

Focus on
Diabetes
Mellitus on
World Diabetes Day

- Nurses and diabetes management
- Effects of FGM on perineal injuries
- SMART nutrition survey
- Gestational choriocarcinoma
- Laryngeal trauma at Juba Teaching Hospital
- Pattern and causes of tympanic membrane perforation

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EDITORIAL

Bringing diabetes mellitus into focus on World Diabetes Day **Edward Eremugo Kenyi** 120

ORIGINAL RESEARCH

The effect of Female Genital Mutilation on perineal injuries among women in labour in Dodoma Region, Tanzania **Janeth Dickson Sichone, Athanase Lilungulu, Secilia K. Ngwashemi and Agatha Ngowi** 121

Analysis of trends in SMART Nutrition Survey data from South Sudan between 2004 and 2016 **Ciara Hogan, Kate Golden, Regine Kopplow and Elaine Ferguson** 124

Pattern and causes of tympanic membrane perforation at a private hospital in Dar es Salaam, Tanzania **Zephania Saitabau Abraham, Aveline Aloyce Kahinga, Kassim Babu Maponde, Enica Richard Massawe, Emmanuel Ole Lengine and Daudi Ntunaguzi** 128

Nurses' knowledge of the management of diabetic patients at Juba Teaching Hospital **Abuk Mayen Deng, Lucia Buyanza and Fekadu M. Alemu** 131

Abstracts from the Juba College of Nursing and Midwifery 135

CASE REPORTS

Gestational choriocarcinoma at Juba Medical Complex and Juba Teaching Hospital: five case reports **Kizza Paul, Kuma Chuol Biel, Anthony Lupai, Changkel Banak, Mirghany Abdallah and Paula Nuer** 137

Laryngeal trauma at Juba Teaching Hospital, South Sudan **Justin Rubena Lumaya, Jino David and Natali Tong** 142

NEWS

South Sudanese recipients of grants from the Gordon Memorial College Trust Fund (GMCTF) in 2019 145

Continuum of care for acute malnutrition in South Sudan 146

Public health resources 147

BACK COVER

WHO Poster: Misusing and overusing antibiotics puts us all at risk 116

FRONT COVER IMAGE:

The blue circle is the logo of the World Diabetes Day - the global symbol for diabetes. (World Diabetes Day - November 14)

Bringing diabetes mellitus into focus on World Diabetes Day

Every year, World Diabetes Day is celebrated on November 14th, a significant date as it marks the birthday of Frederick Banting – the man who co-discovered insulin in 1922, with Charles Best.^[1] The theme for 2019 is “Family and Diabetes”, chosen “to raise awareness of the impact that diabetes has on the family and support network of those affected, as well as promoting the role of the family in the management, care, prevention and education of diabetes”.^[1]

Diabetes mellitus (DM) is a chronic non-communicable disease (NCD) characterized by high levels of blood glucose. It occurs when the pancreas does not produce enough insulin (type 1 diabetes), or when the body cannot effectively use the insulin it produces (type 2 diabetes). Its complications can lead to heart attack, stroke, blindness, kidney failure, lower limb amputation, and premature death.^[2]

According to the World Health Organization, 422 million people worldwide have diabetes, with most living in low-and middle-income countries.^[2] The prevalence of diabetes in South Sudan is unknown, but an estimate extrapolated from neighbouring countries puts it at 7.43%. A study conducted in Juba in 2017 at the newly started diabetes clinic found a prevalence 11.8%.^[3] Although this may not be representative of the whole country, it is still significant.

Diabetes can be delayed or prevented in people who are overweight (a key risk factor) and have impaired blood glucose metabolism. Diet and physical activity interventions and counselling are more effective than medication. For patients with type 2 diabetes well-trained staff are essential to provide supportive counselling on practical food choices and weight control, and monitoring for complications. The knowledge among caregivers on how to handle DM management is very poor in South Sudan.^[4] The article on page 131 of this issue highlights this.

South Sudan needs a broader strategy to tackle DM within its fight against the other NCDs like hypertension. Training of health workers and general health awareness campaigns are essential to keep DM under the spotlight. We need the data more urgently now in order to create a robust policy. The opportunities given by this year’s focus on Diabetes and Family should be seized to raise awareness.

It takes a family to defeat diabetes.

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The effect of Female Genital Mutilation on perineal injuries among women in labour in Dodoma Region, Tanzania

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Introduction: Female Genital Mutilation (FGM) is widespread in Tanzania and poses a risk when women give birth.

Objective: To determine the association between FGM and perineal injury among women in labour in Dodoma

Methods: A matched case-control study of 364 randomly selected consenting women in labour was conducted in Dodoma Region between January 2017 and June 2018. Controls (no perineal injury) were matched to the cases (with perineal injury) based on maternal age at a ratio 2:1 making a sample of 243 controls and 121 cases. FGM and perineal injury was directly observed during labour using WHO guidelines. Data were analysed by using SPSS version 20 for Window (SPSS Inc., Chicago, IL, USA). Frequency tables were generated and bivariate analyses were conducted. The association between FGM and perineal injury was determined using chi-squared statistics.

Results: Of the 364 women were investigated 40.4% (n=147) were circumcised and 59.6% (n=217) were not. There was a significant association between FGM and perineal injury (p=0.001).

Conclusion: The FGM rate was high. FGM (total and Type II) was significantly associated with perineal injury.

Key words: Female genital mutilation, FGM/C, perineal injury, Tanzania.

INTRODUCTION

Female genital mutilation (FGM) is a problem persisting in Tanzanian culture. ^[1] The United Nations estimates that over 200 million women in the world have been subjected to FGM/cutting (FGM/C) and 3 million girls are at risk every year. ^[2] In Tanzania FGM/C overall prevalence is around 15% in girls and women aged 15-49 years. ^[1] It is estimated that 7.9 million women and girls in the country have undergone FGM. ^[1] The prevalence of FGM in Dodoma was reported to be about 47% of women according to the last Demographic Health Survey report which dealt with this issue in 2011. ^[1] The consequences of FGM include: prolonged labour, obstructed labour, postpartum haemorrhage, prolonged postpartum recovery and stay in hospital, episiotomy and perineal injuries. ^[4]

Therefore, the objective of the study was to assess the association between FGM and perineal injury among women in labour in the Dodoma Region, Tanzania.

METHOD

A matched case-control study of 364 randomly selected consenting labouring women was conducted in three District and one Regional hospital in Dodoma Region between January 2017 and June 2018. Controls (no perineal injury) were matched to the cases (with perineal injury) based on maternal age at a ratio 2:1 making a sample of 243 controls and 121 cases. FGM and perineal injury was directly observed during labour using WHO guidelines.

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Data were analysed by using SPSS version 20 for Window (SPSS Inc., Chicago, IL, USA). Frequency tables were generated and bivariate analyses were conducted. The association between FGM and perineal injury was determined using chi-squared statistics.

The University of Dodoma Research Committee approved the study and permission was received from the DRRH, Chamwino, Mpwapwa and Kondoa District Hospital.

RESULTS

Table 1 shows the age, education, occupation, residence, marital status, religion, and tribe distribution of women with or without perineal injury.

Table 1. Characteristics of participants with and without perineal injury

Variables βhCG	Total n (%)	With perineal injury (N=121) n (%)	No perineal injury (N=243) n (%)
Age –years			
17-35	289 (79.4)	91 (75.2)	198 (81.5)
36-47	75 (20.6)	30 (24.8)	45 (18.5)
Residence			
Urban	74 (20.3)	16 (13.2)	58 (23.9)
Rural	290 (79.7)	105 (86.8)	185 (76.1)
Education level			
No education	166 (45.6)	58 (47.9)	108 (44.4)
Primary	115 (31.6)	38 (31.4)	77 (31.7)
Secondary	57 (15.7)	23 (19.0)	34 (14.0)
University	26 (7.1)	2 (1.7)	24 (9.9)
Marital status			
Single	56 (15.4)	29 (24.0)	27 (11.1)
Married	308 (84.1)	92 (76.0)	216 (88.9)
Occupation			
Employed	34 (9.3)	18 (14.9)	16 (6.6)
Unemployed	330 (90.7)	103 (85.1)	227 (93.4)
Tribal			
Gogo	209 (57.4)	64 (52.9)	145 (59.6)
Rangi	68 (18.7)	28 (23.1)	40 (16.5)
Others	87 (23.9)	29 (24.0)	58 (23.9)
Religion			
Christian	250 (68.7)	73 (60.3)	177 (72.8)
Muslim	114 (31.3)	48 (39.7)	66 (27.2)

Among the 121 women with perineal injury (cases) 75.2% (n=91) were aged 17 – 35 years. In the control group there were 81.5% (198) in the same age range. The proportion of women from rural areas among the cases was 86.8% (n=105) being higher than among the controls at 76.1% (n=185). The distribution of education levels was similar in both groups. The percentage of single women in the cases group was 24% which was more than double that among the controls (11%); 85.1 % (n= 103) of the cases were non-employed compared with 93.4% (n=227) of the controls.

Of the 364 participants, 40.4% (n=147) were circumcised and 59.6% (n=217) were not. Of the 147 circumcised women 18 were classified as FGM Type I and 73 as FGM Type II.

We found there was a significant association between FGM (all types grouped) and FGM Type II and perineal injury (P=0.001) – Table 2. This supports findings from other research and clinical practice worldwide.

