Developing a neonatal unit in rural Uganda: a work in progress

Since the first visit to Karoli Lwanga School of Nursing at Nyakabale Hospital, Uganda in September 2007 we have maintained links with both the school and the hospital. Our main project over the following two years focused on the development of a new neonatal nursery. This report will describe the continuing development of the nursery and staff assigned to care for the babies.

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Key points

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1. Maternal and infant mortality rates are very high in sub-Saharan Africa.
2. One in eight children will die before they reach their fifth birthday.
3. Education and training is one way to address Millenium Developmental Goal targets and improve maternal and infant mortality rate.
4. Much can be achieved on a limited budget in a resource-poor country.

The development of a fully functioning equipped neonatal nursery could not have been further from my mind when I made that first trip to Karoli Lwanga Nyakabale hospital in 2007[1]. Teaming up with Denise Evans was a key element of that development in that we were able to inspire each other and at times encourage each other when we felt it was all such a struggle. Quite literally it meant we could double our resources and develop a two-week education and training programme for both midwives and student nurses[2]. Our aim was driven by Millennium Development Goal 4 (MDG); in that we wanted to enable the hospital staff to work towards reducing early neonatal death and potential handicap[3]. Daly identifies key issues in Africa that relate to a shortage of midwives and maternal deaths[4]. Nyakabale hospital serves the Rukungiri district where there is a ratio of one midwife to 987 child-bearing women and only 45% of mothers deliver at health units. The IMR and MMR are high and estimated at 76/1000 live births and 474/100,000 live births[5]. We have seen ourselves that where there is a short supply of medicines to correct pre-eclampsia and post partum bleeding, this exacerbates the problem. We know that a sick pregnant women increases the risk to the fetus and to the newborn baby[5-7]. A future aim will be to focus on midwifery 'at risk' training, using literature developed by TALC (Teaching Aids at Low Cost), that is written specifically for resource-poor countries[6]. For more information visit www.talcuk.org.

The project

We voiced our concerns with the medical director of the hospital about the care of sick and preterm infants. Following a meeting with the medical director and his senior team within the hospital we were allocated a room four times larger than the cupboard infants had previously been deposited in. This was the beginning of a new venture for us as project managers for the new nursery. A contract was set up between us and the hospital team outlining a time line for the structural and furnishing needs of the nursery. During the next 13 months we visited three times.

When we returned to the hospital in September 2009 our main aim was to oversee the completion and refurbishment of the new neonatal nursery and check our funds were being spent appropriately. With all projects if you are not on site all the time slippage can occur. We needed to speed the project along somewhat and managed to convince the tradesmen of this and they agreed to work extra hard to complete most of the project before we left.

The nursery

The nursery has quadrupled in size and it now has spacious clean work surfaces and an elbow tap and sink for hand washing, including a push pull door and a double sink for cleaning equipment, weighing scales and a steam steriliser. Importantly it has a good supply of locked cupboards (security is an issue) for all the necessary equipment to maintain a neonatal nursery, including a range of text books. On our next trip these will be replaced with more appropriate TALC text books[5]. The room has both solar and mains electricity with enough wall sockets to cope with three incubator spaces and four cot spaces. We commissioned the production of two specially designed chairs that will help

FIGURE 1 Promoting KMC – kangaroo mother care.

FIGURE 2 Introducing cup feeding.

mothers wanting to kangaroo care (skin-to-skin), to bond with their babies and keep them warm (**FIGURE 1**). We aim to purchase two heated mattresses for open cots. We have recently been informed that the Ugandan government has provided two new incubators for the nursery.

We had both an amazing and challenging week that was fraught with a mixture of experiences and emotions. There are on average 2000 vaginal births and 500 caesarean sections per year in the maternity unit and we experienced at least one early neonatal death every day that week. This only served to confirm the need for ongoing education, particularly in early neonatal care. Ogwang et al linked an increase in the number of babies with APGARS <7 in the Rukungiri district with the poor quality of monitoring the parameters during labour, such as fetal heart rate. However we also noted that women were more likely to use Nyakabale hospital when they had complications in labour. We discussed the need for audit of neonatal practice with the medical director and want to develop the use of a neonatal resuscitation log book that was introduced during our Easter trip. A midwife has been identified as 'nurse in charge' of the nursery and is continuing to get training from us. We have compiled a resource pack with care guidelines.

