isolation rely heavily on reliable telecommunications infrastructure and technological literacy. For the majority of Africans, particularly in rural areas, online support is not a feasible option even in the best of times. Physical distancing risks further isolating vulnerable groups like the elderly, who are often reliant on younger members of the society for support and practical help.

National lockdowns have also illuminated existing social inequalities. While a minority of office-based workers have the luxury of working remotely from home, for the most financially vulnerable, a few days of lockdown could spell the difference between poverty and destitution. In South Sudan, where food insecurity was already a pre-pandemic issue, regional border closures have disrupted supply chains, resulting in higher food prices.<sup>[2]</sup> Widespread unemployment in the current climate could also lead to an increase in substance misuse, domestic violence, social unrest and criminal activity.<sup>[3]</sup> South Africa, for example has imposed a total alcohol ban in an attempt to protect overstretched health facilities from the additional burden of alcohol-related trauma cases.<sup>[4]</sup> Restrictions on work and movement are difficult to sustain in situations where livelihoods are at stake, and there have been reports of violent enforcement of lockdown measures by police.<sup>[5]</sup> Across the board, the social and economic impact of these measures is felt hardest by the poorest among us.

As the scourge of this pandemic wreaks havoc around the world, what is becoming increasingly apparent is that public health strategies employed by developed nations cannot be universally applied in resource-poor settings without major modifications. There is an urgent need for creative solutions, tailor-made to the challenges faced by countries that do not have the resources to co-ordinate a centralised response. Previous epidemics have taught us that harnessing the power of local communities to raise awareness, support vulnerable individuals and build health infrastructure is crucial in the effort to contain disease outbreaks and reduce mortality.

The question then becomes not if we should come together but how we can safely come together to tackle COVID-19.

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# Mothers' knowledge of mother-to-child transmission of HIV and infant feeding practices in Juba, South Sudan

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## Abstract

**Introduction:** While exclusive breastfeeding for the first six months of life is recommended for HIV-infected mothers, this may not be practiced fully in South Sudan; exclusive formula feeding, which is the best alternative to breastfeeding, may not be practical.

**Objective:** To assess the knowledge of mother-to-child transmission of HIV (MTCT) and practices of feeding infants in the first six months of life among HIV-infected mothers attending Antiretroviral Therapy Centres in Juba Teaching Hospital (JTH) and Juba Military Hospital (JMH).

**Method:** A cross-sectional study in which 304 HIV-infected mothers with children aged 6-18 months were interviewed between October and December 2016 using structured questionnaires. Key informant interviews (KIIs) and focus group discussions (FGDs) were also conducted using interview guides. Quantitative data was analysed using Statistics Package for Social Sciences software. Chi-square test was used to test the presence of significant association between the variables and the association is statistically significant when the p-value is < 0.05. Multiple logistic regression analysis was used to identify which predictor variables have major effect on the dependent variable. Qualitative data was transcribed in English and summarized according to the key themes, and the information obtained was used to supplement and interpret the findings of the quantitative data.

**Results:** Only 120 (40%) of the HIV-infected mothers had a good knowledge of MTCT; 213 mothers (70.1%) practiced mixed feeding, 70 (23.0%) practiced exclusive breastfeeding and 20 (6.6%) practiced exclusive formula feeding.

The factors that were found to have a positive effect on choice of infant feeding methods were having more than one child (odds ratio = 0.303, 95% Confidence interval: 0.161-0.571, p = 0.001) and participation in the prevention of mother-to-child transmission of HIV programme (PMTCT) (odds ratio = 2.260, 95% Confidence interval: 1.251-4.084, p = 0.007). Stigma (p = 0.248) and mothers' knowledge of MTCT (p = 0.072) were not statistically significantly associated with the mothers' infant feeding practices.

**Conclusion:** Knowledge of MTCT is low. Mixed feeding before six months of age is predominant among the HIV-infected mothers. It is therefore recommended that HIV-infected mothers receive adequate information from counsellors regarding MTCT and exclusive breastfeeding for the first six months of an infant's life.

**Key words:** Knowledge, infant feeding, HIV-infected mothers, Juba.

## Introduction

According to the United Nations Programme on HIV and AIDS (UNAIDS), new HIV infections in children aged below 15 years was 160,000 children in 2018.<sup>[1]</sup> The absolute risk of HIV transmission from mother to child without intervention is 5% to 10% during pregnancy, 10% to 20% during labour and delivery and 5% to 20% during breastfeeding.<sup>[2]</sup> Factors that increase the risk

of transmission through breastfeeding include mixed feeding,<sup>[3]</sup> duration of breastfeeding,<sup>[2]</sup> sores in the baby's mouth and conditions of the breasts and nipples.<sup>[4]</sup>

According to the World Health Organization (WHO) guidelines on HIV and infant feeding, the most appropriate infant feeding options in the first six months of life for babies of HIV-infected mothers are exclusive breastfeeding and exclusive formula feeding. Breast milk alternatives include commercial infant formula milk, expressed heat-treated breast milk, and breast milk from a healthy wet nurse. Inappropriate infant feeding options include mixed feeding, and home-modified animal milk.<sup>[5]</sup>

Exclusive breastfeeding in the first six months of life is associated with a 3-4-fold decreased risk of HIV transmission compared to mixed feeding.<sup>[6]</sup> Mixed feeding, which is the practice of giving other liquids and/or foods together with breast milk to infants under six months of age carries a higher risk of HIV transmission than exclusive breast feeding. This is because the other liquids and foods damage the epithelial lining of the baby's stomach and intestines which allows the virus in the breast milk to infect the baby more easily.<sup>[7]</sup> Exclusive formula feeding has no risk of postnatal HIV transmission.<sup>[4]</sup> Studies have found gaps in knowledge of infant feeding options among HIV-infected mothers which were attributed to gaps in counselling in PMTCT programmes.<sup>[8]</sup> In developed countries, rates of MTCT have reduced to 1-2% due to routine HIV testing of pregnant women, provision of antiretroviral drugs, elective caesarean delivery, and avoidance of breastfeeding.<sup>[9,10]</sup>

The objectives of this study were to assess HIV-infected mothers' knowledge of MTCT of HIV, to determine the feeding practices of their infants in the first six months of life, to identify the factors that influence their choice of infant feeding methods, and to establish the relationship between level of knowledge on MTCT and infant feeding practices.

### Method

The cross-sectional study was conducted in the only two Antiretroviral Therapy (ART) centres in Juba, South Sudan (estimated, mostly rural, population was 12 million in 2015). These were at Juba Teaching Hospital (JTH) and Juba Military Hospital (JMH); quantitative and qualitative data were collected between October and December 2016. The participants were consenting HIV-infected mothers aged between 15-49 years with children aged 6-18 months. The mothers were purposively sampled until the sample size, determined using Daniel's formula with finite population correction, of 304 was reached.

One-to-one interviews were conducted using structured questionnaires with closed-ended questions to collect the quantitative data. Two key informant interviews and two focus group discussions were conducted to collect the

qualitative data.

The level of knowledge was measured using a scoring system adopted from the Stanford Institute for Research in the Social Sciences as used in a similar study conducted in Kiambu, Kenya.<sup>[11]</sup> Six questions with 15 correct responses were asked. A score of 1 was awarded for each correct response and 0 for incorrect response. A summary indicator for knowledge was calculated as follows: 0 correct response = No knowledge, 1-5 correct responses = Poor knowledge, 6-10 correct responses = Average knowledge, 11-15 correct responses = Good knowledge.

The infant feeding practices were assessed using close-ended questions and responses were classified using WHO definitions<sup>[5]</sup> of as appropriate (i.e. exclusive breastfeeding and exclusive formula feeding for the first six months of age) and inappropriate (e.g. mixed feeding before six months of age and home-modified animal milk).

Quantitative data were analysed using Statistics Package for Social Sciences software. Chi-square test was used to test the presence of significant association between the variables and the association is statistically significant when the p-value is < 0.05. Multiple logistic regression analysis was used to identify which predictor variables have major effect on the dependent variable. Qualitative data were summarized according to the key themes, and the information obtained was used to supplement and interpret the findings of the quantitative data.

Approval to conduct the study was obtained from Kenyatta National Hospital - University of Nairobi Ethics and Research Committee, and from the Ministry of Health, Republic of South Sudan Ethics and Research Committee.

## Results

### Demographic characteristics

Table 1 shows the demographic characteristics of the HIV-infected mothers.

### Social characteristics of the mothers

Most of the mothers 265 (87.2%) had disclosed their HIV status to their relatives, 198 (65.1%) did not experience stigma/discrimination from relatives, friends or the community because of their HIV status, and 191 (62.8%) had participated in PMTCT programmes.

### Level of knowledge of MTCT among mothers

Table 2 shows the mothers' level of knowledge of MTCT, the risk factors associated with HIV transmission through breastfeeding, breast milk alternatives and PMTCT. Only 40% of the mothers scored a good knowledge of MTCT (Figure 1).

From the FGDs, almost all the mothers agreed that an infected mother can transmit the virus to her baby but

they do not understand when and how transmission occurs; most reported infant formula milk as the best alternative to breast milk in the first six months of infant's life, but they could not afford it. Regarding PMTCT, the majority of the mothers were convinced that giving the baby medicine for HIV is the only way to prevent

him getting the virus. Some mothers did not agree with giving the baby medicine for HIV when they do not know whether the baby has the virus or not, but they do not mind giving their babies these medicines when they were

**Table 1 shows the demographic characteristics of the HIV-infected mothers.**

Characteristics	n (%)
<b>Age (years)</b>	
15-19	26 (8.6)
20-29	129 (42.4)
30-39	120 (39.5)
40-49	29 (9.5)
<b>Marital status</b>	
Married	154 (50.7)
Cohabiting	38 (12.5)
Divorced	14 (4.6)
Separated	34 (11.2)
Widowed	30 (9.8)
Single	34 (11.2)
<b>Number of children</b>	
One	76 (25.0)
Two	69 (22.7)
Three or more	159 (52.3)
<b>Level of education</b>	
None	47 (15.5)
Primary	166 (54.6)
Secondary	83 (27.3)
Tertiary	8 (2.6)
<b>Main source of income</b>	
Self	160 (52.6)
Spouse/partner	144 (47.4)
<b>Monthly income</b>	
<50 USD	290 (95.4)
50-100 USD	8 (2.6)
101-150 USD	4 (1.3)
>300 USD	2 (0.7)
<b>Religion</b>	
Christian	291 (95.7)
Muslim	13 (4.3)

**Table 2. Level of knowledge of MTCT and associated risk factors among HIV-infected mothers**

Characteristics	n (%)
<b>Can MTCT occur?</b>	
Yes	268 (88.2)
No	1 (0.3)
Do not know	35 (11.5)
<b>When can MTCT occur?</b>	
During pregnancy	89 (29.3)
During labour and delivery	227 (74.7)
During breastfeeding	254 (83.6)
When carrying the baby	1 (0.3)
Do not know	36 (11.8)
<b>Can MTCT occur through breastfeeding?</b>	
Yes	254 (83.6)
No	0 (0.0)
Do not know	50 (16.4)
<b>Risk factors for MTCT through breastfeeding are:</b>	
Breast milk contaminated with HIV	59 (19.4)
Broken skin on the breast	254 (83.6)
Sores in the baby's mouth	172 (56.6)
Do not know	50 (16.4)
<b>Safe breast milk alternatives in the first six months of life are:</b>	
Infant formula milk	263 (86.5)
Animal milk (cow/goat)	96 (31.6)
Water and/or porridge, tea, juice, food	180 (59.2)
Expressed heat-treated breast milk	0 (0.0)
Breast milk from a wet nurse/another woman	0 (0.0)
Do not know	5 (1.6)
<b>MTCT can be prevented by:</b>	
Caesarean section	43 (14.1)
Not breastfeeding the baby at all	92 (30.3)
Taking medicines for HIV by mother	189 (62.2)
Giving the baby medicine for HIV	263 (86.5)
Do not know	35 (11.5)

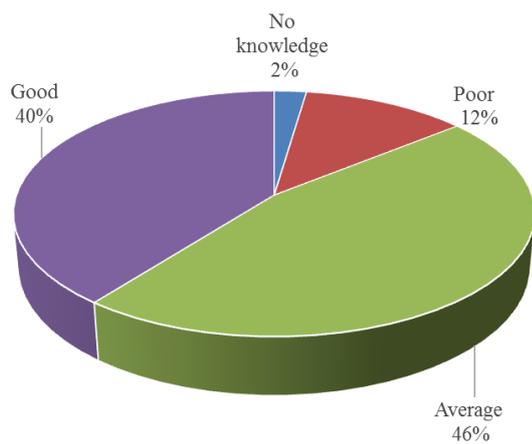


Figure 1. Level of knowledge on MTCT score

Table 3. Infant feeding practices of the mothers

Appropriate	n (%)	Inappropriate	n (%)
Exclusive breastfeeding	70 (23.0)	Mixed feeding	213 (70.1)
Exclusive formula feeding	20 (6.6)	Home-modified animal milk	1 (0.3)
Total	90 (29.6)	Total	214 (70.4)

known to be HIV infected.

*“I heard that the baby can get HIV even if the mother’s breast is ok, but I don’t understand how the bad blood from the mother will reach the baby if the mother’s breast is ok, it is confusing.”*

Only one mother reported that taking HIV medicines by the mother can also help the baby, she said,

*“Everything that the mother eats or drinks come in the breast milk including medicines, so the baby can benefit from the HIV medicines coming from the mother during breastfeeding.”*

### Infant feeding practices

Table 3 shows the mothers’ feeding practices during their babies first six months of life. The majority mix fed their babies, giving breast milk, water and/or infant formula milk, porridge, juice, soups and mashed foods.

The main reasons for choosing an appropriate method were that they have less risk of transmitting HIV, and that the breast milk is cheap, readily available and nutritious for the baby. The main reasons for choosing inappropriate methods were that the mother had to go to work and leave the baby in other people’s care, that the mother was too

ill or weak to breastfeed, and/or perceived that she did not have enough milk or that exclusive feeding with formula milk was too expensive.

Mothers from the FGDs reported that they were told at the clinic to exclusively breastfeed their babies for six months and stop completely by the end of six months. So, they started giving other liquids and foods from as early as 2 to 3 months for their babies to get used to them. Other mothers reported that they normally gave their babies water in the first days of life, even from 3 days, porridge from 3 to 4 months, juice and food from 4 to 5 months.

*“We were told at the clinic to breastfeed for six months only and stop completely by the end of six month, as for me, I started giving my baby powder milk from three months old, and porridge and soup from three and half so that he can get used to them early enough.”*

*“A tin of the baby’s milk is very expensive, some of us even don’t earn that money in a whole month, leave alone other children in the house who also need to be fed, I don’t think I will buy that milk if I ever get pregnant again.”*

### Factors influencing choice of infant feeding methods

The bivariate analysis showed that there was a statistically significant association between number of children ( $p = 0.0003$ ), level of education ( $p = 0.035$ ) and religion ( $p = 0.010$ ), mothers’ participation in the PMTCT programme ( $p = 0.001$ ) and infant feeding practices (Tables 4 and 5). Stigma was found not be statistically significantly associated with the mothers’ infant feeding practices ( $p = 0.248$ ) and there was no relationship between maternal level of knowledge on MTCT and their infant feeding practices ( $p = 0.072$ ).

Table 6 shows the logistic regression coefficient (B), standard error of the regression coefficient, Wald chi-square test, degree of freedom for the Wald chi-square test, significance level/p value, exponentiation of the B coefficient/odds ratio for the predictor, and 95% confidence interval for odds ratio respectively.

Mothers with one child were 0.303 less likely to practice appropriate infant feeding methods compared to those with three or more children, and mothers who participated in the PMTCT programmes were 2.260 more likely to practice appropriate infant feeding methods compared to those who did not participate.

## Discussion

### Knowledge of MTCT

Poor knowledge of MTCT might be because the majority of the mothers had little education and so had less access to health information. It might also be due to poor counselling in the antenatal care clinics and PMTCT programmes. The lack of knowledge may make mothers reluctant to take antiretroviral drugs during pregnancy

because of their side effects and exacerbation of pregnancy symptoms, thus putting their babies at risk of HIV during pregnancy.

