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# "Start Them Right!"

Help us save babies and mothers in Sierra Leone



Last updated: 23-08-2024

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#### Introduction

A mother, pregnant with her first baby, visited our hospital with labor pain. She told us she was about 9 months pregnant and had never visited antenatal care. She was therefore never scanned and her HIV status was not known. In the hospital the mother and the baby at that time were doing fine and she was 4 cm dilated. Unfortunately, she did not have adequate contractions, so we started medication to optimize the contractions. A couple of hours later she was finally fully dilated and the pushing stage was entered. However, the baby was reacting to the contractions and was showing a very low heart rate. Luckily our midwife was very alert and started treatment already. The pushing stage, because the woman was giving birth for the first time, was taking guite some time, but thanks to the midwife and the nurses the woman was adequately monitored and the baby's heart rate recovered. Unfortunately, at the last stage of the pushing stadium, the woman was getting tired and so was the baby. The baby again had a low heart rate and has had meconium, which is a sign of a distressed baby. Quickly, the baby was delivered. In the beginning the baby was not breathing adequately, although the heart rate was normal. Therefore, the baby was stimulated and ventilated for a short while. We were very happy that the baby after about 2 minutes started breathing for himself and the mother could see her healthy baby boy. The child needed oxygen for the night, but improved over night. After a few days the baby could be discharged with the mother, both healthy.

In this case a healthy baby was born, which obviously makes everyone very happy. However, we know that this is often not the case. The importance of adequate monitoring, adequate resuscitation and management after delivery, but also the importance of antenatal care is being stretched. This mother did never come to ANC, so we did not know how many months she was pregnant, we did not know her HIV status. All very important for the management of this mother and baby. Thereby, our nurses now are trained in standard delivery care and neonatal management, but they are struggling sometimes with staff shortage, not the right equipment and knowledge gaps.

Lion Heart Medical Centre (LHMC) is a hospital located in Yele, in the rural heart of Sierra Leone. This West African country suffered from a civil war from 1991 and 2002, in which 70.000 people were killed and over 2 million people were displaced. Rebuilding the country was disrupted by the Ebola epidemic in 2014-2016, after which efforts were made to put infrastructure in place and to strengthen the health care system.

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Sierra Leone is moving forward, but it's still one of the poorest countries in the world. In 2021, the United Nations ranked Sierra Leone 181 out of 195 countries in the Human Development Index. Healthcare is underdeveloped and poorly accessible, especially in rural areas. The country has one of the highest maternal and child mortality rates worldwide. Per 1000 live born babies, 109 will die before reaching the age of 5 years. And in every 100.000 deliveries 796 women do not survive. In comparison, in the Netherlands only 4 women per 100.000 deliveries do not survive.

LHMC is a fully equipped second line hospital, with a strong focus on mother and child health. With 80 beds capacity we admit about 3000 patients per year and provide 600 mothers with a hospital delivery. We provide care for over 150.000 people and we are in close contact with our 22 referring Primary Health Units.

In our rural community conducting safe delivery is often difficult. While the numbers of the safe hospital deliveries are rising, many women still deliver at home, where lifesaving healthcare like blood transfusion or operation can't be provided, or come to the hospital late. Despite the fact that every pregnant woman is invited for free antenatal care every 12 weeks, we know a lot of women are not able to come to the hospital because of other duties, money or transport. And since our furthest PHU is 46 km away, only reachable by a bumpy dirt road, one can imagine it is difficult for them to attend. Lack of ANC care and delivery without a skilled attendant is not only dangerous for the women, but also for the newborns.

In LHMC, one of our focus is teaching and training. For example, we provide training for the maternity nurses every week and we organize a training day for the PHU staff twice a year. We also try to engage the community with our radio program 'Well Bodi Tok' and by visiting all PHU's twice a year for health talks.

We believe that every woman has the right to a safe delivery and every baby has the right to a safe beginning. Therefore, we want to improve on maternal and neonatal care, in and around the hospital.

Please support our efforts to save as many babies and mothers as possible!

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#### Background

#### **Lion Heart Medical Centre**

Lion Heart Medical Centre is a project hospital, established in 2010, by the parent organization: Lion Heart Foundation, based in The Netherlands. Lion Heart Foundation is registered in Sierra Leone with the Sierra Leonean Organisation of Non-Governmental Organisations (SLANGO).

