

Post-Qualification Education in Ultrasound in Obstetrics and Gynecology for Advanced Midwives



FOLLOW-UP REPORT 2008

REACHING OUT TO RURAL SOUTH AFRICA

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Trondheim, Norway, August 2008

Summary

Starting at the conference "Priorities in Perinatal Medicine" held in Drakensberg, Republic of South Africa, in March 2001, the issue of a specialized education in obstetric ultrasound for African midwives has been developed between health authorities in the Republic of South Africa and the staff of the National Center for Fetal Medicine (NCFM) in Trondheim, Norway. The NCFM is recognized by WHO as an official teaching and training center for ultrasound in obstetrics and gynecology and has worldwide experience from previous projects.

The objective of the education is to teach African midwives to use ultrasound to be able to take care of the needs of pregnant women in rural health care areas. The education includes skills to date the pregnancy correctly using ultrasound as a basis for the later management of possible growth problems and/or prematurity problems. Further, the midwives use ultrasound for the diagnosis of multiple pregnancies, location of the placenta and to make an overview of the fetal anatomy with the purpose of detecting severe anomalies which might cause problems during delivery and/or would require that the woman be taken care of at a more advanced center.

The project was supported by:

- Dr. R. Eddie Mhlanga, Chief Director, Maternal, Child, Women's Health and Nutrition, National Department of Health, Pretoria
- Professor Jack Moodley, The Nelson R. Mandela School of Medicine, KwaZulu-Natal University, Durban
- College of Nursing, King Edward VIII Campus, Durban
- College of Midwifery, King Edward VIII Campus, Durban
- Professor Ed Coetzee, Groote Schuur Hospital, University of Cape Town, Cape Town
- ISUOG, International Society for Ultrasound in Obstetrics and Gynecology. London

In May 2004, the teaching program was implemented at the Nursing College, King Edward VIII Campus in Durban. Thirteen advanced midwives from the Province of KwaZulu-Natal were admitted to the program. Six months later, in November 2004, the program was completed with a clinical and academic assessment of the students.

This first obstetric ultrasound educational program has successfully been completed through 2004. To evaluate the impact of the program, both when it comes to the midwives' progression in ultrasound skills and improvement in prenatal care, the midwives have been followed during the years of 2005-2006. Based on this evaluation, adjustments will be made for the future program.

A PhD project in Trondheim has been assigned to evaluate the introduction, development and impact of the present teaching program in Durban; this project includes the development of a technical procedure to facilitate the communication between the African colleagues and NCFM in Trondheim using the Internet.

Involved staff at NCFM

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Involved staff at University of KwaZulu-Natal

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Background

A specific goal of the educational program was to ensure that health personnel were provided with a basic foundation in ultrasound-aided diagnosis. There are many medical reasons for training in basic knowledge in fetal diagnosis with the aid of ultrasound. A qualified diagnostician should be able to determine the age of the fetus, the number of fetuses, the location of the placenta, as well as recognize major fetal malformations. This basic medical information has significant importance for pregnancy care, particularly in South Africa where, for example, the dating is unknown in about 70 – 80% of the pregnancies.



Eva Tegnander and Dolly Nyasulu discussing ultrasound education in Drakensberg, March 2001

In addition, fetal diagnosticians are in close contact with HIV-infected pregnant women and must initiate procedures that provide optimal care for the pregnant woman and her child. The dialogue with, the follow-up and the counselling of the pregnant woman are important parts of the work of the diagnostician. The more pregnant women who are offered fetal diagnosis, the more women who come in dialogue with qualified health personnel who can provide guidelines for routines so that the pregnant woman can protect her child from growing up with HIV-infection; thus, the more children who will be saved from early death due to HIV and AIDS.

Funding of the project

The project was funded by the National Center for Fetal Medicine, Trondheim University Hospital and the Norwegian Government through NORAD (Norwegian Agency for Developmental Cooperation), The Research Council of Norway, project no. 157996/V10, and ISUOG, the International Society for Ultrasound in Obstetrics and Gynecology.

Reports

Previous reports giving additional information about the project:

- Post-Qualification Education in Ultrasound in Obstetrics and Gynecology for Advanced Midwives. Report 2004.
- Post-Qualification Education in Ultrasound in Obstetrics and Gynecology for Advanced Midwives. Follow-up report 2005.
- Post-Qualification Education in Ultrasound in Obstetrics and Gynecology for Advanced Midwives. Follow-up report 2007.

