Table of contents

1. Foreword-------------------------------------------------------------- 2

2. Acknowledgement------------------------------------------------------- 2

3. Background------------------------------------------------------------- 5

4. Process Surgical Mission--------------------------------------------- 5
   4.1 Preparation--------------------------------------------------------- 5
   4.2 Implementation------------------------------------------------------ 7
   4.3 Following up--------------------------------------------------------- 9
   4.4 Examples------------------------------------------------------------ 10

5. Monitoring and Evaluation---------------------------------------------- 18

6. Conclusion-------------------------------------------------------------- 19
1. Foreword
This time the surgical mission focused mostly on patients who suffered from congenital malformations or other illnesses that bring high stigmatisation and discrimination with it. Due to the lack of reconstructive surgery, many patients had to walk for more than four days by foot due to lack of money for transport, to seek help at Gordhim Hospital. At the first screening many patients with the need of general surgery or eye surgery came to Gordhim the hope getting operated upon but were sent away. Some of the registered patients did not show up on their due day because their relatives did not agree for them to have the operation because of their cultural beliefs and fear.

2. Acknowledgement
The process of conducting a surgical mission in Gordhim Hospital was a result of combined efforts and support of various stake holders.

Arkangelo Ali Association (AAA) would like to thank all members of the surgical team from Interplast Holland Dr. Rein Zeeman, Dr. Gijs Witte and Mrs Greta Hessling for their willingness to come to Gordhim to support the people of South Sudan and perform 47 operations and for providing additional funding of materials and drugs.

Arkangelo Ali Association would like Interplast Germany namely, Dr. Heinz Schöneich who donated an anaesthesia machine to perform all kinds of operations.

Thanks to the Catholic Church for their hospitality towards the surgical team.

Gordhim Hospital would also like to thank the private donors from Germany who donated money, especially for children, pregnant mothers and for maintaining the existing facilities. With this money Gordhim Hospital was able to repair the water pumps and generator and to send some of the patients to Aweil for x-rays, to finance additional drugs for children and transport money for children who were not able to walk all the way back to their homes by foot after surgery.

Arkangelo Ali Association would like to further thank the authorities from the Ministry especially the former State Ministry of Health Aweil, Minister Tong Deng Anei, his successor former State Ministry of Health Aweil Adub Achier Dut and Director Dominic Athian Dut who gave approval and for their support to this mission and who visited the surgical team during the mission. The Director of County Health Department in Mabil, Isaac Yei and acting Director Valentino Kuan Kuol as well. They both always listened to the challenges of Gordhim Hospital and gave support to human resources and together with the Matron, to find solutions for challenges.
Former Minister of Health and Director for PHC visited the surgical team

Furthermore, we would like to thank International Rescue Committee (IRC) namely Marko Adim for all their support especially for the deliveries of additional materials and drugs for the surgical mission. Thanks go to the radio station of IRC who did a documentary about the mission.

Additionally, we would like to warmly thank Sister Maria a general surgeon from Camboni Hospital in Wau who took care of one of our small patients after the mission had ended.

Gordhim Hospital would like to acknowledge the financial support for conducting surgical missions and the financial support for staff salaries received from Misereor Germany.

Also appreciated are the following staff members of Gordhim who played a big role in conducting the surgical mission.

Gabriel Atem the national certified nurse, supported the first screening and registration of patients, preparation of the theatre and work during the mission as an anaesthesia nurse. Angelo Mou, nurse trained by MSF, who also supported the preparation of the theatre and worked as a scrub nurse during the mission. James Garang the assistant pharmacist supported the preparation of drugs and material deliveries. During the mission James Garang took care of the theatre drugs and material store and he was responsible for the sterilization of instruments. We would like to thank the volunteer Athian Aleu Athian who took over the anaesthesia after care of the patients. Only because of their high commitment of these staff members who had to often work overtime, was the surgical mission such a success. Further thanks go to all staff who were not mentioned but were involved in the surgical mission because of their high commitment that allowed no restrictions in the project and achievement of objectives.
3. Background

AAA is an NGO that is specialized in TB and Leprosy and runs 13 different health facilities in 10 states of South Sudan with their main focus on TB and Leprosy and other departments too. One of these health facilities is based in Gordhim, Northern Bahr EL Ghazal State. Gordhim Hospital is a TB Hospital, which takes care of about 70 inpatients and over 300 TB patients in Gordhim outpatient’s program.