Lion Heart Medical Centre was initially started as a clinic for workers from nearby companies, but over the years, has grown into an 80-bed hospital serving the general population. With its strategic location in Yele Town at the heart of Tonkolili district, the hospital serves a catchment population of 150,000 people from primarily Gbonkolenken-, Valunia- and Kamajej chiefdoms, but there are also many patients traveling from far away for its good reputation.

The hospital has a memorandum of understanding with the Government of Sierra Leone since July 2021. We receive government subsidies and are included in national health programs on HIV, TB, malaria, family planning and severe acute malnutrition. Key medical activities in Lion Heart Medical Centre include a referral program for complicated obstetric cases, free antenatal-care screening, adequate triage of children under-five and elective surgeries.

On a yearly basis the hospital sees approximately 10,000 patients in OPD, of which 2100 antenatal care consultations. 3000 patients are admitted for inpatient treatment; 600 deliveries are conducted and 900 surgeries performed. Around 850 patients receive a blood transfusion on a yearly basis. Half of these are transfusions for children under-five years of age.

Furthermore, Lion Heart Medical Centre has an important community function. The hospital organizes outreach activities and training days at the 22 PHUs (primary health units) in its catchment area. Previous cycles have been mostly focused on maternal health, family planning and under-5 health. To sensitise its community, weekly radio broadcasting is done in the radio program "Well Body Talk" on Radio Gbonkolenken by two staff members (clinical or non-clinical) from the hospital on a variety of topics.

The LHMC workforce consists of 98 local employees and 2 permanent expat employees. In order to be sustainable Lion Heart Medical Centre focuses on capacity building, task shifting and empowering local staff to take up leadership. We provide training for our clinicians, nurses, midwives and non-medical staff to optimize their capacity and skills. Also, we offer scholarships for further education. Lion Heart

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Medical center is a teaching hospital where clinical officers in training from Njalla University come for their clinical rotation. Also, the students from the nursing school, surgical trainees from Capacare and trainees from the pediatric specialization from German Doctors follow internships in LHMC.

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#### **The Project**

#### Aim

The aim of the *Start Them Right* project is to improve maternal and neonatal care in LHMC, with a focus on reachability of the hospital and quality of the healthcare provided in the maternity department.

#### **Specifications**

We want to give the best maternal and neonatal care possible, both in and out of the hospital. We want to make improvements in five different areas: community sensitization, reachability of the hospital, our maternal and neonatal care in the hospital and education/evaluation. For all different aspects of the project, see the table below.

For a detailed description of the several subprojects:

#### Community sensitization

An outreach program has already been established. However, we want to focus the upcoming outreach of maternal and neonatal care. Thereby, outreach scanning days will hopefully improve care for the furthest 5 PHU's. Lastly, we will use the local radio to improve community sensitization.

#### Education and evaluation

Our hospital is a teaching and training hospital. We give place for nursing students, first and last year, CHO students, Dutch medicine students, registrars global and tropical health. Furthermore, we spent a lot of time on teaching and training of everyone in the hospital, in every area medical and non-medical. For this project, we will specifically train in the area of maternal and neonatal health. We will train nursing staff once a week and we are planning to organize a training 3-4 times per year for all maternity staff and possible other interested people. Thereby, we hope to improve on neonatal resuscitation by training in helping babies breath.

Also, more time will be spent on collecting data and discussion adverse outcomes, in a maternal and neonatal mortality meeting. This week we hope to get clear improvement ideas to improve care.

#### Maternal care

Since maternal mortality and morbidity is still very high in Sierra Leone, a clear goal is to improve in the area of maternal care. One of the main goals is to achieve better documentation, for example with using partograph and do a proper facility to facility handover. This prevents the patient from waiting too long for adequate care. Devices in the ward and in the laborroom need to be functioning properly and need to receive proper maintenance and cleaning. A plan will be made to get certain

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equipment, but also to sustain them as long as possible. Thereby we want to improve the blood bank in the lab, so more blood is available for women in pregnancy or labor who need an acute blood transfusion.