Follow-up 2007-2008

The focus through 2007 and 2008 has been to evaluate the previous students' implementation of ultrasound in prenatal care and their registration of data, in addition to revision of the curriculum. The main tasks have been:

- Evaluate the midwives' use of ultrasound through their daily work
- Evaluate the registration of ultrasound data
- Evaluate the potential for research projects to increase the local know how about clinical ultrasound
- Revise the ultrasound curriculum and continue the educational program
- Establish dialogue with the Nursing Council for approval of the curriculum
- Secure teaching personnel and facilities
- Communicate with WHO
- Continue the PhD project on evaluation of the education

Site visits

The advanced midwives' use of ultrasound in prenatal care has been evaluated through site visits to three clinics in the province of KwaZulu-Natal. The midwives and clinics visited in May and November 2007 were: T. Brenda Dumakude at Church of Scotland Hospital in Tugela Ferry, Nomusa B. Khumalo at Hlabisa Hospital in Hlabisa and Alice Govender at Tongaat Clinic in Tongaat. In May 2008 site visits were done at a more extensive level at Hlabisa and Tongaat. These visits included communication with the hospital administration at both sites. These visits are outlined in detail below.

Obstetric ultrasound is today a tool actively used in prenatal care.

- All pregnant women in the hospital area are offered an ultrasound scan in pregnancy. This means ultrasound to *all*, not only for those who can pay for the examination. This has the following consequences:
 - Correct gestational age
 - Reliable gestational age for TOP prior to 12 weeks
 - Prevention of post-term pregnancies and following complications
 - Proper basis for assessment of growth
 - Prevention of unnecessary induction of labor
 - Proper time for elective caesarian section
 - Reduction of the number of undetected multiple pregnancies and thus reduction of the number of perinatal deaths
 - Increasing bonding between the fetus and the parents which makes it easier to co-operate with the parents for the rest of the pregnancy
 - Helps in identifying congenital abnormalities and decision of termination of pregnancy if the abnormality is gross
 - The wish to see their fetus makes the pregnant women attend prenatal care earlier in the pregnancy, before complications have developed
- High-risk pregnancies are detected earlier and can be selected for proper management at an earlier stage in pregnancy (hypertension, pre-eclampsia, HIV, placenta praevia, multiple pregnancies, etc.). "The early diagnosis leads to early treatment and early referral to ensure a healthy mother and baby".

- Fewer women are referred to a next level hospital, because the reason for possible complications now can be sorted out by ultrasound and dealt with by the local hospital (placenta praevia, abruptio placenta, extra uterine pregnancy, etc.)
- The mode of delivery can be planned when multiple pregnancies, myomas, placenta praevia are found.
- Safer withdrawal of liquid for determining lung maturity
- Helps in exclusion of pseudo-pregnancy, molar pregnancy
- Ultrasound performed on all women in labor to check the fetal position prior to delivery, exclude mal-presentation and to check placenta location

Registration of data

Through the ultrasound education the midwives have learned to register the examinations and their findings. We found that this has been done conscientiously and detailed. The data registered are the name of the pregnant woman, indication for the scan, ultrasound measurements and findings. It was discussed how this data can be used to improve routines and follow-up of the pregnant women and the consequences of their findings.

Despite high quality registration, the data does not seem suitable for research projects due to difficulties in collecting follow-up data both pre- and postnatally.



Revision of the curriculum and continuation of the teaching activity

Previous reports have stated that the students could benefit from a longer period of practical teaching than what was given in 2004. This has resulted in an extension of the ultrasound education from six months to one year. The curriculum was revised in 2007. An extension of the teaching period will give the students the needed practical experience and a chance to establish good ultrasound routines to ensure continuation of the ultrasound practice after completed education.

The intention was to continue the educational program in Durban and start with a new group of students in May 2007. Due to lack of equipment (mainly ultrasound machines) and facilities, this had to be postponed. Before a new group of students can start, there has to be established some financial assurance to take care of the equipment and facilities needed. More teaching personnel is also needed, and a physician from Nelson R. Mandela School of Medicine in Durban may spend a year at the National Center for Fetal Medicine in Trondheim to be updated on both ultrasound and teaching skills.

The Nursing Council

In South-Africa, the midwifery education is approved by the Nursing Council. In 2004 the impact of the ultrasound education was not known, and the Nursing Council could not find any reason to

approve the Post-Qualification Education in Ultrasound in Obstetrics and Gynaecology for Advanced Midwives. We are still in contact with the Nursing Council to get an approval. Nevertheless, the interest for this education and the major impact the introduction of obstetric ultrasound has made in some areas, confirm our decision to go on with the ultrasound education, irrespective of whether or not the Nursing Council gives its approval.

WHO

In April 2007, the teaching activities in South Africa were presented for the responsible personnel at the department for Diagnostic Imaging and Medical Devices (DIM/EHT), World Health Organization in Geneva. The response was extremely positive and our teaching methods approved.

Site visits May 2008

Hlabisa hospital

Hlabisa hospital is of particular interest for our project for various reasons which are outlined below.



Hlabisa Hospital has become a Presidential project and extensively upgraded the last two years. The photo shows the new entrance. All streets have been paved and new buildings have been constructed. The hospital may serve as a site for future local teaching.