Beside TB program, Gordhim Hospital runs a 24/7 Outpatient Department with the focus on TB, Malaria, Emergencies (e.g. insect bites, injuries, high fever) screening and treatment of different infections. In OPD 80-150 patients are seen on a normal working day. The Maternity Department that is open eight hours a day, six days a week and focuses on antenatal care and immunization of mother and child. Deliveries are offered in a limited number due to lack of national educated staff.

As a young nation, South Sudan is one of the poorest in the world. The medical situation from the WHO fact sheet, reflects the current situation. Only 44 percent of the population have access to proper health care. Maternity mortality in South Sudan is the highest worldwide. In the whole country there are only 86 registered doctors for over eleven million people. Due to this fact, most hospitals are working only with certified nurses and clinical officers and staff who were trained on the job. Aweil Public State Hospital in Northern Bahr El Ghazal has at the moment no trained national surgeon for a population of over 720.000 people because all surgeons have been sent away to receive a proper surgical education in other countries.

With the financial support of Misereor, a German organization, Arkangelo Ali Association has conducted 7 different kinds of surgical missions from 2008 until 2015. The demand for all kinds of surgeries is high. General surgeries, eye surgeries, reconstructive surgeries and gynaecological surgeries that do not require long term post-operative care or long term drug therapy, can be performed at Gordhim Hospital.

Since the last report by the acting Matron Tatjana Gerber in 2015, there have been major changes of the funding situation for personnel. Due to the cut of the Global Fund AAA has had to consider cutting more staff. This decision involved the surgical mission not taking place any more. But after discussion with Misereor Germany they agreed to take over the salaries for the OPD staff members for the next two years. Due to this fact Gordhim Hospital was able to conduct another surgical mission. Because of only 19 OPD staff members and the high workload, CHD supported Gordhim with two more staff member one assistant nurse and one vaccinator. For the surgical mission Gordhim Hospital hired two additional casual workers.
4. Process Surgical Mission
In this report the process of the surgical mission is divided in three: Preparation, implementation and following up.

4.1 Preparation
After experiences during the last surgery mission in February 2015 where many patients were registered a month before the surgical mission took place and did not show up, the screening started only two weeks before the mission took place to ensure that the patients who needed surgery remain in Aweil East. During the screening of the outpatients the OPD staff registered all patients needing surgery. After a short time it was clear that even the need for another general surgery and eye surgery (especially cataract) was enormous, initially to relieve patients from long term pain and blindness.
Due to the political situation in South Sudan and news coverage in the European media, it was again not easy to find European doctors who were willing to come to South Sudan on a reconstructive surgical mission. Gordhim Hospital was more than happy that Interplast Holland did not fear coming to South Sudan and came for the surgical mission to Gordhim. Contact with Ministry of Health was made to get approval and support for the surgical mission. Interplast Holland put their focus on cleft lips, cleft palates, burn contractures and other congenital malformations or tumours that bring high stigmatisation and discrimination with them. In OPD the staff registered all patients. Together with the Interplast team, drugs and material lists were developed. The theatre and all needed equipment was maintained, the solar system was maintained in the outpatient department and the surgical wards and some of the patients bed were repaired.

Repairing of hospital beds
After the arrival of the surgical team the doctors together with the staff members of OPD, conducted a second screening. During screening the operation schedule for the following days was prepared. Within the 10 day surgical mission, over 100 patients were screened. Some of them had to be sent away due to the limited setting (only patients who needed reconstructive surgery were chosen).

A total of 50 patients were chosen for operation. An operation schedule was prepared daily and placed in the theatre and all patients' protocols were filled out. All operations were recorded on a theatre registry.

4.2 Implementation

Some of the patients stayed at Gordhim Hospital two weeks before receiving proper pre-operation care like daily dressing. Other patients came from afar and stayed some days before the operation took place in the hospital. Most patients were asked to come on the day of their operation day with a carer. The patients had to bring soap, bed sheets, blanket and a note book that was used as a patient record book. On the operation morning all patients older than 15 years were screened for HIV after their consent was received, so that in case of an intraoperative injury HIV post exposure prophylaxes could be applied. One patient was HIV positive and together with the doctors, the decision was made not to operate on her because this time the risk was too high that the wound would not heal properly without proper antiretroviral therapy.