#### Neonatal care

Next to the mothers we also want to give newborn babies a healthy start and a promising future. One of the major ways to achieve is neonatal resuscitation. Improvement will be established by buying equipment for neonates, such as a neonatal resuscitation table. Also, a dedicated area for the sick neonates will be established, so advanced care can be offered. Literature multiple times has proven the beneficial effect of kangaroo mother care, which is the current situation is difficult with patients only being able to lay down in the bed. With a dedicated area, in which not only incubators will be put, but also a KMC chair, with a dedicated nurse and proper hygienic measures, we are expecting to massively improve neonatal care. For the neonates that, unfortunately, have lost their mother or have a mother that is unable to produce breastmilk, we want to invest in formula 1 milk, to at least give them a proper change in the first weeks of their lives.

#### Reachability

The national ambulance system NEMS, which is supposed to give free transport to neonates and maternity cases, is encountering problems. Mainly when PHU's ask for transport to our hospital. Therefore, very often, the hospital provided transport with our own ambulance. Sometimes, these patients are very sick, they need on the spot care and for example oxygen. This, in some cases, can save lives! Therefore, we want to improve one of the ambulances to be able to transport patients in a save manner, as well from PHU to hospital, as well from our hospital to a more specialized hospital.

#### Additional costs

Part of the budget will be used to provide mainly the laborroom, but also the whole maternity ward with the essential medication for safe delivery. Think of magnesiumsulphate, antihypertensives ect.

Community sensitization	Education and evaluation	Maternal care	Neonatal care	Reachability
Radio broadcast (+jingle)	Continue teachings for nurses and midwives	Weighing scale	Resuscitation table neonate	Upgrade of ambulance with facilities for patient transport
Outreach to 22 PHU's	Maternal and neonatal	Blood pressure	Nebulizing machine	Oxygen machine for

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	mortality meeting	machine		ambulance transport
Pilot of the outreach scanning project for 5 PHU's (most difficult to reach)	Training premature/sic k neonates for nurses	Saturation device	Dedicated neonatal observation ward with three (day, evening, night) dedicated staff member for 2 years	
		RBS machine + strips	Incubator (2x)	
		Digital clock for laborroom, analogue clock for maternity ward	Hygienic measures for neonatal unit	
		Moyo device for FHR monitoring	Kangaroo mother care chair	
		Filing system nurses	1 additional CPAP machine pumani	
		Project maternity waiting home, garden	Phototherapy device	
		Blood bank	Formula 1 feeds for neonates	

#### Budget

		Le	EUR
Community sensitization	Radio + jingle	100 0	42
	Outreach	250 00	100 0
	Scanning outreach	100 0	40
Training	Training	100	42

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		0	
	Mortality meeting	100 0	42
	Training sick neonate	100 0	42
Maternal care	Weighing scale		10
	Blood pressure machine		40
	Pulse oximeter 4x		120 0
	Digital clock for laborroom, analogue clock for maternity ward		35
	Moyo device for FHR monitoring 2x		810
	Filing system nurses		10
	Project maternity waiting home, garden		200
Neonatal care	Resuscitation table neonate		500
	Nebulizing machine 3x		180
	Dedicated neonatal observation ward with three (day, evening, night) dedicated staff member for 3 years		810 0
	Couveuze (1x)		750
	Hygienic measures for neonatal unit		150
	Kangaroo mother care chair		500
	Phototherapy device		35
	Formula 1 feeds for neonates 20 boxes		680
Reachability hospital	Upgrade of ambulance with facilities for patient transport		500
	Oxygen machine for ambulance transport		500
Running costs	Medication		500
	Construction costs		200 0
Total costs			179 08

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# **Realisation crowdfunding "Start Them Right"**

#### Aim

The aim of the *Start Them Right* project is to improve maternal and neonatal care in LHMC, with a focus on reachability of the hospital and quality of the healthcare provided in the maternity department.

#### **Realisation crowdfunding**

The crowdfunding "Start them Right" was promoted mainly via social media. Via Instagram, facebook and tiktok several cases were spread. A promotion video was made, <u>https://www.youtube.com/watch?v=6Wxj10FPRXU&t=51s</u>, which was shared on the several platforms and shared with old collegues, family and friends.

