

# SSMJ

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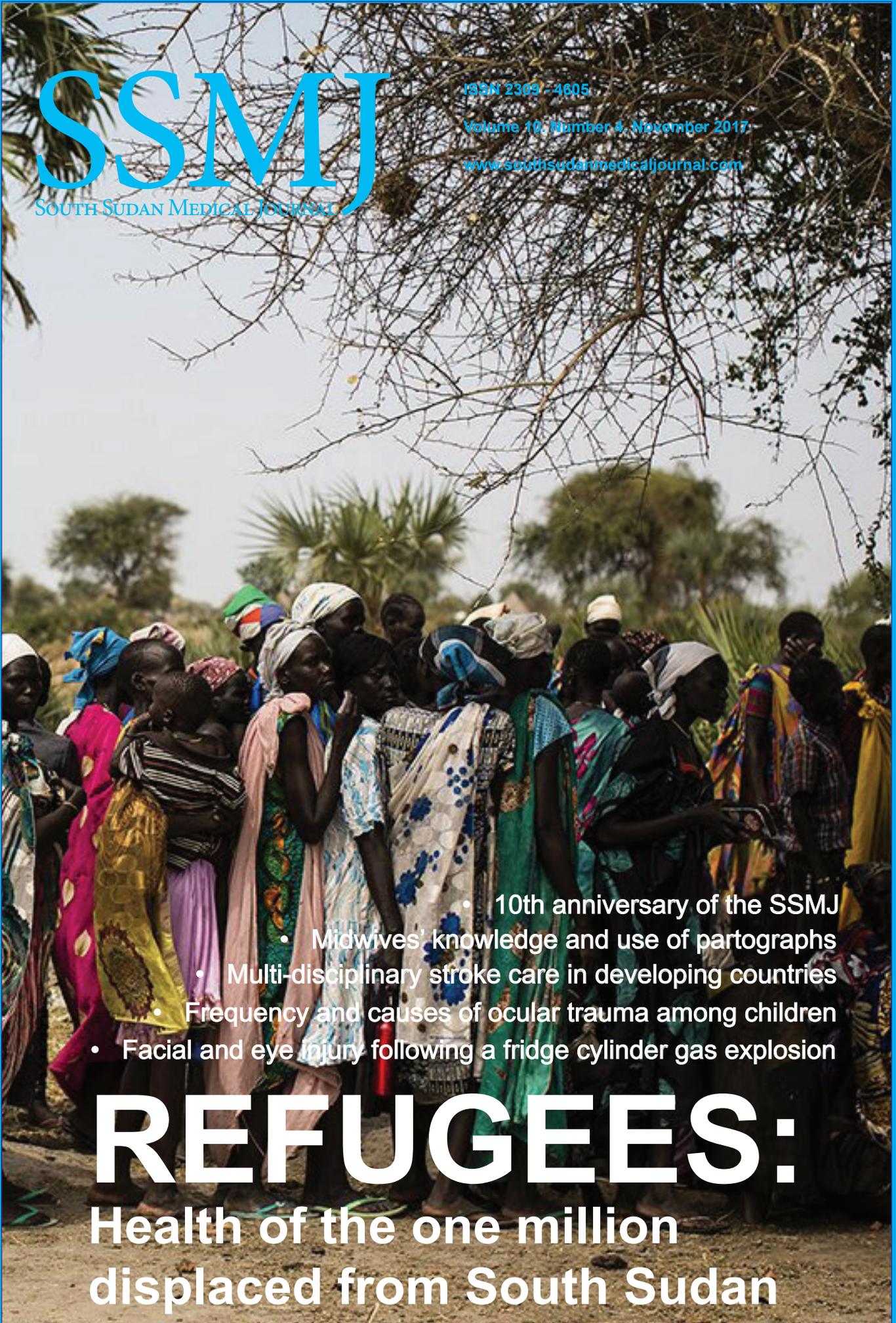
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- Midwives' knowledge and use of partographs
- Multi-disciplinary stroke care in developing countries
- Frequency and causes of ocular trauma among children
- Facial and eye injury following a fridge cylinder gas explosion

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**Front cover photo:** Women wait with their children to be examined and possibly given supplementary food in a mobile clinic run by UNICEF during a Rapid Response Mission (RRM) in the village of Rubkuai, Unity State, South Sudan, Feb. 16, 2017.

Image: Photo by Siegfried Modola/UNICEF

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Dr Edward Eremugo Luka

The *South Sudan Medical Journal* is a quarterly publication intended for Healthcare Professionals, both those working in the South Sudan and those in other parts of the world seeking information on health in South Sudan. The Journal is published in mid-February, May, August and November.

## SSMJ marks ten years of continuous quarterly publication

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With this issue in November 2017, the South Sudan Medical Journal marks its tenth anniversary of continuous uninterrupted quarterly publication since the first issue in February 2008. It has published 40 issues in ten volumes with approximately 66 research papers and 113 clinical guidance articles, in addition to editorials, reports, news items and excerpts from medical journals.

Following each publication, the hits on the SSMJ website indicate a wide interest from many countries in the world. The journal is now listed in the African Journals Online (AJOL) in South Africa, exposing it to a wider international readership, with average abstract views of 200 and 300 downloads of individual articles per month.

I co-founded the journal with Dr David Attwood to provide up-to-date clinical information to healthcare professionals (Doctors, Nurses, Midwives, Clinical Officers, Public Health Officers and other healthcare professionals) who deliver healthcare in South Sudan, especially those in areas with little or no access to clinical guidelines, or continuing professional development (CPD). Emphasis has been placed on a simple and easily understandable style of writing to ensure that the wide range of healthcare professionals reading it understand the presented material.

At its inception, my secretary, Madeleine Linington, volunteered to prepare the journal which was circulated through a page on the Saint Mary's Hospital, Newport, Isle of Wight website prior to the development of a dedicated website. Within months of its foundation the Editorial Board was joined by Ann Burgess, a nutritionist and author who assumed the role of Editorial Adviser. The present Board is composed of my British colleagues: Dr David Tibbutt, Cardiologist, and Dr James Ayrton, Anaesthetist, and South Sudanese professionals: Dr Edward Eremugo Luka, Epidemiology and Public Health, Professor John Adwok Adieng, General and Endocrine Surgeon, Professor James Hakim, Cardiology and HIV Research, Professor Charles Bakheit, Statistician, Dr Wani Mena, Ophthalmologist, Dr Charles Ochero Langoya, registrar in clinical haematology in UK, and Dr Ayat Constantine Jervase, HIV/AIDS/STIs.

As Founding Editor-in-Chief I wish to express my most profound gratitude to the Editorial Board for supporting the development of the journal in its first decade, especially Edward Luka who has redesigned the journal and prepares it for publication, and also to Rob Flooks, who has uploaded almost all issues onto our website, and James and Rachel Ayrton for help with developing the website.

I thank too those colleagues in various professions who have peer reviewed articles and helped to edit them. Those who contributed articles come from varied backgrounds and countries, with the majority coming from South Sudan, also Nigeria, Tanzania, Sudan, Kenya, Uganda, Chad and Cameroon, among others. To them I express my heartfelt thanks on behalf of the South Sudanese healthcare professionals reading the journal.

The transfer of the role of Editor-in-Chief to Dr Edward Luka, who is based in South Sudan, denotes the success of transferring of the leadership of an influential project such as the SSMJ to a local professional. This is a model of teamwork which other development projects in the South Sudan might emulate in the future.

The challenges for the future include: securing regular funding from donations or other sources to produce print copies for circulation to rural areas of South Sudan where there is no access to the internet; promotion of healthcare research to improve healthcare delivery; and encouraging South Sudanese to undertake original research in various areas of healthcare and publishing their results in the journal.

Other plans include improving our [website](#), and making more use of social media to disseminate useful healthcare information.

**Dr Eluzai Abe Hakim**, MB.Ch.B, FRCP(Edin), FRCP, DTM&H

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# Midwives' knowledge and use of partographs at Juba Teaching Hospital, South Sudan

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**Background:** Evidence shows that good knowledge of partographs and proper application of this knowledge results in a remarkable reduction in prolonged and obstructed labour and reduces maternal mortality. Obstructed labour can be prevented by a simple and cost-effective health intervention tool, the partograph. A partograph is a graphical record of the progress of labour and salient conditions of the mother and foetus plotted against time in hours. This provides an opportunity for early identification of deviation from normal progress. Early detection of prolonged labour greatly contributes to prevention of obstructed labour and related complications.

**Objective:** To assess midwives' knowledge and use of partographs in the maternity ward of Juba Teaching Hospital, South Sudan.

**Methods:** A cross-sectional descriptive study was conducted to assess utilisation of partographs among healthcare providers in Juba Teaching Hospital. All providers working at the time of the study were included. An interviewer administered questionnaire prepared in English was used to assess socio-demographic and other related variables of respondents as well as knowledge and practice. Ethical procedures were followed at every step.

