NEO FOR NAMIBIA
HELPING BABIES SURVIVE

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MISSION REPORT

Mission 2024 – 2

October 16 to November 16, 2024

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1. INTRODUCTION

The 22nd Mission of NEO FOR NAMIBIA – Helping Babies Survive began on October 16, 2024, and lasted until November 16, 2024. It was carried out by two teams: Team I consisted of Prof. Thomas M. Berger, MD, and his wive Sabine Berger, RN, and, for the last part of their trip, they were joined by Kundai Mapanga, MD; Team II consisted of Salome Waldvogel, MD, and Jasmin Renaud and Steffi Bögli, two neonatology nurses from the Kantonsspital Aarau, Switzerland.

For the first 7 days, Team I was joined by representatives of two important sponsors who had expressed an interest in seeing first-hand how our organization works. First, Matthias Winistörfer, MD, the CEO of the Zuger Kantonsspital (ZGKS), Zug, Switzerland: his institution has been supporting NEO FOR NAMIBIA – Helping Babies Survive with annual contributions of CHF 10'000.00 for many years; in addition, various consumables bought through the ZGKS were made available for the hospitals in Namibia. Second, Liselotte Kuper (accompanied by her mother Dieuwke Bakker), main contact at PG Impact (Verein, founded in 2006): this organization is run by employees at Partners Group (a Swiss-based private equity firm) and aims to create lasting positive social impact by supporting organizations addressing challenging issues such as poverty, sustainable-energy access, educational opportunities, and access to healthcare. Over the past few years, PC Impact has generously supported the efforts of NEO FOR NAMIBIA – Helping Babies Survive, most recently with a three-year CHF 125'000.00 grant. Together, they visited both Rundu Intermediate Hospital (2 days) and Katima State Hospital (2 days). The visitors then either returned to Switzerland (Matthias Winistörfer) or continued their travels (Liselotte Kuper, Dieuwke Bakker), while Team I returned to Rundu, where they eventually met Team II on October 30, 2024. The two teams worked together at the government hospital for 4 days.

On November 2, 2024, Team I headed southwest to Swakopmund to work with local health care professionals in the Erongo region for another 5 days. They then returned to Windhoek where they met Kundai Mapanga, MD, who oversees the Vayu bCPAP project. Team II, on the other hand, stayed in Rundu until November 6, 2024, after which they moved on to Katima to support the Neonatal Unit at this government hospital for another 6 days.

On November 15, 2024, the 22nd Mission of NEO FOR NAMIBIA – Helping Babies Survive ended with the teams leaving Windhoek for their various home destinations.

2. MAIN MISSION GOALS

The main goals of the 22nd mission of NEO FOR NAMIBIA – Helping Babies Survive were:

- To accompany representatives of two important sponsors and to demonstrate the impact simple interventions have had in two hospitals (Rundu, Katima)
- To bring additional pieces of equipment and consumables to the four hospitals visited
- To assess the functionality of equipment donated by NEO FOR NAMIBIA – Helping Babies Survive in all four hospitals visited
- To take stock of consumables for equipment donated by our NGO
- To provide training to new nurses and doctors at Rundu Intermediate Hospital and Katima State Hospital
- To provide bedside teaching for doctors (Prof. Thomas M. Berger, Salome Waldvogel, MD) and nurses (Sabine Berger, pediatric nurse, Jasmin Renaud and Steffie Boegle, neonatology nurses)
- To assess the status of neonatal units in Swakopmund and Walvis Bay, as well as progress made with the new neonatal unit in Swakopmund
- To promote a (widespread) use of the Vayu® bCPAP device in Namibia (stabilization in delivery rooms and prior to transport to referral hospitals, on transport)

3. HOSPITALS VISITED

3.1 Rundu Intermediate Hospital

3.1.1 Overall impression

The Prem Unit at Rundu Intermediate Hospital has made further progress. Among other things, improved staffing (both nurses and doctors), rapid transfer of sick babies from the delivery areas to the unit, and better adherence to standard operating procedures (SOPs), such as the use of appropriate CPAP strategies and writing structured progress notes, have likely contributed to improved neonatal care.

On the other hand, poor maintenance of medical equipment, patient crowding, delayed response to alarms of both patient monitors (pulse oximeters) and equipment (incubators, warming tables, CPAP machines and ventilators), and frequent lack of basic supplies for proper hand hygiene (water, soap, paper towels) are the unit's most obvious current weaknesses. Addressing these issues must be made a priority (see below).

3.1.2 Prem Unit – Block A

Block A is used to care for the sicker and more immature babies. During our visits, Block A was always busy with an average census of around 18 patients. Because one of the rooms is used exlusively for patients with (suspected) sepsis (3 – 4 patients at a time), the other rooms are often quite crowded (Fig. 1, 2). Once again, we explained to the local

HCPs that nosocomial infections in neonates are not airborne but transmitted by contact. The latter is much more likely to occur when there is crowding and poor hand hygiene. We encouraged them to reevaluate their room assignments.

Fig. 1. Crowded Block A – ICU bay: next to an admission area for initial stabilization, two additional babies can be cared for.

Fig. 2. Crowded Block A – IMC room: up to eight patients are cared for in these rooms, originally designated for six patients.

In the Prem Unit's ICU (Intensive Care Unit) and IMC unit (Intermediate Care Unit) areas, patients can be supported with CPAP), treated with exogenous surfactant (Survanta®) and even undergo invasive mechanical ventilation. For the latter treatment, doctors and nurses clearly prefer to use the EVE® neo ventilators (only 2 are available); in contrast, they struggle with the use of the ResVent® iHope machines (4 would be available) because of "unstable" performance resulting in almost continuous alarming. We could not determine whether this was due to user errors or a problem with the machines themselves. It would be helpful to discuss this issue with HCPs from other hospitals in Namibia who use this device.