Hlabisa Hospital

- Is a presidential project

- Is the biggest hospital in Zululand (500 000 inhabitants)
- Has a catchment area for half the district and covers an area of 75 square kilometers
- > 300 beds – has become too big
- Has about 300 deliveries per month
- Has 16 referring clinics. All clinics have a midwife, but the midwife has other responsibilities in addition.
- Their teaching hospital is Impangeni Hospital. For maternity service, Lower Umphalazi Hospital is the tertiary hospital.
- There is a general lack of midwives at Hlabisa Hospital, and they are trying to reorganize the obstetric unit and give the midwives a position as supervisors while nurses may do the routine care of the woman in labor. They experience a skepticism from the Nursing Council and it may seem like professional barriers are more important than helping patients.

Mortality rates

General mortality rate in South Africa	150/1000	(most due to HIV)
Mortality rate at Hlabisa Hospital	300/1000	

In 2007 there were 16 maternity deaths at the hospital: 2 because of institutional reasons: no blood; no transport. The rest due to problems from the referring clinics: referred too late, etc.

Obstetric ultrasound

Common obstetric problems are extra uterine pregnancies and hypertension. When Nomusa is at work from Monday to Friday between 07.00 and 16.00, she is doing all the scans. When she is not at work no one have enough ultrasound skills to do a proper scan, but the physicians on call do their best. There were full agreement between the physicians that teaching additional midwives diagnostic ultrasound would be the best from an organizational point of view. The physicians can then concentrate on other important tasks. The physicians did, however, welcome a very basic course in obstetric and gynecological ultrasound to be able to solve simple problems when they are on duty.



Nomusa Khumalo and Eva Tegnander discussing a new teaching plan which would include training of midwives as well as doctors.

The skills needed by the physicians would be:

- Diagnose pregnancy/non-pregnancy
- Fetal viability – early and later, pick up heart tonus (IUCD)
- Locate placenta
- Detect/exclude extrauterine pregnancies
- Diagnose multiple pregnancies
- Check fetal position
- Evaluate amniotic fluid volume
- Detect hydrocephaly, acrania, etc.

Tongaat Clinic

We also visited Tongaat Clinic and our experience from Halbisa Hospital and Tongaat Clinic may serve as a basis for a new more direct model for our future teaching.

Tongaat Clinic

- Is not a hospital, but has a 24 hour maternity service and 24 hour emergency service.
- No in patient facilities except for maternity
- 105 births/month. Cesarean sections are referred to a hospital.
- 8–9 clinics have Tongaat Clinic as a referring hospital. Of those 5 are government clinics.
- Approximately 28 thousand patients visit the clinic every month.
- The clinic has a mobile service reaching out to clinics in the rural area at a range of 20 km from Tongaat Clinic where they see a minimum of 100 patients every day. This service is now increasing the number of points to visit. The first visit is always at Tongaat Clinic (including blood samples, ultrasound, etc.) while the mobile service does the follow-ups. For pregnant women this service is aimed at antenatal monitoring.

Obstetric ultrasound

Since advanced midwife Alice Govender (she was taught through our program) left the hospital, the prenatal ultrasound examinations have been done at private physicians' offices or at another hospital. They have planned to send 2 radiographers for ultrasound training, but the training has been postponed from the educational site.

The physicians' question is how they best can organize and plan ultrasound service to the advantage of the women in their area. They are interested in expanding the service at the mobile units and hope to include ultrasound service at these units.



Eva Tegnander discussing with Hospital Director Mr. Sthembele Vikilahle and Medical Manager Dr. Roopsingh at Tongaat Clinic.

The Provincial Department of Health and the District Office may be contacted to get an acceptance for the project from high level health authorities.

Conclusion

Our teaching activity at King Edwards Hospital was temporarily halted by major practical problems such as insufficient ultrasound scanners available; further, the hospital has recently suffered loss of funds and struggles to serve as a tertiary center for the rural area of KwaZulu-Natal. Information gathered at the two site visits we made at Hlabisa Hospital and Tongaat Clinic indicated that it is of interest for us to focus directly on the rural hospitals/clinics and provide future teaching at training there instead of doing the teaching programs at a central level. The rural hospitals/clinics serve large populations and are in need of having health personnel with ultrasound training. The organizational and financial pressure at these rural hospitals seems less pronounced than at the tertiary hospital which ought to serve them. We will therefore schedule future meetings with The Provincial Department of Health and the District Office to develop such a teaching plan.



The waiting area at Tongaat Clinic usually is jam-packed with waiting patients from early morning until late evening.

This possible new model has been discussed with Prof. Eddie Mlangi at the King Edwards Hospital who supports the model. The teaching will be done as an outreach activity of King Edwards Hospital and thus not burden the temporary limited resources they have.