DISCUSSION

There were few differences between the characteristics of women with or without perineal injury except that single women were twice as likely to have an injury. This may be because single mothers are more likely to be primigravid and experience more perineal injuries even without FGM. Primigravid teenagers seem to be at a higher risk of complications during and after delivery.^[5] There was little difference between the groups in terms of no education level - 47.7% among the cases and 44.4% among the controls.

Studies suggest that the most plausible pathway of effect between FGM and obstetric harm is inelastic scar tissue resulting into perineal injury.^[4]

Our study showed a significant association between FGM particularly Type II and perineal injury which is similar to that found in The Gambia^[5] and Sierra Leone.^[6]

CONCLUSION

It is recommended that episiotomy is considered in all cases where FGM has made the vulva or vagina inelastic. In the presence of severe damage Caesarean Section may be appropriate. The rationale for FGM is socially and culturally complex. Legislation alone cannot eradicate this deeply rooted practice. So, a combined approach is needed that includes legislation, education at all levels (in school, universities, mass media, obstetrics and gynaecology services and reproductive health clinics). More rural than urban women are being circumcised (see Table 1) so there should be a greater emphasis on rural campaigning. A greater awareness of the complications and consequences of this practice is essential.

Table 2. Association between FGM and perineal injury among women in labour

Variables	Cases (N=121) n (%)	Control (N=243) n (%)	Chi-square	p-value
FGM				
Yes	110 (74.8)	37 (25.2)	192.181	0.001
No	11 (5.1)	206 (94.9)		
FGM Type:				
Type I*: Clitoris only				
Yes	(44.4)	10 (55.6)	1.071	0.215
No	113 (32.7)	233 (67.3)		
Type II**: Clitoris and labia				
Yes	60 (82.2)	13 (17.8)	98.593	0.001
No	61 (61.0)	230 (79.0)		

* Partial or total removal of the clitoris

** Partial or total removal of the clitoris and the labia minor, with or without excision of the labia major

Web sites that deal with FGM in Tanzania (and other countries including South Sudan) include: 28TooMany Tanzania and Young Influencers in Tanzania to Boost Campaign to end Female Genital Mutilation

Acknowledgement

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

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Analysis of trends in SMART Nutrition Survey data from South Sudan between 2004 and 2016

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Introduction: Emergency levels of Global Acute Malnutrition (GAM) persist in former Northern Bar el Ghazal State in South Sudan despite ongoing interventions. Reasons for long-term trends in GAM in South Sudan have not been explored despite decades of nutrition and health interventions.

Objective: This project aimed to identify and analyse changes in patterns of malnutrition and key factors associated with malnutrition from 2004 to 2016.

Methods: Secondary data analysis was carried out using Standardized Monitoring and Assessment of Relief and Transitions (SMART) nutrition surveys. Anthropometric data collected from children under five years of age from 2004 to 2016 were analysed to estimate seasonal differences in the prevalence of GAM (weight-for-height z-score (WHZ) <-2) and severe acute malnutrition (WHZ <-3). Risk factors for GAM were explored using data collected in 2014 and 2015 and analysed using logistic regression. Adjusted Wald tests investigated which variables were associated with GAM ($p < 0.05$).

Results: In Aweil West and North a reduction in GAM was observed between September 2004 (21.0%, CI 18.2-23.9) and November 2009 (16.2%, CI: 13.7-18.9). However, this apparent decline likely reflects a seasonal difference because the 5-year overall mean GAM was 20.4% (SD: 0.403) and 17.5% (SD: 0.380) in pre- and post-harvest seasons respectively. In multivariable linear regression modelling, not having been sick in the past two weeks (aOR 0.78, 95% CI 0.61, 0.99, $p = 0.047$), and not having consumed juice (aOR 0.67, 95% CI 0.45, 0.99, $p = 0.045$) were protective against GAM after adjusting for all potential confounders.

Conclusion: This study highlights the impact of instability on the nutritional status of a generation, with the high prevalence of GAM and severe acute malnutrition remaining unchanged since 2004. Regular collection of representative nutrition data is useful to inform decision making. The results of this study suggest that a focus on care seeking behaviours and hygiene practices would be beneficial. The persistent prevalence of GAM identifies a need, not just for nutrition programmes but also effective prevention programmes.

Keywords: malnutrition, South Sudan, Aweil, illness, juice, SMART survey

INTRODUCTION

Concern Worldwide has been implementing nutrition programmes in the former Northern Bar el Ghazal (NBeG) State in South Sudan since 1998. NBeG is the most rural state in South Sudan and sits on the present-day border with Sudan. It has faced conflict and war in the past. More recently, it has largely escaped the direct effects of the civil war and its population has freedom to move around the region. Predominately composed of the Dinka ethnic group^[1], it has the highest cattle population in the country and some of the most fertile land. Sorghum and cattle rearing are the main agricultural activities.^[2]

The two main seasons are the dry season (October to April) and the wet season (May to September); the lean period peaks in June/July.^[3] Attendance is typically poor at health facilities and illnesses are common.^[4] According to the Food and Agriculture Organization, NBeG faces one of the greatest nutritional needs in the country.^[5]

Long-term trends in Global Acute Malnutrition (GAM) have not been explored despite ongoing interventions. The effects of conflict on health cannot be

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understated, particularly given their disproportionate effect on children.^[6] A rapid assessment in 2010 concluded that insufficient data were collected. Reports were often incomplete and understanding of monitoring and evaluation by health care staff was poor.^[7] Without robust analysis of the fluctuations in GAM, changes over time cannot be adequately monitored. It is important to fill this gap and assess the nutrition situation to target nutrition programming. In Aweil West and North counties, a comprehensive historical analysis of nutrition surveys is lacking despite the availability of this type of data.

The objective was to identify and analyse changes in patterns of malnutrition and key factors associated with malnutrition from 2004 to 2016, including seasonal differences where data were available.

The specific objectives are:

1. To describe the seasonal prevalence of GAM from 2004 to 2016 in Aweil West and Aweil North Counties using SMART survey data.
2. To identify risk factors associated with malnutrition across seasons in the same year, and across years from 2004 to 2016.

METHOD

Secondary data analysis was done using cross-sectional SMART nutrition survey data from Aweil West and North Counties. Anthropometric data collected from children under five years of age (n=12,326) from 2004 to 2016 (excluding 2007 and 2012 due to lack of data) were analysed to estimate seasonal differences in the prevalence of GAM (weight-for-height z-score (WHZ) <-2), severe acute malnutrition (WHZ <-3), stunting (height for age z-score (HAZ) <-2) and underweight (weight-for-age z-score (WAZ) <-2). GAM in children aged 6-59 months was defined by a WHZ of less than negative two standard deviations.

Risk factors for GAM were explored using data collected from children under five (n=2,775) in 2014 and 2015 and analysed using STATA-12 and logistic regression analysis adjusted for survey design. Year, county, season, child age and sex were *a priori* control variables. Predictors assessed included history of vitamin A supplementation, illness and treatment seeking behaviour, vaccination status and infant and young child feeding practices. Adjusted Wald tests investigated which variables were associated with GAM (p<0.05).

RESULTS

Seasonal Anthropometric Analysis

Aweil West and North Trends: A reduction in GAM was observed between September 2004 (21.0%, CI 18.2-23.9) and November 2009 (16.2%, CI: 13.7-18.9) with little overlap between confidence intervals. SAM

prevalence remained unchanged over this time, reducing by 0.9 percentage points from 3.2% (CI: 1.9-4.4) in 2004 to 2.3% (CI: 1.3-3.4) in 2009. The proportion of values flagged with WHO flags (See box on page 127) were higher in 2009 (9.4%) than 2004 (1.4%) however, indicating data quality concerns. The 5-year overall mean GAM was 20.4% (SD: 0.403) and 17.5% (SD:0.380) in pre- and post-harvest seasons respectively. GAM prevalence was highest in April 2011 (24.1%, CI 20.5-27.7) in Aweil North, however in Aweil West in the same year GAM prevalence was close to the lowest recorded (14%, CI 11.0-17.0) with no overlap in CIs.

Risk Factors Identified as associated with GAM

- Females had a significantly higher WAZ (p=0.008) and HAZ (p=0.001) than males. No significant difference in WHZ (p=0.104) or GAM (p=0.089) was found by sex or between age categories.
- No significant difference in weight, WHZ, WAZ, HAZ or GAM was found between surveys in univariate and multivariable associations with GAM.
- Vitamin A supplementation coverage improved from 21.5% in Aweil North in April 2014 to 66.7% and 57.7% in Aweil West and North respectively in November 2015.
- Measles vaccination fluctuated, 51.6% were reported as vaccinated in Aweil North in April 2014, whereas this had fallen to 40.8% in Aweil West and 41.4% in Aweil North in 2015.
- Prevalence of illness in the past two weeks reached almost two thirds of children in Aweil North in November 2015, with a high prevalence of illness overall, however a trend towards increased treatment seeking behaviour was observed. 81% of caregivers whose child was ill in the past two weeks sought treatment in November 2015 compared to 69% in November 2014.
- In multivariable linear regression modelling not having been sick in the past two weeks (aOR 0.78, 95% CI 0.61, 0.99, p=0.047), and not having consumed juice (aOR 0.67, 95% CI 0.45, 0.99, p=0.045) were associated with GAM after adjusting for all potential confounders.