From key informant interviews, the gap in counselling in PMTCT programmes could be attributed to a shortage in number of counsellors and support staff which led to multi-

tasking, and increased workload among the counsellors, and consequently lack of time to counsel effectively. Lack of training opportunities for the counsellors to keep up dated with the new guidelines and recommendations on HIV and infant feeding might have also led to lack of confidence among them to deliver the information

**Table 4. Association between demographic characteristics and infant feeding practices**

	n (%)		Total n (%)	P value
	Appropriate	Inappropriate		
<b>Age of mother - years</b>				
15-19	9 (10.0)	17 (7.9)	26 (8.6)	p = 0.59
20-29	45 (50.0)	84 (39.3)	129 (42.4)	
30-39	33 (36.7)	87 (40.7)	120 (39.5)	
40-49	3 (3.3)	26 (12.1)	29 (9.5)	
<b>Marital status</b>				
Married	47 (52.2)	107 (50.0)	154 (50.7)	p = 0.713
Cohabiting	13 (14.4)	25 (11.7)	38 (12.5)	
Divorced	3 (3.3)	11 (5.1)	14 (4.6)	
Separated	9 (10.0)	25 (11.7)	34 (11.2)	
Widowed	6 (6.7)	24 (11.2)	30 (9.9)	
Single	12 (13.3)	22 (10.3)	34 (11.2)	
<b>Number of children</b>				
One	35 (38.9)	41 (19.2)	76 (25.0)	p = 0.0003
Two	22 (24.4)	47 (22.0)	69 (22.7)	
Three or more	33 (36.7)	126 (58.9)	159 (52.3)	
<b>Level of education</b>				
None	9 (10.0)	38 (17.8)	47 (15.5)	p = 0.035
Primary	44 (48.9)	122 (57.0)	166 (54.6)	
Secondary	34 (37.8)	49 (22.9)	83 (27.3)	
Tertiary	3 (3.3)	5 (2.3)	8 (2.6)	
<b>Main source of household income</b>				
Self	41 (45.6)	119 (55.6)	160 (52.6)	p = 0.109
Spouse/partner	49 (54.4)	95 (44.4)	144 (47.4)	
<b>Monthly Income</b>				
Less than 50 USD	84 (93.3)	206 (96.3)	290 (95.4)	p = 0.684
50-100 USD	3 (3.3)	5 (2.3)	8 (2.6)	
101-150 USD	2 (2.2)	2 (0.9)	4 (1.3)	
More than 300 USD	1 (1.1)	1 (0.5)	2 (0.7)	
<b>Religion</b>				
Christian	82 (91.1)	209 (97.7)	291 (95.7)	p = 0.010
Muslim	8 (8.9)	5 (2.3)	13 (4.3)	

Table 5. Association between social characteristics and infant feeding practices

	n (%)		Total n (%)	P value
	Appropriate	Inappropriate		
<b>Disclosure of HIV status</b>				
Yes	77 (85.6)	188 (87.9)	265 (87.2)	p = 0.585
No	13 (14.4)	26 (12.1)	39 (12.8)	
<b>Experienced stigma</b>				
Yes	27 (30.0)	79 (36.9)	106 (34.9)	p = 0.248
No	63 (70.0)	135 (63.1)	198 (65.1)	
<b>Socio-cultural practices or beliefs</b>				
Yes	1 (1.1)	13 (6.1)	14 (4.6)	p = 0.059
No	89 (98.9)	201 (93.9)	290 (95.4)	
<b>Participation in PMTCT program</b>				
Yes	69 (76.7)	122 (57.0)	191 (62.8)	p = 0.001
No	21 (23.3)	92 (43.0)	113 (37.2)	
<b>Level of knowledge</b>				
No knowledge	0 (0.0)	7 (3.3)	7 (2.3)	p = 0.072
Poor knowledge	10 (11.1)	26 (12.1)	36 (11.8)	
Average knowledge	36 (40.0)	105 (49.1)	141 (46.4)	
Good knowledge	44 (48.9)	76 (35.5)	120 (39.5)	

to HIV-infected mothers. Poor knowledge of MTCT and its prevention among mothers may lead to under-utilization of PMTCT services and increased risk of HIV transmission from mothers to children. Similar facility based cross-sectional studies from Kenya, and Southwest Ethiopia showed higher proportion of mothers 66.7% and 65.9% respectively with good level of knowledge of MTCT.<sup>[12,13]</sup>

### Infant feeding practices

Mixed feeding was the predominant method of infant feeding. Most mothers mix fed their infants in the first six months of their lives, usually mixing breast milk with water and/or infant formula milk, porridge, juice, or other food. This is consistent with findings from Kenya and southern Ghana.<sup>[8,12]</sup> The fact that most mothers mix fed despite knowing that exclusive breastfeeding and exclusive formula feeding prevent MTCT could be explained by existing social norms such as giving water to babies from the first days of life believing that babies, in South Sudan's hot weather, are thirsty. It could also be explained by the financial challenges facing the mothers as 95% of them earned less than 50 US dollars per month, half of them were the main breadwinners in the family, so, although many mothers breastfed, they had to go to work leaving other people to feed the baby.

This mixed feeding could also be attributed to a gap in counselling in PMTCT programmes because most of the mothers reported that they were told by the counsellors to stop breastfeeding at six months, but they were not told about the risk of mixed feeding before six months and correct timing of starting complementary foods, so they started giving porridge, juice and food earlier for their babies to get used to other liquids and foods other than the breast milk to make weaning easier at six months. Mothers also reported that they could not afford to buy the infant formula milk because of its high cost and the fact that they also had other children to feed.

### Conclusion

Knowledge and understanding of when and how MTCT occurs and its prevention are low among the mothers interviewed. Knowledge on infant feeding options in the context of HIV and breast milk alternatives in the first six months of infant's life is also low. Maternal level of knowledge on MTCT does not however affect their feeding practices.

Mixed feeding before six months of age is the predominant method of infant feeding among HIV-infected mothers attending antiretroviral therapy centres in Juba.

## Recommendations

1. HIV-infected mothers should receive adequate information from counsellors regarding MTCT, its prevention and various infant feeding options in the context of HIV to help them make decisions that are best for their children.
2. Exclusive breastfeeding in the first six months of infant's life should be promoted at the PMTCT and ART centres with emphasis on continuation of breastfeeding for at least one year or beyond for HIV-infected mothers to increase child survival.
3. HIV-infected mothers should be encouraged to actively participate in PMTCT programme activities.
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# Prevalence and factors associated with neonatal sepsis among hospitalized newborns at Ruvuma, southern Tanzania

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## Abstract

**Introduction:** Neonatal sepsis is one of the most common causes of neonatal morbidity and mortality in developing countries.

**Objective:** This study aimed to determine the prevalence and factors associated with neonatal sepsis among hospitalized new-borns at Ruvuma, southern Tanzania.

**Methods:** A facility-based retrospective study was conducted at Songea Regional Referral hospital in Ruvuma, during August-October, 2018. A standardized questionnaire was used to collect demographic, obstetric and clinical information from medical case files of patients. Neonatal sepsis was diagnosed clinically. Data were analysed using SPSS version 24.0. Chi square test was used to assess relationship between outcome and exposure variables. Multivariate logistic regression was used to measure association after controlling for confounders, and P-values of <0.05 were statistically significant.

**Results:** Medical case files of 263 neonates were reviewed. Of these, 131 (49.8%) had sepsis. Factors associated with neonatal sepsis were prematurity (AOR=2.2; 95%CI. 1.3 – 3.6, p=0.002), age of more than a week (AOR=2.2; 95%CI. 1.0 – 4.6, p=0.04), intravenous cannulation after birth (AOR=6.3; 95%CI. 2.1 – 19.0, p=0.002), and resuscitation with nasal oxygen prongs (AOR=1.7; 95%CI. 1.1 – 2.9, p=0.02).

**Conclusions:** Neonatal sepsis is relatively common among neonates in Ruvuma and is associated with maternal and health services related factors. The findings underscore the importance of routine assessment and close monitoring of neonates.

**Key words:** neonatal sepsis, prevalence, risk factors

## Introduction

Neonatal sepsis is one of the most common causes of neonatal morbidity and mortality accounting for about 26% of neonatal deaths in developing countries.<sup>[1]</sup> In some developing countries the mortality rate due to neonatal sepsis is as high as 50% in untreated infants, leading to many clinicians to treat infants based on the history and risk factors alone.<sup>[2]</sup> Locally, the prevalence of neonatal sepsis was reported to be as high as 31.4%<sup>[3]</sup> in Dar es Salaam, eastern Tanzania and 38.9% in Mwanza, west of Tanzania.<sup>[4]</sup>

The condition may be classified as early onset neonatal sepsis, which is mostly associated with acquisition of the infection from the mother, and late onset neonatal sepsis, which is associated with acquisition of infection from the environment.<sup>[2]</sup> One meta-analysis estimated that the prevalence of early onset neonatal lab-confirmed infection among newborns of mothers with lab-confirmed infection was 17.2%<sup>[5]</sup> while another hospital-based study in Ethiopia reported a 35.3% prevalence of late onset neonatal sepsis.<sup>[6]</sup>

Neonatal sepsis is associated with prematurity, hospitalization, invasive procedures, and poor caregiving environment. One previous study showed a

**Table 1. Characteristics of neonates, n=263**

Variable	n (%)	Status of neonatal sepsis	
		Sepsis n (%)	No sepsis n (%)
<b>Total population</b>	263 (100.0)	131 (49.8)	132 (50.2)
<b>Gender</b>			
Male	134 (51.0)	61 (45.5)	73 (54.5)
Female	129 (49.0)	70 (54.3)	59 (45.7)
<b>Age (days)</b>			
0 – 7	227 (86.4)	119 (52.4)	108 (47.6)
8 – 28	36 (13.6)	12 (33.3)	24 (66.7)
<b>Gestation age</b>			
Pre-term	113 (43.0)	69 (61.1)	44 (38.9)
Term	150 (57.0)	62 (41.3)	88 (58.7)
<b>Birth weight (kgs)</b>			
≤1.5	10 (3.8)	8 (80.0)	2(20.0)
1.6 – 2.4	53 (20.2)	41 (77.4)	12 (22.6)
2.5 – 3.9	183 (69.6)	76 (41.5)	107 (58.5)
≥ 4.0	17 (6.4)	6 (35.3)	11 (64.7)
<b>APGAR score</b>			
<7	127 (48.3)	67 (52.8)	60 (47.2)
≥7	136 (51.7)	64 (47.1)	72 (52.9)
<b>Had IV cannulation</b>			
Yes	237 (90.1)	127 (53.6)	110 (46.4)
No	26 (9.9)	4(15.4)	22 (84.6)
<b>Given oxygen via machine</b>			
Yes	120 (45.6)	69 (57.5)	51 (42.5)
No	143 (54.4)	62 (43.4)	81 (56.6)

significant association between maternal urinary tract infections (UTI) and history of meconium aspiration.<sup>[6]</sup> Another multicentre surveillance study showed that neonatal sepsis was associated with maternal intrapartum fever, and frequent vaginal examinations, preterm delivery, or premature rupture of membranes.<sup>[7]</sup>

The aim of this study was to determine the prevalence and factors associated with neonatal sepsis among hospitalized new-borns at Ruvuma, southern Tanzania.

## Method

This was a retrospective descriptive cross-sectional study conducted between August and October 2018 at Songea Regional Referral Hospital, Ruvuma, Tanzania. The

sample size was 263 newborns. Inclusion criteria were all newborns less than 28 days of life delivered at or admitted to the hospital. Neonates with congenital malformations were excluded.

We reviewed the case files of newborn babies born or admitted at the hospital between 1st July 2017 and 31st June 2018. The dependant variable was neonatal sepsis, independent variables were demographic characteristics of mother, neonate's age, delivery mode, birth weight, gestation age, and rupture of membranes, intravenous cannula insertion and use of oxygen in delivery room. Neonatal sepsis was diagnosed both clinically and by blood culture. In this study, prevalence of neonatal sepsis means the number of babies in the study affected by neonatal sepsis. Data were collected using a standardized questionnaire, and data analysis was done using SPSS statistical software v24.

Ethical clearance was obtained from the Institutional Review Committee of the Archbishop James University College, Songea and permission to collect data was granted by the regional and hospital authorities. Confidentiality of the newborns' details was ensured.

## Results

The sample size was 263 of whom 134 (51.0%) were males and 227 (86.3%) were aged between 0 – 7 days. Ten newborns (3.8%) had a very low birth weight while 20.2% had a low birth weight. About 5.0% were delivered at home. The majority (39.1%) of the mothers were aged 20 to 24 years. Neonatal sepsis was diagnosed in 131(49.8%) while the rest had other neonatal conditions. There was a significant association between age of the neonates ( $p=0.03$ ), gestation age ( $p=0.002$ ), birth weight ( $p<0.00001$ ), cannulated ( $p=0.002$ ) and being kept under oxygen ( $p=0.02$ ) with neonatal sepsis (Table 1).

After controlling for potential confounders through multivariate regression analysis, factors associated with neonatal sepsis were age of less than a week (AOR=3.05; 95% CI. 1.4 – 6.4,  $p=0.004$ ), age of more than a week (AOR=2.2; 95% CI. 1.0 – 4.6,  $p=0.04$ ), being cannulated after birth (AOR=6.3; 95% CI. 2.1 – 19.0,  $p=0.002$ ), and resuscitation at birth with oxygen via mask (AOR=1.7; 95% CI. 1.1 – 2.9,  $p=0.02$ ) (Table 2).

## Discussion

Prevalence of neonatal sepsis in this study was 49.8%, higher than the 31.4% previously reported by Jabir et al<sup>[3]</sup> in Dar es Salaam, and 38.9% in Mwanza, west Tanzania.<sup>[4]</sup> Our higher figures are likely to be due to the fact that this study was done in a referral hospital that receives neonates from both rural and urban areas who already have complications.

Our findings showed that neonatal sepsis was associated with invasive procedures such as intravenous cannulation

(AOR=6.3; 95%CI. 2.1 – 19.0, p=0.002) and administration of oxygen via nasal prongs (AOR=1.7; 95%CI. 1.1 – 2.9, p=0.02) soon after birth. Our findings are in line with those reported by Chapman et al that showed that the need for invasive monitoring and supportive care of very low birth weight places the

neonates at a risk of acquiring nosocomial infections.<sup>[8]</sup> It is also possible that inadequate knowledge on newborn-resuscitation among health care providers may predispose to sepsis, thus calls for a need to build their capacity. About 43.0% of the newborns were born prematurely and about 24.0% had very low or low birth weights. Low birth

**Table 2. Multivariate logistic regression on maternal and neonatal factors associated with neonatal sepsis**

Variable	Total, n	With Sepsis n (%)	Adjusted odds ratio 95% CI	P-Value
<b>Age (days)</b>				
0 – 7	227	119 (52.4)	3.05 (1.44 – 6.46)	0.004
8 – 28	36	12 (33.3)	1	
<b>Gestation age</b>				
Pre-term	113	69 (61.1)	2.23 (1.35 – 3.66)	0.002
Term	150	62 (41.3)	1	
<b>Birth weight (kg)</b>				
≤1.5	10	8 (80.0)	5.76 (1.19 – 27.80)	<0.0001
1.6 – 2.4	53	41 (77.4)	7.38 (3.29 – 16.55)	
≥3.9 – 2.5	200	82 (41.5)	1	
<b>APGAR score</b>				
<7	127	67 (52.8)	0.99 (0.61 – 1.61)	0.98
≥7	136	64 (47.1)	1	
<b>Place of delivery</b>				
Home	12	9 (82.5)	3.17(0.84 – 11.99)	0.09
Hospital	251	122 (48.6)	1	
<b>Had cannulation</b>				
Yes	237	127 (53.6)	6.50 (2.12 – 18.99)	0.001
No	26	4 (15.4)	1	
<b>Given Oxygen via mask</b>				
Yes	120	69 (57.5)	1.76 (1.08 – 2.89)	0.02
No	143	62 (43.4)	1	
<b>Maternal age (years)</b>				
<19	57	24 (42.1)	1.62 (0.63 – 4.16)	0.04
20 – 24	103	57 (55.3)	2.75 (1.15 – 6.62)	
25 – 29	74	41 (55.4)	2.76 (1.11 – 6.86)	
≥30	29	9 (30.8)	1	
<b>Rupture of membranes (hours before delivery)</b>				
0 – 2	183	96 (52.5)	0.18 (0.02 – 1.56)	0.09
2- 18	73	29 (39.7)	0.11 (0.01 – 0.96)	
<18	7	6 (85.7)	1	

weight is usually associated with prematurity. Premature newborns have poor host defences and are therefore at risk of sepsis. Our findings show that neonatal sepsis is associated with prematurity (AOR=2.2; 95 % CI. 1.3 – 3.6, p=0.002) similar to findings reported by Jabir et al<sup>3</sup> and Hagem et al.<sup>9</sup> Also, about 91.0% of neonates who had sepsis were aged less than a week. Results also showed that neonatal sepsis was associated with age of the neonate (AOR=2.2; 95 % CI. 1.0 – 4.6, p=0.04).

Contrary to findings from other studies,<sup>[3,10]</sup> results in this study showed that low APGAR score was not associated with sepsis. This was also true for the place of delivery. Having a small number of babies born at home could probably explain this difference. Other factors such, as premature rupture of membranes was not associated with neonatal sepsis.

Our study is limited by being a cross-sectional study hence it is difficult to determine potential causal-effect relationships between variables. It was conducted at a single centre; thus, the findings may not be generalized to the general population. Also, importantly, our study was limited by poor and un-standardized documentation in some of the medical case files that caused missing important data for analysis.

### Conclusion

The prevalence of neonatal sepsis in this study setting is very high. It is recommended that the capacity of health care providers caring of newborn babies is improved, and there is routine assessment of newborns in order to identify risk factors for neonatal sepsis. Adherence to aseptic precautions while performing invasive procedures to newborns is also recommended. Furthermore, pregnant women should be encouraged to attend antenatal clinics as recommended and to seek medical attention whenever needed.

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### Note:

More details on the methods used, the questionnaire and the facilities where the study was conducted in Songea are available from the authors.

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# Introduction of postpartum and post abortion family planning into three hospitals in South Sudan

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**Abstract**

**Introduction:** Postpartum/post abortion family planning is a service provided for women who have given birth or had a spontaneous abortion. Due to low uptake of contraception in South Sudan, increasing contraceptive use is important to achieve Sustainable Development Goals.

**Objective:** To introduce postpartum/post abortion family planning to women who have delivered or undergone spontaneous abortion at Juba Teaching Hospital, Tambura Hospital, and Yei Hospital.