The available CPAP machines were almost continuously in use. Preference is given to the MTTS Dolphin® bCPAP devices (Fig. 3), and the Vayu® bCPAP machine (Fig. 4) is used as a backup when all the Dolphins are in use. The use of the Pumani® bCPAP was discontinued in 2023, and the devices were removed and brought to other hospitals (Katima, Swakopmund).

Fig. 3. MTTS Koala® infant bed, MTTS Wallaby® warming table and MTTS Dolphin® bCPAP device are all used in the IMC area of Block A.

Fig. 4. Vayu® bCPAP: this device is used as a back-up when no MTTS Dolphin® machine is available.

3.1.3 Special Care Unit – Block B

As usual, Block B was less busy than Block A with an average census of around 10 patients. Here, in the Prem Unit's CC (continuous care) area, babies who have recovered from their acute illness (often called "feeders & growers") are cared for until they can be discharged home. Occasionally, babies with a very poor prognosis are transferred to Block B for palliative care.

3.1.4 Visiting sponsors

As noted above, Team I was accompanied by representatives of two important sponsors during their first stay at Rundu Intermediate Hospital (from October 18 to 23, 2024). The group was warmly welcome by doctors and nurses. The local HCPs explained the immense impact NEO FOR NAMIBIA – Helping Babies Survive has had over the past seven years. They strongly encouraged the visitors to continue their valuable support.

Prof. Thomas M. Berger and Sabine Berger were able to show the hospital grounds and the various areas of the Prem Unit (Block A – ICU & IMC unit, Block B – SC unit). They could explain how donated money is invested. Finally, they pointed out that additional funds will be needed so that they can continue their work and ensure sustainability.

3.1.5 Medical equipment donated by NEO FOR NAMIBIA – Helping Babies Survive

3.1.5.1 Stock (equipment & consumables)

Sabine Berger took detailed stock of various consumables, including but not limited to those required for uninterrupted use of equipment donated by our Swiss NGO. Some of these items are delivered by VIA Global Health (consumables for MTTS Wallaby® warming tables and for MTTS Dolphin® bCPAP devices), others were restocked by Team I (Masimo® pulse oximetry sensors and patient cables, QuikRead go® CRP test kits, Pfaff Medical Bilimeter® supplies, UVCs, various sizes of endotracheal tubes, and various dressings).

Currently, the Neonatal Unit at Rundu Intermediate Hospital has the following pieces of equipment that have been donated by our NGO:

- MTTS Wallaby® warming tables (delivered 9, functional 9)
- MTTS Colibri® phototherapy units (donated 7, functional 6)
- Pumani® bubbleCPAP devices (donated 4, functional 4, but no longer used)
- MTTS Dolphin® bCPAP devices (donated 9), functional 7)
- EVE® TR neo ventilators with FP 850 humidifiers (donated 2, functional 2)
- MTTS Impala® ventilator (donated 1, functional 1, but currently not used)
- Airborne® T1 transport ventilator (donated 1, functional 1, but currently not used)
- Masimo® Rad-8 pulse oximeters (donated 11, functional 10)
- Masimo® Rad-97 pulse oximeters (donated 5, functional 3)
- Masimo® Rad-G (donated 7, functional 0, recall)
- Bilimeter® with Bilifuge® (donated 3, functional 3, 1 unit serving as back-up)
- Aidian QuikRead® go (donated 1, functional 1)
- Leyte Medical video laryngoscope (donated 1, functional 1 although connection broken and fixed with tape)

3.1.5.2 Equipment maintenance

Upon their return from Katima, Prof. Thomas M. Berger and Sabine Berger analyzed whether all the equipment donated by NEO FOR NAMIBIA – Helping Babies Survive was functional (Fig. 5). They serviced the MTTS Dolphin® bCPAP devices and performed a software update recommended by MTTS in Vietnam (contacts: Steffen Reschwamm and Hue Mac) (Fig. 6). A total of 7 units (out of 9 purchased over the years) are in working order; however, all but the two newest machines require replacement of the internal oxygen sensor. There is an option to replace the chemical oxygen sensors with a new ultrasonic device that would last much longer. Given a price difference of 35 US$ (i.e., 95 US£ instead of 60 US$), this seems to be an attractive alternative.

Fig. 5. Taking stock (right: pulse oximetry sensors) and repairing equipment (right: Sabine Berger performing some minor repair on an MTTS Wallaby® open warmer)