DISCUSSION

Despite the limitations of this study including limited continuity of data, it adds to the literature base. Political instability and poor infrastructure affect a considerable proportion of people in Aweil West and North Counties. This study highlights the impact of this instability with the prevalence of GAM and SAM remaining unchanged since 2004. Recent illness was identified as a risk factor

associated with GAM along with the consumption of juice, which could be an indicator of the consumption of unclean water and unhygienic juice preparation using over-ripe fruits.

It is important to note that any interpretations must be made with caution due to the cross-sectional nature of the data. The multifactorial aetiology of GAM and varying risk factors across settings^[8] mean that a single nutritional intervention alone is not likely to reduce the prevalence of GAM to 'Zero Hunger'. The results of this study suggest that a focus on care seeking behaviours and water, sanitation and hygiene practices would be beneficial.

The persistent prevalence of GAM identifies a need, not just for the community management of acute malnutrition programmes, which have been shown to be effective,^[9-11] but preferably effective prevention programmes.^[12] The prevention of acute malnutrition requires addressing the immediate causes of malnutrition, while also working to address the upstream underlying causes such as the political environment and social protection services.^[13]

Regular collection of representative nutrition data is useful as a tool to inform decision making^[14] but it can only be informative when it is fully utilised. According to a recently published Scaling Up Nutrition Report,^[15] there is a gap between data collection and effective use of the information. Further, this study has high levels of missing and incompatible data. The use of SMART surveys is increasing.^[15] It is recommended that SMART surveys are carried out in a consistent manner from year to year with reference to UNICEF indicators to allow fair comparisons and reporting that is compatible with international standards. Without this consistency and quality, it is wasteful of valuable resources to collect data that cannot accurately inform programmes.

Rigorous staff training in anthropometric measurements should also be considered as vast amounts of data were lost to WHO flags in this study (17.5% of data points in regression analysis for example). This may be difficult to sustain however as it is known that building local capacity is a challenge. In a setting where international staff turnover is high^[15], strengthening local capacity is essential. Routine nutrition monitoring is essential and must be strengthened if the government and implementing organisations seek to fulfil the Sustainable Development Goal of 'Zero Hunger'. Regular collection of representative nutrition data is useful as a tool to inform decisions, advocate for nutrition sensitive programming and designing interventions that target the underlying causes of malnutrition.

CONCLUSION

The current findings have important implications for future research, policy and programming. It is

recommended that the causes of malnutrition in this setting are examined more comprehensively. Analysis and evaluation of malnutrition prevention programmes in this setting are also warranted to assess what works and why. Prevention of malnutrition should be the primary aim, however efforts to treat GAM should be ongoing.

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WHO Flags for SMART Nutrition Surveys

WHO flags are used in assessing SMART nutrition surveys for outliers. Flags are based on a reference population. For weight for height, the range is -5 to +5 standard deviations. If a child is found to be outside of this range the weight for height data is not included in the analysis. When weight for height data is entered into the Data Entry Anthropometry tab in ENA for SMART it is automatically excluded if the z-score is beyond the -5 to +5 range, indicating that a measurement or data entry error has likely occurred. If WHO flags are as high as 9.4%, it is likely that the SMART survey was not carried out to a high standard.

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Pattern and causes of tympanic membrane perforation at a private hospital in Dar es Salaam, Tanzania

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Introduction: There is variation in the size, shape and position of tympanic membrane perforations; the degree of conductive hearing loss depends on the size and position of perforation.

Objective: To determine the pattern and causes of tympanic membrane perforation at a private health facility in Tanzania

Method: A hospital-based cross-sectional study in the ENT clinic at Ekenywa Specialised Hospital was conducted from January to May 2019. Ears were examined thoroughly by an Otorhinolaryngologist. Data were analysed using SPSS Version 21

Results: Two hundred and fifty patients were examined and 50 (20%) were found to have tympanic membrane perforations. Thirty (60%) were new patients while twenty (40%) were under review. Most 35(70%) were males. Central perforation predominated in 30 (60%), followed by subtotal in 10 (20%), total in 8 (16%) and marginal perforations in 2 (4%). The left ear was more affected in (60%) than the right ear. Bilateral perforations accounted for 5 (10%) of cases. Chronic suppurative otitis media was found in 35 (70%); other causes were acute suppurative otitis media in 13 (26%) and trauma in 2 (4%) patients

Conclusions: The clinical picture depicted in this study is similar to that found elsewhere. There is a need for prompt diagnosis of tympanic membrane perforation. Proper education on ear care in patients with perforated tympanic membrane is of paramount importance.

Keywords: Pattern, Causes, tympanic membrane, perforation, Tanzania

INTRODUCTION

The tympanic membrane is an important structure lying obliquely between the external and middle ear. It has three layers: an outer squamous, middle fibrous and inner mucous layer.^[1]

Causes of tympanic membrane perforation include trauma, infectious agents, neoplasms and iatrogenic causes.^[1-3] Trauma may result from foreign bodies lodged in the ear, unskilled instrumentation or aural toilet, sudden air compression as in boxing, hand-slap and blast. Acute suppurative otitis media (ASOM) and chronic suppurative otitis media (CSOM) are two main infectious processes.^[4-7]

The size and location of perforation affect the degree of hearing loss. Chronic infection may cause large perforations and hence greater hearing loss.

Studies have reported CSOM to be prevalent in Tanzania at rate similar to those in other developing countries such as Nigeria, Kenya, and South Sudan with all linked to low socio-economic status^[4,8,9] and this can result in late presentation at available health facilities.

The aim of this study was to determine the pattern and causes of tympanic membrane perforations among patients attending an ENT clinic at the private hospital which serves the largest number of ENT clients in Dar es Salaam.

METHOD

A hospital based cross-sectional study at Ekenywa Specialised Hospital was conducted from January to May 2019. Patients with otological complaints were examined by an Otorhinolaryngologist and recruited after giving a written informed consent. Data were analysed using SPSS Version 21. Permission to conduct the study was obtained from the hospital's ethical committee.

RESULTS

Fifty (20%) out of 250 recruited patients were found to have tympanic membrane perforations in one or both ears. Thirty (60%) of these 50 patients were new attendees while 20 (40%) were review cases. Thirty five (70%) were males. A third of the patients (34%) were aged up to ten years old. (Table 1)

A central perforation was found in 60% (Table 2). The left side was affected more commonly (60%) with both sides affected in 10% of patients (Table 3). A traumatic cause of perforation was unusual at only 4% whereas CSOM was commonest at 70%. The two cases of traumatic perforation of tympanic membranes were due to slap by sexual partners. (Table 4)

DISCUSSION

Tympanic membrane perforation is the commonest presentation in routine otorhinolaryngology clinical practice in both developed and developing countries. In our study, most patients were aged up to ten years and this may be due to high prevalence of the causes of tympanic membrane perforation in children similar to other studies done elsewhere.^[5,7]

CSOM was the cause of 70% of our cases of tympanic membrane perforation and this is in line with other studies done in Pakistan, Nigeria and India.^[4,10,11] ASOM accounted for 26% of our cases, and this may be due to late presentation or inadequate management elsewhere. These findings reflect those from Nigeria and Nepal.^[4,6] At times patients with ASOM may outweigh those with CSOM if they reported early to health care facilities where such prompt diagnosis may be established.^[5]

Traumatic tympanic membrane perforation in this study accounted for only 4% of cases similar to what has been seen in other countries where it was found to be the least common cause of tympanic membrane perforation.^[2,5] Traumatic perforation of the tympanic membrane may be caused by foreign bodies in the ear and this may be multiplied by removing such foreign bodies by unskilled personnel. Audiological data was not presented in this study because of inaccessibility by patients to such a test due to expenses.

CONCLUSION

The pattern and causes of tympanic membrane perforation

Table 1. Age distribution of patients with perforated tympanic membranes

Age of participants (years)	n (%)
≤10	17 (34)
11-20	10 (20)
21-30	5 (10)
31-40	6 (12)
41-50	5 (10)
>50	7 (14)
Total	50 (100)

Table 2. Types of tympanic membrane perforation among participants

Type of tympanic membrane perforation	n (%)
Marginal	2 (4)
Total	8 (16)
Central	30 (60)
Subtotal	10 (20)
Total	50 (100)

Table 3. Lateralization of the ears with tympanic membrane perforation

Lateralization or side affected	n (%)
Left	30 (60)
Right	15 (30)
Bilateral	5 (10)
Total	50 (100)

Table 4. Causes of tympanic membrane perforation

Causes of tympanic membrane perforation	n (%)
CSOM	35 (70)
ASOM	13 (26)
Trauma	2 (4)
Total	50 (100)

described in this study resembles those found elsewhere. There is a need to provide public health education on ASOM and CSOM and to equip health personnel working in other health facilities on how best to manage such otological conditions. Quick referral of patients with otological complaints to specialized centres where comprehensive ENT services are offered is of paramount importance if the goal of having ears free from diseases is to be achieved.

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Competing interests: We declare we have no competing interests

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Nurses' knowledge of the management of diabetic patients at Juba Teaching Hospital

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Introduction: Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycaemia and is a major health problem. The International Diabetes Federation (IDF) estimated that there were 425 million people with diabetes in the world in 2017 with the number rising most rapidly in middle- and low-income countries. The prevalence of DM in Juba City in 2017 was reported to be 11.8%.

Objective: To assess nurses' knowledge of the management of diabetic patients and factors associated with it in Juba Teaching Hospital - the only referral hospital in South Sudan.

Method: This was descriptive cross-sectional study, carried out in March 2018, in which 40 nurses were randomly selected. Data were collected using a pre-tested questionnaire and analysed using SPSS version 20 for Windows software.