**Method:** This was a project initiated by Lund University in South Sudan as a part of a capacity building international training programme in sexual and reproductive health and rights. The aim was to introduce the use of postpartum/post abortion family planning and train health care providers.

**Results:** From the three hospitals, 1373 women who had delivered were counselled and 404 accepted postpartum contraceptives. Of 285 women who had had a spontaneous abortion and were counselled, 22 accepted contraceptives. During the project, 15 health providers were trained to promote and champion the use of postpartum and post abortion family planning provision.

**Conclusion:** This study shows that training of health care staff to advocate and promote postpartum/post abortion contraception is effective and can contribute to family planning services.

**Keywords:** postpartum, post abortion, family planning, contraceptives, South Sudan

**Introduction**

Postpartum/post abortion family planning is an important intervention for achieving overall family planning coverage. South Sudan has one of the lowest contraceptive prevalence rates (CPR) in the world standing at only 4.7%.<sup>[1]</sup> It also has one of the highest maternal mortality ratios (MMR) in the world at 789/100000 live births.<sup>[2]</sup> South Sudan has committed to working towards achieving Sustainable Development Goal (SDG) 3. Ensure healthy lives and promote wellbeing for all at all ages; specifically, to reduce MMR to less than 70/100000 live births (SDG 3.1). And ensuring universal access to sexual and reproductive healthcare services, including family planning<sup>[3]</sup> (SDG 3.7).

Contraceptive counselling in conjunction with delivery and post abortion care is an effective way of increasing the CPR and reducing MMR.<sup>[4,5]</sup> In the case of the three hospitals in our project, a recent survey of the care documented in the hospital registers showed that none of the women who had been in hospital for birth or post abortion care had received any kind of contraception or even been given any counselling or information about family planning. This clearly demonstrates a lack of an integrated and comprehensive reproductive healthcare service, lack of awareness about the importance of family planning as a woman's

**Table 1. Project activities**

Activity	Dates of implementation /duration
1. Drafting checklist for collecting data from each client about receiving the service	May 2019
2. Mapping of the facilities on the availability of all types of contraceptives	3-4 June 2019
3. Training of 15 health care providers on counselling, increasing awareness and provision of various methods of contraception	6-11 June 2019 (5 days) in Tambura Hospital 18-22 June 2019 (5 days) in Yei Hospital
4. Provision of all types of contraception and adequate counselling of the clients about family planning	12 June 2019 to date in Tambura Hospital 1 July 2019 to date in Yei Hospital
5. Monitoring and follow up on the implementation of the project	Ongoing process
6. Presentation of the project outcome to the international training program (ITP SRHR) Lund University, and to other stakeholders	November 2019

right and a key measure to avert many unwanted complications. There is a lack of protocols and guidelines concerning postpartum/post abortion family planning.

This project came about as part of an international training facilitated by Lund University and funded by the Swedish International Development Cooperation Agency (Sida)<sup>[6]</sup> aimed to introduce postpartum/post abortion family planning to women who have delivered or undergone spontaneous abortion

### Method

Three hospitals in different settings were selected as implementing centres: Juba Teaching Hospital (JTH), and Tambura and Yei Hospitals.

This project aimed to introduce the service to the three hospitals and to enthuse health care providers about the importance of postpartum/post abortion family planning. It also aimed to start family planning counselling during antenatal care visits, to increase the chances of enrolling more women to adopt contraceptive methods of their choice. We strongly encouraged involvement of male partners in the counselling, as they are influential in making decisions.

Juba Teaching Hospital is the main referral Hospital in South Sudan. It is a 580-bed facility, giving services to the estimated 13 million South Sudanese.<sup>[7]</sup> In the department of obstetrics and gynaecology there are 50 beds divided equally between the gynaecology and maternity wards. The department is staffed with 6 obstetricians & gynaecologists, 6 residents, 14 midwives, and 7 nurses. Around 8000 women deliver in the facility annually, and 2,000 women receive post abortion treatment every year. There is a family planning unit within the hospital providing contraceptives and family planning services to all women of reproductive age but this is not routine for postpartum or post abortion care.

Tambura Hospital is located in Tambura town, 582 km north-west of Juba. The catchment population is 200,000 and bed capacity is 88. In the maternity and gynaecology block there are 21 beds; attached to it is a family planning unit.

Yei Hospital is located in Yei town, 170 km south-west of Juba. It has a catchment population of 260,000 and bed capacity is 91; there are 32 beds for maternity and gynaecology, and attached to it is a family planning unit.

The primary target population of the project was all women who delivered or had post abortion care at these three hospitals. The secondary target population was the healthcare providers in these hospitals, who were trained on postpartum/post abortion family planning. Project activities are summarized in Table 1.

### Results

Nine health workers were training in Tambura Hospital and six at Yei Hospital. These were two medical doctors, six midwives and seven nurses. The health-implementing partners in those hospitals facilitated the training within their budgeted funds allocated for family planning activities. In Juba Teaching Hospital, which was not supported by any health partners, staff working within the hospital family planning unit were given one day intensive training and tasked to implement and promote postpartum/post abortion family planning.

According to the three hospital registers, before the project, no women had received postpartum counselling or contraceptives after abortion. However, from June to October 2019, 1658 women were counselled on post abortion/ postpartum family planning.

During the intervention, 1373 women were counselled in the three hospital. Overall, 404 (29.4%) accepted contraceptives (Tambura 38.4%, Yei 20.0%, JTH 28.4%). See Figure 1 and Table 2.

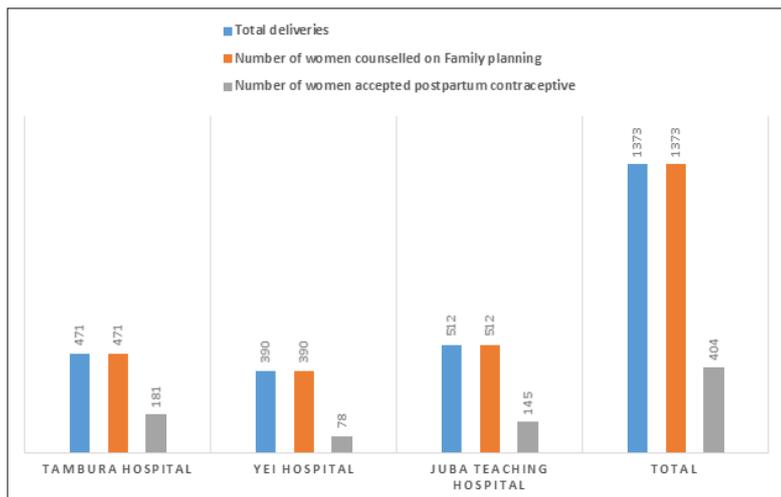


Figure 1. Number of women counselled and accepting postpartum contraception in the three hospitals.

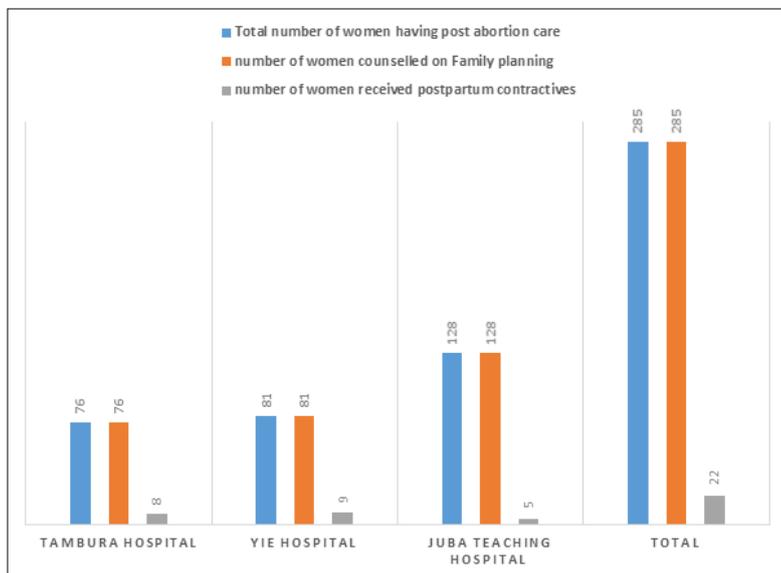


Figure 2. Number of women counselled and accepting post-abortion contraception in the three hospitals.

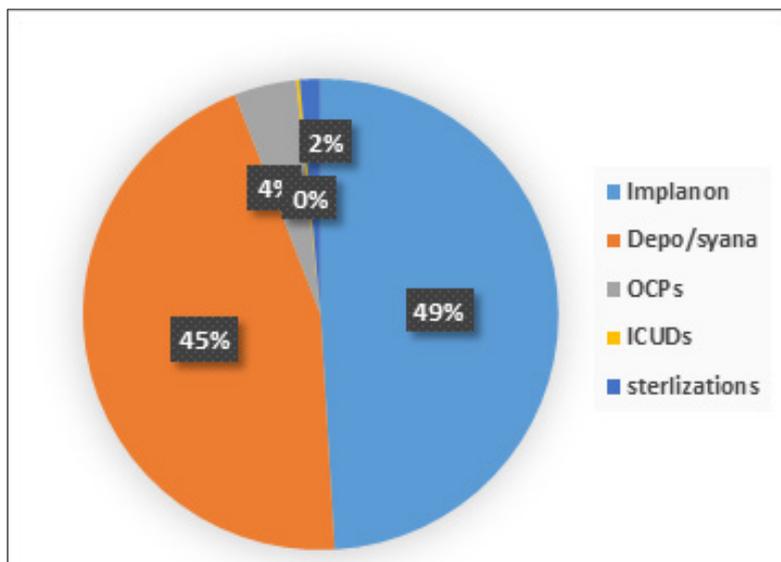


Figure 3. The contraceptive methods chosen by the women in the three hospitals

In the three hospitals, 285 women had post-abortion care from June to October 2019. All were counselled on contraceptives but only 22 (7.7%) women agreed to use contraceptives. See Figure 2.

The proportion of women who accepted to use postpartum contraceptives was higher in Tambura Hospital than Juba Teaching Hospital (28.4%) and Yei Hospital (20.0%). See Table 2.

The proportion of post-abortion women accepting contraception was much lower in JTH (3.9%) than in Tambura (10.5%) and Yei (11.1%) hospitals. See Table 3.

Figure 3 shows the progesterone implant was the most popular method in the three hospitals, 49%, followed by progesterone injection (Depo-Provera). Intrauterine contraceptive devices (IUCDs) and oral contraceptives pills (OCPs) were much less popular.

**Discussion**

Nearly 30% of postpartum women counselled accepted contraception, whereas only 7.7% of women receiving post-abortion care did. This is in line with the overall low CPR (4.7%) for South Sudan. Moreover, it could be attributed to strong cultural beliefs, lack of a law empowering women to take an informed decision to use family planning, and it could be due to inadequate counselling of the women.<sup>[7]</sup>

Almost all (94%) of the women who accepted contraception chose progesterone methods, implants (49%) and injections (45%). Women may feel comfortable using these two methods, as they are long-lasting (3-5 years and 3 months respectively), whereas OCPs need to be taken daily. IUCD had a low acceptance rate, possibly because the IUCD requires an intimate examination, an intrusive procedure, and the false belief that it may interfere with their sexual life. The prevalence of implant in this study is higher than the 20.8% reported in neighbouring Kenya.<sup>[8]</sup> This difference could be because the study population is not representative of the whole community of South Sudan. Also, in the case of Kenya, most women have personal control over their contraceptive choices besides having greater access to contraception.<sup>[9,10]</sup>

There was much lower uptake of contraception among women with post-abortion care at JTH (3.9%), compared to 11.1% and 10.5% at Yei and Tambura Hospitals respectively. The variation between the three hospitals was attributable to the differences in the intervention carried out.

**Table 2. Prevalence of contraceptives use among women who delivered in the three hospitals**

Hospitals	Women who received postpartum family planning counselling n (%)	Women who refused postpartum contraceptives n (%)	Women who accepted contraceptives n (%)
Tambura Hospital	471(100)	290 (61.5)	181(38.5)
Yei Hospital	390 (100)	312 (80.0 )	78 (20.0)
Juba Teaching Hospital	512 (100)	367 (71.6)	145 (28.4)
Total	1373 (100)	969 (70.6)	404 (29.4)

**Table 3. Prevalence of contraceptives use among women with post abortion care in the three hospitals**

Hospitals	Women who received post abortion care and counselling n (%)	Women who refused to use contraceptives n (%)	Women who accepted contraceptives n (%)
Tambura Hospital	76 (100)	68 (89.5)	8 (10.5)
Yei Hospital	81 (100)	72 (88.9)	9 (11.1)
Juba Teaching Hospital	128 (100)	123 (96.1)	5 (3.9)
Total	285 (100)	263 (92.3)	22 (7.7)

The maternity staff in both Tambura and Yei Hospital were directly involved in the preparatory counselling and provision of contraceptives to women who had suffered abortions, or who had delivered, whereas at Juba Teaching Hospital family planning unit staff provided the service when called by the maternity staff. The interventions were different because the implementing partners supporting Tambura hospital and Yei Hospitals embraced the project and facilitated the training of obstetrics and gynaecology staff within their existing budgets, but this did not happen at JTH.

It was not a usual practice in these three hospitals to provide postpartum or post abortion family planning. The project brought benefits to the women that were counselled and accepted to take contraceptives. The project will attempt to sustain and improve the results through expanding the counselling to start in the third trimester during antenatal care, as this may give more opportunity for the woman to consider her options, to discuss the idea with her husband and decide on the type of contraception she would prefer. Moreover, continuing training and encouragement of the maternity and post abortion health care team as advocates of family planning education and counselling will try to ensure quality services flowing to the women.

Donors use the provision of family planning services as a performance indicator when evaluating implementing partners. Thus, as this project uses the same providers, the development and promotion of postpartum and post abortion family planning provision can be easily incorporated and would assist the partners to achieve their targets.



Figure 4. Victoria Kujang, a midwife at Yei Hospital counselling a mother. (Credit: Dr Benjamin B. Henry).

Males dominate decision-making in South Sudanese families; hence, some women were not able to access family planning, due to the absence of their partners at the time of counselling. Therefore, the project will continue engaging male partners through media, organized awareness programs, or through boma/village health teams. The education and engagement of community leaders and health workers at the community level is important in advancing family planning, as they are powerful in delivering messages related to health at the village levels.

## Conclusion

Most of the project objectives have been achieved. Postpartum/post abortion family planning has substantially improved and made a contribution despite the challenges of the low uptake. Counselling capacity on contraceptive use and provision has significantly increased in the three hospitals.

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## African Federation for Emergency Medicine resources for managing COVID19- in low resourced settings

<https://afem.africa/resources/>

AFEM's resources are Africa-specific for clinical, nursing, and pre-hospital emergency care. Our materials are almost entirely open source and provide guidance for leadership development, education and training, advocacy, and policy. Many of our resources have been written and reviewed by global leaders in emergency care.

### GUIDELINES

- Palliative Care Guidelines for Families [\[PDF\]](#)
- Ethical considerations for emergency care during COVID19- in Africa [\[PDF\]](#)

### RAPID REVIEWS

The purpose of this regular review, is to present COVID19-related questions in Emergency Medicine. This is a collaborative effort between EMCT and AFEM.

- RR1: Disease course and expectation, Suctioning, Awake Prone [\[PDF\]](#)
- RR2: Does BCG vaccination offer protection against COVID19-? [\[PDF\]](#)
- RR3: Evidence for N95 extended use, re-use and decontamination [\[PDF\]](#)
- RR4: Nebulisation, Physiotherapy, Breathing Exercise [\[PDF\]](#)
- RR5: Flattening the Curve [\[PDF\]](#)
- RR6: Diagnostics [\[PDF\]](#)
- RR7: COVID19- Associated Coagulopathy (CAC), VTE and D-dimer, JACC Consensus Recommendations [\[PDF\]](#)
- RR8: Palliative Care [\[PDF\]](#)
- RR9: COVID19 in Paediatrics [\[PDF\]](#)
- RR10: Respiratory Support- improving mortality outcomes [\[PDF\]](#)

### ADDITIONAL RESOURCES

- Cook et al — Consensus guidelines for managing the airway in patients with COVID19- [\[link\]](#)

# Health seeking behaviour of small income market vendors: Diabetes primary care in Gulu Municipality, northern Uganda

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**Abstract**

**Introduction:** Uganda faces a serious threat of non-communicable diseases including type 2 diabetes; sedentary lifestyles predispose people to these diseases.

**Objective:** To understand the diabetes health seeking behaviour of market vendors at the main market, Gulu Municipality.

**Method:** This cross-sectional study used quantitative and qualitative methods to understand experiences of market vendors on health seeking behaviour. After general sensitization and mobilisation in the market, 400 participants were enrolled for the study, however quantitative analysis was done only on data from 375 participants (316 women and 59 men); 25 participants had missing data; 30 of these 375 were interviewed and the qualitative analyses of their responses offered further insight on health seeking – and is reported here. The qualitative data will be reported later.

**Results:** Mixed responses were obtained from these 30 market vendors about their health seeking behaviour for diabetes. The factors were responsible for their overall health seeking behaviour included crowded hospitals and low frequency of clinic days; lack of accurate knowledge, and uninformed beliefs on diabetes, and poor work-life balance. Major impediments to health seeking were the fear of losing work time and money, and feeling healthy and hence seeing no need for health check-ups or medical care.