**Results:** Only 20% of the 30 respondents were registered midwives, 67% knew the components of a partograph, and 93% could differentiate between normal and abnormal labour with the use of a partograph. The factors affecting the use of partographs included; shortage of partographs in the ward, lack of protocols on partograph use, understanding semantics of the English language, absence of refresher training, late reporting of mothers to the ward, and a shortage of staff.

**Conclusions:** Despite good knowledge of the partograph, about half of the providers do not use them. We recommend training and recruitment of more qualified midwives, a continuous supply of partographs to improve use of partographs continuous supportive supervision, mentoring of staff and motivation schemes.

**Keywords:** *maternal health, midwives, partograph, South Sudan*

## Introduction

In 2015, about 830 women died every day due to complications of pregnancy and childbirth. Almost all of these deaths occurred in low and middle-income countries [1]; 550 occurred in Africa and 180 in Southern Asia, compared to only 5 in high income countries. The risk of a woman dying in a developing country from a maternal-related cause during her lifetime is about 33 times higher compared to a woman living in a developed country [2].

Sub-Saharan Africa and South Asia account for 88% of maternal deaths annually. These regions suffer from the highest maternal mortality ratio, at 546 maternal deaths per 100,000 live births, or 201,000 maternal deaths a year. Many of these maternal deaths resulted from obstructed and prolonged labour, which accounts for 8-10% of the maternal deaths worldwide [2].

Evidence shows that good knowledge of partographs and proper application of this knowledge results in a remarkable reduction in the incidence of and outcomes

from prolonged and obstructed labour and reduces maternal mortality [3]. A partograph is defined as a graphical record of progress of labour and key conditions of the mother and foetus plotted against time in hours. This provides an opportunity for early identification of deviation from normal conditions. [4].

South Sudan has the worst health indicators globally, in spite of modest improvements over the last five years. The maternal mortality ratio has stagnated at 2,054 per 100,000. More than 90% of births in South Sudan happen without the help of a skilled birth attendant due to a shortage of qualified staff, poor infrastructure, poor financial status and a lack of resources [5].

The use of a partograph during labour is affected by factors such as lack of knowledge, lack of training of obstetric caregivers on the use of partographs, a lack of positive attitudes towards the use of partographs [4], a shortage of trained health workers, lack of protocols on the use of partograph and an absence of guidelines on

partograph use [6]. The aim of this study was to assess midwives' knowledge and practice related to utilising partograph in the maternity ward of Juba Teaching Hospital(JTH).

### Materials and methods

This was a descriptive and quantitative study conducted in the maternity ward of JTH from 1 to 30 May 2017. Thirty staff in the maternity ward were involved. All of the midwives and maternity nurses were included because they were few in number.

The research proposal was submitted simultaneously to the ethical committee of the Juba College of Nursing and Midwifery and Juba Teaching Hospital. Ethical approval was provided to the researcher. Informed consent was obtained from the respondent and privacy and confidentiality were ensured.

A well-structured questionnaire was used to obtain the information from respondents, and pretesting was done to ensure its validity and consistency. These questionnaires consisted of closed and open ended questions and the researchers used face-to-face oral interviews. Data cleaning, coding, and checking for consistency and completeness were done, then data was entered manually into Microsoft Excel. Descriptive statistics were computed to determine the proportion of utilisation.

The recommendations were given to the Ministry of Health, head of the Obstetrics Unit, the person in-charge of maternity, midwives to explain the importance and utilisation of partographs and the community to know the importance of hospital delivery.

### Results

All 30 midwives working in JTH were involved in the study making the response rate of 100%. 63% of the respondents have a good knowledge of partographs.

Table 1 shows the number of respondents who had used a partograph, and their knowledge of partographs including the reasons for using or not using partographs, conditions not diagnosed by a partograph, and the time to start a partograph plot when monitoring labour.

Table 2 shows respondents' views of factors affecting utilisation of partographs such as the time it takes to receive partograph supplies in the maternity ward, problems encountered while using a partograph, a labour management protocol that encourages use of a partograph and its key items, length of training on the use of partographs, and whether there is a need for a refresher course on the use of partographs.

Figure 1 shows the problems that the midwives encountered with the use of partograph. The most important was lack of partographs in the labour ward, and the limited number of staff.

**Table 1. Respondents' utilisation of partographs**

Variable	n	%
Use a partograph in the maternity ward:		
- Yes	10	33
- No	20	67
Reasons for using a partograph:		
- Monitor the wellbeing of the mother and foetus and the progress of labour	30	100
Reasons for not using a partograph:		
- Not allowed	2	7
- Few staff members on duty	15	50
- It is time consuming	10	33
- It is for doctors only	3	10
Monitor all mothers in labour using a partograph:		
- Yes	6	20
- No	20	67
- Sometimes	4	13
Condition not diagnosed by use of a partograph:		
- Inefficient uterine contraction	3	10
- Prolonged labour	2	7
- Foetal distress	1	3
- Pre-eclampsia	24	80
Time for starting to plot a partograph when monitoring labour:		
- When the cervix dilates to 4 cm and above	25	83
- When the cervix is fully dilated	3	10
- When a mother reports to the maternity ward with any complaint	2	7

### Discussion

Most of the respondents were above 45 years of age, the majority were married and almost half said they had attained a tertiary level of education. Half of them were certified midwives and a quarter had work experience of 11-20 years.

The partograph can give valuable information in visual form [7]. Regarding the respondents' actual partograph utilisation, only 33% used the partograph for monitoring the maternal/foetal condition and the progress of labour. A study by the University of Nairobi showed that knowledge of partograph utilisation was poor, as only 23.8% of used partographs had been filled in correctly [8]. In south India only 3.8% of births were monitored using a partograph [9].

**Table 2. Factors affecting respondents' utilisation of partographs**

Variable	n	%
Receive a regular supply of partographs in the maternity ward:		
- Yes	3	10
- No	27	90
Encounter problems with the use of partographs:		
- Yes	29	97
- No	1	3
Facility has a labour management protocol for using partographs:		
- Yes	1	3
- No	29	97
Key items in the labour management protocol:		
- Monitoring mothers in labour using partographs	1	3
- No idea	29	97
Received training on the use of partographs:		
- Yes	20	67
- No	10	33
Received refresher training on the use of partographs:		
- Yes	12	40
-No	18	60
Need to have a refresher course on the use of partograph:		
- Yes	29	97
- No	1	3

**Conclusion and recommendaton**

Midwives' knowledge and use of partographs in the maternity ward of JTH play an important role as obstructed and prolonged labour can be detected by the use of the partograph. We therefore make these recommendations:

1. Ministry of Health:
  - Training of more midwives, recruitment of trained midwives, increased salaries and organization of refresher courses on the use of partographs.
2. Head of the Obstetrics Unit of JTH:
  - Provision of partographs in the labour ward, translation of the partographs into Arabic and having protocols on the use of partographs.
3. Person in-charge:
  - Allocation of midwives duties, monthly evaluation of staff work and addressing of problems facing staff during monthly meetings.
4. Midwives:
  - Self-motivation in using partographs and explaining to mothers dangers of home delivery and the importance of antenatal visits.
5. Community leaders:
  - Raising awareness among community members about the importance of hospital delivery and the dangers of home delivery, identification of complications and early referral of cases.

**Constraints**

This study was limited by the sample size. As it does not

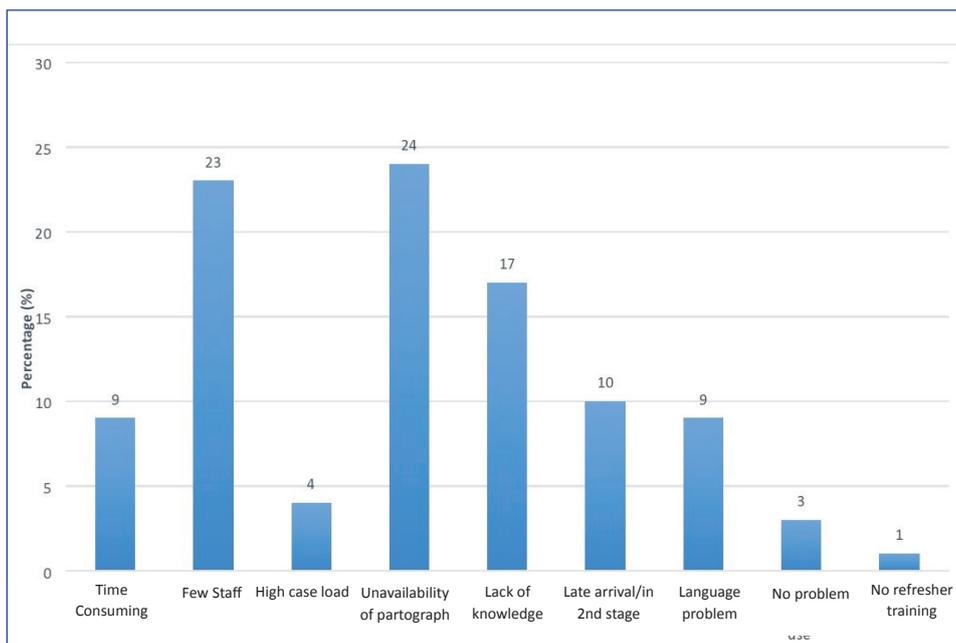


Figure 1. Problems encountered with the use of partograph

involve regression analysis, some confounders may obscure or mask the significant knowledge and use of partographs. However, the findings can provide an insight into how midwives can utilize partographs in the maternity ward of JTH. We recommend a more comprehensive study.