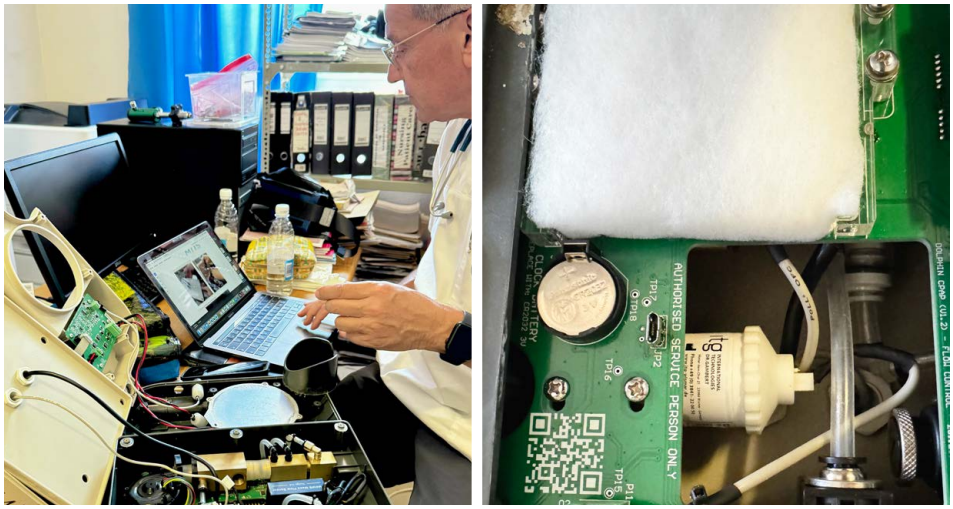


Fig. 6. Prof. Thomas M. Berger performing a software update on an MTTS Dolphin® CPAP device (left); easy maintenance: air filter and oxygen sensor (right).

One unit (Nr. 1) could not be repaired and had been removed permanently several years ago following consultation with MTTS in Vietnam. In another unit (Nr. 7) both heater cable and heater plate were no longer working. Steffen Reschwamm from MTTS Vietnam will advise on how this can be repaired.

Over the years, the Prem Unit at Rundu Intermediate Hospital has received a total of 23 Masimo® pulse oximetry monitors. While 10 out of 11 Rad-8 are still functional, only 3 out of 5 Rad-97 and 0 out of 7 Rad-G are still in use. Therefore, a total of 13 Masimo® pulse oximetry monitors can currently be used. The Rad-G monitors will be returned to Masimo®; these monitors have not stood the test of time and are not suitable for continuous monitoring in a harsh environment.

3.1.5.3 Additional equipment procured in Rundu

In addition to equipment delivered by VIA Global Health and brought by Team I (see above), NEO FOR NAMIBIA – Helping Babies Survive has financed the purchase of urgently needed infusion pumps and lines (5 Infusomat® Space Pumps, 300 Infusomat® Space Lines). B Braun products are available in Namibia exclusively from Sun Medical Supplies CC (contact: Bettina Kroning, Managing Director). This company has provided thorough training, and the purchase price includes a two-year warranty.

In addition, various supplies were bought in Namibia, including:

- Bottles for hand disinfection at the bedside (35)
- Patient files with registers (40) and laminated tables of contents (40)
- KMC (Kangaroo Mother Care) chairs (3+3)
- Antimicrobial hand soap (12 × 5 l), M-folded paper towels (12 boxes with 16 × 80 towels)

3.1.6 Review of the 2024 ward statistics

As in previous years, Prof. Thomas M. Berger analyzed statistical data both from the DR and the Prem Unit. From January 1 to October 31, 2024, a total of 4'510 deliveries had resulted in 4'505 live born infants; among these, 6 had died in the DR. In addition, there had been 16 fresh and 38 macerated stillbirths. The CS (Cesarian section) rate was 21.6 %. Vacuum-assisted vaginal deliveries were uncommon (27/4'510).

Over the same period, there had been 929 admissions to the Prem Unit; of these, 777 (83.6 %) had been born at Rundu Intermediate Hospital (corresponding to an admission rate of 15.3 % for inborn infants), and 152 (16.4 %) had been outborn infants (also termed BBA, i.e., born before arrival).

80 babies had died for an overall mortality rate of 8.6 %. Inborn infants had a mortality rate of 7.3 %, a record low for the Prem Unit at Rundu Intermediate Hospital. Not surprisingly, outborn infants are at a higher risk of death (15.1 %) (Fig. 7). Birthweight-specific mortality rates were 66.7 %, 25.5 %, 5.1 % and 2.4 % for infants with a birthweight of < 1'000 g, 1'000 to 1'500 g, 1'501 to 2'500 g and > 2'500 g, respectively (Fig. 8).

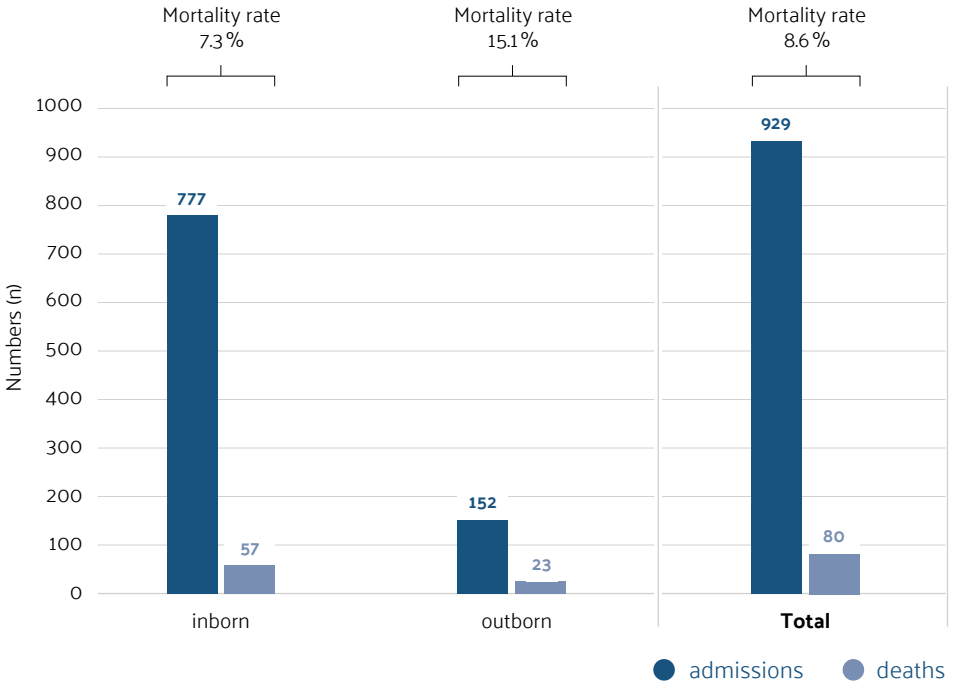


Fig. 7. Inborn, outborn and total admissions and deaths in the Prem Unit at Rundu Intermediate Hospital (10-month-period from January 1 to October 31, 2024).