**Conclusion:** Awareness of diabetes and the need to seek health care exists, but market vendors are not well informed on tests and care. We recommend that more comprehensive simple-message sensitisation is undertaken to change health seeking behaviour and prevent escalation of non-communicable diseases in northern Uganda and beyond.

**Key words:** health seeking behaviour; healthcare services; diabetes; sedentary lifestyle; hypertension; market vendors, Uganda

**Introduction**

Of the 56.4 million deaths occurring worldwide in 2015, more than half (54%) were due to the top 10 causes - of which diabetes was one.<sup>[1]</sup> Diabetes is one of the multiple health challenges faced by developing countries.<sup>[2]</sup>

A 2006 US study noted that diabetes, not obesity, increases the risk of critical illness, organ failure and early deaths.<sup>[3]</sup>

“Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. This reflects an increase in associated risk factors such as being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries.”<sup>[5]</sup>

In 2006 the Commissioner for non-communicable diseases (NCDs) in Uganda

stated: “There is a new thrust of non-communicable diseases in the country, and among these is diabetes. It is a very serious problem. People are changing their lifestyles. Many no longer get enough exercise: they do not walk, and instead of walking they are driven in cars.”<sup>[3]</sup> A Ministry of Health 2014 risk survey report on NCDs concluded that NCDs and their risk factors are a public health problem in Uganda.<sup>[4]</sup>

The risk survey also noted the perceptions of the participants that: “.. given the chronic nature of NCDs, health and help seeking regarding these conditions was mainly hierarchical whereby the patients first sought one type of care, if it failed resorted to another type”.<sup>[4]</sup>

NCD and, in particular, diabetes, awareness and prevalence in low income communities remain unclear, however several studies have proved that diabetes is on an upward trajectory; it is indeed a serious public health challenge in sub Saharan Africa. This is mainly due to rapid urbanisation and modern lifestyles, rapidly decreasing physical activity (sedentary lifestyle), changes in dietary habits and ageing of the population.<sup>[5-9,10]</sup> Several factors determine health seeking behaviour, especially among low income populations in developing countries<sup>[11]</sup>, including health seeking behaviour towards diabetes treatment and care.

The health seeking behaviour of a community determines how health services are used and the health outcomes of populations. Factors that determine health behaviour may be physical, socio-economic, cultural or political. Indeed, the utilisation of a health care system may depend on educational levels, economic factors, cultural beliefs and practices.<sup>[11,12]</sup>

A key determinant for health seeking behaviour is the organisation of the health care system.<sup>[12]</sup> In many health systems, particularly in developing countries such as Uganda, illiteracy, poverty, underfunding of the health sector, inadequate water and poor sanitation facilities have a big impact on health indicators.<sup>[12]</sup> In addition, cost of services, limited knowledge on illness and wellbeing, and cultural prescriptions are a barrier to the provision of health services.<sup>[11,12]</sup> Subsequently, many people in developing countries fail to seek care in a timely manner or act in a way that prevent the occurrence of many diseases including diabetes.<sup>[12,13]</sup>

Possible explanations for why households in developing countries often underinvest in preventative health care is that there is a lack of information on illness prevention or on the effectiveness and cost-effectiveness of preventative behaviours.<sup>[13]</sup> Likewise, households buy drugs they do not need due to lack of information on medicines and the source of their illnesses and how to cure them.<sup>[13]</sup>

## Method

A one-month cross-sectional study was carried out in February 2017 in Gulu Municipality main market, Gulu district, northern Uganda. The study population included all market vendors (both proprietors and attendants) who were 18 years or above and had consented to the study. After getting permission from the market leaders, and explaining the study, we invited eligible vendors to be interviewed; 400 vendors were enrolled. For the quantitative arm of the study 375 respondents (316 women and 59 men) participated, 25 were left out in the analyses due to missing data. For the qualitative arm, 30 of these respondents, who had time for an extra interview; were consecutively interviewed while their anthropometric measurements were taken. A sample of 30 provided a full range of the different responses. This paper reports only the results from these 30 vendors.

The 30 vendors were asked open-ended questions based on those used in a Zimbabwe study.<sup>[14]</sup> The key question was: “How do they come to know of their experience as persons at risk of diabetes and related illness?”<sup>[15]</sup> All the responses were recorded on paper by the interviewer. Thereafter, the transcripts from the participants’ responses was content analysed to generate themes on their experiences.

Research and Ethics Review Committee of the Faculty of Medicine, Gulu University approved the study, and additional clearance was obtained from Uganda National Council for Science and Technology.

## Results

Of the 30 participants interviewed 23 were females and 7 were males; their ages ranged from 20 to 46 years (mean 35 years) and their education ranged from primary to advanced secondary level. None had diabetes (all 375 participants had been tested for diabetes, a disease widely known in the community).

The responses reported here were selected to give an overview and examples of the issues raised and are grouped into the following categories:

- Efforts to visit health facilities for medical check-up and treatment,
- Knowledge, beliefs and attitude towards diabetes and related illness, and
- Factors related to livelihood and lifestyle.
- Effort to visit health facilities for medical check-up and treatment

Many factors affected respondents’ efforts to visit health facilities for medical check-ups and treatment including the availability of facilities for their care visits:

*“...the government hospital is too crowded to give time for me to make check-up... the private clinics meanwhile are expensive”.*

*“...am told the clinic in the government hospital is done once a week and there are many people....so I feel it takes too much time”.*

Respondents were also concerned with the capacity of the health systems to serve them adequately when they visit the health facility:

*“... it appears the staff are also few to allow for efficient work with the patients...”;*

*“...at our hospital here once you are prescribed you get no drugs, so we depend on private clinics and drug shops...”*

- Knowledge, beliefs and attitude towards diabetes and related illness:

The responses below indicate the respondents' knowledge, beliefs and attitudes towards diabetes:

*“... I know about diabetes (the sugar disease), and I believe I do not have it...”; “...my weight is still not so big, so I feel am fine...”;*

*“... I will watch my weight to ensure it is not so big...”*

*“... while I eat fried food sometimes, I am always eating Acholi traditional foods which are healthy, so I am less at risk...”*

- Factors related to livelihood and lifestyle

Comments on these factors included:

*“...my work here is very hectic and I have not been able to get time to visit the hospital for a proper check-up. ...”*

*“...I am grateful that you are here in the market; I wanted to check myself but the time is limited; I will plan and come the next day...”*

## Discussion

Many factors affected the respondents' efforts to visit health facilities for medical check-ups and treatment.<sup>[11-14]</sup> They were concerned about the availability of facilities for their care visits as well as with the health systems' capacity to serve them adequately.

Indeed, their knowledge, beliefs and attitudes towards diabetes depended on the health system and health promotion activities, and the accepted practices/traditions in the area.<sup>[12,14]</sup>

Competing priorities of daily living create challenges to health seeking behaviour.<sup>[11]</sup> These are individual factors, for example, personal resources such as time and social support, and work-related factors arising from job pressures, long working hours and unemployment.<sup>[11,12]</sup>

Coupled with challenges in the health system which

discourage people from visiting health facilities, and desperation to work and support family livelihood, make care-seeking a secondary concern despite the apparent risks involved.<sup>[11,12]</sup>

## Conclusion

Health seeking behaviour of people is dependent on their perception regarding the quality of care at health centres. This can be changed through improved facilities and more trained personnel to manage the increasing NCD phenomenon, and correcting wrong perceptions about diabetes and related illnesses. Increased health promotion is required to enhance awareness and motivate communities to seek care regularly and early.

While diabetes awareness existed among our respondents, the findings show that knowledge is limited on how to prevent the disease and or manage it once acquired; many misrepresentations of facts on diabetes and its causes exist. The growing incidence of diabetes is due to many life stresses and difficult management of life-work balance.

Additionally, there are health system challenges in dealing with the problem of diabetes: inadequate health promotion by the health department, lack of trained staff to manage the growing numbers of people with diabetes and, most importantly, the problem of drug stock outs that is perennially common in health facilities.

It is important to correct wrong perceptions about diabetes through increased education to the public. We recommend that more comprehensive simple-message sensitisation is undertaken via mass communications, and at locations such as market stalls as well as health centres, in order to change health seeking behaviour and prevent escalation of NCDs in northern Uganda and beyond.

**Competing interests:** The authors declare that they have no competing interests.

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## Indirect effects of the COVID-19 pandemic on maternal and child mortality

A study in the *Lancet* concludes: “Our estimates are based on tentative assumptions and represent a wide range of outcomes. Nonetheless, they show that, if routine health care is disrupted and access to food is decreased (as a result of unavoidable shocks, health system collapse, or intentional choices made in responding to the pandemic), the increase in child and maternal deaths will be devastating. We hope these numbers add context as policy makers establish guidelines and allocate resources in the days and months to come.”

See **Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study.**

[Read here](#)

# Nurturing newborns in South Sudan series: Essential care of the newborn

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## Introduction

The first 28 days of life is the neonatal or newborn period. Most children who die do so in their first month of life and most especially in the first week. The global rate of newborn deaths is 18 per 1,000 live births as of 2018. South Sudan has one of the highest neonatal mortality rates (NMR) estimated at more than 40 per 1,000 live births.<sup>[1]</sup> There is need to improve the knowledge base of health workers and caregivers in caring for newborns at health facilities and in the community in South Sudan. Clinical guidance reviews help in disseminating current evidence, best practices and recommendations for health workers.

Essential care of the newborn is the first of a series on Nurturing Newborns in South Sudan, a clinical guidance review series on newborn care which will feature topics like: Newborn Resuscitation, Newborn Examination, Fluids and Feeds, Drugs and Treatment of Common Newborn Conditions and The Small Baby. This review will describe standard recommendations for all births and deliveries and discuss low cost, high impact essential newborn care interventions relevant to South Sudan.

## Standard recommendations for birth and delivery of newborns

The four basic needs of all newborns at birth and in the newborn period are to be protected, to breathe normally, to be warm and fed. All babies must be delivered in a clean and warm environment (at 25°C), preferably onto the mother's abdomen or into her arms. Hygienic care at birth through the use of clean birth kits, hand washing with soap, and the use of gloves and disinfectants, are important in protecting the mother, her baby and the health worker from infections. Thorough drying of the baby with a dry, warm, clean towel, discarding all wet cloths, covering with a clean, dry cloth and early initiation of breastfeeding ensures that newborns are kept warm and fed.<sup>[2]</sup>

Neonatal resuscitation equipment consisting of a flat firm surface and a newborn bag and mask must be available and in good working condition at all deliveries should there be a need to support a newborn unable to breathe normally. Assessment of a newborn's ability to breathe normally should be done in the first 60 seconds of life which is referred to as the golden minute.<sup>[3]</sup> This determines the next steps to be taken in the care of the newborn requiring resuscitation and other emergency care.

## Essential Newborn Care Interventions

Much of this review will go into discussing well researched, low cost, high impact essential newborn care interventions relevant to all newborns regardless of the place of birth. These interventions are administered immediately after birth for newborns that do not require emergency care because they are either small or very ill. Care of small or very ill newborns will be discussed in later reviews.

### a. Thermal care

Hypothermia is defined as a core body temperature of less than 36.5°C. Complications associated with hypothermia are hypoglycaemia (low blood sugar) and hypoventilation leading to hypoxia (low blood oxygen levels) and hypercarbia (high blood carbon dioxide levels) which can lead to death. Newborns lose heat through radiation, convection, evaporation and conduction at a much faster rate than adults because they have limited heat regulating mechanisms.<sup>[4]</sup> see Figure 1.

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MECHANISMS OF HEAT LOSS IN NEWBORNS

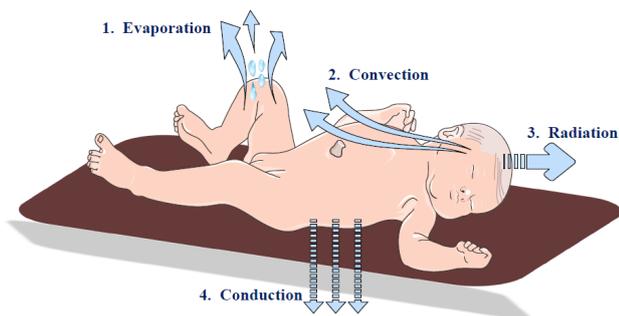


Figure 1. Mechanisms for heat loss among newborns. Adapted with the permission of the World Health Organization from *Thermal Control of the Newborn: a practical guide*. World Health Organization. Chapter 3. Thermal control of newborn infants; Pages 7-11. 1993. Newborn Image from SMART Medical.

Despite the hot climate in South Sudan, newborns are still at risk of hypothermia and must be kept warm at all times. Keeping newborns warm does not need sophisticated equipment like incubators. Appropriate clothing of the baby for ambient temperature should be 1–2 layers more than adults and include protective head gear.<sup>[5]</sup> Table 1 describes the various ways of preventing heat loss in newborns through the mechanisms described in Figure 1.

The effect of thermal care practices like delayed bathing, immediate head covering and skin to skin care could avert 10% of neonatal deaths caused by infections and 20% of neonatal deaths associated with preterm birth complications.<sup>[6]</sup> These thermal care practices are part of the ‘warm chain’ interventions; a set of 10 evidence based, low cost, high impact interventions to minimize hypothermia.<sup>[4]</sup> (Figure 2)

Table 1. Prevention of heat loss in newborns

Mechanism	Prevention
1. Evaporation	<ul style="list-style-type: none"> <li>• Dry thoroughly with a warm dry towel.</li> <li>• Discard all wet cloths.</li> <li>• Cover with clean, dry cloths.</li> </ul>
2. Convection	<ul style="list-style-type: none"> <li>• Keep away from draughts, open windows and doors.</li> </ul>
3. Radiation	<ul style="list-style-type: none"> <li>• Keep newborn in a warm environment and room.</li> </ul>
4. Conduction	<ul style="list-style-type: none"> <li>• Place newborn on dry, warm surfaces and covered with clean, warm, dry cloths.</li> </ul>

b. Cord clamping and care

Cord clamping is the cutting of the umbilical cord after birth. During cord clamping, sterile cord ties or a clamp should be used. The cord ties or clamp should be placed tightly around the cord at two finger breadths from the newborn’s abdomen and the second tie at another two finger breadths from the first tie.<sup>[7]</sup> The cord stump should be left uncovered.<sup>[5]</sup>

*Delayed cord clamping and anaemia*

Current evidence now supports delayed cord clamping for all births while initiating simultaneous essential newborn care. Delayed cord clamping (DCC) is defined as cutting the umbilical cord after 1-3 minutes after birth. Early cord clamping (<1 minute after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation.<sup>[5]</sup>

Delayed cord clamping (DCC) is a cost-free intervention that prevents infant anaemia for up to 8-12 months<sup>[8]</sup> and through placental transfusion provides the term baby with about 20–30 mg/kg of iron.<sup>[9]</sup> DCC should be combined with the administration of oxytocin immediately after delivery of the infant to reduce maternal blood loss. Evidence shows that DCC has not been associated with increased maternal blood loss at delivery, postpartum haemorrhage or anaemia.<sup>[10]</sup> Although there is minimal risk of jaundice as a result of DCC, this has not been consistently shown to increase the need for treatment by phototherapy or exchange transfusion.<sup>[11]</sup> Other benefits of DCC to the neonate are:

- Increased tissue oxygenation.<sup>[12]</sup>
- Improved blood pressure and circulatory stability, increased circulating volume.<sup>[13]</sup>
- Reduced relative risk of need for blood transfusions by 34%.<sup>[13]</sup>
- Reduced risk of intraventricular haemorrhage (41%).<sup>[13]</sup>

*Continued cord care*

Clean cord care practices are critical in the prevention of neonatal mortality due to infections like neonatal tetanus. This is in addition to tetanus immunization which is given to women of child bearing age and during pregnancy. There is general lack of knowledge on correct cord care practices among caregivers in South Sudan as seen by a study in Juba Teaching Hospital where only 18.2% answered correctly that the umbilical stump should be left uncovered after cleaning. Among those preferring to apply substances to the cord, 43% applied powder, 14.4% ashes and 2.8% oil and alcohol respectively.<sup>[14]</sup>

Daily chlorhexidine (4%) application to the umbilical cord stump during the first week of life is recommended for newborns born at home in settings with high neonatal

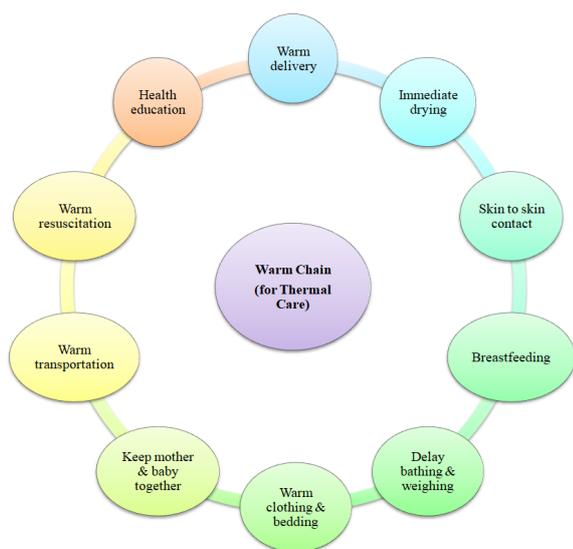


Figure 2. The 10 Step 'Warm Chain' for thermal care. Adapted with the permission of the World Health Organization from *Thermal Control of the Newborn: a practical guide*. World Health Organization. Chapter 4. The prevention of hypothermia; Pages 17-25. 1993.

mortality (NMR >30 per 1000). Clean cord care is recommended for newborns born in health facilities or at home in low neonatal mortality settings.<sup>[5]</sup>

A situational recommendation for the use of chlorhexidine for cord care in health facility births is as a replacement for the application of harmful traditional substance such as cow dung to the cord stump.<sup>[5]</sup> This is an important contextual recommendation that should be considered for implementation in South Sudan where harmful cultural cord care practices exist in the backdrop of high neonatal mortality.