### Acknowledgement

We thank the midwives who gave us their precious time, and the administrators and staff of Juba Teaching Hospital and Juba College of Nursing and Midwifery for approving the study

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# Frequency and causes of ocular trauma among children attending Mulago Hospital Eye Department

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**Background:** Ocular trauma is a frequent and avoidable cause of visual impairment. Injuries range from a small corneal epithelial abrasion to penetrating and globe rupture leading to blindness or poor vision. Hospital based studies of eye trauma indicate that about two thirds of those affected are male, predominantly children and young adults with injuries by sticks, stones, and metallic objects being the most.

**Objective:** To examine the frequency, pattern and causes of ocular trauma among children at Mulago hospital using a hospital based descriptive cross-sectional study.

**Results:** Of the 161 children seen with ocular trauma, 45.9% were aged 0-5 years, 32.3% were aged >5-12 years and 21.8% were aged >12-17 years; the male to female ratio was 2.1. Sticks were the commonest agent of injury. The most common places of trauma was in the home and school, and the commonest activity at occurrence of injuries was playing and fighting. Only 2.5% of cases presented to the hospital within 24 hours. About a quarter presented with immediate visual acuity better than 6/18, while 19.2% presented with visual acuity worse than 6/18-6/60, and 44% presented with visual acuity worse than 6/60-NPL.

**Conclusion:** The frequency of ocular trauma amongst children attending Mulago Hospital is high, one in every five children seen at the eye clinics had ocular trauma.

**Key words:** *Mulago Hospital, ocular trauma in children, paediatric.*

## Introduction

Ocular trauma is damage to the eye as a result of mechanical, electrical, thermal, or chemical energy [1]. It is a frequent and avoidable cause of visual impairment. Injuries range from a small corneal epithelial abrasion to penetrating and globe rupture.

Over 55 million eye injuries occur each year [2]; 1.6 million people go blind from these injuries, 2.3 million suffer bilateral low vision and 19 million remain with unilateral or low vision.

In sub-Saharan Africa a population based survey of blindness showed that monocular blindness due to trauma ranges from 20–50% [2]. In a few surveys trauma was listed as a cause (3.2–5.5%) of bilateral blindness [3]. Hospital based studies of eye trauma indicate that about two thirds of those affected are male, predominantly children and young adults with injuries by sticks, stones, and metallic objects being the most common [4]. Injuries among children are usually accidental and uni-ocular while among adults they are usually the result of intentional assault.

Over the last ten years, the number of children with ocular injuries seen in the Eye Department have increased from 720 in 2013 to 912 in 2014. Many had suffered complete loss of vision in the affected eye and some had disfigurement.

There is no documented study of ocular trauma in children in Uganda. So the aim of this study was to record the frequency, features and causes of ocular trauma in children at Mulago National Referral Hospital Eye Department.

## Method

The study was conducted from August to November 2015. All children aged under 18 years who presented during the study period (and who were conscious, with stable vital signs) were enrolled with appropriate consent until the required sample size (using the Kish and Leslie formula) was attained

All children were tested for visual acuity, had a detailed history taken and physical and ocular examinations.

Data were handled using EpiData. Analysis was mainly

**Table 1. Socio- demographic characteristics**

Socio-demographic variable	n	%
<b>Age - years</b>		
0-5	74	45.9
> 5-12	52	32.3
> 12-17	35	21.8
<b>Sex</b>		
Male	103	64.0
Female	58	36.0
<b>Residence</b>		
Urban	54	33.6
Rural	107	66.4
<b>Education</b>		
Pre-school	60	37.2
Primary	63	39.2
Secondary	38	23.6
<b>Ethnicity</b>		
Bantu	147	91.3
Non Bantu	14	8.7
<b>Religion</b>		
Christian	126	78.2
Muslim	35	21.8

descriptive using the stata version 12 program. Permission was obtained from the Department of Ophthalmology, School of Medicine Research and Ethics committee, Makerere University College of Health Sciences. Consent was obtained from participating children aged above 15 years and from parents/ guardians of younger children.

## Results

### Socio- demographic characteristics

Out of 743 children examined, 161 had ocular trauma of which 42 were old cases being followed up. Table 1 shows the number in each age, sex and education group. The majority resided in rural areas, were in the Bantu ethnic group and were Christians. Children aged 0-5 years were most commonly affected, and there were more males than females in all age groups.

### Details of Trauma

Table 2 shows that:

- Trauma usually affected only one eye
- More than half of the injuries occurred at home followed by a third at school
- Most children were injured during play while less than 10% were due to a road traffic accident (RTA), assault or fighting

**Table 2. Clinical history of the study population (n = 161)**

Factor Variable	Category	n	%
<b>Injured Eye</b>	Unilateral	155	96.2
	Bilateral	6	3.8
<b>Location at time of injury</b>	Home	90	55.9
	School	57	35.4
	On the road	10	6.3
	Playground	4	2.4
<b>Circumstance</b>	Play	126	78
	Road traffic accidents	13	8.0
	Assault	13	8.0
	Fighting	8	5.0
	Others	1	0.7
	Within 24 hours	4	2.5
<b>Time between injury and report for medical attention</b>	72-24 hours	27	16.7
	72 hours - one week	89	55.2
	More than one week	39	24.3
	Undetermined	2	1.3

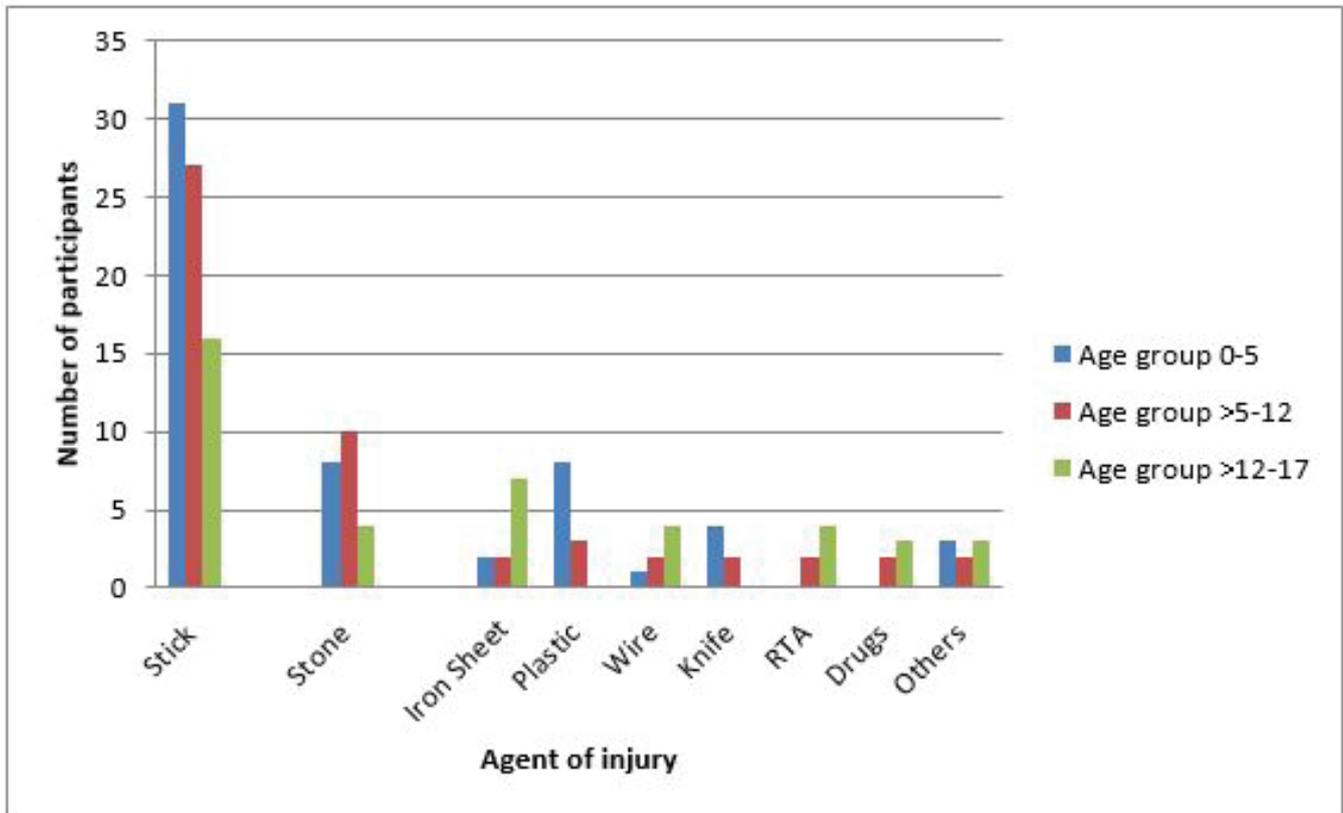


Figure 1. Distribution of agent causing injury by age group

- Very few presented to the hospital within 24 hours of time of the injury

About a quarter of children presented with immediate visual acuity better than 6/18, while 19.2% presented with visual acuity worse than 6/18-6/60, and 44% presented with visual acuity worse than 6/60-NPL.