A fundraising run was establish. Initiated by Ard Gerrits (husband of Lisa, current MO), Ard and the MS ran 46 km to the furthest PHU on the 27<sup>th</sup> of January. All staff was invited to join for short or longer distances. The ambulance and new car joined with drinks and presents for the PHU. On the way water from the water factory was shared to some of the villages to let them get knowledge of our water factory. With microphones messages were shared to the communities about hospital care, how to recognize signs and symptoms to come to the hospital etcetera. The fundraising run was shared live on Instagram. After publishing an aftermovie, the crowdfunding was closed.

#### **Realisation budget**

In total an amount of 20.330 euro was collected, which is more than expected (2422 euros).

We therefore decided to add an additional moyo devices, so we can monitor two patients, in case needed on both of the beds. If the device is charging, we then have an alternative one. We also decided to add another 4 saturation devices for monitoring.

#### **Realisation plans per June 2024**

The crowdfunding was stopped by the end of February 2024. Until June 2024 already some of the previously announced plans have been executed.

#### Community sensitization

We are establishing outreach every Friday throughout the year, with a small break in the rainy season. From September onwards outreach will be mainly focused on maternal and neonatal care. We will adjust the health talks given to the PHU's to these topics. Money will be spent on informative slides for the outreach, fuel for the outreach and the top up fee for sending of two nurses/clinicians to go on outreach. For the furthest 4 PHUs we are currently organizing outreach scanning days. This

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means that belly women are invited to the PHU for scanning. They are seen by a clinician, biometry is performed and they are assessed for any risk factors. If there are any risk-factors they will be referred to the hospital either immediately or they will be adviced to come later or during labor. Budget for these scanning days is based on fuel and top-up fee for the staff going on the scanning outreach. Thereby we will organize a PHU training day on these topics in which the nurses of the PHUs are invited to join for a training day with several topics. The radio is just working again so negotiations are ongoing for the radio. Besides other topics we will have a 'well-bodi talk' monthly about maternal and neonatal health.

Specific budget and realisation for community sensitization

Specification	Budget	Realization
Radio + jingle	42 euro	Not yet established
Outreach	1000 euro	527,50
Scanning outreach	40 euro	53,75

#### Education and evaluation

While education is ongoing in our hospital, we want to specifically focus on training for maternal and neonatal care. We want to organize trainings in the usage of the new devices, we want to train on helping babies breath and we want to repeat trainings about the partograph. Since march we are in contact with the Partoma Project, a project that focusses on maternal and neonatal care with very promising results in for example Tanzania. Training material has been handed over already. We are planning to do a 6 monthly obligatory training for all maternity staff, clinicians and in charges. They will be trained on several topics in small groups. The first training was given in April. In 3 different groups, with subgroups of 4-5 people, staff was trained in helping babies breath, partograph and moyo use and scenario training uterine rupture. The training was very successful. Budget was used for the offering of drinks and cookies during the training. In our collaboration with the Partoma Project we also want to update our protocols and make a booklet for guidance. Since this collaboration only exists since the crowdfunding was closed, costs in this post will probably be higher than expected,

For educational purposes we are also continuing the training every Tuesday afternoon, organized by one of the midwives. For this training, mainly nurses and midwives are included. Several topics are addressed, such as vital signs, MEOWS, breech, twin gestation, normal labor etc. When we are able to build/rearrange a place for the sick neonates, we are going to organize specific trainings for the nurse who will be assigned to this place. This will hopefully take place in October.

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In evaluation we want to assess how many adverse outcomes we get and what we can do better. Therefore, we are organizing a maternal and neonatal mortality meeting. Once every month we will have a neonatal mortality meeting. A maternal mortality meeting we organize the first Tuesday or Thursday after the maternal mortality has happened. All clinical staff is invited to join these meetings, as they happen just after morning report. A selection of cases is discussed and improvement plans are being made.

#### Specific budget and realisation for education and evaluation

Specification	Budget	Realisation
Training	42 euro	25 euro
Mortality meeting	42 euro	0 euro
Training sick neonate	42 euro	Not yet established

#### Maternal care

Maternal mortality in Sierra Leone is very high. Our goal in the hospital is to reduce maternal mortality at least in our district. There are multiple ways that we want to achieve that.