### c. Nutrition in neonates

Early initiation of breastfeeding is the initiation of breastfeeding as early as the third stage of labour, before the placenta has been delivered and not beyond one hour of birth as long as both mother and baby are clinically stable.<sup>[5]</sup> During this period, the baby should have received essential care outlined above and weighed.

The initiation of breastfeeding has been shown to reduce 22% of neonatal deaths if initiated within the first hour and 16% of neonatal deaths if initiated from the first day of life.<sup>[15]</sup> Rates of reported early initiation of breastfeeding (within an hour after birth) are low in South Sudan at 45%.<sup>[16]</sup> Key steps to promote early initiation of breastfeeding include breastfeeding counselling and education in the antenatal and postnatal periods and early and consistent 24-hour contact between mothers and newborns. Health

workers need to be able to assess breastfeeding by ensuring that there is good attachment and positioning of the baby for breastfeeding. Assessment of breastfeeding will be discussed in the series on feeding newborns.

### d. Eye care

Eye care for all newborns immediately after birth includes wiping the eyes and the application of tetracycline eye ointment once on both eyes.<sup>[7]</sup> This is effective in preventing neonatal conjunctivitis due to gonococcal or chlamydial infection which causes ocular disease and blindness in children.<sup>[17]</sup>

### e. Vitamin K Prophylaxis

Vitamin K is an essential cofactor for clotting and newborns have low stores and inefficient utilization by the immature liver leading to deficiency. This is the basis of routine vitamin K prophylaxis of all newborns with 1 mg of vitamin K intramuscularly (IM) after birth to prevent haemorrhagic disease of the newborn. Haemorrhagic disease of the newborn can cause bleeding within the first few hours to months of life. Neonates with birth trauma, preterm newborns and those undergoing surgical procedures are at higher risk of bleeding and should always receive prophylaxis.<sup>[5]</sup>

### f. HIV prophylaxis

Dual prophylaxis with zidovudine (azidothymidine, AZT; twice daily) and nevirapine (NVP; once daily) for the first six weeks of life should be given to all infants born to mothers with HIV regardless of their chosen method of feeding. Prophylaxis should continue in the postpartum period for an additional six weeks up to a total of twelve weeks if the baby is breastfeeding.<sup>[5]</sup>

### g. Immunization

All infants should receive BCG and oral polio vaccine at birth due to the high endemicity of tuberculosis and polio in South Sudan. Neonatal vitamin A supplementation is not recommended as a public health intervention to reduce infant morbidity and mortality.<sup>[5]</sup>

### h. Post-natal visits

Healthy mothers and newborns should be observed for at least 24 hours after birth following an uncomplicated vaginal birth in a health facility. The first postnatal care should be given within this period before discharge.<sup>[5]</sup>

Three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48–72 hours), between days 7–14, and six weeks after birth. Preterm and low-birth-weight babies should be identified immediately after birth and provided special care as per existing WHO guidelines.<sup>[5]</sup>

### i. Identification of danger signs and when to return to a health facility

Caregivers should be educated on and empowered to



Figure 3. Danger signs in newborns. Adapted with the permission of the World Health Organization from WHO recommendations on newborn health: guidelines approved by the WHO Guidelines Review Committee. World Health Organization. Page 5. 2017; (May):20.

identify the following danger signs and seek health care early. These danger signs should be assessed during each postnatal visit and referrals made for further evaluation should they be present as they may indicate neonates at risk of sepsis or other serious illness.<sup>[5]</sup> (Figure 3).

**Conclusion**

This review has demonstrated that low-cost high impact interventions for newborn care are available (Figure 4). These interventions if implemented will result in greater steps towards the reduction of neonatal mortality in South Sudan. Scaling up of the coverage of these interventions, increasing the knowledge and decreasing skill gaps among caregivers and health workers respectively will aid in realizing these goals.

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# NURTURING NEWBORNS IN SOUTH SUDAN

## ESSENTIAL CARE PRACTICES

<p><b>1 Thermal Care</b></p>  <p>Keep newborns warm and maintain the warm chain.</p>	<p><b>2 Delayed Cord Clamping</b></p>  <p>Delay cord clamping for 1-3 minutes to prevent anaemia.</p>
<p><b>3 Cord Care</b></p> <p>Clean the cord daily using 4% chlorhexidine solution for 1 week to prevent cord infections.</p>	<p><b>4 Feeding</b></p>  <p>Early initiation of breastfeeding within one hour of birth.</p>
<p><b>5 Eye Care</b></p> <p>Wipe both eyes and apply tetracycline eye ointment once to prevent eye infections that cause blindness.</p>	<p><b>6 Prophylaxis</b></p> <p>a. Vitamin K prophylaxis for all newborns to prevent bleeding. b. HIV prophylaxis for all HIV exposed newborns.</p>
<p><b>7 Immunizations</b></p> <p>Give BCG and Oral Polio vaccines at birth unless contraindicated.</p> 	<p><b>8 Postnatal Care</b></p> <p>Schedule postnatal visits and educate on danger signs and when to return to hospital.</p>

Learn more : Nurturing Newborns in South Sudan Series: [www.southsudanmedicaljournal.com](http://www.southsudanmedicaljournal.com)

Figure 4. Poster. Summary of essential care practices for nurturing newborns in South Sudan. Source: Soma, G. (Author).

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## Sudan bans FGM

After 30 years under Omar al-Bashir, the country has abolished several discriminatory policies and banned FGM – in what activists have called ‘great first steps’ towards liberalisation

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## FGM: Young Ugandan girls rescued from Kenya

Six girls from Amudat district have been intercepted in Kenya's North Pokot district as they prepared to undergo Female Genital Mutilation (FGM), often treated as a ritual to womanhood. The girls aged 9-13 were intercepted by the Police after a tip-off by concerned residents of Amakuriat, about 30km inside Kenya.

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# Iatrogenic enterocutaneous fistula following a misguided surgical procedure in Torit, South Sudan

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## Abstract

Groin hernia is common among active people in sub Saharan Africa. It contributes significantly to morbidity and mortality because of its unusual sac content. Various organs can be unexpectedly found in the sac when performing hernia repair surgery. Presence of the caecum in the sac is very uncommon. Enterocutaneous Fistula [ECF] is the worst complication that could occur following groin hernia surgery.

We report a rare case of iatrogenic ECF following an incarcerated right inguinal hernia repair done by a traditional healer which caused a cecostomy and subsequent ECF. A 50-year-old lady presented with ECF two weeks after undergoing right inguinal hernia repair. Clinically, and with an aid of abdominal sonogram, a diagnosis of ECF was made. She was successfully treated by caeectomy and primary repair, appendectomy, local debridement of the fistula site and Bassini's repair of the right inguinal hernia.

In cases like this every effort should be made to preserve the organ found in the hernia sac to ensure an uneventful postoperative period. ECF treatment depends on the type, site, and nature of the fistula.

**Key words:** groin hernia, inguinal hernia, enterocutaneous fistula, caecum injury.

## Introduction

Open inguinal surgery is the most widely performed surgery worldwide. There are several surgical techniques, each with its own indications and contraindications.<sup>[1]</sup> Hernia surgery outcome is influenced by several factors including anatomy of the hernia, type of hernia, and patient-related factors. One possible complication is Enterocutaneous Fistula [ECF]. ECFs are abnormal communications between the gastrointestinal tract and skin. As a result, intestinal contents leak through to the skin.

Most of the cases of ECF are postoperative. Other causes include, infection, perforated peptic ulcer and inflammatory bowel disease.<sup>[2]</sup> They are associated with high morbidity and mortality. Even in the most experienced hands and specialized centres, mortality remains high at 5-15%.<sup>[3]</sup>

We report a case of iatrogenic ECF, and its diagnosis and management options in a resource limited setting.

## Case Report

A 50-year old female presented with a right groin fistula of two weeks duration. She had noted a right groin swelling which was opened by traditional healers. The wound failed to heal and leaked pus. She noticed that a little faeculent material came from the wound site when she walked for some distance and decided to seek help from Torit State Hospital.

On examination her general health appeared good; temperature 37.2°C. There was a right femoral triangle sinus of 0.5 cm discharging pus overlying a firm mass of about 2cm in diameter. Abdominal examination was otherwise normal. An

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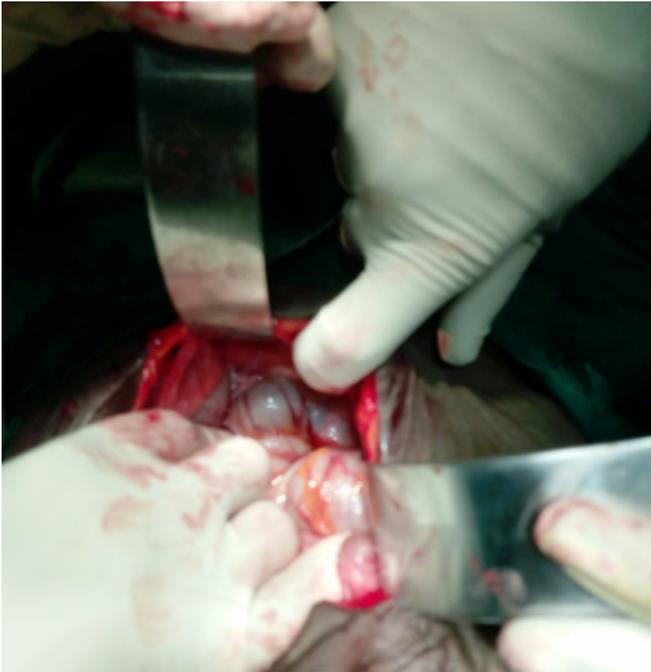


Figure 1. Caecum adhered to the external inguinal canal



Figure 2. Released caecum with the site of fistula

initial diagnosis of inguinal lymphadenitis was made. An abdominal X-ray and abdominal ultrasound were normal. Facilities for a fistulogram were not available.

On the assumption that an abscess had formed an incision was made into the mass. This revealed only pus which was irrigated with saline and packed. Oral antibiotics (Caps Ampiclox 500mg and metronidazole 500mg thrice daily for 3 days) and analgesic (Tabs ibuprofen 400mg twice daily for 3 days) were prescribed. The patient was then lost to follow up but resurfaced after three weeks with the same complaint of pus and stool discharging from the sinus.

This time there were two small sinuses present in the right groin with otherwise normal abdominal examination. A small amount of faeculent material came from the sinuses after walking indicating an enterocutaneous fistula. The patient was admitted. Abdominal ultrasonography revealed a right femoral enterocutaneous fistula. A femoral hernia strangulation seemed likely although we did include ulcerative colitis and Crohn's disease in the differential diagnoses.

An exploratory laparotomy was undertaken through a lower mid-line incision. A transverse inguinal incision was made when mobilizing the caecum became difficult. A small portion of the wall of the caecum was seen passing through the external inguinal ring (Figure 1). The caecum could not be released without freeing it from the adhesions created from previous surgery. Figure 2 shows the caecum with the ECF after release. Caecectomy with appendectomy were performed. The inguinal hernia site

was repaired by the Bassini's method, and the abdomen was closed (Figure 3). Postoperative recovery was uneventful; the patient stayed in hospital for thirteen days.

### Discussion

We report a case of iatrogenic ECF following a misguided surgical procedure. Most (85%) ECF's are iatrogenic in origin and 15% are spontaneous.<sup>[2,4]</sup> Most of the iatrogenic ECFs are secondary to trauma especially during operations for malignancy and extensive adhesiolysis in inflammatory bowel disease. ECF with caecum involved following inguinal hernia repair is rare.<sup>[1,4]</sup> They are usually seen in the small intestine as a result of an anastomotic leaked or following inadvertent injury to the gut.<sup>[1,9]</sup>

The occurrence of groin hernia disease in Africa is great according to a study by Lofgren et al.<sup>[3]</sup> and outstrips the facilities available to cope. Some groin hernias are so complex that they require expert hands and experience.<sup>[2,4]</sup> ECF following groin hernia surgery is rare but can occur when the hernia is of sliding type or where a mesh plug was used and came in contact with the organ. Sliding inguinal hernias are unexpected findings during surgery and therefore technically difficult to manage especially in inexperienced hands.<sup>[4]</sup> Njeze found that majority of postoperative fistulae were operated on by non-trained surgeons, and most carried out in their private clinics.<sup>[5]</sup>

The exact pathophysiology of the disease in our case is unknown, but we have some theories. The original intervention was done by a traditional surgeon who probably injured the caecum and caused a caecostomy



Figure 3. Site of groin abscess and fistula at right femoral triangle.

which leaked. A Richter’s hernia involving the caecum is possible but very unlikely. The sequelae of the ECF is either spontaneous closure or persistent leakage as seen in our patient.<sup>[5]</sup>

The clinical presentation of our patient is quite insidious with little faeculent material after walking for some period. This is typical of low type ECF according to Suk-Hwan who put low output ECF to be less than 200 mls and high output ECF more than 500 mls of gut secretions.<sup>[2, 6]</sup>

The principles of management of ECF are multi-disciplinary.<sup>[7]</sup> It involves medical, radiological and surgical procedures. Magnetic Resonance Imaging (MRI) could diagnose correctly the organ of origin and rule out other factors like foreign bodies and tumours. In our case, MRI services were not available. Most postoperative ECFs are managed by surgery after careful nutritional and electrolyte support.<sup>[8]</sup> In 1964, Chapman et al, developed a management strategy for ECF which still stands up today.<sup>[9]</sup>

Chapman’s priorities of care included:

- Phase 1: Management of dehydration, sepsis, and fistula effluent
- Phase 2: Initiation of electrolyte replacement and intravenous nutrition
- Phase 3: Placement of enteral feeding access and continued vigilance in the search for uncontrolled sepsis
- Phase 4: Major surgical intervention.

Table 1. Favourable and unfavourable factors predictive of nonoperative fistula closure

Favourable	Unfavourable
Surgical aetiology	Ileal, jejunal, nonsurgical aetiology
Appendicitis, diverticulitis	IBD, cancer, radiation
Transferrin > 200 mg/dL	Transferrin < 200 mg/dL
No obstruction, bowel in continuity, no in-infection, no inflamed intestine	Distal obstruction, bowel discontinuity, adjacent in-infection, adjacent active inflammation
Length > 2 cm, end fistula	Length < 2 cm, lateral fistula, multiple fistulas
Output < 200 mL/24 h	Output > 500 mL/24 h
No sepsis, balanced electrolytes	Sepsis, electrolyte disturbances
Initial referral to tertiary care centre and sub-speciality care	Delay getting to tertiary care centre and sub-specialty care

Pertinent radiological and clinical findings determine the path of treatment, spontaneous closure is usually affected by the presence of favourable or unfavourable factors - see Table 1. When favourable factors outweigh the unfavourable ones, conservative treatment can be tried for a period of six weeks by use of enteral feeds which have tropic effect on the bowel and prevents mucosal atrophy, and octreotide a synthetic analogue of somatostatin which inhibits gastrointestinal and pancreatic secretions.<sup>[5,9]</sup> The goal of surgery is to re-establish bowel continuity and avoid creating another enterostomy.<sup>[7,10]</sup> Bowel resection and anastomosis should always be considered as the best method for re-establishing bowel continuity and can reverse the leakage in 95% of cases.<sup>[4,10,11]</sup>

**Conclusion**

Groin hernias are very common in Sub-Saharan Africa, and they represent a high proportion of surgical procedures done, although the human resources are not enough to properly care for them. Hernia surgery when done by non-specialists leads to increased morbidity and mortality. ECF is one of the most difficult complications to be managed by the general surgeon in a resource limited setting. Thorough history taking and clinical examination of all patients with groin swellings and sinuses is recommended.

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## Indirect effects of the COVID-19 pandemic on maternal and child mortality

While the COVID-19 pandemic will increase mortality due to the virus, it is also likely to increase mortality indirectly. In this study, we estimate the additional maternal and under-5 child deaths resulting from the potential disruption of health systems and decreased access to food.

The global community is responding in unprecedented ways to limit the spread of severe acute respiratory syndrome coronavirus 2 and reduce mortality from COVID-19. Global organisations have called for maintaining routine health services during the pandemic; however, the potential indirect effects on mortality from maternal and child health service disruption have not been quantified. Previous infectious disease outbreaks indirectly resulted in increases in mortality caused by reductions in the provision and use of routine health services. Notably, the 2014 Ebola virus epidemic resulted in a 27.6 percentage point decrease in service use and 44.3 percentage point decrease in inpatient services in high-incidence areas of west Africa. During the 2003 epidemic of severe acute respiratory syndrome, a 23.9% reduction in ambulatory care and a 35.2% reduction in inpatient care was observed in Taiwan. Similar indirect effects are plausible as a result of the COVID-19 pandemic and control efforts.

A study in the *Lancet* concludes: “Our estimates are based on tentative assumptions and represent a wide range of outcomes. Nonetheless, they show that, if routine health care is disrupted and access to food is decreased (as a result of unavoidable shocks, health system collapse, or intentional choices made in responding to the pandemic), the increase in child and maternal deaths will be devastating. We hope these numbers add context as policy makers establish guidelines and allocate resources in the days and months to come.” See [Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study](#).