#### Types of eye injuries sustained by the 161 children

Corneal laceration was the most common injury (47.8%) followed by traumatic infected corneal ulcers (13.4%), lid laceration (7.4%), traumatic cataract (5.5%), traumatic hyphema (5.5%), traumatic endophthalmitis (4.9%), corneal abrasion (4.3%), superficial foreign body (3.1%), traumatic corneal scars (3.1%) and others (4.9%). One hundred and twenty-two ultrasound scans were done on 122 children showed 108 were normal, 10 had traumatic cataract, and 2 each had retinal detachment or vitreous haemorrhage. Two brain CT scans were done: one was normal and the other showed brain oedema.

Figure 1 shows most injuries were caused by sticks or stones. For home-related injuries, wire and knives were mainly involved. Males were more affected than females with all agents except for wire and knives. Females were not affected by drugs.

#### Treatment of 'old' cases

Table 3 shows that 23.9% of the 42 children were

managed conservatively with eye drops, ointments and systemic antibiotics, and 76.1% had surgical repair and antibiotic cover. The time between admission and surgical operation ranged from within five days (56.2%) and over ten days (22.0%). The length of stay in hospital ranged from 0 – 5 days (77.7%) to over 16 days (2.7%).

#### Discussion

In our study the frequency of ocular trauma (21.6%) was a less common presentation to other presenting conditions in children such as squint/ red eye compared to some other investigations [5]

Only 2.5% of the patients presented within the first 24 hours of injury, 55.2% presented within one week, and 16.8% presented after more than one week. It has been reported that patients in the lower socioeconomic levels delayed presentation for longer than in those in higher socioeconomic levels, regardless of whether the injury was mild or severe.

Forty-four per cent of children presented with an initial visual acuity of <6/60- non-perception of light of the involved eye: most had open globe injuries. A Kenyan study [5] found that 70% of patients had open globe injuries and 77% presented with an initial visual acuity worse than 6/60. In our study we found that play accounted for the majority of ocular trauma cases, because children during play are vulnerable - with males in all age

Table 3. Details of 42 'old' cases

Factor Variable	Category	n	%
Injured Eye	Surgical	32	76.1
	Medical	10	23.9
Time between admission and surgical operation (n=32)	0-5 days	18	56.2
	6-10 days	7	21.8
	11-15 days	4	12.5
	16 days and more	1	3.2
	Undetermined	2	6.3
Hospitalization period (n=42)	0-5 days	28	77.7
	6-10 days	3	8.3
	11-15 days	2	5.5
	16 days	1	2.7
	Undetermined	2	5.5

group being most affected. Sticks and stones were most commonly involved and this reflects the same experience reported from Kenya [5]. The incidence of injuries in the home in this study (55.9%) is significantly higher than a study in Egypt [6], where the frequency of ocular trauma occurring at home was 45.6%.

In this study there were more males than females - similar to that reported in Nigeria [7, 8] and may be attributed to the greater tendency for males to be involved in injury-prone contact sports and recreational activities.

### Conclusion

One in every five children that present to the eye department at Mulago, do so as a result of ocular trauma and 44% of these patients have poor vision in the affected eye. As most of these accidents occur when playing in the home or at school and only 2.5% of patients attend eye clinic within 24 hours there is a need to educate parents and teachers in prevention strategies and encourage early presentation to an eye clinic.

### Competing interests

There were no competing interests to declare.

### Acknowledgements

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# Multi-disciplinary stroke care in developing countries – lessons from the Wessex-Ghana Stroke Partnership

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## Introduction

Stroke disease in Ghana has been of increasing concern since the mid to late 20th century, in association with the increasing westernisation of diet and lifestyle [1]. Two thirds of world-wide mortality cases from stroke occur in sub-Saharan Africa [2], and in the Ghanaian capital city region of Accra, stroke is now attributed as the second largest cause of death [1]. The burden of stroke in sub-Saharan Africa is significant [3].

Experts recommend a three-prong approach to dealing with the burden of non-communicable disease (NCD): epidemiological surveillance; primary prevention (preventing disease in healthy populations); and secondary prevention (preventing complications and improving quality of life in affected communities) [4]. This paper outlines the development of a specialist stroke service in Accra, Ghana. This work therefore broadly relates to the secondary prevention aspect, achieved through the development of a dedicated and specialised stroke service. Whilst this project took place in Ghana, the learning could be applied to the development of a stroke service in any resource poor setting, such as South Sudan. Indeed, because the focus is on establishing the fundamentals of organised stroke care, the principles are also entirely relevant to more developed health care systems.

## The Project

Despite overwhelming evidence of the benefit of organised stroke care [5, 6], until recently, there were no specialist stroke services in Ghana.

In 2009, a multi-disciplinary team of health professionals working in stroke care across Wessex (UK) joined with the Korle Bu Teaching Hospital (KBTH), Accra (Ghana), to form an international health partnership. The aim was to share knowledge of stroke management.

The Wessex-Ghana Stroke Partnership (WGSP) has developed through multiple visits from the UK to Ghana,

as well as reciprocal visits from the Ghanaian team to the UK. A dedicated Stroke Unit was opened at KBTH in January 2014. Whilst stroke care can be improved without a specialist Unit, having a dedicated space to cohort patients has been an important enabler in the success of this partnership. In addition, the partnership has focussed on four main areas of development: clinical leaders; multidisciplinary care; core stroke knowledge and skill; and empowering patients and their families [7].

## Identify and develop clinical leaders

Recognising stroke as a clinical specialism, and developing an identified team of leaders from medicine, nursing and physiotherapy, was one of the first steps taken by the partnership. Investing in developing not just the clinical knowledge and skill within these individuals, but also their confidence as leaders and role models within the service, has been a key factor in the success of this project. The collective ability of this team to lead the service, whilst taking responsibility for their respective professional group, is a particular strength of the approach the WGSP has taken. These clinical leaders are now supported by deputies (succession planning), as well as nominated link individuals from occupational therapy, speech and language therapy, dietetics, pharmacy and psychology.

## Recognise and harness multi-disciplinary approaches to care.

Multi-disciplinary working is the cornerstone of effective stroke unit care, yet was underdeveloped within the KBTH service. At the beginning, there was a tendency for individuals to work within their own professional silo, and a lack of willingness to come together to collaborate in the delivery of care – at both service and individual levels. Breaking down these barriers has enabled care to be delivered more consistently and effectively. This development of Multi-Disciplinary Team (MDT) working builds directly on the growth of the clinical leads for stroke, but goes beyond simply having leaders

in place. It is about changing the culture of the Unit, so that the people working there have the confidence to share their knowledge and skill, to communicate more effectively and openly, to discuss and debate all aspects of the service, to challenge poor practice, and to reward good practice. A number of systems have been put in place to support this cultural shift, including the introduction of MDT meetings, the development and delivery of MDT programmes, and the use of a shared data set to monitor progress.

Empowering the Ghanaian health professionals to develop their own roles and practice has been fundamental, taking a 'coaching' rather than a 'teaching' route. Leadership training has been an integral part of this process.

### **Deliver the basics of clinical care consistently, and well.**

Research suggests that chronic disease knowledge is poor among health workers in developing countries [8]. Poor health worker knowledge has been implicated in poor communication, the development of complications and in healer-shopping [8, 9]. Certainly, stroke as a clinical speciality was a relatively new concept at KBTH. Therefore, the WGSP has focussed on the development of core clinical skills, which will be relevant to the majority of patients, and that can be delivered within existing resources.

The UK and Ghanaian teams have focussed on finding local solutions to local clinical problems. Whilst we may draw on evidence from the UK and other Western countries, careful consideration is given to what is and is not relevant within the Ghanaian context. Simply replicating UK practice in Ghana would not be appropriate.