Results: Of the 40 participants 31 (77.5%) were females. The mean age was 35.6 ± 10.7 years and median work experience was 9 years and 10 months; overall 57.6% of the participants correctly answered the questions on diabetic care. The factors cited for poor management of diabetic patients included lack of hospital guidelines (47.5%), insufficient salary to motivate staff (77.5%), inadequate nurse to patient ratio for good patient care (60.0%), and no resources for special training (57.5%).

Conclusion: Many nurses in JTH have inadequate knowledge for diabetic management and most are interested in receiving more training.

Key words: Nurse, knowledge, management of diabetes, South Sudan

INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both and is a major health problem. The International Diabetes Federation (IDF) estimated that there were 425 million people with diabetes in the world in 2017 with 431,000 in South Sudan.^[1] The number has been rising more rapidly in middle- and low-income countries.^[2] In 2016 there were about 1.6 million deaths worldwide where the main contributory cause was diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012.^[2]

Diabetes is a major problem in Juba. In 2017 it was reported that the prevalence of DM in Juba City was 11.8% and was more common in males at 7.2% compared to females at 4.6%.^[3] According the patients' registration book in 2018 more than 30 patients attended diabetes services and follow-up each week at Malakia Diabetic Control Centre, Juba Teaching Hospital (JTH). Ward reports (2016-2017) show that 16 patients were admitted to the surgical ward due to diabetic foot complications, and 25 males and 10 females were admitted to medical wards due to diabetic conditions. Most hospitals and other health care facilities lack appropriately qualified nurses, equipment and management guidelines.

The aim of this study was to assess nurses' knowledge on management of diabetic patients and the factors associated with it in JTH - the only referral hospital in South Sudan.

Citation:

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METHOD

This cross-sectional study was carried out in March 2018. The proposal was reviewed by the Ethical Review Committee of Juba College of Nursing and Midwifery (JCONAM) and the Helsinki declaration on ethical principles was followed. The study population was staff/senior nurses working in JTH in different departments. Forty nurses - from those who were available and willing

- were selected at random.

Data were collected by an interviewer-administered questionnaire and included: participants' socio demographics, knowledge about patients' self-care and monitoring of blood glucose level, and the factors that affect nurses' knowledge. They were analysed using IBM-SPSS version 20 for Windows programme.

RESULTS

Socio-demographic data

The mean age of the 40 nurses was 35.6±10.7 years and mean work experience was 9 years and 10 months.

Table 1. Frequency distribution of the nurses by their demographic characteristics

Table 1. Frequency distribution of the nurses by their demographic characteristics

Variables		n (%)
Sex	Male	9 (22.5)
	Female	31 (77.5)
Religion	Muslim	4 (10.0)
	Christian	36 (90.0)
Position	Nurse officer	2 (5.0)
	Head nurse	9 (22.5)
	Staff nurse	29 (72.5)
Education Level	Certificated/Enrolled	32 (80)
	Diploma	7 (17.5)
	Baccalaureate	1 (2.5)

Nurses' knowledge of the management of diabetic patients

Table 2 gives examples of the multi-choice questions and the nurses' answers. Overall about half the statements were answered correctly and half incorrectly. More specifically, 52.5% of the nurses were able to describe a diabetic diet; 65.0% knew of the effect of exercise on blood glucose level and 70% knew the effect of insulin when taken without breakfast. However only 30% were able to describe a self-glucose monitoring test procedure; 72.5% gave an incorrect definition for hypoglycaemia; and 67.5% were

Table 2. Nurses' knowledge related to patient self-care /diabetic management

Examples of multi-choice questions	Correct answer	Incorrect answer
	n (%)	n (%)
A diabetic diet is (a) a healthy diet of most people (b) high in both carbohydrate and proteins (c) the way most South Sudanese eat	21 (52.5)	19 (47.5)
The best method for home glucose testing is (a) blood testing (b) urine testing	12 (30.0)	28 (70.0)
The effect a mango or banana has on blood glucose level is (a) raises it (b) lowers it (c) none of the above	29 (72.5)	11 (27.5)
Hypoglycaemia is a blood glucose of less than (a) 2.9mmol/L (b) 3.9mmol/L (c) 5.6mmol/L	11 (27.5)	29 (72.5)
The effect of exercise on blood glucose is to (a) raises it (b) lowers it (c) has no effect	26 (65.0)	14 (35.0)
The best advice to patients on foot care is (a) put on big size shoes (b) look at and wash them each day (c) soak for one hour everyday	18 (45.0)	22 (55.0)
Numbness and tingling may be symptoms of (a) eye diseases (b) nerve disease (c) heart disease	33 (82.0)	7 (17.5)
Action to be taken before lunch after you realise the patient has forgotten breakfast is (a) check blood glucose (b) give insulin	30 (75.0)	10 (25.0)
A low blood sugar reaction may be caused by (a) too much food (b) too much insulin	21 (52.5)	19 (47.5)
A high blood glucose level may be caused by (a) not enough insulin (b) skipping meal (c) delayed snack	20 (50.0)	20 (50.0)
The most serious complication of diabetes is (a) delayed wound healing (b) kidney failure (c) weight gain	13 (32.5)	27 (67.5)

Table 3. Factors that nurses believe affect their care of diabetic patients

Variable	Yes	No	Don't know
	n (%)	n (%)	n (%)
Does the hospital administration policy support nurses in management of diabetes patient in the hospital?	19 (47.5)	14 (35)	7 (17.5)
Are there any allocated resources for special training for nurses in managing diabetes patients?	12 (30.0)	23 (57.5)	5 (12.5)
Is the allocated time sufficient to give good care to patients?	19 (47.5)	19 (47.5)	2 (5.0)
Is the nurse to patient ratio sufficient to give special care	14 (35.0)	24 (60.0)	2 (5.0)
Do salary levels motivate nurses to give the best care?	6 (15.0)	31 (77.5)	3 (7.5)
Is there a guide on DM management in JTH?	13 (32.5)	18 (45.0)	9 (22.5)
Have you seen other nurses given training on DM patients' care?	13 (32.5)	25 (62.5)	2 (5.0)
Do you feel that you have the skills and training for the management of diabetic patients?	21 (52.5)	17 (42.5)	2 (5.0)

unable to list the serious complications of DM; 50.0% were able to identify causes of hyperglycaemia.

Factors that affect nurses' knowledge about the management of diabetic patients

Table 3 shows factors that nurses reported affected their care of diabetic patients. The allocation of resources for special training was considered inadequate by 23(57.5%), 18(45%) stated there were no hospital guidelines for the management of diabetes, 19(47.5%), said that time was not sufficient for nurses to give special care citing too few nurses in relation to the number of patients. Three quarters (77.5%) felt that low salaries were demotivating; 21 nurses (52.5%) said that they have skills and knowledge for managing diabetic patients.

DISCUSSION

Since nurses are involved in providing primary medical care it is essential that they be well equipped in terms of knowledge and skills to deal with DM. [4,5] Their role in caring for diabetic patients needs to be strengthened from just giving simple advice to a more counselling approach about DM complications and their relationship to diet, and the importance of good diabetic control. [6]

Our findings show that lack of knowledge was a factor in management of diabetic patients as indicated by the average score of only 57.6% for correctly answered questions. This exposes diabetic patients to suboptimal management. [7] Contributory factors included shortage of resources, high work load, low salary, lack of hospital guidelines, lack of training and lack of special facilities.

Patients and their families provide 95% of the overall care. Hence education of both nurses and their patients is an integral part of diabetes management. [8,9]

CONCLUSION AND RECOMMENDATIONS

The study showed that many of the nurses had, and felt they had, inadequate knowledge about the management of diabetic patients. Almost all the nurses wanted more training on diabetic management.

Recommendations to improve nurses' management of diabetic patients

The Ministry of Health should ensure that there are health facilities for DM management at State level, and regular seminars and workshops on DM; nurses' education should give more priority to the management of chronic conditions like DM; there should be adequate resources such as equipment for glucose monitoring, and adequate salaries for the professionals so that they can be motivated to provide adequate care.

Health facilities should encourage regular check-up of glucose levels especially among the elderly as well as health education, and workshops on DM for nurses.

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Washing hands with soap and water reduces cases of diarrhoea by almost 50 percent - yet on average around the world only 19 percent of people wash hands with soap after defecation - see

<https://www.wateraid.org/us/media/global-handwashing-day-hygiene-in-schools-healthy-children>

Handwashing advice from WHO and others gives quite detailed instructions on 'how to wash hands properly' in 11 steps – see https://www.who.int/gpsc/clean_hands_protection/en/.

How many people do you think follow all these steps??

Should handwashing advice focus more on encouraging members of the public, who do not wash their hands at all, by simply recommending 'wash with soap'?

Newly published 'WHO Practical Toolkit: Antimicrobial Stewardship Programmes in Health-Care Facilities in Low- and Middle-Income Countries: A WHO practical toolkit © World Health Organization 2019. <https://apps.who.int/iris/bitstream/handle/10665/329404/9789241515481-eng.pdf>

Community-initiated kangaroo mother care substantially improves newborn baby and infant survival. In low-income and middle-income countries, incorporation of kangaroo mother care for all infants with low birthweight, irrespective of place of birth, could substantially reduce neonatal and infant mortality. Ref: Effect of community-initiated kangaroo mother care on survival of infants with low birthweight: a randomised controlled trial. Mazumder S. et al. *The Lancet* 2019; 394 (10210):1724-46

Abstracts from the Juba College of Nursing and Midwifery

The researches were carried out in partial fulfilment of the requirement for the award of Diploma in Midwifery. The complete reports are available from the authors

Assessing midwives' knowledge, skills and attitudes in the management of the third stage of labour at Juba Teaching Hospital

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Introduction: Maternal morbidity and mortality have been major issues for decades and, despite different programmes aimed to reduce them, the rate of improvement remains slow. Haemorrhage is a leading complication but many studies have shown that it can be prevented if the third stage of labour is actively managed.

