



MONDULI DISTRICT COUNCIL- TANZANIA



REPORT ON FIVE WEEKS ULTRASOUND TRAINING

VENUE: MONDULI DISTRICT HOSPITAL

DATE: BETWEEN JULY 2021 TO APRIL 2022 ALTERNATIVELY

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FOREWORD

This report is intended to provide an insight into what took place between July 2021 and April 2022 in alternating weeks of ultrasound training. The report was prepared by the main moderator after the training was completed. The moderators are pleased that not all activities/events have been included in this report, only a summary of important undertakings.

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LIST OF ABBREVIATIONS

GA	Gestation Age
US	Ultrasound
GS	Gestational Sac
FHR	Fetal Heart Rate
LMP	Last Menstrual Period
OBS	Obstetrics
UB	Urinary Bladder
UT	Uterus
PUD	Peptic Ulcer Diseases
GB	Gall Bladder
PID	Pelvic Inflammatory Diseases
LIF	Left Iliac Fossa
POD	Pouch of Douglas
UTI	Urinary Tract Infection
BPH	Benign Prostate Hypertrophy
BOO	Bladder Output Obstruction
RUV	Residual Urine Volume
DUB	Dysfunctional Uterine Bleeding
Lt/Rt KID	Left/Right Kidneys
EDD	Expected Date of Delivery
EFW	Expected Fetal Weight

ACKNOWLEDGEMENT

Many thanks to the District Hospital and the District Medical Office who, in cooperation with the charity organization Tandia e.V., made this useful ultrasound training activity possible in the Monduli region.

Moreover, special thanks to Tandia Staff Regina whom we worked together with good cooperation to make sure all training materials and other logistics are in place, may the almighty God Bless you all.

Lastly, but not least, facilitators appreciate the active participation of the participants during the training and coordination by Joyce.

Since it is not possible to thank everyone in person, we ask all those whose contributions have made this event a success, to accept the collective acknowledgments.

EXECUTIVE SUMMARY

The training aimed to build the capacity of healthcare workers so as to provide the best available care to our customers. The training focused to equip selected health care workers with knowledge and skills to enable them to implement ultrasound skills more precisely to pregnant mothers. Participants came from selected health facilities in Monduli District councils including Monduli district hospital, Makuyuni Health Center and Mto wa Mbu Health Center. The training was held at Monduli district hospital hall for theoretical sessions and ultrasound department for practical sessions.

The five workshops took place in July, September, December 2021 and February, April 2022. Immediate output of the first training course was highly promising because evaluation revealed significant gain in knowledge and skills as evidenced some case presentations prepared by participants from their practice. Generally all participants showed good knowledge and understanding and they were able to practice defiantly. The training achieved its primary objective though mentoring is advised to re-enforce gained knowledge and skills.

INTRODUCTION

In 1947-1948, **Karl Dussik**, an Austrian physician, and his brother **Friederick**, a physicist, introduced hyperphonography, a technique which used ultrasound to visualize the cerebral ventricles. Unfortunately, W Guttner, working in Germany showed that the apparent 'pictures' of ventricles were nothing of the kind, but instead represented densities of different parts of the overlying skull! 7

George Ludwig, working at the Naval Military Research Institute, in the United States, in 1949, carried out research into gallstones embedded in soft tissues, using a through transmission technique. His pioneering investigations into the interactions between ultrasonic waves and animal tissues, helped lay the foundations for the later successful use of ultrasound in medical practice.

Ian Donald introduced the ultrasound in diagnostic and medicine in 1956, when he used the one-dimensional A-mode (amplitude mode) to measure the parietal diameter of the fetal head. Two years later, Donald and Brown presented the ultrasound image of a female genital tumor. Brown invented the so-called “two-dimensional compound scanner”, which enabled the examiner to visualize the density of the tissue, which is often referred to as the turning point in the application of ultrasound in medicine.

The commercial use of ultrasound devices dates back to 1963 when the B mode (“brightness mode”) devices were constructed, enabling the examiner to visualize the two-dimensional image. In the mid-seventies, the “grey scale” was introduced (Kossoff, Garrett) leading to the introduction of the real-time ultrasound scanners. A decade later the Doppler effect served as the basis for the construction of the device that enabled the visualization of blood circulation, color flow Doppler ultrasound.

TRAINING GOALS, OBJECTIVES, METHODOLOGY

This course meant to equip participants with required competences of basic knowledge in ultrasound imaging for making sonographic diagnosis using Ultrasound machine. Therefore, the overall objectives of the course include:

- To equip health care workers with basic knowledge and skills to enable them to implement simple sonographic diagnosis at the level of district hospital and health centers.
- To reduce the burden of clients in need of Ultrasound investigation to be referred to the higher Centre.