A number of core skills were identified collaboratively, as those that would have the greatest impact for patient care/outcomes, and would be achievable within current resources. A strong emphasis has been placed upon embedding relatively few key skills, to ensure sustainability. The initial four skills, and an outline of what they covered, is given below:

- Swallow and nutrition

*Bedside water swallow assessment, monitoring for signs of dysphagia, modification of diet and fluids using locally available ingredients, use of nasogastric tubes.*

- Positioning and manual handling

*Positioning and repositioning in bed, transferring from bed to chair, handling the hemiplegic limb(s).*

- Communicating with an aphasic / dysphasic patient

*Bedside assessment of receptive and expressive dysphasia,*

*adapting communication to support someone with aphasia to communicate (total communication strategies).*

- Continence

*Basic assessment of incontinence (identifying type), use of catheters, strategies for promoting continence.*

Later, four additional areas for skill development were added, these were:

- Mood

*Incidence and causes of low mood following stroke, identifying low mood, strategies for managing low mood.*

- Functional Independence

*Ways of promoting independence, through rehabilitation +/- compensation.*

- Secondary Prevention

*Understanding risk factors for stroke and secondary prevention strategies (pharmaceutical, lifestyle); educating patients and their families.*

- Planning for discharge from hospital, and family education.

*Identifying challenges for management at home, supporting patient and family to prepare for home through advocacy, training and support.*

For each of the skills, teaching materials were developed, and a train-the-trainer model was used to ensure that training was disseminated in an ongoing way. To ensure clinical skills were translated into practice, a practical competency framework was also developed. The Ghanaian stroke leads, and their deputies, have responsibility of ensuring that those working on the Unit are able to demonstrate application of skills relevant to their role, in the clinical setting. Competencies have been completed across all of the professions working on the Unit.

### **Empowering patients and their families**

Evidence suggests that individuals living with chronic diseases in Ghana, and other African countries, may have poor knowledge of their condition(s) and how to manage them [9-11]. There is also a tendency for people to be passive recipients of care within the Ghanaian health system. Yet hospital admission can be short, and a lack of community health or social care services means that families will be the main providers of care and support following discharge from hospital.

Educating patients and their families is therefore vital, if secondary complications are to be reduced, and rehabilitation is to be maximised. The WGSP has focussed on supporting patients and their families to understand their condition, as well as providing practical

skills (for example, in relation to feeding, communication and manual handling). This is complemented by written information. All members of the Ghanaian MDT have the ability to educate patients and their families on elements of stroke care, including those that may be outside of their traditional professional remit, for example, secondary prevention. This allows for the message to be reinforced, and the opportunities for educating patients and families to be capitalised.

### Conclusions

Stroke care is multifaceted and complex, and therefore any approach to developing specialised stroke care must take the various facets into account. The identification of core skills, and building on these in a stepwise manner, is important to minimise the theory-practice gap – i.e. ensuring that new skills are embedded within clinical care. An important part in this, which would be relevant to any specialism, is the development of more tacit skills, such as leadership and MDT working. These aspects have been a fundamental part of the WGSP, and contribute to the sustainability of the development work that has taken place.

Whilst the prevalence of stroke and other NCD's is largely unknown in South Sudan [12], the World Health Organisation estimates that the probability of dying between ages 30 and 70 years from the four main NCDs is 20%. Like any low income setting, there is likely to be an unmet need with regard to un-identified and un-treated stroke risk factors, and a hidden burden of stroke disease within communities. The WGSP has demonstrated that specialist services can be developed without additional resource. We are beginning to see the impact this has on outcomes to patients and their families. The findings from this work could potentially be replicated in other low and middle income settings, including South Sudan, where a basic health infrastructure is in place.

Further information and resources are available via [www.wgstroke.org](http://www.wgstroke.org).

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# Facial and eye injury following a fridge cylinder gas explosion

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## Introduction

Fridge cylinders contain liquefied petroleum gas (LPG), an inflammable gas of mixture of propane and butane [1]. It's colourless but odourised to give warning during leakage. Injury from accidental fridge cylinder explosion is similar to any other blast injuries in terms of the release of hot gases, blast wave and metal fragments resulting in extensive skin burns, abrasions, penetrating injury and tissue loss [2-4]. Ocular trauma following gas cylinder explosion is rare however, Babar et al reported 20% of ocular trauma to be secondary to gas cylinder and battery explosion [2].

To our knowledge, this is the first case of facial and eye injury following a fridge cylinder gas explosion reported in the literature.

## A case report

A 14-year old male welder apprentice presented at our clinic on account of left sided facial burns with left eye (LE) poor vision following a fridge gas cylinder explosion one hour prior to presentation. He was trying to weld an empty leaking fridge cylinder without protective glasses when it suddenly exploded. There was associated left facial burn, reduction in LE vision, tearing, ocular redness and pain. There was no loss of consciousness and no other ocular symptoms. He had no visual impairment prior to the accident.

The other co-workers immediately applied water to his face, wrapped his head with a cloth and brought him to our hospital.

Examination revealed a young boy in painful distress, fully conscious, alert, acyanosed and not in any respiratory distress. He had a left facial first degree burn (2%) and abrasion that respected the mid-line. Visual Acuity (VA) of the right eye (RE) and left eye (LE) was 6/6 and 6/30 respectively. There was LE periorbital oedema with mechanical ptosis and both eyes (BE) were mildly hyperaemic (LE>RE).

There were central cornea and inferior cornea ulcer stained with fluorescein in LE and RE respectively. However, the anterior chambers (AC) in BE were normal.

Pupils in BE were round and reactive (but sluggishly in the LE). Lenses were clear in BE. Fundus examination

revealed a glimpse of a pink disc in the RE. While, LE revealed glimpse of retinal (red reflex) only (Figure 1). A diagnosis of first degree facial burn and BE corneal ulcer was made.

Patient was admitted and managed with copious irrigation of face and both eyes with normal saline and intramuscular tetanus toxoid 0.5ml. To both eyes were also applied flurbiprofen (Ivyflur) drops 8 hourly, tropicamide (Mydriacyl) drops 8 hourly and chloramphenicol ointment at night.

For 48 hours intravenous ceftaxidime 500mg 12 hourly and metronidazole (Flagyl) 250mg 8hourly and then diclofenac (Cataflam) tablets 50mg 8 hourly, metronidazole tablets 200mg 8 hourly and cefuroxime (Zinnat) tablets 250mg 12 hourly. Vitamin C tablets 200mg 8 hourly.

Facial wound was dressed with dermazine (1% silver sulfadiazine) cream 8 hourly.

8 days later the facial wound and cornea ulcer healed without complication (Figure 2). Left eye VA improved to 6/9 on 5 days and then 6/6 on 8 days after admission.

The patient was followed up one week after discharge (15 days after the incident). The facial wound had healed without complications and VA in BE were 6/6 (Figure 3).

## Discussion

This case illustrates the danger associated with accidental gas explosion. The mechanism of cylinder gas explosion injury are mainly divided into 4 stages [1].

1. Primary injury -sudden change in the environment caused by blast wave.
2. Secondary injury -flying fragment.
3. Tertiary injury- against stationary object.
4. Quaternary injuries (miscellaneous blast related injuries) encompass injuries caused by collisions, falling masonry, buildings, or beams.

The possible mechanism in this case was primary injury. This was in agreement with Babar et al [2] who reported two cases of ocular trauma from blast burn wave of (LPG) cylinder explosion. The explosion in our case



Figure 1. Patient at presentation (credit Dr Monsudi Kehinde)



Figure 2. Patient 8 days after admission (credit Dr Monsudi Kehinde)



Figure 3. 15 days after the incident (credit Dr Monsudi Kehinde)

might be due to either leakage of gas from the fault valve or rusting cylinder and building of pressure inside the hot cylinder during welding of the cylinder. However, the assumption by the patient that the gas cylinder was empty might have encourage him to try to weld the cylinder.

Another possible mechanism may be secondary injury. Facial abrasion from flying fragment of the gas cylinder. The left part of the face and the eyes were mainly affected by this injury; this might be because the boy was using his right hand to weld the cylinder in closer proximity to locate the leaking area during the welding without using protective glasses.

The use of protective devices has been advocated by many authors [5-7] to be the best way of preventing eye injury in the high risk occupation workers including welders. Gordon et al reported 85% of ocular injuries in Hong Kong at the workplace occurred among individuals who refused to wear protective devices despite knowledge about the risks involved [5].

The management of facial and ocular fridge cylinder gas explosion is similar to other explosion heath injury. It is dependent on the extent of injury and the involvement of life threatening conditions (brain, respiratory and vascular system). In this patient, there was no loss of consciousness or a life threatening condition. Copious irrigation with water at accident site and copious irrigation with normal saline at hospital help to reduce contact time between gas and tissue, and also decreased the chemical effect of the gas from further damaging the tissue. Furthermore, it also reduced pain experienced by the patient.