We want to have a better maternal monitoring during delivery and before or after delivery. Therefore, we plan to buy new blood pressure machines, a new weighing scale, episiotomy scissors and two moyo devices. With the moyo device we can monitor the fetal heartrate during delivery continuously instead of the doppler machine, which we use every 15-30 minutes in labor. Currently, we have started working with both of the moyo devices. We initiated one training for the nurses to learn how to work with the device. On the job training and Tuesday afternoon trainings should help to improve working with the devices. For better monitoring during delivery and better knowledge of time of delivery etc we will buy new clocks in the laborroom and the ward.

The monitor maternal deaths, and also neonatal deaths, and to improve on health care, we organize maternal and neonatal mortality meetings. In these meetings, anonymous feedback can be given on the process before and in the hospital. Feedback on health care professionals and our own processes in the hospital. So far we accomplished some clear improvement points.

1. Adequate documentation including correct filling of the partograph. We established a new partograph form, in which the normal partograph and delivery form is included. Added are both an admission form, in which also lab results, ultrasound results, complaints such as number of hours of fluid

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loss etc can be filled, and a documentation form for the admission notes and the delivery notes. Hereby we hope to keep documentation together and to give overview for the health care clinician on for example HIV-status.

- 2. The need for an updated induction protocol, which has been made.
- 3. Better monitoring of weight of the neonate, for which we made weighing charts, both used in maternity ward as in the malnutrition ward.
- 4. The training in vital signs taking and correct documentation. We trained the nurses in MOEWS (modified obstetric early warning score) again, and put up a poster to help them. We will provide new saturation devices in the ward, because the ones currently being used are not adequately working anymore.
- 5. The need for better communication to the PHU's. Often PHU's complain about the lack of information about the delivery. Thereby, often when children are re-admitted to the hospital with for example a neonatal sepsis or with poor growth, little can be found about the delivery and the specific age and weigth of the neonate. Next to the normal discharge papers, the mother now gets a birthcard home with all the essential information for the neonate.

With the maternity waiting home hopefully soon opening, we want to provide the mothers staying there with healthy food and a way to provide for themselves and the hospital. Therefore, we want to invest in making a garden close to the maternity waiting home. An area where the mothers, together with the gardner, can at least partly, provide their own foods. Preferably iron rich foods. When a date is set for opening the maternity waiting home, we will start planting.

In the budget, we did include a small budget for construction costs. However, since the results of the crowdfunding were very good, we are planning to do a reconstruction of the whole maternity ward. The laborroom will be extended, the main ward will be extended and a special baby unit will be build. The provisional constructional drawings can be found in the appendix.

Specific budget and realisation for maternal care

Specification	Bud get	Realization
Weighing scale	10	18,99
Blood pressure machine	40	Not yet established
Pulse oximeter 4x	1200	745,69
RBS machine + strips	50	Not yet established
Digital clock for laborroom, analogue clock for maternity ward	35	Not yet established
Moyo device for FHR monitoring 2x	810	1005,12

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Filing system nurses	10	Not yet established
Project maternity waiting home, garden	200	Not yet established
Episiotomy scissors	-	47,89

#### Neonatal care

Next to the mothers we also want to give newborn babies a healthy start and a promising future. That obviously starts with the health of the mothers and the care during delivery as previously stated. We believe better monitoring we play a very big part in this.

However, also specific neonatal care can be improved in the hospital. Resuscitation of the neonate after delivery right now is done on a steal table with a small cushion. Time management is currently very difficult. In the laborroom it is difficult to keep a neonate warm while resuscitating. Therefore, we have bought a resuscitation table for the neonate. A dedicated area for resuscitation of the neonate where warmth and time management are easy. Thereby a dedicated area where resuscitation material can be put together and does not get lost. Next to trainings in helping babies breath, we will also organize specific trainings for the use of the neonatal resuscitation table.

After resuscitation, we delivery quite a lot of babies that need additional care in the hours to days after delivery. At the moment these patients will be hosted in the main ward, with their mother on the same bed or sometimes in the Hebi incubator when needed. However, we want to change the interior of the maternity ward slightly, in which we can build one specific room for the sick neonates. We will provide two Hebi incubators in that room, a dedicated nurse, a phototherapy light, a kangaroo mother care chair so that is possible to give more advanced care to the neonates. Thereby hygienic measures will be taken, so not all caretakers can come in and tough the sick neonate without adequate hand hygiene for example. The relocation of the maternity ward will start when all the equipment has arrived with the containers.