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# Bladder calculi presenting as urinary incontinence mimicking obstetric urinary fistula: a case report

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**Abstract**

The presence of calculi in the urinary tract is usually a silent morbidity, which may present as an incidental finding on evaluation of the genitourinary or renal tract for other pathologies. Failure to identify this early is associated with more grievous effects on the function of the renal system, especially the kidneys. Bladder calculi may be asymptomatic, but when symptomatic, may present with abdominal pains, urinary symptoms including haematuria or recurrent urinary tract infection. Urinary incontinence is an unusual symptom of bladder calculi.

This case study describes a 25-year-old woman with bladder calculi presenting with leakage of urine following an antecedent history of a Caesarean section for prolonged obstructed labour, thus mimicking urinary obstetric fistula. She had appropriate evaluation and successful surgical removal of the bladder stone.

**Keywords:** bladder stone, bladder calculi, urinary incontinence

**Introduction**

Bladder stones may be primary stones arising from the bladder or secondary stones arising from either renal calculi or concretions on foreign bodies such as urinary catheters.<sup>[1]</sup>

Stones in the renal system develop as a result of super-saturation of mineral salts in the urine leading to formation of crystals in the urinary system.<sup>[2]</sup> Bladder stones are of varying sizes and shapes, may be multiple and are commonly composed of calcium oxalate, calcium phosphate, uric acid or struvite (magnesium ammonium phosphate). Calcium oxalate stones account for about 75% of urinary stones.<sup>[3]</sup> In the tropics, stone composition is similar to that in other environments but compounded by low urine volume from hot climate and insensible water loss.<sup>[4]</sup>

Bladder stones account for about 5% of urinary stones.<sup>[5]</sup> Stones may occur spontaneously or associated with underlying disease. About 5% of bladder stones are associated with foreign bodies such as sutures, synthetic tapes or mesh; urinary stasis; urinary tract infection<sup>[5,6]</sup> and intrauterine contraceptive devices.<sup>[7,8]</sup> Other predisposing factors to bladder stones include age, obesity, diet, inadequate fluid intake, family history, digestive diseases, hyperparathyroidism, abnormality of the urinary tract such as horse-shoe kidneys, ureteral stricture and metabolic disease such as cystinuria.<sup>[9]</sup>

A calculus in the renal system is usually a silent morbidity, asymptomatic and an incidental finding on evaluation of the genitourinary tract or abdomino-pelvic ultrasound imaging for other pathologies. Conversely, it may be associated with urinary symptoms and signs necessitating presentation at the health care facility.

We describe a case of a large calculus occupying the bladder cavity which was detected following a Caesarean section for prolonged obstructed labour; mimicking urinary incontinence from an iatrogenic aetiology.

**Case report**

A 25-year old woman, Para 2+1 (none alive) presented to a secondary healthcare



Figure 1. Bladder stone being removed from the bladder cavity (Credit: RA Abdus-salam)

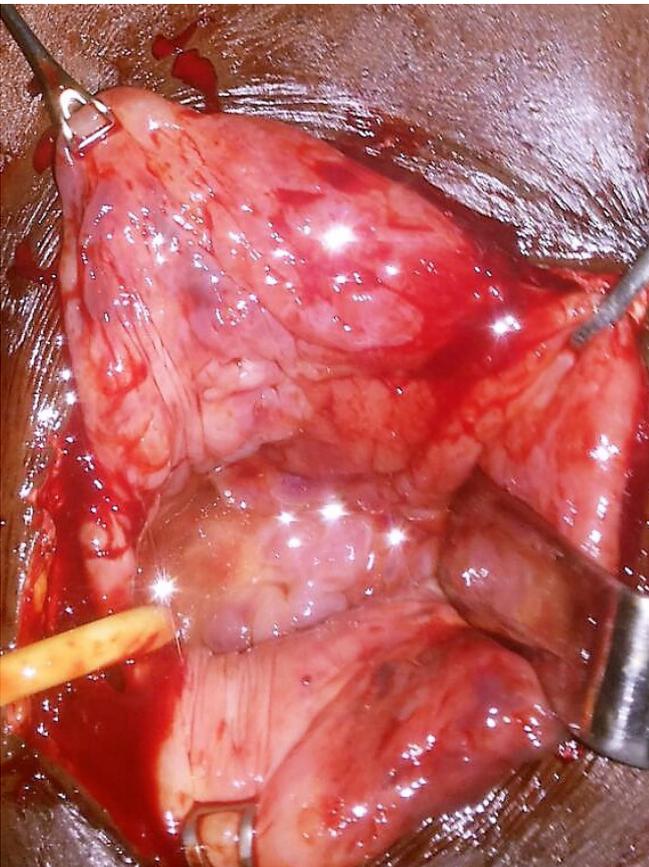


Figure 2. Bladder cavity showing oedematous bladder mucosa after the removal of bladder stone (Credit: RA Abdus-salam)

facility with a progressively worsening lower abdominal pain and urinary incontinence of 18 months duration. The presenting symptoms were preceded by a history of prolonged obstructed labour at a mission home (faith-based maternity centre) from where she was referred to a private hospital for emergency Caesarean section. She had an emergency lower segment Caesarean section and prophylactic urethral catheterization for 2 weeks to rest the urinary bladder.

Starting shortly after the removal of the urethral catheter, there was a history of painful micturition and urinary incontinence that were associated with frequency and urge. She presented at a private health facility where she was evaluated and treated for urinary tract infection, which provided temporary resolution of the symptoms. She subsequently had recurrent episodes of urinary tract infection and urinary incontinence, which were not associated with chronic cough, constipation or lifting of heavy objects. The lower abdominal pain worsened progressively since its onset, was not colicky in nature and there was no history of loin pain.

This patient presented to Adeoyo Maternity Teaching hospital after she heard a radio jingle for urinary incontinence/community mobilization of obstetric fistula clients for treatment. Adeoyo Maternity Teaching Hospital is a secondary healthcare facility with a genital tract fistula care unit, which provides free genital tract fistula repair services to walk-in clients, referred clients and clients identified and mobilized by community-based social workers. The patient presented with urinary incontinence from suspected obstetric cause and was identified during screening of obstetric fistula clients to have a large bladder stone with urinary incontinence.

Abdominal examination revealed a midline incision scar; full abdomen which moved with respiration. There was suprapubic tenderness but no renal angle tenderness. The liver and spleen were not palpably enlarged; the kidneys were not ballotable bilaterally.

A vaginal examination revealed a wet perineum, digital examination revealed a 6 x 4 cm mass on the anterior vaginal wall, firm to hard and non-mobile. There was no defect of the anterior or posterior vaginal wall. The cervix was central, smooth-surfaced, firm; and the cervical os was closed. The uterus was difficult to define due to the pelvic mass.

Pelvic ultrasonography revealed a large bladder stone measuring 63 x 48 mm. The uterus measured 38 x 94 x 42 mm (in its antero-posterior, longitudinal and transverse sections respectively); with an endometrial thickness of 2 mm. The ovaries were normal sized bilaterally and the pouch of Douglas was normal.

An examination under anaesthesia and dye test was done using methylene blue dye. This excluded a vesico-uterine or vesico-cervical fistula. There was no leakage of dye through the cervix or vaginal walls.

An assessment of bladder stone with urinary incontinence was made.

The pre-operative packed cell volume was 30%, urine microscopy and culture yielded no pathogen, urine analysis and serum electrolyte and urea were normal.

The patient had exploratory laparotomy and removal of bladder stone under regional anaesthesia. The stone measured 8 x 6 cm with an indented, ridged surface (Figure 1). There was a thickened bladder wall (3 cm thick) with oedematous and convoluted mucosal layer. The epithelial lining of the bladder was friable with evidence of chronic inflammation (Figure 2). Both ureteric orifices were visualized and jet of urine from both orifices was observed. There was no fistulous defect visualized within the bladder cavity.

She had a satisfactory recovery in the post-operative period. She received intravenous infusion of normal saline and dextrose saline, analgesics and antibiotics with strict fluid input and output monitoring. The lower abdominal pain and urinary incontinence resolved after surgery. Post-operative urine microscopy was sterile and urinalysis was normal. The urethral catheter was removed on post-operative day 10; there was complete resolution of symptoms and the patient was subsequently discharged home. At the follow up visits at 6 weeks and 3 months, the patient's clinical condition was satisfactory. There was no abdominal pain, abdominal tenderness or urinary incontinence and she had no complaint.

### Discussion

The patient presented with urinary incontinence, a condition that imposes a significant social health burden on the sufferer. The presumed aetiology was a genital tract fistula, due to the antecedent history of prolonged obstructed labour relieved by emergency Caesarean section.

Urinary incontinence following prolonged obstructed labour may present as urinary obstetric fistula or as an iatrogenic fistula if an operative intervention such as Caesarean section or Caesarean hysterectomy has been carried out.

However, the possibility of a vesico-vaginal or vesico-uterine fistula was excluded by thorough genital tract evaluation via a vaginal examination and methylene blue dye test. The vaginal examination identified a mass which was anterior to the vagina, and an ultrasonographic evaluation identified a huge bladder stone.

A stone in the renal system predisposes to recurrent urinary tract infection, pyelonephritis, hydronephrosis, recurrent abdominal pain,<sup>[3]</sup> poor quality of life and psychosocial effect. A huge bladder stone may also reduce the pelvic diameters and cause mechanical obstruction of labour as demonstrated by Benkaddour et al.<sup>[10]</sup>

It is unknown if the presence of bladder stone preceded and contributed to obstructed labour in this patient or if the bladder stone developed after the Caesarean section. The patient did not observe urinary incontinence before or

during pregnancy. However, it is possible that the bladder stone may have been present in the bladder before or during the pregnancy, but of smaller size thus undetected during examinations and Caesarean section. Struvite stones occur commonly with urinary tract infections and are common in sub-Saharan Africa.<sup>[11, 12]</sup>

The cause of the bladder stone in this patient is uncertain. However, possible factors may have been urine stasis from bladder neck obstruction by a small stone, inadvertent suture on the bladder wall during the previous Caesarean section, recurrent urinary tract infection, or reduced fluid intake by the patient and associated dehydration. One or more of these factors could have precipitated the development of the bladder stone or may have accelerated the growth of an undetected pre-existing small bladder stone.

In this patient, urinary incontinence, which is an uncommon symptom of urinary stones, was the main presenting complaint, together with abdominal pain. The occurrence of recurrent urinary tract infection was an indicator of an underlying clinical disease requiring a comprehensive investigation in order to determine its cause and appropriate management. The morbidity experienced by this patient could have been alleviated through a more comprehensive evaluation at an earlier stage of the disease.

### Conclusion

This case emphasises the role of detailed clinical evaluation, investigation and prompt intervention to prevent significant morbidity to patients.

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**Conflict of interest:** None declared.

**Patient's consent:** Informed consent/permission was obtained from the patient.

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### Article Summary by Nyakomi Adwok

Tol WA, Leku MR, Lakin DP et al. 2020.

## Guided self-help to reduce psychological distress in South Sudanese female refugees in Uganda: a cluster randomised trial

[Electronic version]. *Lancet Global Health* (8), e254-63.

**Introduction:** Conflict-affected populations carry a high burden of mental disorders. In these violent settings, women are disproportionately affected by gender-based adversities and the subsequent associated psychological trauma. The aim of this study was to assess the effectiveness of a self-help intervention (Self-Help Plus) in reducing psychological distress in female refugees.

**Procedures:** The study subjects were 694 female South Sudanese refugees living in a settlement in north western Uganda and identified as having at least moderate levels of psychological distress. They were randomised into two groups. One group was allocated to Self-Help Plus and enhanced usual care and the other to enhanced usual care alone. The intervention was delivered to groups of 20-30 women and involved facilitator-led stress-management workshops and access to a self-help book.

**Findings:** Three months post-intervention, Self-Help Plus resulted in larger improvements for the primary outcome of psychological distress when compared to enhanced usual care. Improvements were also noted in five of eight secondary outcomes related to general mental wellbeing and functioning.

**Conclusions:** The researchers concluded that Self-Help Plus shows promise as a “first-line intervention for large populations affected by major stressors in low-resource settings.” (p.e621)

**Personal comments:** The tangible, physical needs of refugees often take precedence over psychological wellbeing in humanitarian settings. However, addressing the mental health of conflict-affected populations is just as crucial and requires creative innovations that can be applied in areas where resources and access to training are limited. This study demonstrates that interventions like guided self-help are effective while also being economically and logistically feasible.

“See also [‘I saw so much killing’: the mental health crisis of South Sudan refugees](#). *The Guardian* 2 July 2020”

# Embryonic rhabdomyosarcoma of the petrous bone in a child: a case report

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## Abstract

Rhabdomyosarcoma (RMS) is a cancer of skeletal muscle origin, and the second most common soft tissue sarcoma encountered in childhood. The head and neck are common sites though the temporal bone is rare. Rhabdomyosarcoma represents 3.5% of all malignancies in children aged 0-14 years, with approximately 250 new cases diagnosed each year. Despite the more intensive management modalities including surgery and combination chemo-radiation, the outcome for patients with metastatic disease remains poor. Here, we report a case of temporal bone Embryonic RMS in a three and half year-old male who was seen at Mulago National Referral Hospital, Kampala in 2016 and describe the clinical, radiological and histopathological presentation of relevance to RMS.

**Key Words:** rhabdomyosarcoma, temporal bone, mesenchymal tissue, parameningeal, chronic suppurative otitis media, multi-modality therapy, Kampala

## Introduction

Rhabdomyosarcoma (RMS) is a fast growing and highly malignant tumour of the soft tissue commonly affecting the head and neck.<sup>[1]</sup> It originates from mesenchymal tissue of highly myogenic differentiation of immature embryonic skeletal muscles.<sup>[2]</sup> This tumour accounts for 60% of sarcomas in children aged less than 5 years.<sup>[3, 1]</sup> RMS of the head and neck are divided anatomically into two based on their origin as parameningeal or non-parameningeal with the former having the worst prognosis.<sup>[5, 6]</sup> RMS of the temporal bone is very rare.<sup>[4]</sup> The predisposition to RMS is thought to be genetic mutation either in the form of chromosomal translocation or allelic loss which subsequently contributes to the oncogenic characteristic of the tumour.<sup>[2]</sup>

RMS has three known pathological types namely, embryonal rhabdomyosarcoma (85%), alveolar rhabdomyosarcoma (15%) and pleomorphic rhabdomyosarcoma (anaplastic rhabdomyosarcoma and undifferentiated sarcoma) with the former being common in children.<sup>[1, 8, 9]</sup>

RMS almost always mimics complicated chronic suppurative otitis media (CSOM) with ear discharge and ear canal mass. About 30% of patients have craniopathies at presentation. This may delay the diagnosis of RMS due to similarities in their clinical picture. The diagnosis of RMS is best confirmed through histopathology. Imaging is useful to determine the extent of disease.<sup>[11]</sup>

Multiple chemotherapy and radiation with or without tumour resection have greatly improved prognosis.<sup>[12]</sup> Ten percent of patients with RMS used to have a five years survival rate, but after the adoption of multi-modality therapy, outcomes were greatly improved.<sup>[11]</sup> Our three and half year-old male presented with features resembling a complicated CSOM, associated with facial weakness. The histopathology and immunostains of the ear polypoid mass were consistent with embryonal RMS.

## Case presentation

A three and half year-old male was seen at Mulago National Referral Hospital,

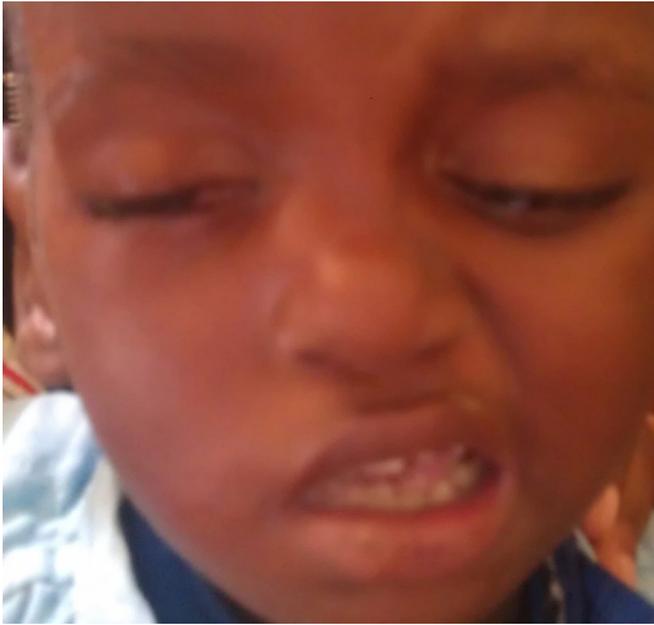


Figure 1. Right facial palsy and convergent squint of the right eye.