The training aims at building the capacity of existing health care providers in Monduli. Training was interactive and took place from July 2021 to April 2022. The five courses based on the principles of adult learning. Approach included:

- Brainstorming
- Lecture discussion
- Large and small group discussion
- Case studies
- Individual assignments
- Practicum
- Buzzing and through questions and answers

In the beginning the numbers of patients were few but as the days goes the number kept on increasing as the public kept on disseminating the information about availability of machines and experts. Most of patients were diagnosed with Uterine myomas, ovarian cysts, PID, Liver diseases, and for pregnant women one had congenital anomalies, at risk women were detected, and the rest were normal pregnant. Having a transducer for small parts we were able to detect breast lesions, pyomyositis, and also performs some vascular dopplers, All these cases could not be identified without the new machine. Thanks Tandia for caring the Monduli community.

LIST OF PARTICIPANTS

Name	Function	DC
Joyce Shangai	Clinical Officer	Monduli District Hospital
Winnie Letele	Assistant Medical Officer	Monduli District Hospital
Victoria Simbo Kirenga	Senior Nurse	Makuyuni Health Center
Grayson Boniface Mhando	Clinical Officer	Monduli District Hospital
Chausiku Samwel Kisunte	Medical Doctor	Monduli District Hospital
Frank Mashaka Magumba (co-trainer)	Radiographer	Monduli District Hospital
Godfrey Benezetih Kagoa (co-trainer)	Clinical Officer	Mtowambu Health Center
Ladislaus Ritte (chief trainer)	Medical Doctor, Radiologist	Kibong'oto Infectious Disease Hospital



December 2021

ACHIEVEMENTS AND RECOMMENDATIONS

A total of 5 health care providers were trained.

Each participant had a chance to practice all course intended skills with additional basic knowledge of Chest radiography interpretation skills.

Since the arrival of the ultrasound machine at Monduli District Hospital in July 2021 reasonable number of clients attended with a different diagnosis encountered. A quiet number of clients have been increasing day by day although with some reasons and weather conditions the number has decreased little. Refer the following table:

DATE	NUMBER OF CLIENTS		TOTAL
19 th July 2021	Male	4	66
	Female	62	
August 2021	Male	9	154
	Female	145	
September 2021	Male	20	156
	Female	136	
October 2021	Male	26	203
	Female	177	
November 2021	Male	16	165
	Female	149	
December 2021	Male	16	204
	Female	188	
January 2022	Male	21	160
	Female	139	
February 2022	Male	13	144
	Female	131	
March 2022	Male	15	154
	Female	139	
April 2022	Male	14	129
	Female	115	
May 2022	Male	17	119
	Female	102	

June 2022	Male	12	144
	Female	102	
July 2022	Male	12	160
	Female	148	
TOTAL			1,928

921 clients were pregnant women of which Ultrasound aims to monitor the progress and wellbeing of the fetus, and most of them were normal.

812 female clients with following diagnosis: Early pregnant 22, Molar pregnant 6, pseudo pregnant 1, Ectopic pregnant 3, placenta previa 1, Abortion 48, Ovarian cyst 214, Myoma 107, Breast problem 8, Pid 227, Ascities 12, Liver problems 17, Nephritis 14, Feecal impaction 2, Appendicitis 12, Gastritis 113, Gastric hernia 2, Liver cirrhosis 2 and Gall stone 1.

Clients were diagnosed with: abnormalities detected during pregnancy, around August 2021 fetus was found with open spinal bifida, anencephaly, and polyhydromnious. Around September 2021 one lady 18 yrs with GA of 9wks found with Ectopic pregnancy in the right Adnexa. December 2021. A 40 yrs old lady was found with Molar pregnancy. With the presence of liner transducer we were able to detect a number of abnormalities. Around November 2021, a small boy of 4yrs was found with bilateral undescended testicles; both were located in the inguinal regions. The parents were counselled about the situation and the boy was referred to urologist for further intervention. Somewhere on October 2021, a man was found with DVT on the right leg. Another man on January 2022 was diagnosed with bilateral infected hydrocele. In February 2022, a lady 48yrs of age was diagnosed with right breast abscess.

Conclusion:

The aforementioned diagnoses were few among the most that were diagnosed from the moment the machine brought in place. Apart from normal findings from many patients we still had people who were diagnosed with Pelvic Inflammatory diseases, uterine myomas, pyomyositis, Ovarian cysts, Liver diseases, Gall bladder stone, cholelithiasis, Endometritis and many more to mention. First for most the Tandia representative Regina will be remembered as they worked tirelessly in support Monduli people. I remembered disturbing Regina about liner transducer and explaining the way we believe it can help much more than transvaginal

one, despite of all the support she has done but she still listen and lastly she came with it and that is why today we can diagnose some conditions such as DVT which is dangerous condition, breast lesions, scrotal issues etc. May God bless them abundantly.

Challenges Faced: No big challenges encountered

Recommendation: Follow-up supportive supervision and or/mentorship is highly recommended.