Objective: To assess the knowledge, skills and attitudes of midwives in the active management of the third stage of labour (AMTSL) in Juba Teaching Hospital (JTH) as well as the factors influencing their practice.

Method: This was a descriptive study involving 50 midwives purposively selected in JTH. Data were collected using a structured questionnaire and an observational checklist. The questionnaire assessed knowledge and attitudes of midwives in AMTSL while the observational checklist was used to assess the actual practice of the midwives.

Results: Most (44%) of the respondents were aged 21-30 years, 52% were male and 48% were female; 40% were registered midwives, 22% certificated midwives, 18% traditional birth attendants, 8% enrolled midwives, and 6% were degree holders. Almost all (96%) were highly knowledgeable on AMTSL; 92% knew to give oxytocin on the 1st minute after delivery, 70% knew about clamping 2-3 seconds after delivery and cutting the cord, 90% knew of nipple stimulation by breast feeding, 88% knew about control cord traction, and 78% knew about massaging the uterus. Most (75%) had a good attitude towards AMTSL.

Most respondents reported practicing some elements of AMTSL: 64% reported often giving oxytocin (36% administer oxytocin on delivery of the anterior shoulder of baby), 96% clamp 2-3 sec after delivery and cut the cord after 2-3 minutes of delivery, 4% did it earlier; 88% frequently examine the placenta after delivery, 90% examine the perineum for tears, 96% put the baby to the breast immediately after delivery, 90% allow the placenta to separate and deliver spontaneously; 92% frequently deliver the placenta by controlled cord traction; 90% empty the uterus immediately after delivery by massaging.

Factors that influenced the respondents' practice of AMTSL included: lack of knowledge of care, shortage of staff leading to lack of assistance for AMTSL, unavailability of resources in the ward, no management protocols on AMTSL, no refresher training on AMTSL, late reporting of mothers to the ward when they had already developed complications.

Recommendations: Periodic workshops and seminars, frequent monitoring and supervision of midwives with or without notice to assess their practices would be beneficial for improving quality of care and increasing safety with consequent reduction in morbidity and mortality. Infrastructure needs to be enhanced and supplies and utilities made reliable. Infection control and access to skilled assistance at delivery are vital as is continuous training and retraining of midwives. The lives of women would then be in safer hands.

Awareness of the danger signs of obstetric complications amongst pregnant mothers attending antenatal care at Juba Teaching Hospital

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Introduction: Raising awareness of the danger signs of obstetric complications amongst pregnant mothers is crucial for maternal and child survival. However, in South Sudan where maternal mortality is among the world's highest, little is known about the knowledge level of pregnant women concerning these danger signs.

Objective: This study aimed to assess the level of knowledge about the danger signs of obstetric complications amongst clients attending antenatal care in Juba Teaching Hospital in 2017.

Method: A cross-sectional quantitative study design was used with 55 respondents selected by simple random sampling. A standardized questionnaire was developed. It was prepared in English and pre-tested in Malakia primary health care centre on 5% of the sampled individuals. The danger signs investigated were: fever, vaginal bleeding, reduced foetal movements, blurred vision, severe abdominal pain, swelling of lower limbs, drainage of amniotic fluid before 37 weeks, and convulsions. The collected data were cleaned and coded, then entered and analysed using the Statistical Package of the Social Sciences (SPSS) version 20 to generate meaningful information that could be utilized by the relevant stakeholders in maternal and child healthcare. The findings were presented using frequency tables, bar graphs and pie charts.

Results: The findings revealed that majority of the respondents (81.8%) were aged between 21-40 years, 21.8% had secondary education qualifications, 12.7% had completed tertiary level, 30.9% ended in primary level and 20% had never gone to school. In relation to respondents experience in past pregnancies, 83.6% had attended antenatal care during their last pregnancy, 50.9% had been advised on where to deliver, 41.8% had been counselled on the benefits of hospital delivery, and 59.1% went to a health facility for the management of any health problems.

Regarding respondents' awareness of the danger signs in pregnancy and the specific type of danger signs, the most commonly listed were vaginal bleeding, 21.8%, and severe abdominal pain, 21.8%, followed by swelling of lower limbs, 18.8% and fever, 15.6%. Only 3.1% were aware of blurred vision or reduced foetal movement. Only 12.9% of respondents mentioned all the above dangers signs. None knew that early drainage of amniotic fluid and convulsions were danger signs. Of the 40% of the mothers who experience dangers signs, a significant proportion, 40.9%, did not seek treatment at health facilities.

Conclusion: This study showed a low level of awareness of danger signs of obstetric complications among pregnant women in Juba Teaching Hospital. Women's knowledge about these danger signs is influenced by multiple factors. Socio-demographic characteristics such as age, educational attainment and employment status along with pregnancy characteristics such as gravidity, parity and number of antenatal visits contribute to their level of knowledge. Future research is needed to find out the relationship between knowledge of danger signs and mothers' different characteristics in South Sudan. However the promotion of universal antenatal care follow-up, educating women, avoiding high parity and advocating delivery in a health facility is likely to improve mothers' knowledge of danger signs.

Recommendations: The identified deficiencies in awareness should be addressed through strategic directions from the Ministry of Health. Emphasis should be given to danger sign awareness by producing health toolkits such as danger sign cards, posters, mass media campaigns. Quality obstetric and newborn services should be available at each health system level and include high quality education at antenatal, delivery and postnatal clinics. All health care cadres should be well trained and equipped with danger sign detection and counselling skills. Health care managers should include danger sign awareness as part of their quality assessment and improvement tool.

Gestational choriocarcinoma at Juba Medical Complex and Juba Teaching Hospital: five case reports

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Introduction

Gestational choriocarcinoma (GCC) is the most malignant of the four gestational trophoblastic diseases. The others are: invasive mole, placental site trophoblastic tumour, and epithelioid trophoblastic tumour.^[1,2,3,4,5,6] We report five cases of GCC managed at the Juba Medical Complex and Juba Teaching Hospital since 2011. The purpose is to draw attention to this condition with its complex presentations, need for early diagnosis and potential for cure. Recurrent vaginal bleeding in the presence of a pregnancy of unknown location and a positive pregnancy test should make the clinician suspect GCC. A woman of childbearing age with disseminated malignancy of unknown primary cause should have a pregnancy test.^[1,2,3,6]

Case 1

A 28-year-old lactating woman (para 3+0) presented on 11/12/2011 with heavy vaginal bleeding. She was restless, sweaty, with cold extremities and severe pallor. Her temperature was 36.5 C, pulse 120/min and BP 80/50mm Hg. A pelvic examination revealed vaginal blood clots and products of conception plugged in the cervix. The uterus was equivalent to 10-12 weeks gestation, freely mobile with no adnexal masses.

After a diagnosis of an incomplete miscarriage, placenta-like tissue was evacuated from the uterus and sent for histology. Hb was 2.8 g/dl and the patient transfused with two units of blood.

She delivered a full-term male baby at home 8/8/2011. She had continued bleeding for the subsequent two months. She had had an ultrasound scan (USS) and an evacuation was done for retained placental tissue. She was discharged on haematinics with a diagnosis of retained piece of placenta.

However, bleeding continued and admitted again on 22/12/2011 with vaginal bleeding and collapse: pulse of 130 min. BP 60 /40 mmHg, and the vagina full of clots. Cervix was closed, bulky uterus, no adnexal masses. A gestational trophoblastic neoplasia was suspected. A urinary pregnancy test was strongly positive.

Her Hb was 2.5 g/dl, so she was transfused with two units of blood. Her chest Xray was normal (see Figure 1). USS showed normal abdominal organs. Histology of the vaginal products confirmed



Figure 1. Case 1 chest x-ray (Credit: Kizza Paul and Paula Nuer)



Figure 2. Case 2. Normal chest X-ray

a choriocarcinoma. She was graded as a low risk choriocarcinoma and for low risk chemotherapy.

After two cycles of chemotherapy the urine pregnancy test was negative. After the 4th cycle she absconded but returned six weeks later due to vaginal bleeding. The pregnancy test was positive. High risk chemotherapy was started. She completed six cycles on 5/10/2012. β hCG was normal. Two months later, she had miscarriage at six weeks pregnancy. β hCG was normal two weeks later.

Case 2

A 22-year old woman (para 3+1) presented on 4/7/2012 with recurrent vaginal bleeding following miscarriage of an abnormal pregnancy ten months earlier. Pulse was 86/min, BP 120/70 mm Hg. The uterus size was equal to a 12 weeks pregnancy. A pelvic examination was normal.

Hb was 9.1 g/dl, pregnancy test was positive, chest X-ray was normal, (see Figure 2); USS showed a distorted heterogeneous mass 12x1.6x6 cm in the endometrium partially attached to the uterus. Curettage produced necrotic tissue. A missed abortion was considered the most likely diagnosis. She was discharged the following day with a plan for histology to be checked in three weeks.