Early hospital presentation and prompt eye care helped in restoring vision and wound healing in this patient without complications. The systemic and topical antibiotics prevent secondary bacterial infection. Health education about the danger of gas explosions, wearing protective glasses, hand gloves and precautions when handling fridge gas cylinders are important ways of preventing injury from gas explosions.

### Conclusions

Gas cylinder explosions may result in life threatening and severe ocular injury if not properly managed. Early presentation and effective management resulted in good facial healing and vision in this patient. Public enlightenment on the dangers of cylinder gas explosions and safety precaution in handling gas cylinders are crucial to the prevention of further incidents?

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# The health of South Sudanese refugees: one million and counting

## Background

The international community was shocked in August 2017 when the number of South Sudanese refugees in Uganda reached one million. It was news that made the world focus on this devastating conflict which is now into its fifth year and with no end in sight. There was a scramble to revive the peace agreement and the United Nations Security Council under Secretary General Antonio Guterres held a special session to review the humanitarian crisis in the country. The spotlight on the refugees was timely.

The United Nations High Commissioner for Refugees (UNHCR) defines a refugee as: “a person who is outside their country of nationality due to a well-founded fear of persecution for reasons of race, religion, nationality, particular social group membership or political opinion and is unable or unwilling to avail themselves of the protection of their country or return to it”.

The number of refugees continues to rise, not only in Uganda, but also in Sudan, Ethiopia, Kenya, Democratic Republic of Congo (DRC) and Central African Republic (CAR). South Sudanese are leaving the country in droves, uprooted from their home once again to seek refuge across the borders. Many more continue to seek refuge as internally displaced persons (IDPs) in the protection of civilians' sites throughout the country.

## Numbers of refugees and IDPs

The infographic shows that, as of 30 September 2017, the numbers of refugees from South Sudan in the region, about 17% of the 12.7M population, are staggering:

- Total South Sudanese refugees in the region: 2,096,139
  - o Uganda: 1,034,106
  - o Sudan: 447,287
  - o Ethiopia: 416,886
  - o Kenya: 110,377
  - o DRC: 85,426
  - o CAR: 2,057
- Arrived in camps in 2017: 637,455

There are also:

- 279,160 IDPs within South Sudan

It is also worth mentioning that 63% of the refugees are children under the age of 18 years. The total population of concern according to the world body is 4.24 million people. It is estimated that by the end of 2017, the number of South Sudanese refugees expected to be hosted in the region will be 2,130,500.

## Causes of mortality among refugees

According to the UNHCR, the factors contributing to deaths among refugees freshly arriving in the camps are:

- Overcrowded living conditions which facilitate increased transmission of infectious diseases;
- Poor nutritional status (and consequent lowered immunity) due to lack of adequate food before, during and after displacement;
- Inadequate quantities and quality of water to sustain health and allow personal hygiene;
- Poor environmental sanitation;
- Inadequate shelter.

## Focus on refugee health

To alleviate the health problems that refugees face, many of the international NGOs working in the camps focus on basic services that save lives. Some of the key aspects of interventions for refugee health are:

- Basic health services: health clinics, distribution of mosquito nets, etc.;
- Support to pregnant women and lactating mothers;
- Water, sanitation and hygiene needs;
- Nutrition and food assistance, such as supplementary feeding for children aged 6-23 months;
- Immunization services for children;
- Provision of adequate shelter.

UNHCR has provided the following indicative parameters and values to be used for planning purposes:

# SOUTH SUDAN SITUATION

Regional overview of population of concern

as of 30 September 2017



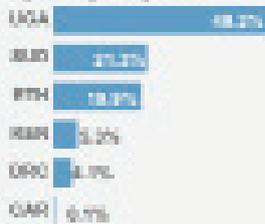
## KEY FIGURES



**4.24 MILLION**  
population of concern

**2.09 million**  
total refugees  
from South Sudan

By country of asylum



**2.15 million**  
pop. of concern  
in South Sudan

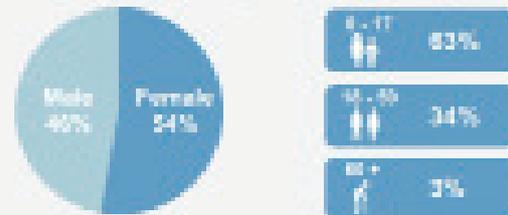
By population of concern



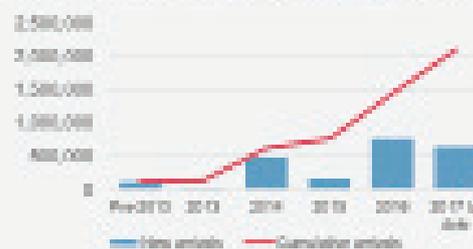
**USD 883.5 million requested**  
**USD 277.8 million received (31%)**  
by UNHCR in 2017 for the South Sudan situation (as of 2 Oct)

## SOUTH SUDANESE REFUGEES

Sex and age breakdown of registered refugees in the region

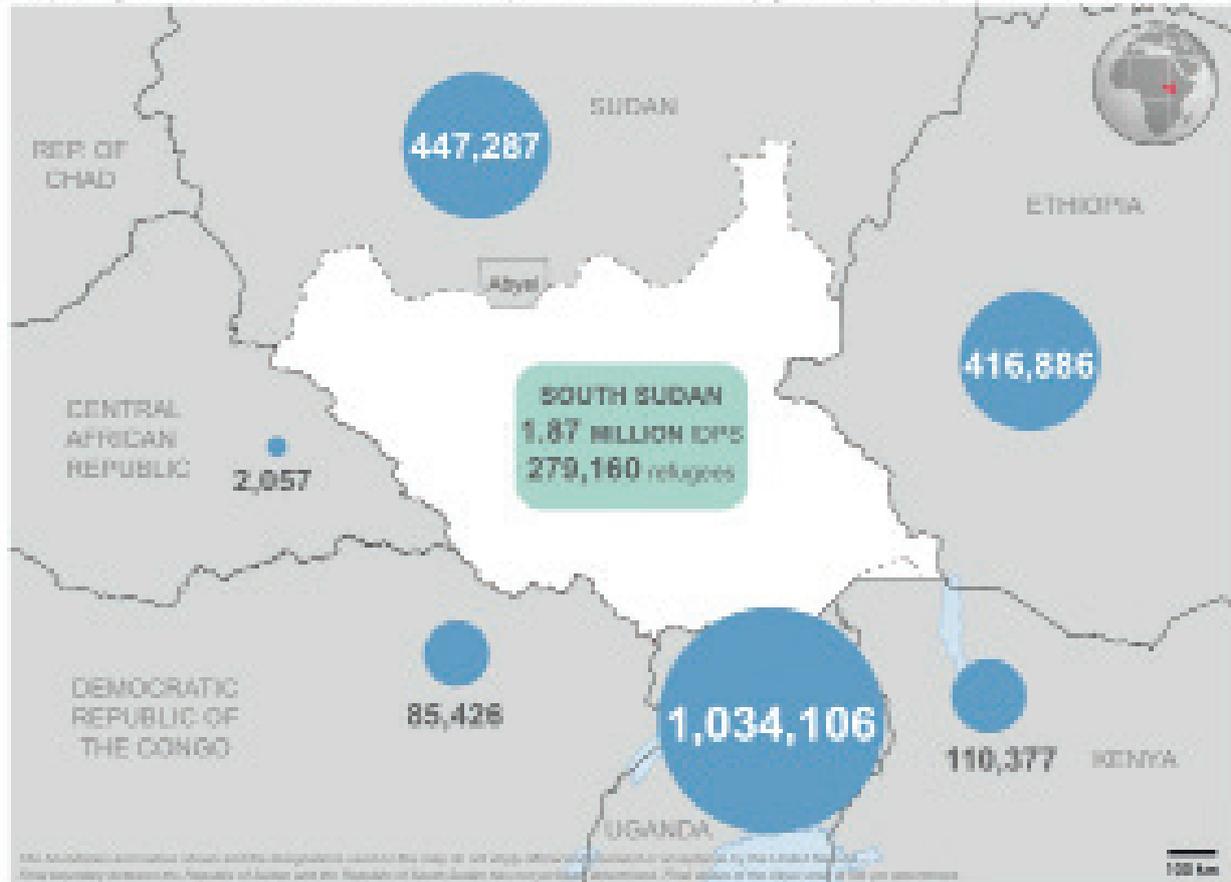


Yearly and Cumulative Result Subsequent Refugee Arrivals



**2017 arrivals (1 Jan - 30 Sept): 637,445**  
Based on field reports, UNHCR and Government registration

The population figures are based on data available in the date of publication. UNHCR continues to verify figures. Future updates may occur as more information becomes available.