#### Specific budget and realization for neonatal care

Specification	Budg et	Realisation
Resuscitation table neonate	500	Coming in october
Nebulizing machine 3x	180	107,91 (for 1 machine)
<i>Dedicated neonatal observation ward with three (day, evening, night) dedicated staff member for 3 years</i>	8100	Not yet established
Couveuze (1x)	750	Coming in container

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Hygienic measures for neonatal unit	150	Not yet established
Kangaroo mother care chair	500	Coming in october
1 additional CPAP machine pumani	1200	Not yet established
Phototherapy device	35	Coming in october
Formula 1 feeds for neonates 20 boxes	680	229,23

#### Reachability

Over the previous years the national ambulance system NEMS is encountering problems, mainly in finances of fuel and maintainance of the ambulances. Therefore, we often get phone calls from the different PHU's that no transport to our facility can be guaranteed. We often use the ambulance to go and pick up the patient ourselves. We are keeping data, with the whole district about the sometimes not fully functioning system, so this can be presented to the government. However, in the meantime, it is important that our ambulances receive, which are old and not fully equipped for patient transport, the necessary 'upgrade'. We want to make a new storage are in the ambulances, for adequate storage of some medical supplies if transport is needed, the seating area, the stretcher. We want to buy a portable oxygen machine to be able to transport a patient which needs oxygen therapy, for example a neonate for advanced neonatal care to MSF Magburaka. Currently, the ambulances also need maintenance for them to be able to drive safely. When the maintenance is completed, we can start the process.

Specific budget and realization for reachability

Specification	Budg et	Realisation
<i>Upgrade of ambulance with facilities for patient transport</i>	500	Not yet established
<i>Oxygen machine for ambulance transport</i>	500	Not yet established

#### Additional costs

Of course, with a product like this there are additional costs. We have to pay transport costs to the container for example, which will likely still increase some and some equipment has not been send yet.

Thereby part of the budget will also be used to buy the necessary medication for the maternity and neonatal ward, such as magnesium sulphate, hydralazine, labetalol, oxytocin, antibiotics, coffeine for the neonates.

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Specific budget and realization for additional costs

Specification	Budget	Realization
Transport to container	-	46
Medication	500	Not yet established

Budget vs actual

		EUR	Actual
Community sensitizati on	Radio + jingle	42	0
	Outreach	1000	527,50
	Scanning outreach	40	53,75
Training	Training	42	25
	Mortality meeting	42	0
	Training sick neonate	42	0
Maternal care	Weighing scale	10	18,99
	Blood pressure machine	40	0
	Pulse oximeter 4x	1200	745,69
	Digital clock for laborroom, analogue clock for maternity ward	35	0
	Moyo device for FHR monitoring 2x	810	1005,12
	Filing system nurses	10	0
	Project maternity waiting home, garden	200	0
	Episiotomy scissors	-	47,89
Neonatal care	Resuscitation table neonate	500	0
	Nebulizing machine 3x	180	107,91
	Dedicated neonatal observation ward with three (day, evening, night) dedicated staff member for 3 years	8100	0
	Couveuze (1x)	750	0
	Hygienic measures for neonatal unit	150	0
	Kangaroo mother care chair	500	0
	Phototherapy device	35	0

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	Formula 1 feeds for neonates 20 boxes	680	229,23
Reachabilit y hospital	Upgrade of ambulance with facilities for patient transport	500	0
	Oxygen machine for ambulance transport	500	0
Running costs	Medication	500	0
	Construction costs	2000	0
Total costs		17908	2760,78

#### Vote of thanks

We want to thank all the ones donating, supporting and sharing our project. Thanks to all of you this crowdfunding was a major success and a lot of changes have already been made. We will keep improving and will keep you updated about the further improvements in the projects, mainly after the containers have arrived.

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#### Appendix



#### PLAN:

- Change of delivery room from 2 to 3 beds, if budget even 4 beds
- Make neonatal room in right patient room
- Extend maternity ward for extra patient bed
- Possibly relocate clinician in office and extend delivery room with space of this office, for fourth bed