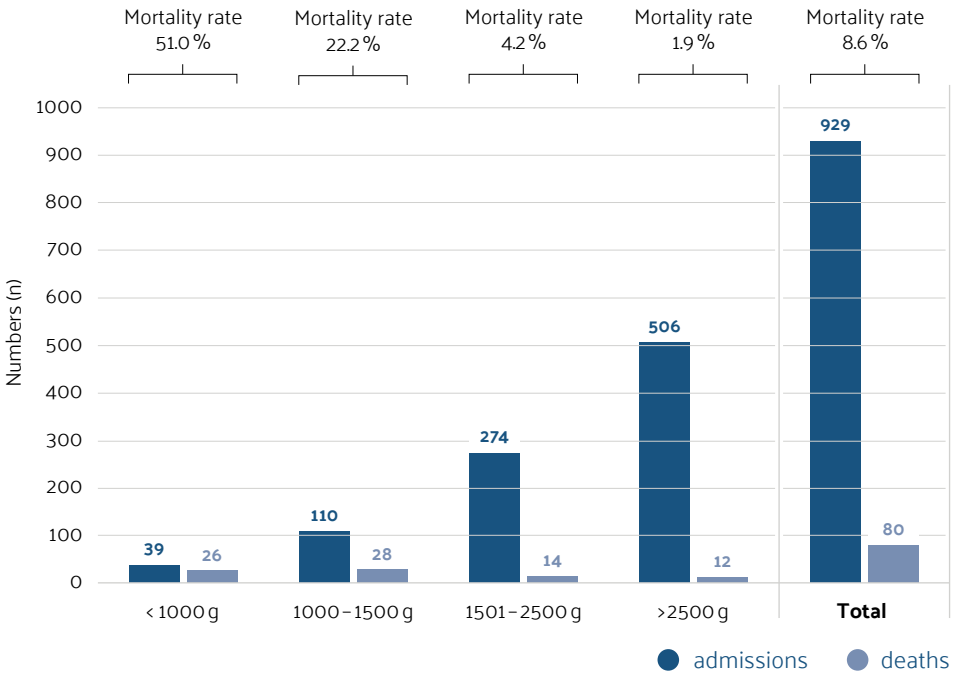


Fig. 8. Rundu Intermediate Hospital: birthweight-specific number of admissions, deaths and birthweight-specific mortality rates (10-month-period from January 1 to October 31, 2024).

In conclusion, progress seen within the first 4-5 years of our NGO's involvement has been sustained. Extremely low birthweight (ELBW) infants (birthweight < 1'000 g) continue to have a high mortality rate (26/39, i.e., 66.7 %). In comparison, 28 out of 110 (i.e., 25.5 %) infants with a birthweight of 1'000 to 1'500 g had died. Based on (incomplete) data from the admission book, the main causes of death among VLBW infants (birthweight < 1'500 g) are pulmonary hemorrhages, neonatal sepsis, necrotizing enterocolitis (NEC) and other complications of extreme prematurity. Higher rates of antenatal corticosteroids (ANC) administration for fetal maturation, better hygiene and better nutrition management could potentially improve the survival rates in this vulnerable population.

Compared to previous years, the number of deaths due to birth asphyxia resulting in moderate to severe degrees of hypoxic-ischemic encephalopathy (HIE II-III) has markedly decreased. Increased rates of hospital deliveries and better labor and delivery management are likely explanations for this positive trend.

3.1.7 Future directions

To see the ongoing enthusiasm and dedication of many local health care professionals motivates NEO FOR NAMIBIA – Helping Babies Survive to continue its support. At the time of this writing at least two missions are planned for 2025; visits to Rundu Intermediate Hospital will be on the schedule.

There are still many challenges that need to be addressed, some of which (e.g., unreliable supply of products for proper hand hygiene) are very basic and cannot be ignored. It needs to be emphasized that principles of basic care must be followed at all times for more advanced therapies to work to their full potential.

Another focus of our work will be on establishing simpler and better supply chains for consumables needed for equipment donated by our NGO. Finally, with the help of technicians from MTTS in Vietnam, we will try to install a new type of oxygen sensor. This ultrasound-based sensor has recently become available; its advantages are high accuracy, no need of calibration, low cost, and a long lifetime.

3.2 Katima State Hospital

3.2.1 Overall impression

The Neonatal Unit at Katima State Hospital continued to be well run by the nurses under the guidance of the Cuban neonatologist, Dr. Yurisleydi Valdez (Fig. 9 – 11). The former physician in charge, Dr. Cristy Victor had left for additional training in Cape Town. Obviously, long-term commitments of leadership would be highly desirable. At the time of our visit, it was not clear whether the contract of the third physician who had focused on pediatrics, Dr. Sharon Mungofa, would be renewed. On the other hand, we were positively surprised to meet an old acquaintance of ours, Dr. Katamba Banza, a physician from the Democratic Republic of Congo (DRC). He had worked in the Department of Pediatrics in Rundu for several years, and then switched to the Department of (Forensic) Pathology. A few months ago, he had arrived in Katima to work in pediatrics again.