Date: 30 September 2017 Source: UNHCR, OCHA, Governments, Partners Feedback: [partners@unhcr.org](mailto:partners@unhcr.org)



South Sudanese refugees queue for food in DR Congo camp (Credit - UNHCR)

- Water - Minimum survival 7 litres/person/day. Target 15-20 litres/person/day;
- Food - Daily caloric requirements 2100 Kcal/person/day;
- Sanitation - Excreta disposal 1 Latrine/20 persons;
- Shelter - Minimum shelter area 3.5 sqm/person;
- Minimum site area 30 sqm/person.

### Mental health and psycho-social support

One of the key aspects of refugee care is mental health. Many refugees experienced severe trauma caused by the war that may have long-lasting effects on their lives. Many have lost their families, especially unaccompanied children who are left to fend for themselves in a new environment. Many become involved in high-risk behaviours to cope with these changes. To deal with such occurrences, referral mechanisms and specialized services such as psycho-social support, medical services, legal aid and safe shelters must be in place.

### Gender based violence

Refugee and IDP women and young girls continue to be exposed to different forms of sexual and gender based violence (SGBV), including early marriage. Many were victims of rape or have been exposed to terrible ordeals of a sexual nature. They have to confront cultural barriers

that hamper their access to jobs, education, and vocational and life-skills' training opportunities. Special programmes must be made available to provide education, support and training not only to the health staff, but also to the community around the women.

### Conclusion

As more and more South Sudanese continue to stream across the borders to the neighbouring countries, the focus has shifted to how to care for them. With many unaccompanied children and households headed by women, the NGOs struggling to care for the refugees need to be supported. The country risks

having a generation of children who will go without schooling and who will suffer the long-term effects on their health from the undernutrition and mental trauma. The only way to end this health crisis affecting so many of our vulnerable people is for peace to return to South Sudan.

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I thank UNHCR for the infographic from the “UNHCR South Sudan information sharing portal” at <http://data.unhcr.org/SouthSudan/regional.php>

*Commentary contributed by Edward Eremugo Luka, Editor-in-Chief (Email: opikiza@yahoo.com)*

## Launch of the UK-South Sudan Alliance for Health Sector Development



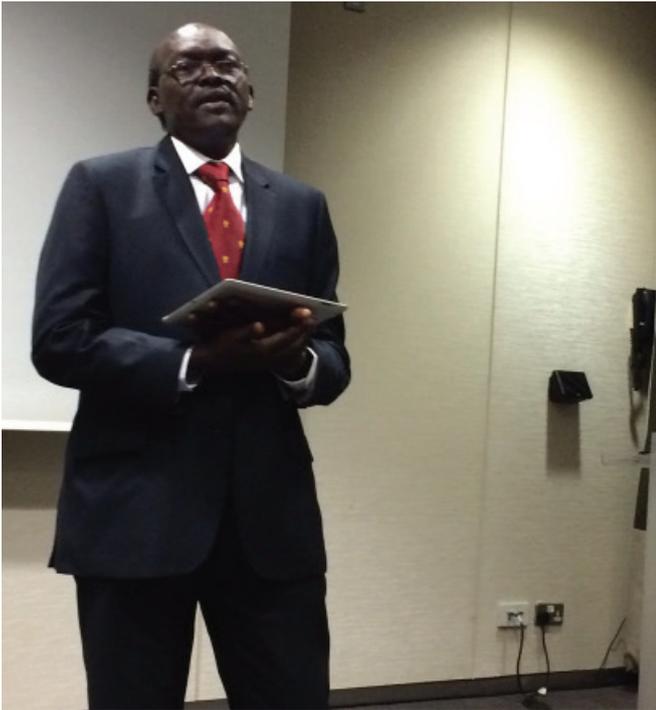
Taking questions at the launch of the Alliance. From the right: Dr Lul Deng, Director of Public Health, South Sudan (sitting), Professor Mayen Achiek, Dean of the Medical College, University of Juba, Professor Ali Jawad, International Medical Director, RCP, Dr Rich Bregazzi, Alliance development lead and Steve Crump, International Manager, RCP (credit: Diane Graham).

Monday 30 October saw the launch of the *UK-South Sudan Alliance for Health Sector Development*, at the Royal College of Physicians (RCP), London, in front of fifty guests.

These included South Sudan's ambassador to the UK, Ambassador Maker Deng; Professor Mayen Achiek, (Dean of the College of Medicine at Juba University, and Vice President of the General Medical Council of South Sudan), and Dr Lul Deng (Director of Public Health, and representing the Ministry of Health). Others present included representatives of UK charities, funding organisations, individual medical specialists, and the leaders of the World Federation of Societies of Anaesthesiology, and the International Federation of Surgical Colleges – all there as friends of South Sudan. It was especially good to welcome guests from the South Sudan diaspora, several of whom the author had last seen in Juba, and who are now studying in the UK.

Speeches were warm, full of goodwill, and spoke of collaboration and support for the development of healthcare capacity. Professor Ali Jawad, International Medical Director of the RCP first welcomed the guests, followed by speeches from Ambassador Deng, Professor Achiek, and Dr Deng. Dr Rich Bregazzi (the author, and Alliance development lead), then spoke of the progress made, thanks to the efforts of many people over many years, and noted that this was a significant moment. The institutional framework was now in place, he said, but we still had to embed sustainable improvement in practice, and that this required a combination of knowledge, finance and learning-by-doing.

The Alliance will be a 'managed network', co-ordinating support, reaching out for funds and skills, and focusing these on practical objectives agreed with the Ministry of Health. As an independent coalition of individuals and organisations, we intend to have a



Professor Mayen Achiek, Dean of the Medical College, University of Juba (credit: Diane Graham).

far reaching impact on capacity building, through education, training and the strengthening of health institutions and infrastructure.

Our first objective is to arrange a visit to Juba by a small team of healthcare professionals from the UK, early in the New Year. We will use this to assess the situation on the ground, and to discuss and agree our strategy with the Ministry of Health and local health institutions. Following this, we intend to propose and find funding for a 'Pathfinder Project': our first practical project to increase medical capacity.

They say that "Well begun is half done." Much remains to be done, if we are to realise the potential of the Alliance. However, we have begun well. As one guest put it, "Last night's launch of the UK-South Sudan Alliance at the RCP was a triumph".

**Dr Rich Bregazzi**

**2.11.2017**

## THE INFANT AND YOUNG CHILD FEEDING (IYCF) IMAGE BANK

The Infant and Young Child Feeding (IYCF) Image Bank, at <https://iycf.spring-nutrition.org>, is a collection of over 700 images, developed from adaptations of UNICEF's Community Infant and Young Child Feeding Counselling Package. These, and other similar images about recommended IYCF practices, have been used in more than 70 countries for counselling and training to promote behaviour change for improved maternal and child nutrition.

UNICEF and the USAID-funded Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project have partnered to make these images available for others to download, adapt, and use freely for any not-for-profit purposes.

## Juba College of Nursing and Midwifery: Aspiring for Growth

The Juba College of Nursing and Midwifery (JCONAM) was established in May 2010 as the first institution of its kind in South Sudan. In less than a decade, the college has grown from an initial class of 40 students to training over 300 nurses and midwives. Students at JCONAM are well supported by a diverse team of managers, tutors and auxiliary staff whose commitment and wealth of experience has been invaluable to the growth of the college.

Nurses and midwives in South Sudan face a unique set of challenges as healthcare professionals in a country emerging from more than 5 decades of civil war. The ravages of conflict in addition to environmental and social factors have resulted in the highest maternal mortality ratio in the world (2054 maternal deaths per 100,000 live births), with less than 1 in 5 deliveries attended by skilled birth attendants. In response to this disturbing situation, JCONAM was founded following an initiative from Dr. Eluzai Hakim whose collaborative work with the Juba Link laid the groundwork for the college. This ethos of team work has seen several stakeholders including the Ministry of Health, United Nations Population Fund, Real Medicine Foundation, World Health Organisation, Japan International Cooperation, United Nations Development Program and Global Fund Health Systems



Canadian Minister for International Development HE. Ms Marie-Claude Bibeau during a childbirth simulation by midwifery students. With HE Health Minister Dr. Riek Gai



JCONAM ICT room fully equipped with generous support of Canada and Sweden through UNFPA implemented by IMC.

come together to contribute to the continued success of JCONAM.

JCONAM facilities include a 200 capacity dormitory, a computer laboratory with access to online learning material and a fully equipped skills laboratory for clinical procedure training. This array of facilities is quite remarkable given the fact that prior to June 2011, the entire college was hosted by the Juba Public Health training Institute. According to Petronella Wawa, the principal tutor at JCONAM, the beginning was challenging. From unfurnished classrooms to the sweltering heat, several obstacles stood in the way but none could suppress the enthusiasm and motivation of students and staff.