After showering the patients with burn contractures and snake bites who needed skin grafts received a single shot antibiotic as prophylaxis, especially due to the hot season, sometimes over 40 degree Celsius, to minimize the risk of infections and adoption of the skin graft.

During the operation the theatre staff were taught by the Interplast doctors and Interplast scrub nurse. Post-operative pain therapy was prescribed by the anaesthetist and written on the anaesthesia protocol and in the patient's record book. All operations were recorded in the operation registry book. After the operation the patients were carried to the ward by their carers.

After every operation the theatre was cleaned, instruments and operation sheets were washed, packed and sterilized and the next patient prepared.
Anaesthesia nurse was taught in intubating

Anaesthesia after care of the patients

Scrub nurse was taught in new stitch technique

Performing of cleft lip repair
The post-operative care in the wards was done day and night by assistant nurses under the supervision of the matron. First the prescriptions for pain therapy were explained and drugs handed over to the carer. Injections for pain reduction or antibiotics were done by the medical staff. The assistant nurses were always available to monitor the patients. The doctors did a ward round once a day or when necessary. First dressing and removal of drainage was done by the doctors and further dressings were done by the medical staff. The food after surgery was provided by the hospital. During the long term stay of the patient at the hospital the patients got basic foodstuffs contributed with funds from Misereor. The patients contributed fire wood and cooked for themselves. All activities and observations concerning the patients were recorded in the patient's book.

During the surgical mission 47 patients received operations, unfortunately three patients did not show up on their due day. 36 of which were children from 0-15, 7 women, 4 men.

- 29 Cleft/Palate repair
- 1 Neurofibromatosis
- 6 Burn contractures
- 7 Tumorectomie
- 1 Severe keloidectomie
- 2 snake bites
- 1 Polyateylie
4.3 Follow up

Most patients who were operated on for cleft lips or cleft palates were discharged between the first and the third post-operative day. Patients who were operated on for burn contractures stayed up to four weeks to get daily dressing. After discharge, the patient received their patient’s book and anaesthesia protocol back. Two children who were operated on for cleft lips fell down and the wound opened again one of them requires re-operation when the reconstructive surgeons return. The wound of the other child healed well and does not need a re-operation. Some of the patients who live close to the hospital were asked to come in daily for a change of wound dressing as well as a progress check.

Seven patients stayed at Gordhim Hospital for up to four weeks to get daily dressings and instruction on physiotherapy because they came from afar and in their home areas there are no proper health facilities available. This time the doctors only used re-absorptive stitches so there was no need for removal. It was obvious that the wounds of the patients, especially children, who stayed longer in the hospital, healed faster and better that the wounds of some children who were discharged because they lived close by. This could be the result of the fact that often mothers have no time to look after their children and handed over the responsibilities to older siblings because the mothers have to care for their households and have other responsibilities. But especially the poor hygienic conditions at the homesteads of the patients might be a reason for the delayed healing.

Four days after the departure of the surgical team a male child who was operated on for burn contractures of four fingers, got a black finger as a sign of dying off. The OPD staff tried everything according to the phone consultation with the Dutch surgeon like removing of K-wires and daily dressings twice, but without improvement of the finger. Probably the long time of contractures the arterial and tendons were already too short for straighten the finger and the blood flow had been heavily disturbed by the operation and the stretching of the finger. Unfortunately after another four days there was no hope anymore to save the finger and the medical staff decided to bring this child for finger amputation to Wau where the child was taken care of by the Italian surgeon. But even after the amputation of one finger the child is now able to work and write with his hand because the remaining three remaining fingers did heal well and the fingers are now straight and movable. The surgical mission ended after four weeks after that the doctors went back to Holland.
4.4 Examples before and after operation

Clefts
Tumours
Keloid

Cyst
Neurofibromatosis
Burn contractures
Snake bites
5. Monitoring and Evaluation of the Surgical Mission

The intern monitoring was done concerning the process indicators. The financial monitoring and evaluation of the whole process will be done by Arkangelo Ali Association headquarters in Nairobi.

Indicator 1: Number of Surgical Operations Done
Over 100 patients were screened. From these patients 50 needed reconstructive surgeries.