Fig. 9. Neonatal Unit at Katima State Hospital: supervised by the nurses, mothers are closely involved in the routine care of their babies.

Fig. 10. Katima State Hospital: reusable consumables are cleaned by hand in bleach solutions, rinsed and then left to dry.

Fig. 11. Katima State Hospital: various consumables are kept in labeled boxes in two storage rooms.

We were pleased to see that many suggestions made by NEO FOR NAMIBIA – Helping Babies Survive have largely been followed. This includes, but is not limited to, structured progress notes with detailed fluid and nutrition orders, timely identification of babies in need of phototherapy with routine use POCT bilirubin measurements, and skilled use of various CPAP devices.

During our stays (Team I and II), work in the Neonatal Unit was compromised by the fact that the mobile X-ray machine was reportedly not working. Prof. Thomas M. Berger contacted the supplier to ask for advice. It turned out that the X-ray machine was functioning, but the extension column was no longer stable (a problem encountered two years ago) (Fig. 12). While the unit could be used if a person wearing a protective lead gown would hold the extension column in place, the X-ray technicians refused to cooperate citing safety concerns. Repair of the old machine or acquisition of a new device must be given a high priority.

Fig. 12. The mechanism that should hold the extension column of the mobile X-ray unit in its proper position was again malfunctioning; the device could easily be stabilized manually (images from Mission 22-1 (March/April 2022).

3.2.2 Medical equipment donated by NEO FOR NAMIBIA – Helping Babies Survive

3.2.2.1 Stock (equipment & consumables)

Currently, the Neonatal Unit at Katima State Hospital has the following pieces of equipment that have been donated by our NGO:

- MTTS Wallaby® warming tables (delivered 10, functional 10)
- MTTS Colibri® phototherapy units (donated 6, functional 5)
- Pumani® bubbleCPAP devices (donated 8, functional 6)
- MTTS Dolphin® bCPAP devices (donated 4 (including 1 unit initially sent to Swakopmund/Walvis Bay, see below), functional 4)
- Masimo® Rad-5 pulse oximeters (donated 3, functional 0)
- Masimo® Rad-8 pulse oximeters (donated 6, functional 6)
- Masimo® Rad-G (donated 2, functional 2)
- Bilimeter® with Bilifuge® (donated 1, functional 1)
- Aidian QuikRead® go (donated 1, functional 1)
- Leyte Medical video laryngoscope (donated 1, functional 1)

Except for the Masimo® Rad-G pulse oximeter, all devices have shown to be reliable and robust. Future mission teams of NEO FOR NAMIBIA – Helping Babies Survive will focus on the provision of consumables and equipment maintenance.

It was noted that infusion pumps provided by the government are not functioning. This has can have significant consequences (uncontrolled infusion of large amounts of fluids, leading to fluid overload and hyperglycemia, potentially endangering patients). NEO FOR NAMIBIA – Helping Babies Survive will consider providing B Braun infusion pumps since there is a Namibian supplier (Sun Medical) and experiences in Rundu have been very positive.

Finally, Katima will soon reach a level of neonatal care that would justify the introduction of invasive neonatal ventilation. An absolute prerequisite for such an endeavor would be stable, reliable local physician/nursing leadership and staffing.

3.2.2.2 Equipment maintenance

Team I and team II completed equipment checks. This included software updates for the MTTS Dolphin® bCPAP devices and light meter measurements of the MTTS Colibri® phototherapy units (irradiance was low (hours of service: 3984 hrs; normal mode: 6 µW . cm-2 . nm-1, boost mode: 7 µW . cm-2 . nm-1) in one of the 6 units; HCPs were advised not to use this unit any longer).

3.2.3 Biomarker-guided antibiotic therapy

Prof. Thomas M. Berger analyzed data regarding the use of the Adian QuikRead® go POCT (point of care testing) CRP measuring device. Out of at total of 110 tests recorded, use of the biomarker was adequate in 61 % (67/110) of cases, partially adequate (i.e., correct decision regarding antibiotics, but interval between 1st and 2nd measurements too long) in 25 % (28/110) of cases, and inadequate in 4 % (4/110) of cases (i.e., antibiotics continued despite two negative CRP values). In another 10 % (11/110) of cases data could not by interpreted.

Based on these analyses, it was reemphasized that the interval between 1st and 2nd CRP measurement should not exceed 48 hours to avoid unnecessary prolonged exposure to antibiotics in patients with two values of less than 10 mg/l. Given the mostly appropriate use of the test, it was decided to interrupt data collected for a period of six months, followed by reevaluation of a 3-month-period.

3.2.4 Review of the 2024 ward statistics

From January 1 to October 31, 2024, a total of 462 babies had been admitted to the Neonatal Unit at Katima State Hospital. Of these, 34 had died before discharge, resulting in an overall mortality rate of 7.4 %, a record low. Birthweight-specific mortality rates were 80.0 %, 18.8 %, 6.2 % and 2.6 % for infants with a birthweight of < 1'000 g, 1'000 to 1'500 g, 1'501 to 2'500 g and > 2'500 g, respectively (Fig. 13).

These results are very close to those observed over the same period at Rundu Intermediate Hospital (Fig. 8). Even though data quality may not be perfect, this observation is remarkable. It illustrates that solid basic neonatal care and skillful use of surfactant replacement therapy using INSURE (intubate-surfactant-extubate) and non-invasive

respiratory support with CPAP are essential to improve survival rates; the availability of invasive mechanical ventilation (available in Rundu but not in Katima) adds a relatively small survival benefit. This is in fact exactly what had been observed with milestone discoveries in the history of neonatology.