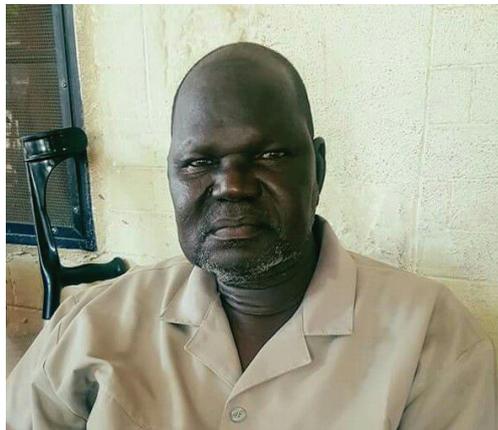
JCONAM aims to produce professional nurses and midwives with the skills and knowledge required to meet the needs of a dynamic, growing population. Training is focused on reducing maternal, neonatal and child mortality and morbidity rates as well as increasing the percentage of skilled birth attendants in the country. Presently, the college consists of nursing and midwifery departments and aims to further diversify programs on offer including: Bachelor of Science degrees in Nursing and Midwifery and diploma courses in psychiatry and mental health nursing.

Images and information kindly contributed by Fekadu Mazengia Alemu (IMC midwifery tutor).

*JCONAM is kindly supported by the Canadian and Swedish governments, United Nations Population Agency (UNFPA) and International medical Corps (IMC).*

## Obituary: William Lual Gang

William Lual Gang was born in 1952 in Akobo, Jonglei state, South Sudan. From 1962 to 1973 he attended Akobo North Primary School. When the war intensified, William had to move to Malakal and attended Nursing School in 1975 from where he graduated with a certificate. He was then employed in Malakal Teaching Hospital, and also worked in Renk and Wadakona Civil Hospitals. In 1980 he enrolled in the Omdurman Health Sciences Training Institute and graduated with a Diploma in Ophthalmic Theatre Attendance. He then worked in Waledeen Eye Hospital in Khartoum.



William Lual Gang

his time four batches of students graduated with Diplomas as medical assistants, laboratory assistants and theatre attendants. At the same time he was treating patients with trachoma in the Eye Department. In 2012, William was appointed as the Hospital Administrator by Dr Joseph Nguen Monytil, the Minister of Health. He served there diligently until 2016 when, until his death, he was the Member of Parliament representing Akobo Constituency

In 1999 William got a job with the Norwegian Aid Organisation and was trained in trachoma surgery. He was assigned to Pibor county, Jonglei State where he performed eye surgeries. In the same year, he came to Juba Teaching Hospital and was employed by the Chairman of the Coordinating Council of South Sudan, Dr Riek Gai, who is now National Minister of Health. William's task was to oversee the enrolment of students at the Juba Health Sciences Training Institute; during

William had to live with diabetes and hypertension for over ten years. He was married with nine wives and is survived with many children and grandchildren. He was an excellent volleyball player and was popularly known as Yawlo among his peers. On the 4th September 2017, William was admitted to hospital with hypoglycaemia and severe hypotension. He suddenly went into a deep coma and developed acute multiple organ failure. He died on the 9th September 2017.

*Prepared by Peter Pal Chol.*

## Malawi Nutrition Counselling Flipcharts

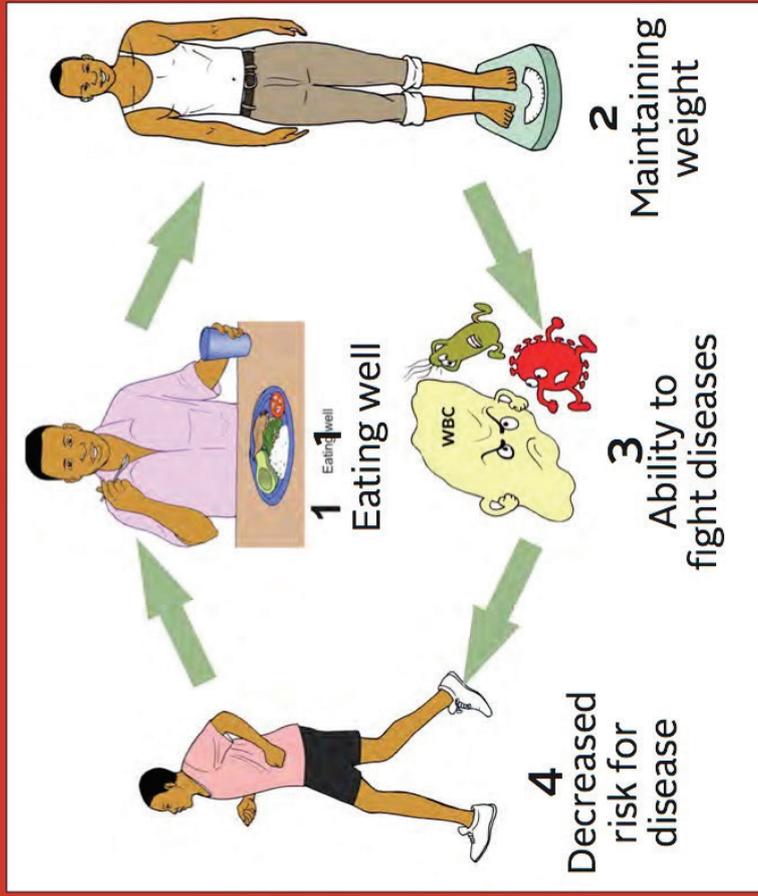
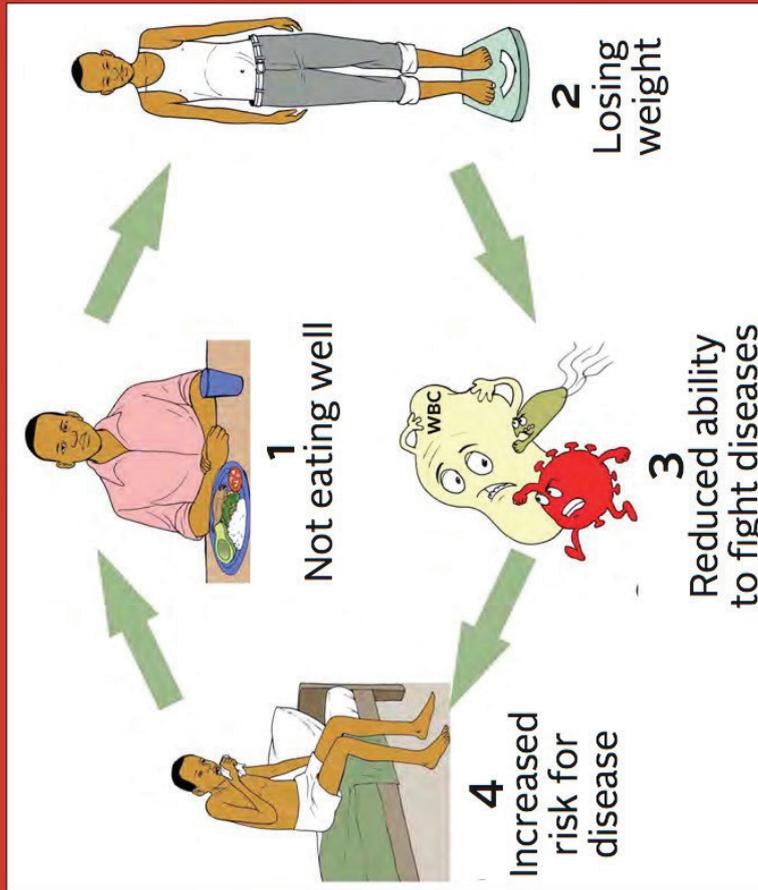
When counselling adolescent and adults living with HIV and TB clients, service providers need to be able to quickly identify a client's problem. With this need in mind, FANTA and the Malawi Ministry of Health (MOH) have developed a 60-page nutrition care support and treatment (NCST) counselling flipchart that helps service providers focus counselling using simple, specific, and tailored solutions that are likely to be adopted by clients. The flipchart covers the following 4 themes: Good Health and Nutrition for People Living with Illnesses, Preventing Infections through Water, Sanitation and Hygiene, Adherence to Treatment and Positive Living.

SSMJ thinks the flipchart will also be useful to healthcare workers in South Sudan, and are grateful for permission to publish it. Here is Chart 1 – find the complete flipchart [here](#).

*Republic of Malawi Ministry of Health and Food and Nutrition Technical Assistance III Project (FANTA). 2017. Malawi Nutrition Care, Support and Treatment (NCST) Counselling and Education Flip Chart. Washington, DC: FANTA/FHI 360.*

# 1

## Eat well to stay healthy



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.