Three weeks later, she was readmitted with heavy vaginal bleeding. A pregnancy test was strongly positive. Low risk choriocarcinoma was suspected clinically and confirmed histologically. The chemotherapy was started immediately. After four cycles of chemotherapy the urine pregnancy test was negative and β hCG remained low.

Seven months later, an USS showed a 12-week old foetus and she delivered a normal 3.2kg baby at term.

Case 3

A 28-year-old woman (para 6+1), presented with recurrent vaginal bleeding following spontaneous vaginal delivery in



Figure 3. Case 3. X-ray showing three cannon ball masses balls in lungs (Credit: Kizza Paul and Paula Nuer)



Figure 4. Case 3. X-ray with remaining coin like lesion (Credit: Kizza Paul and Paula Nuer)

October 2012. She had had three evacuations of retained products of conception. The vaginal bleeding persisted with abdominal pain but no cough or haemoptysis.

Examination revealed severe pallor, Hb of 5.5 g/with pulse 98/min, BP 90/60 mm Hg. The size of the uterus was equivalent to a 12–14-weeks pregnancy. Pelvic examination was normal apart from blood oozing from the cervical os and a chest X-ray showed cannon ball metastases (Figure 3).

An USS showed normal ovaries and an intrauterine heterogeneous mass with no clear demarcation between the mass and myometrial wall. β hCG was 31,537mlu/ml. High-risk choriocarcinoma was diagnosed and the patient was started on high-risk chemotherapy. After the 9th cycle, the lung masses had markedly shrunk (Figure 4) and β hCG was normal

Case 4

A 42-year old woman (para 7+0), having had her last delivery five years previously, presented on 15/06/2012 with recurrent vaginal bleeding and haemoptysis. On

examination she was very pale with a blood pressure of 110/70 mmHg and a clear chest on auscultation. Pelvic examination revealed dark blood from the cervical os and a uniformly enlarged uterus consistent with a 12 – 14 weeks pregnancy. Her Hb was 5.0g/dl and she was transfused with three units of blood.

An USS showed an intrauterine mass with associated fluid. A dilation and curettage produced necrotic tissue and histology confirmed a choriocarcinoma.

A chest X-ray showed lung deposits (Figure 5). Due to her age, bleeding, and difficulty in obtaining drugs and blood, she underwent a hysterectomy. Subsequently, high-risk chemotherapy was given and after two cycles the urine pregnancy test was negative. She completed five cycles and the β hCG remained normal.

Case 5

A 26-year old woman (para 5 + 0) was referred with persistent vaginal bleeding and a diagnosis of metastatic endometrial carcinoma. Her background included previous normal deliveries and excision of a vaginal tumour at another hospital.

On examination she was pale (Hb 3.5 g/dl). There was a bleeding vaginal ulcer and uterus size was consistent with a 14-weeks pregnancy. Bilateral adnexal masses were felt.

An USS showed a mass in the endometrial cavity and bilateral adnexal cystic masses with normal liver and spleen. A pregnancy test was positive. She was transfused with five units of blood and a hysterectomy was performed.

Her recovery was complicated by a bleeding vaginal ulcer and severe wound sepsis. Due to financial constraints, high risk chemotherapy could not be procured. Low risk chemotherapy was started to control the bleeding. At the end of first cycle, bleeding and sepsis were clearing. Histology confirmed choriocarcinoma and the patient received two further units of blood.

After the 5th cycle of chemotherapy the β hCG was normal. She requested to visit her children over Christmas and return after a week. She returned four months later with right hemiplegia and a high β hCG. A Chest X-ray revealed a coin lesion in the right lower lung zone (Figure 6.). A brain metastasis was considered the most likely cause of the hemiplegia. She died before medication could be obtained.

The operative specimens are shown in Figures 7 and 8. The endometrium was hypertrophied with a friable cavity mass, the cervix distorted and the ovaries were polycystic.

Histologically the tumour consisted of sheets of markedly pleomorphic malignant trophoblastic cells with prominent macro-nucleoli and prominent mitotic activity. There was myometrial invasion and numerous foci of necrosis.



Figure 5. Case 4. X-ray showing TB like deposits in lungs in patient with haemoptysis after hysterectomy (Credit: Kizza Paul and Paula Nuer)

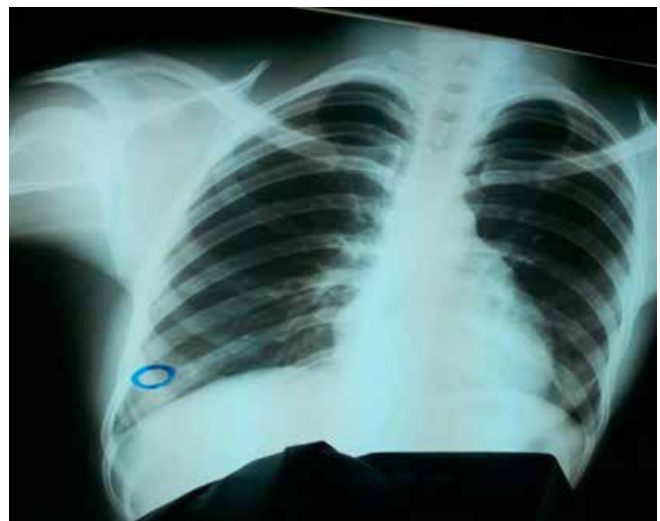


Figure 6. Case 5. X-ray. Coin like lesion in right lung (Credit: Kizza Paul and Paula Nuer)



Figure 7. Case 5. Hysterectomy specimen with GCC and cystic ovaries (Credit: Changkel Banak)



Figure 8. Case 5. Opened specimen showing GCC in endometrial cavity (Credit Changkel Banak)

Discussion

Five patients with GCC are reported. Four of these patients are in remission, two resumed their fertility and one delivered a normal female baby, another had a miscarriage and their β hCG are normal. This pattern has been reported elsewhere.^[2,3,6] The fifth died from probable brain metastases leading to her hemiplegia.^[7]

GCC is a malignant tumour arising from the placenta. Histologically it shows sheets of anaplastic cytotrophoblast cells, vascular necrosis and vascular invasion but chorionic villi are absent. When in the uterus, it invades the endometrium then myometrium which may perforate. Metastasis occurs early and in most cases GCC is a systemic disease.^[1,2,3,6] GCC is highly sensitive to chemotherapy; urinary or serum β hCG is a useful monitoring tool.^[4,5,7] Untreated GCC mortality is 100%, but with current chemotherapy, over 98% of patients achieve remission even without surgery.^[1,2,3,7,8]

Sometimes the history of a molar pregnancy may be obscured by subsequent pregnancies. In a 1995 study by Fisher et al., the genetic origin of GCC that developed after a full-term normal twin pregnancy was traced to a molar pregnancy that occurred four years before.^[1, 2, 6, 10]

GCC is most common in young women. Our patients' ages ranged from 22 to 42 years (mean 29.5 years). Others have reported similarly.^[11,12] Early diagnosis is crucial in obtaining the best outcome.^[1,2,3,6,8,9] A report from the Netherlands showed a post-term GCC had a median diagnosis interval of 16 weeks. The author ascribes 68% and 28% lung and liver metastases respectively in his patients were due to delayed diagnosis. He recommends that post term GCC be treated as a high-risk disease.^[8]

Three of our patients had GCC following normal

pregnancies, the time interval to diagnosis ranging from four months to five years and all needed high risk treatment.

Intra-placental GCC develops in a placenta of normal baby; 30 cases have been reported and in 17 diagnosis in the baby lead to the diagnosis of GCC in the mother.^[2,8]

The common way in which GCC presents is with bleeding from the uterus or vaginal metastases. A temptation to biopsy bleeding vaginal lesion must be avoided until the pregnancy test is negative. The bleeding vaginal ulcer may be a GCC metastasis which is highly vascular and biopsy will lead to bleeding as happened in case 5.

Most GCC follow molar pregnancy and repeated evacuations for a molar may increase the patient's chances of developing GCC. A second evacuation may be done in selected cases and when β hCG is less 5000IU/L. β hCG should be normal within six months in most cases.^[2,4,6,7,15]

Haemoptysis, chest pain and dyspnoea due to lung metastases are other presenting or complicating features. Haemoperitoneum due to bleeding liver metastases or abdominal masses and intestinal obstruction have also been reported.^[1,2,6]

A third of GCC patients have no pelvic symptoms and may present with headache, seizures, or hemiplegia due to brain metastases.^[2,6]

Investigations to be considered depending on availability are:

- Urine pregnancy test
- USS to show masses in the uterus, liver and spleen and rule out pregnancy.
- Serum β hCG.
- Chest X-ray to look for metastases.
- Biopsy and uterine curettage may lead to severe haemorrhage and uterine perforation. It is not mandatory to have histology for the diagnosis of GCC.^[1,2,5,6]
- CT scan to seek metastases in the liver and especially the brain.

The mainstay of GCC treatment is chemotherapy. It is essential that treatment is undertaken by trained staff that follows clear protocol, so enhancing patient safety. It has been shown that mortality of this condition is lower if managed by those who are experienced in handling it.^[13, 14] We used Charing Cross Hospital London protocol for GCC chemotherapy.^[1,2,6] Brain metastases used to carry poor prognosis. Currently high dose chemotherapy with intrathecal drugs for a patient who has not been previously on chemotherapy carried a good prognosis.