At both hospitals, more detailed analyses of causes and circumstances of deaths as well as verification of ultimate outcomes of babies transferred to other hospital wards or Windhoek Central Hospital for tertiary care would be helpful. In addition, data collection and analyses should become part of ongoing quality control (e.g., quarterly analyses).

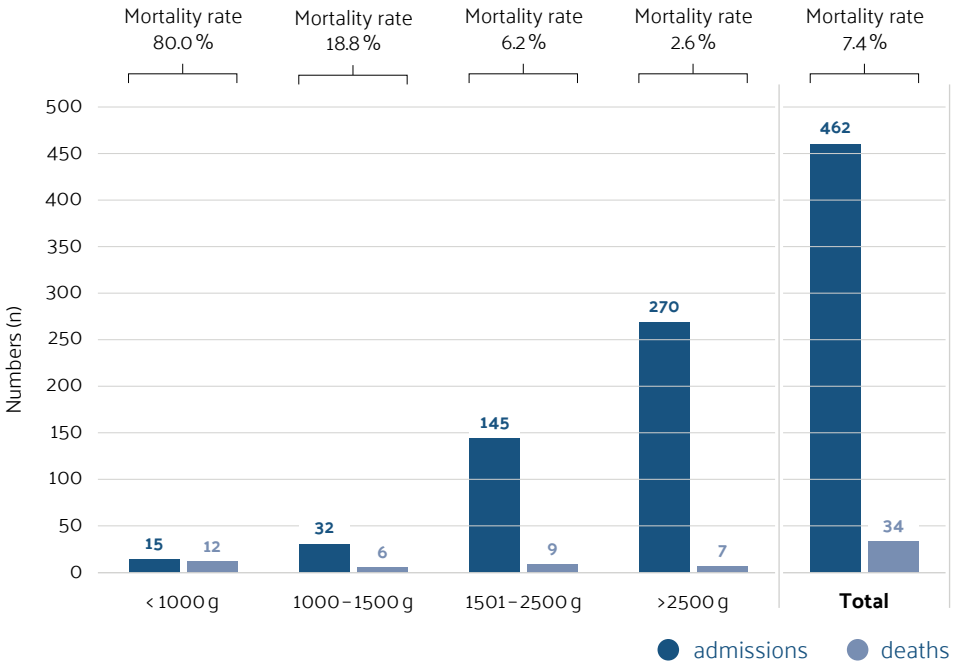


Fig. 13. Katima State Hospital: birthweight-specific number of admissions and birthweight-specific mortality rates (10-month-period from January 1 to October 31, 2024).

3.2.5 Future directions

Documented progress made in the Neonatal Unit at Katima State Hospital is truly amazing and motivates NEO FOR NAMIBIA – Helping Babies Survive to continue its support. At the time of this writing at least two missions are planned for 2025; visits to Katima State Hospital will be on the schedule. Topics that will need to be discussed is how long-term, stable leadership could be facilitated and whether the unit is ready for the introduction of invasive mechanical ventilation.

3.3 Swakopmund and Walvis Bay State Hospitals

This was the 5th visit of the two main hospitals on the Atlantic Coast in the Erongo region of Namibia by a team of NEO FOR NAMIBIA – Helping Babies Survive. In 2022, we had been contacted by Joel Helvi, a Medical Officer from Swakopmund Hospital, who had heard of the successful activities of our NGO in the north.

3.3.1 Overall impression

At Swakopmund State Hospital, physicians and nurses appeared to be surprised by our visit even though it had been communicated well in advance. A possible explanation

might be that the pediatric consultant, Dr. Beatrice Maringo (an expat from Tanzania), and the Chief Medical Officer (CMO), Dr. David Tjyokola, had left the hospital a few months earlier. The new CMO and pediatric specialist, Dr. Frieda Idipo, was obviously ill-prepared to discuss how NEOI FOR NAMIBIA – Helping Babies Survive might assist in the ongoing development of a regional neonatal referral center (Fig. 14).

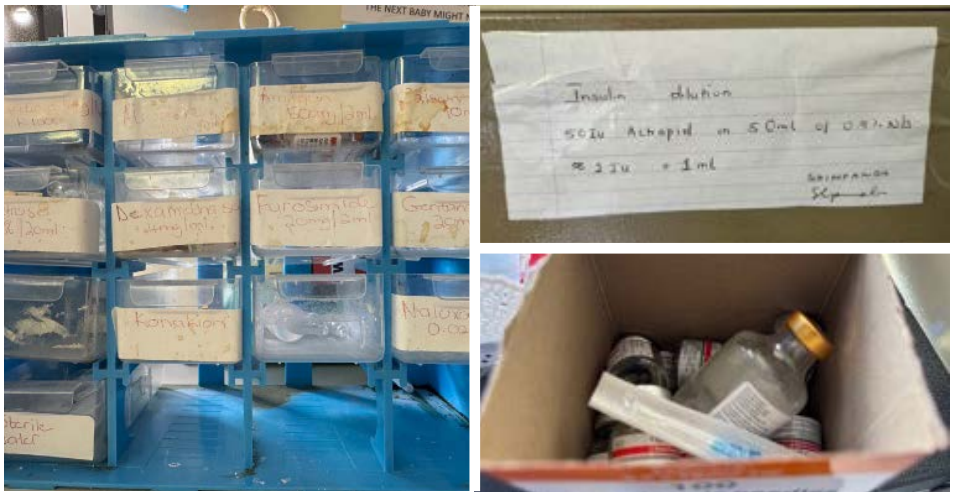


Fig. 14. The current neonatal unit at Swakopmund lacks leadership: efforts to improve are visible, but details reveal that there is a long way to go (drugs used in the neonatal ward).