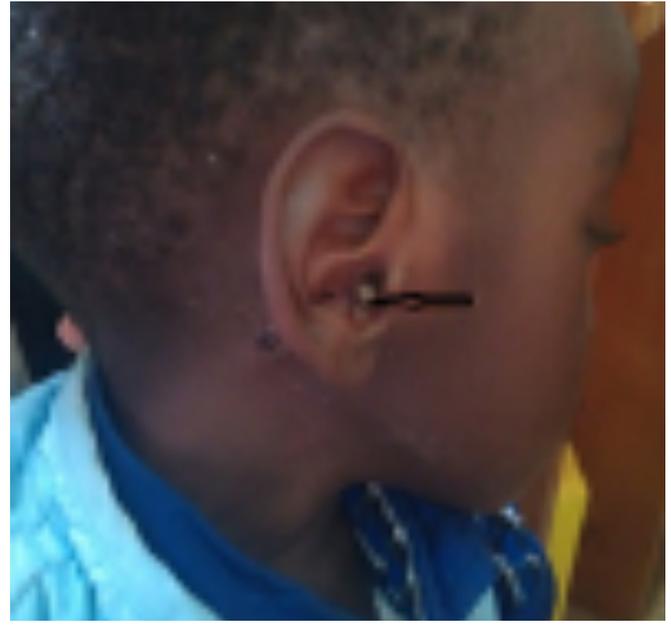


Figure 2. A polypoid aural mass seen occupying the whole right external ear canal.

Kampala in 2016. He presented with right ear discharge for a month, associated with swelling behind the ear and right facial weakness. The discharge was watery and blood stained later becoming purulent. He did not experience pain until a week prior to admission when the swelling behind the ear developed, associated with high fever. There were no convulsions. The mother noticed that the child's right eye did not close completely, with facial weakness, and associated drooling of saliva. There was no relevant past history, no history of trauma and no contact with others with respiratory symptoms.

Examination revealed a generally sick child. There was no palpable cervical lymphadenopathy, however the right facial palsy and convergent squint of the right eye were obvious (Figure 1).

The right auricle was displaced anteriorly and downward with a diffuse tendered post auricular swelling. The post-auricular crease was intact.

The external auditory canal (EAC) was full of debris which was sucked out revealing a pale, fleshy mass occupying the entire canal with a serosanguinous discharge. The tympanic membrane could not be seen (Figure 2).

A biopsy from the aural mass showed clusters of small round cells with hyper chromatic nuclei and eosinophilic cytoplasm separated by fibro vascular septae consistent with embryonic rhabdomyosarcoma. Immunohistochemistry found desmin, smooth muscle actin and myogenin which are considered to be of diagnostic value.

At first the suspicion was of complicated CSOM with an aural polyp. CT scan imaging is shown in Figures 3, 4a, 4b, 5 and 6.

The best option for this case was chemotherapy (cisplatin and vincristine every week for 4 cycles) and local control with radiotherapy in view of involvement of vital structures and the intracranial extension. Unfortunately, after three weeks from admission between diagnosis and the planned management, the child died most likely from the effects of metastases.

### Discussion

In 1854 Weber described rhabdomyosarcoma (RMS) as a malignant neoplasm of soft tissue arising from skeletal muscle most commonly affecting the head and neck, genitourinary tract although other organs can be affected.<sup>[1]</sup> The incidence of RMS is more common in children between the ages of 1-4 years and accounts for 60% of soft tissue sarcomas in children.<sup>[3]</sup> It is considered to be the third commonest (35%) tumour in childhood after neuroblastoma and nephroblastoma with slight male preponderance.<sup>[4]</sup>

RMS of the head and neck is divided anatomically into two types:<sup>[6, 8]</sup>

1. Parameningeal- including the nose, nasopharynx, paranasal sinuses, mastoid region, infra-temporal, pterygopalatine fossae and middle ear.
2. Non-parameningeal- scalp, orbit, parotid gland, oral cavity, oropharynx and larynx

RMS of the ear or temporal bone is very rare. However, it commonly occurs in the head and neck region with the orbit constituting about one-third of cases, followed by oral cavity and pharynx (29%), and the face and neck region (24%).<sup>[4]</sup>



Figure 3. Pre-contrast axial CT scans through the petrous part. Shows a soft tissue density mass in the petrous bone obliterating the external auditory canal.



Figure 4a and 4b Axial sections shows heterogeneous enhancement of the mass. It is extending into the petrous apex.

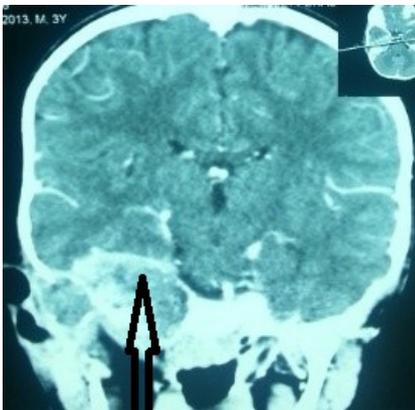


Figure 5. Coronal CT scans showing intra-cranial extension (extra-axial) of the mass with upward displacement of the overlying temporal lobe.

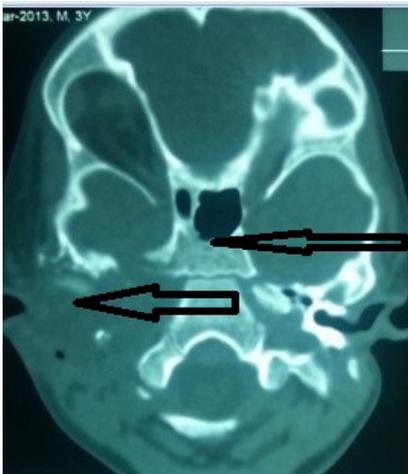


Figure 6. Bone window of axial CT scans shows destruction of the temporal bone (tympenic, petrous, and mastoid and posterior part of the squamous part). There is erosion of the clivus, tegmen tympani and sphenoid bone.

RMS that arise from the middle ear, may begin either in the muscles near the eustachian tube, in the proper middle ear, or from primitive pluripotential mesenchymal rests. At the time of diagnosis, there is usually widespread local invasion throughout the petrous bone and the actual site of origin is often obscure.<sup>[13]</sup> In two thirds of RMS cases arising from the middle ear there is already extensive bone erosion.<sup>[5,13]</sup> RMS of the head and neck with meningeal involvement carries the worst prognosis.<sup>[5]</sup> In our case there was meningeal involvement and the site of origin was not clear due to extensive destruction.

The main predisposing factor for the development of an RMS is a genetic mutation associated with 2:13 or 1:13 chromosomal translocation which produce PAX3-FKHR and PAX7-FKHR fusion products, respectively. These translocations result in altered expression and consequently contribute to its oncogenic characteristics. This is particularly true for alveolar RMS while in most embryonal rhabdomyosarcoma cases there is allelic loss at chromosome 11p15.<sup>[2]</sup>

Several pathological types of RMS have been described<sup>[1,8,9]</sup>:

1. Embryonal RMS (85%). This arises from the embryonic mesenchymal tissue in approximately 35% of all paediatric RMS of the head and neck.
2. Alveolar RMS (15%). Most often seen in older children characterized by faster growth than embryonal RMS and usually requires more intensive treatment.
3. Anaplastic RMS and undifferentiated sarcoma (pleomorphic RMS)

RMS usually presents with a triad of otitis media, bloody ear discharge and a polypoid mass in the external ear. Less commonly there is an external mass behind the ear. Occasionally, paralysis or paresis of the facial nerve occurs.<sup>[12]</sup> Progression is rapid with involvement of the petrous apex, internal auditory canal, and skull base leading to other craniopathies, estimated at approximately 30% of patients at the time of diagnosis.<sup>[10]</sup>

Middle ear inflammatory disease may be present at the same time, thus delaying the diagnosis and making total resection impossible in most cases. Chemotherapy and radiotherapy with or without tumour resection have resulted in improved prognosis.<sup>[12]</sup>

There are three commonly used clinical staging systems for RMS:<sup>[11]</sup>

1. IRS (Intergroup Rhabdomyosarcoma Study)
2. TNM, and
3. Clinical (surgico-pathologic).

The IRS classification includes four groups, based on whether the tumour can be resected:

- i. Localized disease, tumour resected completely, regional lymph nodes not involved. Group I tumours have better prognosis
- ii. Localized disease with microscopic residual disease or regional disease with or without microscopic residual disease.
- iii. Incomplete resection with gross residual disease.
- iv. Metastatic disease.

Groups iii and iv have the worst outlook and around 50% of RMS patients die following chemotherapy one year or so after histopathological diagnosis.<sup>[2, 6]</sup>

The diagnosis of RMS is usually confirmed by histopathology while other investigations such as MRI are used to evaluate the primary lesion and to rule out metastatic disease. CT Scan may be useful to determine bony erosion of the skull but the later (MRI) is superior in assessment of chest metastasis.

Ultrasound of neck in our patient showed cervical lymph nodes suggestive of metastasis.

### Prognosis

Although the prognosis of this tumour used to be extremely poor (approximately 10% of patients survived five years), marked improvement in the survival rates has been reported over the past 30 years, particularly with the introduction of multi-modality therapy, in which surgery, multi-agent chemotherapy and radiotherapy have been combined.<sup>[11]</sup> Several factors may contribute to poor prognosis of the tumour such as old age, delayed diagnosis, and lack of understanding by the family as in our case.<sup>[14]</sup> Treatment, therefore, is by a multidisciplinary approach, consisting of surgical removal of the tumour followed by multi-agent chemotherapy with or without radiotherapy since RMS tends to metastasize to bone marrow.<sup>[12]</sup>

### Conclusion

In paediatrics the presentation of RMS mimics complicated CSOM and hence may delay diagnosis. So, this rare tumour should always be suspected. A thorough evaluation and assessment is mandatory as it determines the management modalities mentioned to improve survival rates among patients.

The parents consented to publication of this case including the photographs (taken by Dr Justin Rubena Lumaya) and there is no conflict of interest in this case report.

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# Mandible fracture in children: a case report

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## Abstract

The type of maxillofacial fractures in children and young adults varies with evolving skeletal anatomy and social and environmental factors. The general principles of treating mandibular fractures are the same for children and adults: Anatomic reduction along with rigid skeletal stabilization is mandatory until bone union has occurred. Here we present a female child with a fall trauma accident, presenting with fractures of the symphysis, horizontally and vertically unfavourable, with significant displacement. Open reduction and internal fixation with miniplates and screws was done, with good post-operative recovery and outcome.

**Keywords:** maxillofacial fracture, paediatric trauma, skeletal stabilization

## Introduction

Only 5 to 15 % of all facial fractures occur in children and 1% in under five-year olds.<sup>[1]</sup> The impact of facial trauma is minimized in children because their light weight, underdeveloped sinuses and small size. The force of impact is absorbed by the forehead and the skull rather than the face since the ratio of cranial volume to facial volume is greater in children than adults. Paediatric facial bones are more resistant to fractures due to their higher elasticity, poor pneumatization of sinuses, and stabilization of the mandible and maxilla by the unerupted teeth. Reported incidence rates of mandibular fractures in children have been fairly consistent in stating how infrequent these cases are. In several reports, motor vehicle accidents and falls were the most common causes of paediatric mandibular fractures.<sup>[2]</sup>

## Case Report

A 2-year-old girl and her mother reported to the Department of Maxillofacial Surgery in Katutura State Hospital with an ecchymosis on the lower lip, and abnormal movement on the symphysis area, haematoma on the vestibule sulcus of the mandible symphysis with displaced teeth after a fall (Figure 1).

On examination there was malocclusion and a step deformity in relation to the anterior part of the mandible. The child had no pain and the mother complained of the displaced anterior part of the lower jaw. The rest of the maxillofacial examination was normal. A simple postero-anterior view of the mandible was taken (Figure 2).

A CT scan was not ordered because of the patient's age and the amount of radiation that she would receive. Katutura hospital treats approximately 300 mandible fractures annually, which are the most common facial fractures in Namibia. So, we have accumulated experience in diagnosing them with simple resources using clinical examinations and X-rays, unless we face a very complicated fracture, as occurs in some motor vehicles accidents.

## Treatment

Under general anaesthesia with nasotracheal intubation, the airway was secured. Local anaesthetic was injected into the vestibule sulcus of the lower jaw in order to reduce bleeding, and incision was made with mucoperiosteum dissection to expose the fracture

Care was taken to reduce the fracture and bring the teeth into occlusion. The



Figure 1. Clinical examination showing abnormal alignment of the anterior lower teeth and hematoma of the vestibule sulcus.



Figure 2. Posterior anterior view of the mandible, showing line of fracture in the symphysis area.



Figure 3. Reduced bone fracture and osteosynthesis.



Figure 4. Closure of the wound. Occlusion maintained with a wire and composite resin splint.

fracture was plated intraorally with a 4-holes steel plate (1.5 mm x 6 mm length) and 4 screws. (Figure 3).

Intra oral occlusion was maintained with the help of a temporary composite bonding splint on the vestibular surface of the teeth. Post wound closure, there was no mobility of the segments in the symphysis region (Figure 4).

Post-operative clinical examination confirmed healing of the wound and fracture, with no displacement of teeth or mandible fragments. The patient was regularly followed up and, after 6 months, the plates and screws were removed under general anaesthesia, to prevent any growing disorders. (Figure 5).

Post-operative X-rays were not ordered because the clinical progression of the patient was favourable, so in our opinion and experience this is not always needed, unless, after the surgical procedure, the patient feels discomfort, deformity or malocclusion due to malposition of teeth after reduction, osteosynthesis and immobilization. If the

patient progresses well postoperatively more radiation is not required.

### Discussion

Paediatric mandible fracture is a rare compared with the number that occur among adults. Although the clinician who manages facial fractures may rarely encounter a paediatric mandible fracture, it is an injury that warrants a comprehensive discussion.<sup>[3, 4]</sup> Because of the anatomy, dentition, and growth of a child, the management of a paediatric mandible fracture requires treatment ranging from a soft diet to open reduction and internal fixation.<sup>[5]</sup>

Various factors need to be taken into consideration when treating a child, including age, compliance, anatomy of the fracture site, stage of growth, development of the teeth and bone and its potential to change, and complexity, complications and time elapsed since the injury.<sup>[6]</sup>

Children heal faster with fewer complications because of the increased vascularity of the facial tissues. Also, growth

potential and increased adaptability favour repair of damaged orofacial tissues and restoration of function. But the presence of multiple tooth buds is a concern when treating paediatric patients.<sup>[7]</sup>

A loose anchorage system due to attrition of deciduous teeth with physiological resorption of roots, unstable partially erupted secondary teeth and precarious dental stability in the mixed dentition stage further complicate treatment.<sup>[8]</sup> Thus our aim for this patient was, within our limited resources, to restore the underlying bony structure to its pre-injury position as non-invasively as possible with minimal impairment.

Several treatment options have been described, such as: occlusal splints, orthodontic functional apparatus, and intermaxillary fixation when possible, acrylic splints, soft diet and physiotherapy, composite splints, craniofacial bandages, and maxillary screws for intermaxillary fixation. Any treatment should cause the least trauma and discomfort to the patient, always taking into consideration the age, dentition, and the classification of the fracture and its location.<sup>[8, 9]</sup>

Clinical features of a fractured mandible in a child and adult are similar: pain, swelling, trismus, derangement of occlusion, sublingual ecchymosis, step deformity, midline shift, bleeding, temporo-mandibular joint problems, loss of sensation and movement restriction. Airway compromise is not frequent, because usually the degree of injury does not cause a huge displacement and the tissues are more elastic.

In the case of airway compromise, the patient should be assessed in coordination with general surgery, neurosurgery, and orthopaedics, to rule out other causes. We examine the mouth carefully, remove foreign bodies if present, and loose teeth which can be inhaled, aspirate secretions, suture the tearing of the soft tissues which causes bleeding, identify the fracture clinically by intraoral examination, and reduce it with local anaesthesia if possible. Sometimes there is no choice but to intubate the patient and once the patient is stable, order X-ray to confirm the diagnosis and bring the patient to theatre to do open reduction internal fixation, which is the best way to achieve stability of these fractures.<sup>[6-8]</sup>

Imaging studies are not of much value in children. A panoramic radiograph may not be sufficiently conclusive due to poorly developed sinuses, presence of tooth buds and an underdeveloped cortex obscuring fracture lines. A computed tomography (CT) scan can be considered as gold standard as it improves diagnostic accuracy, but it is not always needed; experience in the field, pattern of fractures, classification of the fracture, age of the patient, cooperation, are factors to be taken in account to avoid unnecessary radiations and manoeuvres. Sometimes it is not necessary or possible to order a CT scan for a simple



Figure 5. Follow-up after 6 months Complete healing of the wound. Mandible fragments stable on clinical examination.

mandible fracture that can be diagnosed and treated with minimum resources.<sup>[9, 10]</sup>

In children, depending on the type of fracture and stage of skeletal and dental development, the treatment modalities range from conservative, non-invasive through closed reduction and immobilization, to open reduction internal fixation. Usually conservative treatments are preferred, functional splints and other techniques can be used with very good results in coordination with orthodontics. Unfortunately, this could not be considered in this case for several reasons:

1. It was a very displaced fracture, unstable and very difficult to treat only with a splint, or functional orthodontic apparatus.
2. No prosthodontics or orthodontic specialist was available.
3. Circummandibular wiring it is a very traumatic technique for children with milk teeth.
4. Titanium micro plates or even absorbable micro plates could have been a good option but these were not available.

The developing tooth buds should not be damaged if the plate is correctly placed.

Normally all patients with fractures are followed up to determine if there were any discomfort or functional problems.

The calcification of the central permanent incisors takes from 3 to 12 months, the crown of the central and lateral incisor is completed at 5 years old, and the canine at 7 years old, so that at the time of the surgery were not even formed, and therefore very unlikely to be damaged with the plate and small screws.