Patients are graded into low risk, high risk and ultra-high risk.^[1,2,3,6] Low risk may be treated with a single drug while high risk needs multiple drugs. These drugs are toxic and

if not used properly can be fatal to the patient.

In our environment where blood is hard to obtain, uterine bleeding in a patient of 40 years and above, a hysterectomy may be appropriate. Surgery may be definitive treatment and reduces the duration of chemotherapy.^[5,8,13,14,15] It must be remembered that GCC is a systemic disease and so most patients need chemotherapy after surgery.

Role of surgery

Surgery may be used in the following:

- Resecting localised disease that is resistant to chemotherapy e.g. lung, liver, intestinal or brain metastases.
- Reduce tumour mass like a uterus riddled with tumour or a patient who has completed her family.
- Ovaries are usually cystic due to β hCG they must be preserved as these are young women and need their ovarian function.
- Patient with uncontrollable haemorrhage from the uterus or liver, etc.
- A wedge resection of a chemotherapy resistant localised tumour in myometrium for a patient desiring to keep her fertility.

Follow up of these patients may lead to early detection of neoplastic changes and hence good treatment results.

Recommendations

- Set up a treatment protocol for gestational choriocarcinoma in South Sudan.
- Follow up all post-molar pregnancies in treating facilities.
- Explore means of obtaining drugs to expand the availability of treatment more widely.

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Case report: Laryngeal trauma at Juba Teaching Hospital, South Sudan

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Introduction

Laryngeal trauma is rare compared to other head and neck injuries. It can be life threatening due to associated complications such as aspiration, vocal cord injuries and airway obstruction. Mortality from severe laryngeal trauma has been estimated at about 40% without immediate medical intervention.^[1] The injury may be blunt or penetrating, mainly from sporting equipment (e.g. ball, stick) or contact with fixed structures.^[2] In children laryngeal injuries are uncommon especially among females (male to female ratio of 77 to 33). The reasons for this difference arise from the fact that males are more likely to be involved with activities leading to injuries.^[1, 3] The initial management has a direct impact on survival and outcome.^[4, 5]

We report a case of blunt laryngeal trauma and describe types of laryngeal trauma, airway management and surgical approaches.

Case report

An eight-year-old boy sustained blunt laryngeal trauma while playing with a stick-rubber game (locally called Chung). He arrived in Casualty at Juba Teaching Hospital 10 hours after the incident. Initially there had been no airway obstructive symptoms. On arrival in the Casualty, he had difficulty breathing (inspiratory stridor), neck pain and confusion. His mother stated that the he had spat streaks of blood after the incident but there was no cough or change of voice.

On examination, he was restless, sweating and had swollen facies and neck with signs of surgical emphysema as indicated by palpable crepitus (Figures 1 and 2). There was bruising and a bulge (during expiration) in the region of the left thyroid cartilage, and tenderness over the left superior cornu of the thyroid cartilage. The haemoglobin level was normal (11 mg/dl) and the oxygen saturation was low at 70%. Unfortunately, no imaging was done because of family financial constraints.

A diagnosis of upper airway obstruction was made and an immediate tracheostomy and subsequent direct laryngoscopy was done under general anaesthesia (flexible laryngoscopy would have been an option but we did not have the facilities). This showed a 1cm. mucosal tear and haematoma at the level of the superior cornu of the left thyroid cartilage. Cartilage was not exposed and all the other laryngeal structures were intact. The patient was given steroids (dexamethasone) by injection [IV 4mg 8hourly for 48 hours], prophylactic antibiotic (ceftriaxone injection IV 1 gm once daily for 3 days) and analgesia (mefanemic acid tabs 250mg thrice daily) for 72 hours. The emphysema subsided and tracheostomy was removed after 3 days and over a week before discharge.

Ten days after admission a direct laryngoscopic examination was repeated. The mucosal tear had healed and there were no other abnormalities. The patient was in hospital for a total of 11 days. A follow-up at three weeks after discharge revealed no complaints and the tracheostomy stoma was completely closed (Figure 3); this was confirmed at eight weeks (Figure 4).



Figure 1. Patient presented with emphysema.



Figure 2. Patient with emphysema, sweating and confusion before tracheostomy.

Discussion

The larynx extends from the epiglottis to the inferior border of the cricoid cartilage. Its anatomical location in the anterior aspect of the neck renders it liable to trauma. However, the elastic nature of the larynx, the presence of the cervical spine and the mandible provide a degree of protection. Other factors probably linked to a low incidence among children include a lower involvement in road traffic accidents, and less interpersonal violent confrontations which are more commonly seen in adults.^[2, 3, 6] Laryngeal injury may be caused by direct trauma (blunt as with our patient or penetrating), inhalation or ingestion of caustic substances.^[4]

It has been estimated that laryngeal injuries, whether blunt or penetrating, range between 1-7% of trauma cases in a busy hospital facility.^[6] The risk of laryngeal trauma from sport is high with 10% of cases arise from athletic activities.^[6]

Patients with laryngeal trauma may present with one or more of the following symptoms and signs: neck pain and tenderness, subcutaneous emphysema, bruises and cuts. In our case the patient presented with all of these including inspiratory stridor, neck crepitus and tenderness, sweating and confusion. A high index of suspicion of the possible injuries and complications is crucial in order to minimise morbidity and mortality.^[2]

It is very easy to misdiagnose fractures of the larynx. Internal (mucosal tears) injury may not be manifested by superficial and visible skin signs, therefore endoscopic examination is essential with the anticipation that tracheostomy may be required.^[7]

In our case there were symptoms and signs of a mucosal tear and upper airway obstruction. A tracheostomy was selected as the intervention to secure the airway especially as we did not have adequate intensive care facilities.



Figure 3a and 3b. Patient after tracheostomy removed.



Figure 4. Patient after 8 weeks.

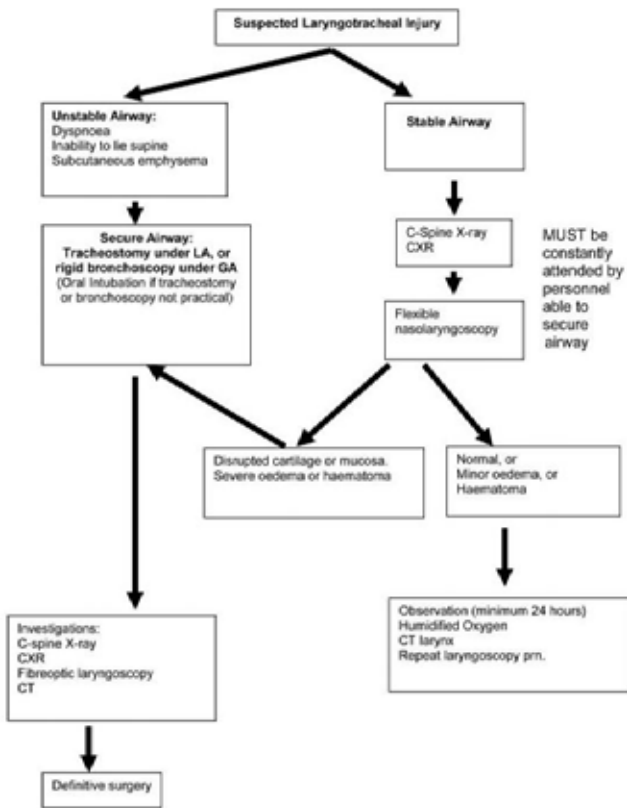
Table 1. Fuhrman classification of laryngeal injury

Groups	Severity of injury in ascending order
Group 0	Normal larynx
Group 1	Minor endolaryngeal hematomas or lacerations without detectable fractures. No airway compromise
Group 2	More severe edema, hematoma, minor mucosal disruption without exposed cartilage, or nondisplaced fractures. Varying degrees of airway compromise
Group 3	Massive edema, large mucosal lacerations, exposed cartilage, displaced fractures, or vocal cord immobility. Airway compromise
Group 4	Same as group 3, but more severe, with disruption of anterior larynx, unstable fractures, two or more fractures lines, or severe mucosal injuries. Requires the use of a mold for stabilization
Group 5	Complete laryngotracheal separation

The diagnosis of laryngeal trauma can be aided by flexible endoscopy but this was not available to us. Most clinicians would prefer a direct laryngoscopy under sedation after securing airway in children.^[1] The guidelines for the pathways of management are shown in Table 2.

When a patient is stable from the respiratory point of view and haemodynamically other procedures for assessment may be considered including chest and neck X-rays, oesophagoscopy, bronchoscopy and angiography.^[10]

Table 2. Algorithm for initial airway management and investigations of patients with suggested laryngotracheal injuries



Conclusion

Laryngeal trauma among children is uncommon therefore the clinician must be alert to its possibility from the history, physical examination and investigation in order to reduce morbidity and mortality.

As some cases may not present with symptoms and signs of airway obstruction immediately after the incident, observation is important. Tracheostomy or intubation may be life-saving. Endoscopic techniques have contributed immensely to improved outcomes but these require the availability of the equipment and skills to use them as well as the pre- and post-procedure care facilities

All photographs taken by Justin Rubena Lumaya with the permission of the patient.

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South Sudanese recipients of grants from the Gordon Memorial College Trust Fund (GMCTF) in 2019

The Gordon Memorial College Trust Fund supports education of Sudanese and South Sudanese, and each year gives awards to a number of individuals and institutions. The website 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.

Thirteen grants were awarded. The following people agreed that their names be published.