Indicator 2: Improved Monitoring of Patients Both Pre and Post-operative
The staff received teaching and explanations on how to monitor the pre and post-operative patients.

Indicator 3: Proper Documentation of All Activities
There were four systems of documentation in place:
Firstly, there was an anaesthesia protocol from Interplast Holland in place to document the history of the disease, all procedures during operation and anaesthesia.
Secondly, one consent form where the patients received explanations about the operation performance and risks as well as possible complications, the patients and next of kin as a witness, had to sign to give their approval for the operation and that the patient understood the explanations and risks of operation and anaesthesia.
Thirdly, the operation was recorded in the Gordhim operation registry.
Fourthly, the patients had a patient's book, where all observations and prescribed drugs during their stay were documented by the medical staff. After discharge of the patients they were given their books back.

Indicator 4: Improved Quality of Health Services
All operations and after care were performed at a high standard.

Indicator 5: Improved Services in the Theatre
During the mission there were two local nurses and one volunteer assistant nurse in place. The scrub nurse, the anaesthesia nurse and the assistant nurse were taught by the doctors on the proper performance, procedures and drug management. The volunteer assistant nurse was taught the proper procedure for scrubbing and post anaesthesia care.

Indicator 6: Maintenance of Existing Buildings
The solar light of the outpatient department and the wards was maintained and some hospital beds have been repaired.
Indicator 7: Number of patients identified for reconstructive surgery
All 46 patients who are highly stigmatized and discriminate were operated on.

Indicator 8: Number of surgical cases correctly diagnosed, operated on and followed up
All operations were correctly diagnosed and well performed.

Indicator 9: Number of patients correctly anaesthetised by South Sudanese personnel
Due to lack of medical personnel in South Sudan there was no local anaesthetist available. One South Sudanese anaesthesia nurse performed some of the anaesthesias under the supervision of the Dutch anaesthetist and was taught to use the new anaesthesia machine.

Indicator 10: Number of surgical operations, preparation of the theatre and sterilization of surgical instruments by South Sudanese nursing personnel first under supervision, later independently.
Two local nurses did all the preparation of the theatre almost without supervision. Two assistant nurses were responsible for the sterilization process. Three assistant nurses were taught by the Interplast scrub nurse of packing of surgical instruments and were able to prepare the instruments for sterilization without supervision after some days.

Indicator 11: Skilled local personnel capable to carry out emergency minor surgeries (e.g. Incision of abscess).
One national nurse and one nurse are capable of carrying out emergency minor surgeries.

6. Conclusion
The reconstructive surgical mission was a big success and highly appreciated by the population authorities in Northern Bahr El Ghazal. All patients who were operated upon and cured will live a life without stigma and discrimination. The surgical mission showed again that there is high demand for surgery in Northern Bahr El Ghazal especially in general surgery and eye surgery. For the next surgical mission it would be beneficial to have more medical staff available and to have more time to ensure better training on the job and to avoid overtime. In spite of the lack of surgeons and anaesthetists in South Sudan, the Ministry of Health should try to send national doctors for training on the job by expatriate surgeons in order for them to get more experience in different kinds of surgeries and to learn international standards.
For future surgical missions consideration should be given to buying drugs which are available in South Sudan from South Sudan. Other items and materials that aren't available in South Sudan should be brought from Europe, especially from organizations that are specialized in delivering goods to developing countries, as this could save money, since prices in Kenya are much higher than elsewhere. Ensuring that the expiry date is a far off is another important issue to be noted.
Childrens' wounds, who were discharged because they lived close by, took more time to heal than the same wounds of children who stayed longer in the hospital because they came from afar. The reason could be that their mothers had too many responsibilities at home and often handed over the small children to their older siblings or about the poor hygienic conditions at the homesteads. Next time there is a need to do more awareness and teaching of mothers about after care of reconstructive surgery. Often in hospitals there are discussion about financial contribution from the patients at this mission. Experience has found that many of the patients and caretakers especially women with children had no access to money because the husband lived far and often had more than one wife or worked as a soldier. Many of these patients walked over four days to seek help at Gordhim. For these cases Gordhim Hospital was more than happy to have financial resources to support the children and mothers on their way back home.

Farewell of the Interplast team