So, the general principles of the management of maxillofacial trauma are similar in both children and adults, but the ongoing developmental changes in the

growing face of a child must be taken into consideration.<sup>[11]</sup>

Adequate treatment of mandibular fractures should restore occlusion, function, and facial balance, and prevent complications such as growth disturbance and infection.

Mandibular fractures without displacement are managed by close observation, soft diet, and avoidance of physical activity. A dental splint can be made to immobilize the fracture in some cases, according to age.<sup>[12]</sup> In case of displaced mandibular fractures, the best course of treatment is surgical exposure, reduction and bone osteosynthesis with plate and screws which guarantees accuracy concerning three dimensions, besides there is no need for intermaxillary fixation.<sup>[13, 14]</sup>

A high metabolic rate and high osteogenic potential of the periosteum speeds up the reparative process resulting in early union of fractured segments. Slight occlusal discrepancies resolve spontaneously with bone remodelling and teeth eruption.<sup>[15]</sup>

In some cases, it is not possible to use absorbable plates because they are expensive and difficult to manage, especially in very young patients. Titanium micro plates or miniplates are very useful but sometimes are not available in state hospitals. Stainless steel plates or titanium, should be removed a year after surgery to avoid restriction of the growing mandible.

### Conclusion

The majority of paediatric facial fractures can be managed conservatively and this should be the goal considering the anatomical complexity of the developing mandible.

The controversy of open treatment versus closed treatment remains. In this case, the fracture was unfavourable displaced, so we used open reduction and internal fixation as the preferred option, with a composite resin splint in order to keep the teeth aligned on the upper border of the mandible.

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# Retrograde tracheal intubation using a guidewire for a difficult airway in a patient with severe facial burns

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## Abstract

A technique of retrograde tracheal intubation is disclosed which employs a 7 Frx20cm central venous cannulation J-guidewire (from BIOMETRIX critical care solutions). The guidewire was inserted through the cricothyroid membrane and retrieved orally. An endotracheal tube was then passed over the guidewire under direct laryngoscopy.

**Keywords:** intubation, orotracheal, retrograde

## Introduction

The establishment of an adequate airway is a critical step in the resuscitation of a seriously ill or injured patient. Orotracheal intubation is the preferred method for establishing an adequate airway in these circumstances.

Tracheal intubation in patients with difficult airway requires superior skills and implementation of special intubation techniques. One of these techniques demonstrated in this case report is the use of a retrograde percutaneous guidewire tracheal intubation. Retrograde intubation, first described by Butler and Cirillo in 1960, is often used effectively in the most difficult of intubations.<sup>[1]</sup> This technique in airway management by percutaneous guidewire endotracheal intubation will help immensely in improving airway management associated with adverse complications and outcomes.

In this case report we describe the airway management for a 49-year old epileptic and mentally retarded female patient who presented to our A & E department with severe facial burns, burns of both arms (circumferential right arm and left arm partial and full thickness burns), right breast and chest burns following accidental exposure to a household cooking fire.

## Technique

The technique consists of a method and apparatus for a retrograde endotracheal intubation by employing a percutaneous (using a 7 French, 60 cm central venous cannulation J- tip guidewire) insertion via a hollow needle through the trachea.

A small dose of Propofol 100 mg I.V was administered in order to put the patient to rest followed by a dose of 100 mg I.V of Suxamethonium.

A 7 French central venous cannulation finding needle (18 gauge) with a syringe loaded with 3 ml of normal saline was used to puncture the cricothyroid membrane (CTM) at 30-degree angle towards the cephalad direction coupled with frequent gentle aspiration. Once the trachea was accessed, which was noticed by air aspiration and bubbling of normal saline in the syringe, the needle stylet was removed and a guidewire inserted through the finding needle catheter until it appeared in the oropharynx. A handheld forceps was used in grasping the end of the J-guidewire from the oropharynx. A 7.0 mm PROTEXT® endotracheal tube (ETT) was then passed over the J-guidewire under direct laryngoscopy and advanced gently down to the trachea. The entry and the route of the guidewire is illustrated in Figure 1.

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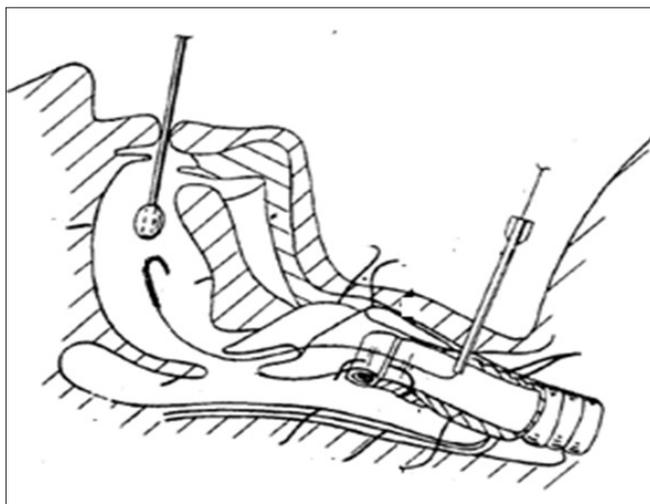


Figure 1. Entry and the route of the guidewire

Direct laryngoscopy also eliminates difficulties associated with blind advancement of an endotracheal tube over a guidewire, including trauma to soft tissues or entrapment of the tube in the pyriform fossa or vallecula. The possibility of complications associated with puncture of the CTM appears to be remote.<sup>[2]</sup>

The guidewire was then removed and the tube secured in place - see Figure 2. Correct placement of the ETT was confirmed by auscultation of bilateral breath sounds in the usual manner.

### Discussion

Retrograde tracheal intubation has been used successfully in difficult airway scenarios and, in all cases, it facilitated the administration of oxygen to patients requiring mechanical ventilation prior to administration of anaesthesia or admission to intensive care units (ICUs). It is especially practicable in cases in which a difficult airway is anticipated.

The technique is simple, atraumatic, and does not add complications of its own although the risk of complications is relative and vary with the experience of performing the technique. One of the complications attributable to retrograde intubation was a small peri-tracheal hematoma in one patient that required no treatment. Akinyemi et al.<sup>[3]</sup> in reviewing complications of retrograde intubation



Figure 2. The tube was secured in place

in their series of 12 patients reported external bleeding of minor significance in three patients with breath holding and with respiratory obstruction in one each. Some other complications might be anticipated such as the ETT can be caught in the glottic opening when loading the ETT over the wire which might cause bending of the guidewire.

This technique also eliminates the necessity of tracheostomy tube insertion in patients where tracheal intubation is difficult.

### Conclusion

This technique of retrograde intubation is not only safe, but can be easily performed by one anaesthesiologist without the need for a team of surgeons and bronchoscopists.

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# Local staff are key to psychosocial support in South Sudan

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Figure 1. MHPSS training in Unity State (credit: Medair, Rob Rass)

Simon was living alone on the edge of the village. He worked by himself on building his tukul away from his family, gathering long grasses to prepare the roof. He stopped cutting his hair and was doing his own cooking. Each day he walked to the borehole to collect water and could sometimes be seen talking to himself.

Simon lives in Unity State, South Sudan, where recurring conflict and brutal violence have caused people to flee for their safety several times. As recently as mid-2018 people saw their homes burned, witnessed the killing of family members and destruction of livelihoods, and experienced rape and abduction.

In some places his isolation would go unnoticed, but in South Sudan's social, community-based culture, Simon's behaviour was unusual. Young men generally stay with their families until marriage, communities come together to build the traditional houses, and men keep their heads closely shaved.

James Gatguok, a Psychosocial Support Assistant with Medair who lived in Simon's village, began to visit Simon while he worked on his tukul. Together the men straightened the poles and tied them tightly. After several visits, James was able to talk to Simon about visiting Medair's health clinic but the man declined, insisting that he wasn't ill.

Riët Kroeze, Senior Mental Health and Psychosocial Support Advisor (MHPSS) for Medair, says that even in contexts where specialised services are limited or non-existent, humanitarian agencies can provide care suitable for the majority of people.

"Violence, fear, and uncertainty create chaos, and lacking the basics of life affects people emotionally, but not everyone is impacted in the same way," says Riët. "There are several mental health and psychosocial activities that can be implemented in humanitarian settings; each one adapted to the culture and the needs of the community."

Restoring support structures and creating awareness around positive coping mechanisms can be all the support some people need to maintain mental and



Figure 2. “This programme is new, even for us,” says Medair’s James Puoch in South Sudan. “We see the benefit; people are saying their lives are being changed. There has been so much suffering in our area and Medair is the first to offer this type of programme here.” (Credit. Medair/Sue O’Connor)



Figure 3. Michael, a nutrition officer, talks with a woman whose baby is receiving treatment in Unity State, South Sudan. Delivering all services in a way that promotes mental health and social well-being is part of helping communities recover from emergencies. (Credit. Medair/Sue O’Connor)

psychosocial well-being. Care Groups, parenting support, and cultural activities can have a profound impact on helping a community recover from shock.

In South Sudan, where mental health support is relatively unknown and specialised services are very limited, local health staff are trained in delivering MHPSS services (Figure 1). Implementing the mhGAP-HIG (mental health Gap Action Programme Humanitarian Intervention Guide) equips non-specialised health workers to follow a thorough clinical decision-making process. The guide is a practical tool and addresses the clinical assessment and management of mental, neurological and substance abuse conditions, specifically for areas affected by humanitarian emergencies. (Figure 2.)

To support Simon in South Sudan, James Puoch, a Psychosocial Support Officer for Medair, made a point of going to the borehole.

“Because James Gatguok had visited him every evening to help with building the tukul, we learned that Simon had lost many people,” said James Puoch. “He didn’t trust anyone. Finally, when I met him at the borehole, he agreed to come to the clinic.” Simon was assessed by a Medair health worker, and received treatment for psychosis. After the treatment began, James Gatguok maintained contact with Simon.

“Initially we talked to him daily and, over time, he began to behave more like his former self. He even asked James Gatguok to shave his head for him!” says James. Simon has since been able to rejoin his community. “If you see him now, he is talking to people and he visits the market. He is looking to get married now!”

“When dealing with any emergency, you need to provide for the basic needs – restoring health care, ensuring access to clean water for example – but if you’re not also addressing the psychosocial well-being of the population, it will be difficult to rebuild the community,” says Riët. “You cannot expect people to rebuild a broken community with a broken mind.” (Figure 3).

*Medair services in Unity State South Sudan are funded by UK aid from the UK government, the United States Agency for International Development (USAID), the South Sudan Humanitarian Fund and private donors.*

*This content was produced with resources gathered by Medair field and headquarters staff. The views expressed herein are those solely of Medair and should not be taken, in any way, to reflect the official opinion of any other organisation.*

# Over prescription of drugs in Africa

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There is a worldwide 'epidemic' of inappropriate and excessive prescription and selling of medicinal drugs. In Africa many people are poor and often have a low level of education. A large proportion of an ordinary family's spending may be used to buy drugs. A study done in Tanzania<sup>[1]</sup> concluded that 84% of children aged under five years coming to outpatient clinics with a cough or diarrhoea are prescribed an antibiotic.

The seriousness of this trend is not perceived or addressed by authorities or politicians who hear people asking for more sophisticated drugs. If fewer drugs, particularly antibiotics, are available there may be less votes. Also, both doctors and patients want more drugs to compensate for the scarcity of them in the past.

Moreover, health insurance schemes may have the unintended consequence of aggravating the situation: patients may feel that their insurance premiums have paid for the drugs in advance and this leads to an increased demand even though a prescription of such medication may be clinically inappropriate.

Widespread privatisation of health services clearly contributes to this problem. Blood and other tests are carried out and then drugs prescribed within the premises of the same clinic. More prescriptions mean more profit for the clinic and hence higher salaries for the staff. Private pharmacies are mushrooming in African towns - many are illegal with inadequately trained staff; people with money can buy any drugs they want without a prescription.

What to do to control this trend? Who has the responsibility to address this serious issue? The World Health Organization (WHO) is aware of the situation, with resistance to antibiotics being a top concern.<sup>[2]</sup> Antibiotics should usually only be prescribed to less than 20% of patients/children attending a clinic. [personal communication]. WHO recommends more training for doctors so they only prescribe and dispense antibiotics and other drugs when, according to current guidelines, they are needed.<sup>[2]</sup>

The Integrated Management of Childhood Illnesses (IMCI), first prepared 1995, was indeed a laudable move to optimize medications for sick children.<sup>[3]</sup> For a while prescribing standards improved but then the market regained momentum; newer antibiotics, that were intended mainly for hospital use, are now widely dispensed and sold today in private clinics. Moreover, pharmaceutical companies have complicated the market with a range of other products including probiotics, vitamins, haematinics, and special foods/ingredients that create an artificial need among the poor.

A political approach should be adopted, based on ethical imperatives: it is a crime to impoverish the poor for personal gain; prescribe according to guidelines and not to gain excess profit; strictly adhere to national (that are available but rarely adopted) or WHO prescribing guidelines.

It is essential that doctors and all prescribers explain to patients their diagnoses, the reasons for a prescription and, also, for not prescribing in certain situations.

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# South Sudanese recipients of grants from the Gordon Memorial College Trust Fund (GMCTF) in 2020

The Gordon Memorial College Trust Fund (GMCTF) founded in July 1899 supports the education of Sudanese and South Sudanese doctors and each year gives awards to a number of individuals and institutions. The website [www.gmctf.org](http://www.gmctf.org) gives further details. GMCTF supports education in a number of ways; among other things, support has been given in recent years to a number of individuals from South Sudan to help with medical training.

Nineteen grants in total were awarded to South Sudanese applicants for the year 2020-21. The following applicants agreed that their names may be published in the News section of the South Sudan Medical Journal.

- **Dr Isaac Agor** – MD general Surgery at Adama Hospital Medical College
- **Dr Joice Abdelshams Mustafa Salah** – General Surgery at Gondar University College of Medicine and Health Science
- **Dr Emmanuel Edward Utango Ungen** – General Surgery at Arsi University
- **Dr Yousif Abdalla** – Paediatrics & Child Health at Gondar University Comprehensive Specialized Hospital
- **Dr Francis Fatur** – Degree in Clinical Radiology at Gondar University College of Medicine & Health Science
- **Dr, Makuir Mayom Philip** – Internal Medicine MD0 at Hawassa University College of Medicine
- **Dr Martin Otwang Dak Ajang** – Internal Medicine at Alexandria University
- **Dr Darimo James Mark Musa** – Internal Medicine at Mekelle University
- **Dr Jok Llual** – - Speciality in Obstetrics & Gynaecology at St. Paul's Hospital Millennium Medical College
- **Dr Garang Apiu** – Psychiatry at St. Paul's Hospital Medical Millennium College
- **Dr Amos Swaka** - MMed Orthopaedic Surgery at Makerere University
- **Dr Gatluak Beliw Jak** - Emergency & Critical Care Medicine at Addis Ababa University for Health and Science
- **Dr Lithjwok Oyath Ayul Lual** – Certificate of Specialization in Emergency Medicine at Addis Ababa University College of Health Science
- **Dr Zacharia Genye** - Certificate of specialisation in Orthopaedics and Trauma
- **Dr Justin Kawac** - Emergency Medicine and Critical Care at St. Paul's University Millennium Medical College
- **Dr Abak Raphael Mawien Agok** - Emergency Medicine and Critical Care at St. Paul's Hospital Memorial Medical College, Addis Ababa

Applications for 2021-22 should be made online through the GMCTF website [www.gmctf.org](http://www.gmctf.org) between 1st December 2020 and 28th February 2021. The Committee meeting to consider the applications of shortlisted applicants will take place between mid-March to late April 2021

All applications must be accompanied by two letters of reference and a progress report on those already in receipt of a grant from course supervisors. GMCTF particularly welcomes applications from women.

GMCTF has limited funds, and individual requests for amounts exceeding five thousand sterling pounds (£5000) or equivalent are unlikely to be successful. If an applicant has other sources of funding to contribute to their training, and is eligible for the award of a GMCTF grant, this is likely to improve their chances of an award of a grant. Applicants are encouraged to make clear what other sources of funds they will have in addition to GMCTF support.

## **Eluzai Abe Hakim**

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# HOW TO WEAR A MEDICAL MASK SAFELY

[who.int/epi-win](http://who.int/epi-win)

## Do's →



Wash your hands before touching the mask



Inspect the mask for tears or holes



Find the top side, where the metal piece or stiff edge is



Ensure the colored-side faces outwards



Place the metal piece or stiff edge over your nose



Cover your mouth, nose, and chin



Adjust the mask to your face without leaving gaps on the sides



Avoid touching the mask



Remove the mask from behind the ears or head



Keep the mask away from you and surfaces while removing it



Discard the mask immediately after use preferably into a closed bin



Wash your hands after discarding the mask

## Don'ts →



Do not use a ripped or damp mask



Do not wear the mask only over mouth or nose



Do not wear a loose mask



Do not touch the front of the mask



Do not remove the mask to talk to someone or do other things that would require touching the mask



Do not leave your used mask within the reach of others



Do not re-use the mask

**Remember that masks alone cannot protect you from COVID-19. Maintain at least 1 metre distance from others and wash your hands frequently and thoroughly, even while wearing a mask.**

EPI·win



Every effort has been made to ensure that the information and the drug names and doses quoted in this Journal are correct. However readers are advised to check information and doses before making prescriptions. Unless otherwise stated the doses quoted are for adults.