- **Thomas Donguande Palet** Obstetrics and Gynaecology - St. Paul's Hospital Millennium Medical College – 4 years end date Sept.2020
- **Malik Edward Swaka Morbe** The Higher Committee of Medical Specialties Egyptian Fellowship Board Clinical MD - 5 years end date Feb 2020
- **Joice Abdelshams Mustafa Salah** General Surgery at Gondar University College of Medicine and Health Science, Ethiopia - 4 years end date Dec 2019
- **Yousif Abdalla** Paediatrics and Child Health at Gondar University Comprehensive Specialized Hospital, Northwest Ethiopia - 3 years end date Jan 2021
- **Zachair Peter Ajak Genye** St. Paul's Hospital Millennium Medical College Department of Orthopaedics and Traumatology Ethiopia - Certificate of Specialization - 4 years end date Dec 2021
- **Martin Otwang Dak Ajang** Alexandria University, Faculty of Medicine Egypt - Internal Medicine - 4 years end date September 2021
- **Olang Amon** St. Paul's Hospital Millennium Medical College, Ethiopia Speciality in General Surgery (MD) 4 years - end date September 2019
- **Denis Monday Tabia Zacharia** Aga Khan University Hospital, Dept. of Paediatrics and Child Health, Nairobi, Kenya - Master Degree Medicine (MMed) - 4 years end date January.2020
- **Fardous Charles Waya Abaya** Mbarara University of Science and Technology Dept. of Community Health - Master in Public Health - 2 years end date December 2019
- **Amanda Billy Berto Madison** Makerere University College of Health Sciences, Dept. of Paediatrics and Child Health - Master's Degree - 3 years end date August 2019
- **Amos Jada Swaka** Department of Orthopaedics, Makerere University, Uganda - MMed Orthopaedics Surgery - 4 years end date August 2021
- **Jok Thikuiy Gang Lual** St. Paul's Hospital Millennium Medical College, Ethiopia Speciality in Obstetrics and Gynaecology - Specialty Certificate in OBGYN - 4 years end date Oct 2020

Applications for 2020 should be made online through the GMCTF website www.gmctf.org between 1st December 2019 and 28th February 2020. The Committee meeting to consider the applications of shortlisted applicants will take place between mid to late April.

All applications must be accompanied by two letters of reference. 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

Dr. Eluzai Abe Hakim,

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Continuum of care for acute malnutrition in South Sudan

The 60th issue (July 2019) of the Emergency Nutrition Network (ENN) publication, *Field Exchange* (FEX), is dedicated to the 'Continuum of Care (CoC)' of children with acute malnutrition and includes a special editorial as well as three items on work in South Sudan.

There is emerging discussion and research on simplified approaches to the prevention and treatment of acute malnutrition – which at present is usually classified into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM). The editors of FEX note that much more emphasis has been given to SAM and much less to MAM although there is evidence that many MAM children are at high risk of developing SAM and of dying, and that acute malnutrition is better considered as a spectrum.

The need for rethinking on SAM and MAM is driven by the stark fact that a huge proportion (>75%) of children with acute malnutrition in 2018 did not receive any treatment (WHO et al 2019). As well as discussing the CoC needed by all children with acute malnutrition the editorial covers the anthropometric indicators used to classify wasting and stunting, and gives a good overview of the usual division of labour in the prevention and management of acute malnutrition by the UN agencies (UNICEF, WFP, WHO and sometimes UNHCR). Often, especially in emergency situations (as occurred on South Sudan) UNICEF is the primary agency for SAM and WFP for MAM.

The editorial is mindful of the many barriers to a more simplified joined up approach to the prevention and treatment of acute malnutrition, and the need for more research (some of which is covered in articles within this issue of FEX). It recommends that one UN agency has overall responsibility for CoC for the spectrum of acute malnutrition, and that there is co-ordinated research into ways to manage at risk malnourished children, especially those presently categorised as MAM.

The following articles cover work carried out in South Sudan:

ComPAS trial in South Sudan and Kenya. Page 16-18. Stage 1 of this trial tested a combined approach to treat uncomplicated SAM and MAM using a simplified dosage protocol based on using mid-upper arm circumference (MUAC), to diagnose malnutrition. It lists the benefits (e.g. it eliminates the need for different treatment products, requires less time and equipment, reduces administration and documentation, and is preferred by health staff) and the need for further testing (in Stage 2 whose results will be shared by ENN).

Factors affecting decision-making on the use of combined/simplified acute malnutrition protocols in Niger, north-east Nigeria, Somalia and South Sudan. Page 34-37. This research was carried out by the International Rescue Committee by interviewing respondents from Ministries of Health, UN agencies and NGOs in these countries - where simplified protocols have been implemented in exceptional circumstances. Respondents appreciated some of the benefits of the combined protocols (e.g. treatment in the same location) but there was a reluctance for national governments to depart from global guidance without more evidence and WHO endorsement. There seemed to be greater reluctance to combined/simplified protocols in more stable governments than where there was higher physical or food insecurity (e.g. South Sudan).

Scaling-up of care for children with acute malnutrition during emergency nutrition response in South Sudan between 2014 and 2018. Page 62-65. In 2014, impelled by overwhelming needs, UNICEF and WFP initiated a unified approach to scale-up treatment of malnourished children. This led to a 2.6-fold increase in children reached, greater geographical coverage, and alignment between outpatient therapeutic programmes and targeted supplementary feeding programmes. This approach required, among other things, a dedicated co-ordinator, joint shared data management and needs analysis, leadership by the Nutrition Cluster, support by senior levels in the Ministry of Health and UNICEF and WFP, and goodwill on all sides.

ENN aims to enhance the effectiveness of nutrition policies and programmes for populations at high risk of malnutrition, and is supported by many UN agencies and non-governmental organizations. Its free products include *Field Exchange* (available in e-copy and hard copy), *Nutrition Exchange* and the online technical forum *en-net*. ENN welcome ideas for articles for all their publications, and can provide editorial support to develop these.

To subscribe and get more information visit www.enonline.net and <https://www.enonline.net/subscribe/choose>.

Public Health Resources

Videos on Helping Babies Survive

Global Health Media Project, an organization producing videos that bring to life critical health care information for providers and populations in low-resource settings, announce the release of a suite of videos supporting the practice of newborn resuscitation. These videos reflect the latest Helping Babies Breathe (HBB) guidelines from the American Academy of Pediatrics.

* Helping Babies Breathe at Birth (<http://bit.ly/HBB20>): This video uses live footage to demonstrate the key steps in resuscitating a newborn following the HBB guidelines.

* Teaching Points for Newborn Resuscitation (<http://bit.ly/HBB-11>): This video demonstrates eleven key teaching points to improve a trainee's practical knowledge of the steps of basic newborn resuscitation.

* Helping Babies Breathe with a Training Doll (<http://bit.ly/HBB-doll>): This video shows the basic steps of newborn resuscitation using a training doll.

* Cleaning Resuscitation Equipment (<http://bit.ly/HBB-clean>): This video shows the key steps of cleaning resuscitation equipment to make it safe for the next baby. Four additional videos each focus on a single method: autoclave, boiling, steam, and chemical disinfection.

You can view and download the videos from: <https://globalhealthmedia.org/videos/newborn/>

Free online courses

Find free online courses from the London School of Hygiene and Tropical Medicine at:

<https://www.lshtm.ac.uk/study/courses/short-courses/free-online-courses>. More CPD course are listed in the July 2019 issue of Africa Health (<https://africa-health.com/>) – see <http://africa-health.com/cpd-2/>. Please tell us of other reliable online courses that might be of interest to health professionals working in South Sudan.

The Wellcome Trust is investing £80m in snakebite treatment.

https://wellcome.ac.uk/what-we-do/our-work/snakebites?utm_source=email&utm_medium=o-wellcome

- Treatments for snakebites already exist and yet the human toll from snakebites is one of the world's biggest hidden health crises. They kill more than 120,000 people each year and leave another 400,000 with life-changing disabilities, mostly in the poorest communities. To prevent this, we want to help make safe, effective and accessible snakebite treatments a reality.
- Every 5 minutes... approximately 50 people are bitten by a snake, of whom 25 people will be envenomed (injected with venom), 4 will be permanently disabled and 1 will die.
- Many people die from snake bite on the way to a health facility as a result of being transported lying flat on their backs and having their upper airway obstructed by vomit, or paralysis of muscles in the tongue. Keep them on their left side with mouth turned down so that the risk of this is reduced. <https://www.who.int/snakebites/treatment/en/>

Misusing and oversusing antibiotics puts us all at risk (Last page)

Reprinted with permission from World Health Organization 'World Antibiotic Awareness Week' 2017 <https://www.who.int/campaigns/world-antibiotic-awareness-week/2017/infographics/antibiotics-misuse.jpg?ua=1>

Misusing and overusing **ANTIBIOTICS** puts us all at risk



Taking antibiotics when they are not needed accelerates emergence of antibiotic resistance, **one of the biggest threats to global health**



Antibiotic resistant infections can lead to **longer hospital stays, higher medical costs and more deaths**



Overuse of antibiotics can cause bacteria to become resistant, meaning current treatments will no longer work

You can help reduce antibiotic resistance



Always follow the advice of a qualified health care professional when taking antibiotics



Antibiotic resistant infections can affect anyone, of any age, in any country



It is the bacteria itself not the person or the animal – that becomes resistant to antibiotics



When bacteria become resistant to antibiotics, **common infections will no longer be treatable**



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.