At Walvis Bay State Hospital, we were met by Dr. Dina Iishi, Dr. Rejoice Chavez, and the CMO, Dr. Augustu Gawab. They appeared more interested to continue to work with our NGO than their counterparts at Swakopmund State Hospital.

During our visit (Team I only), the activity in the neonatal wards at both hospitals was very low (patient census 0-2). The opportunities for bedside teaching was therefore very limited. Despite these challenges, the use of the new MTTS Dolphin® bubbleCPAP device was instructed (Swakopmund State Hospital). However, given the current lack of leadership, the second CPAP unit was redirected to Katima State Hospital, and the Aidian QuikRead® go CRP POCT device was kept as a backup machine.

3.3.2 New Neonatal Intensive Care Unit

One of the physicians showed us the status of the building where the new Neonatal Intensive Care Unit will be housed. She was unable to provide a detailed update (e.g., room designation, number of ICU, IMC and SC beds planned). While significant progress had been made, it remained unclear when the unit might become operative.

3.3.3 Medical equipment donated by NEO FOR NAMIBIA – Helping Babies Survive

Currently, the Neonatal Units at the two hospitals in Swakopmund and Walvis Bay have the following pieces of equipment that have been donated by our NGO:

Swakopmund

- MTTS Wallaby® warming tables (delivered 2, functional 2)
- MTTS Colibri® phototherapy units (donated 2, functional 2)
- Pumani® bubbleCPAP devices (donated 4, functional 4)

- MTTS Dolphin® bCPAP devices (donated 1, functional 1)
- Masimo® Rad-G (donated 2, functional 2)
- Bilimeter® with Bilifuge® (donated 1, functional 1)
- Leyte Medical video laryngoscope (donated 1, functional 1)

Walvis Bay

- MTTS Wallaby® warming tables (delivered 2, functional 2)
- MTTS Colibri® phototherapy units (donated 3, functional 3)
- Pumani® bubbleCPAP devices (donated 4, functional 4)
- Bilimeter® with Bilifuge® (donated 1, functional 1)

3.3.4 Future directions

At this point, NEO FOR NAMIBIA – Helping Babies Survive will have to wait for clarification of future staffing and designation of the future leadership in the neonatal unit at Swakopmund State Hospital. As discussed on several occasions with high-ranking officials (i.e., Anna Jonas, Dr. Leonard Kabongo), given the low caseload, the planned new neonatal unit seems too large. It would be important to reevaluate the plans based on solid statistical data from the entire Erongo region.

3.4 Windhoek Central Hospital

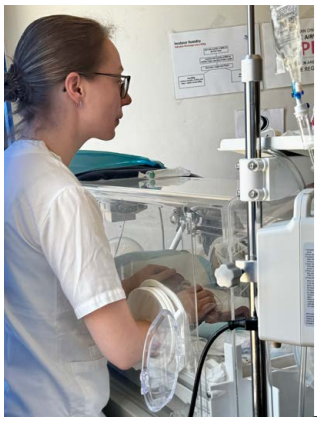
Before leaving Windhoek to head back to Switzerland, Team I was joined by Dr. Kundai Mapanga who had had discussions with representatives of the MHSS as well as the Chief Medical Officer of the Department of Pediatrics at Windhoek Central Hospital, Dr. Lorraine Ndjoze. Dr. Kundai Mapanga was trying to facilitate the introduction of the low-cost Vayu® bubbleCPAP device. At the time of this writing responses from the MHSS were still pending.

The team was invited by Dr. Lorraine Ndjoze to visit the NICU at Windhoek Central Hospital. This unit is the only government tertiary neonatal referral center in Namibia. At the time of our visit, the unit was extremely crowded. Time permitted for a lecture on the milestones in neonatal history and a live demonstration of the Vayu® bubbleCPAP device.

4. FEEDBACK FROM VISITING SPONSORS AND NURSES

As outlined above, Team I (Prof. Thomas M. Berger, Sabine Berger) was accompanied by visiting sponsors (Fig.15). Team II consisted of two neonatology nurses, Steffie Bögli and Jasmin Renaud, accompanied Dr. Salome Waldvogel (Fig.16). We asked the first-time visitors to briefly describe their experience.

Fig. 15. Mission Team I accompanied by visiting sponsors: Prof. Thomas M. Berger with guests at Rundu Intermediate Hospital (left); Dieuwke Bakker, Sabine Berger, Liselotte Kuper, Eleotelia Hamutenya, Matthias Winistörfer (right: from left to right).



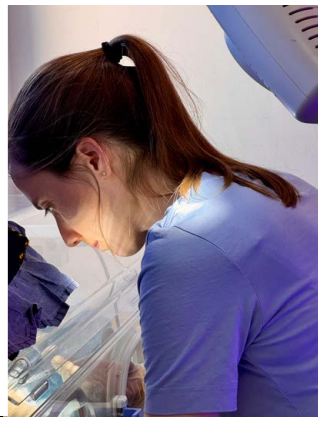


Fig. 16. Mission Team II working hand in hand with local HCPs: Steffie Bögli, RN, Jasmin Renaud, RN, and Salome Waldvogel, MD (from left to right).