FIGURE 3 The water tank.

June 2010 trip

I visited again in June 2010 to continue the development and training for the new nursery that had been officially opened in Easter 2010. The Easter trip identified a key number of issues that I needed to follow through on my forthcoming trip. I quickly realised that, having a fully equipped nursery, I needed to focus on staffing, ward management and leadership. I worked alongside the students and the midwife assigned to the nursery and kept a record of my concerns to discuss with the medical director. This frank and productive meeting resulted in another contract that identified further action points that the medical director has assured us will be acted upon.

During my visit it was so rewarding to teach the staff and mothers the benefits of kangaroo care, particularly for thermal management. Steam sterilising was introduced and staff were taught how to give cup feeds of expressed breast milk to infants who were too weak to suckle (**FIGURE 2**). A routine of daily hygiene and damp dusting was instilled in the students. This was further reinforced with two educational sessions within the training school. A wall clock with a second hand was fixed to the nursery wall as most nurses cannot afford to purchase a watch. My most treasured memory was seeing the water tank installed outside the nursery and connected to the taps and the sight of free running water, reminding me of what we take for granted in the West (**FIGURE 3**). Progress has been slow if measured by our

Western timeline but incredible changes have happened. We now have:

- A clean purpose-designed nursery room four times bigger than the original cupboard
- Water tank *in situ* – running water in the nursery
- Oxygen concentrators and saturation monitors
- A stocked nursery and a library
- Documentation
- A midwife assigned to the nursery – we are providing ongoing training
- Training in breast milk expression with pumps and cup feeding for infants too weak to suckle
- Sterilisation equipment for the feeding
- All babies dressed with hats, clothes and nappies on (**FIGURE 4**)
- Kangaroo care (skin-to-skin) with mum to keep warm
- Guidance on care for doctors and midwives
- Guidance on health and hygiene for the nursery

Challenges we have tried to overcome and continue to find solutions to include:

- Apathy of some of the midwifery staff – also identified by the hospital medical director
- A new doctor needed to be assigned and motivated to care for the newborns
- Student nurses needed to be encouraged to take true observations of babies, record them accurately and act upon them (most nursing work is carried out by students)
- We are seeking to recruit a neonatal doctor and/or a neonatal nurse who would like to work for three months to a year at the hospital (basic accommodation and food provided)
- Our next trip – planning for 2011.

Ongoing plans

During the most recent trip I was fortunate to meet two medical students from the UK who were keen to get involved in the care of the infants during their elective. I taught them Neonatal Life Support (NLS), baby checks and how to cope with fundamental neonatal concerns such as infection, feeding and respiratory problems. They kept me updated on my return with encouraging texts and emails. The second week I met a doctor from the USA who was coordinating a child health nutritional programme and after meeting with me, she agreed to contribute to the management of the neonatal nursery during her six-week elective. I also trained her similarly, including NLS. This was such a relief as I could not get any of the medical team to take on the added responsibility of caring for the neonates. Towards the end of her elective she had the opportunity to meet the newly appointed doctor assigned to maternal and child health. She explained to him how the nursery should be managed and infants cared for. Recently I have been in contact with the newly appointed doctor at Nyakabale hospital. He will be sending me quarterly records of babies admitted to the unit and outcomes statistics. He is excited about our link with his hospital and seems to be keen to move the nursery forward.

FIGURE 4 Dressed and nursed in an incubator.

This project has been exciting and frustrating in equal measures. Watching babies die from birth asphyxia, or survive severely brain damaged was frustrating when you know simple resuscitative measures around the time of birth could have prevented some of these cases. However seeing babies who survived clinically intact who would not have done so a few years ago was so rewarding. It was frustrating trying to instill a sense of dignity in caring for the mothers and their babies, this was best achieved through role modelling. Due to a lack of funds to pay for care some parents discharged their babies earlier than preferred.

We are aiming to return in 2011. Denise Evans will concentrate on the delivery suite and continue mandatory NLS training. I will stay focused on the nursery and we will both teach in the school. If you are a midwife, a neonatal nurse or a doctor and are considering working overseas for a period of three months to a year please consider the Nyakable nursery. We can talk things through with you and may even be able to accompany you to help orientate you.

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