4.1 Liselotte Kuper (Partners Group Impact Verein)

«Partners Group Impact (Verein) has proudly supported NEO FOR NAMIBIA – Helping Babies Survive since 2018. This organization and its dedicated team has consistently demonstrated a strong track record in improving mortality rates among sick newborn infants at Rundu and Katima State Hospitals. I was honored to join the team on their 22nd mission and witness firsthand the efforts, dedication, hard work, and commitment that have been invested over the years, all coming to life on the hospital floors. On behalf of Partners Group Impact (Verein), we extend our heartfelt gratitude to NEO FOR NAMIBIA – Helping Babies Survive for their invaluable contributions.»
Liselotte Kuper (Partners Group Impact Verein)

4.2 Matthias Winistörfer (CEO, ZGKS)

«After many years of financial support of NEO FOR NAMIBIA – Helping Babies Survive by the Zuger Kantonsspital (ZGKS), I had the opportunity to accompany the founders of this NGO on their 22nd mission Rundu and Katima. I was very impressed by what had been achieved in those two government hospitals over a short period of time. At meetings with hospital leaders, the next steps for further development were outlined and discussed. Given the obvious success witnessed on site, the ZGKS pledges to continue its support.»
Matthias Winistörfer (CEO, ZGKS)

4.3 Steffie Bögli (neonatology nurse)

«I am very grateful for the opportunity to see how NEO FOR NAMIBIA – Helping Babies Survive supports the neonatal units in Rundu and Katima. It was a glimpse into another world. The challenges local medical teams had to face were enormous, but it was amazing to see how nurses and doctors still managed to help babies survive! I once more realized how little things can make a big difference: putting a baby on its belly for better breathing, facilitating kangaroo mother care or figuring out how to feed babies without having to hold a syringe. It was great to work with the local teams and Salome Waldvogel. Finally, it was very impressive to see how even the smallest babies have such a strong will to live!»
Steffie Bögli (neonatology nurse)

4.4 Jasmin Renaud (neonatology nurse)

«I was really impressed by the circumstances these nurses had to work in. It was loud, it was crowded, it was chaotic, and equipment malfunction was common. They had few resources to work with, and I saw that they always tried their best to care for the small babies. I was speechless when I realized that the families of the babies often had nothing, sometimes not even nappies. When we gave them some baby clothes, or a bit of food and water, you received a heartwarming smile, that's so much more than words.»
Jasmin Renaud (neonatology nurse)

5. OUTLOOK

NEO FOR NAMIBIA – Helping Babies Survive is committed to continue its work in Rundu and Katima. In 2025, at least two missions are planned, and both hospitals will be visited. As outlined in the respective chapters above, the focus of the mission teams will be on equipment maintenance and provision of consumables. In addition, Prof. Thomas M. Berger and Salome Waldvogel, MD, plan to introduce bedside ultrasound examinations of neonates, emphasizing the utility of head ultrasound examinations in sick neonates. They will also evaluate if computer-assisted calculation of fluid and nutrition orders as well as drug doses might be useful.

Prof. Thomas M. Berger will also explore the feasibility of shipping 60 secondhand Philips X2 patient monitors (donated by the ZGKS, one of the Swiss employers of Prof. Thomas M. Berger) to Namibia. Discussions with MHSS are currently under way.

At this point, it is unclear whether the Vayu® bubbleCPAP project can be pursued. There are still a number of administrative issues, both in Namibia and the USA, that need to be resolved.

6. IMPRESSIONS FROM THE 22ND MISSION

While many memories we take home from our missions relate to our medical activities, our encounters with HCPs, patients (Fig.17) and families, impressions from African landscapes, animals and people also have a long-lasting effect.

Fig. 17. Against all odds: surviving babies – this is what NEO FOR NAMIBIA - Helping Babies Survive is all about!

6.1 African scenery

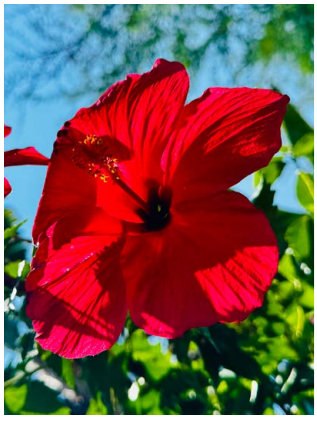
Fig. 18. African skies from above and below.

Fig. 19. African skies: Moon and Venus above Etosha (left); sunset at the Kavango river (right).

Fig. 20. Rhinos and giraffe at the Etosha Oberland Lodge.

Fig. 21. View of Sandwich Harbor: where the Namib Naukluft Desert meets the Atlantic Ocean.

Fig. 23. Animal life on the Atlantic Ocean south of Walvis Bay.



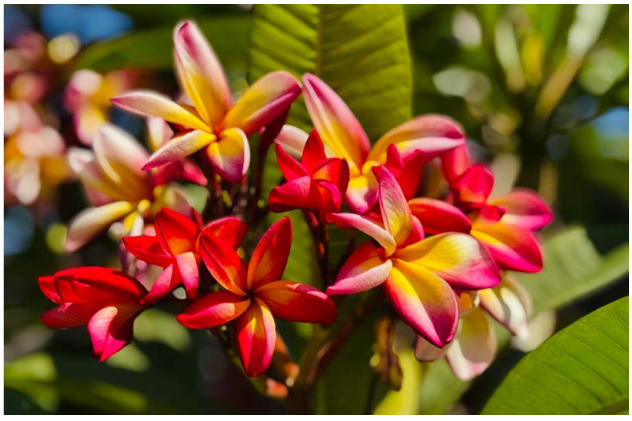


Fig. 22. African flowers: hibiscus (left), frangipani (right).

6.2 People

Fig. 24. Scenes from Kaisosi village.

Fig. 25. Kids at Johannes' place.

Fig. 26. At David's (woodcarver) selling stand on the road to the Mururani Gate.

Fig. 27. Kids at David's (woodcarver) selling stand enjoying some cookies.

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