



Stiftung für medizinischen Wissenstransfer  
Foundation for medical know how transfer

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THE MERU COUNTY GOVERNMENT,  
MERU TEACHING & REFERRAL HOSPITAL (MeTRH), MERU UNIVERSITY OF  
SCIENCE & TECHNOLOGY (MUST), KENYA METHODIST UNIVERSITY  
(KeMU) AND STIFTUNG FÜR MEDIZINISCHEN WISSENSTRANSFER (SmW),  
SWITZERLAND

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AN EVALUATION REPORT ON THE  
TRAINING OF MODULE II COURSES IN OBSTETRICAL ULTRASONOGRAPHY AT  
MERU TEACHING & REFERRAL HOSPITAL (MeTRH), MERU - KENYA FROM 15<sup>TH</sup>  
TO 24<sup>TH</sup> NOVEMBER, 2022

BY:  
THE TECHNICAL WORKING GROUP

TO:  
SMW, SWITZERLAND & THE LOCAL PARTNERS

# **AN EVALUATION REPORT ON TRAINING OF MODULE II COURSES IN OBSTETRICAL ULTRASONOGRAPHY AT THE MERU TEACHING & REFERRAL HOSPITAL (MeTRH), KENYA DELIVERED BETWEEN 15<sup>TH</sup> AND 24<sup>TH</sup> NOVEMBER, 2022**

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## **1.0 INTRODUCTION**

A short course training on “Obstetrical Sonography Level 1 and Pregnancy Screening Scan Week 20-24” was organized consisting of 2 (two) modules of 2 (two) courses for 4 (four) days each (May/June and November, 2022). The course was piloted using a group of 25 (twenty-five) trainees drawn from the sub-county hospitals within Meru County and the local collaborating institutions (Course I), while Course II consisted a mixture of private, faith-based and collaborating institutions. Module II courses were delivered at MeTRH between 15<sup>th</sup> and 24 November, 2022 and examinations administered on the last day of each course.

One week after the training, an evaluation was conducted by the Technical Working Group which was responsible for the general organization of the training at the local level. The evaluation was guided by the requirements captured in the MOU between SmW-Switzerland and the local partnering institutions.

## **2.0 PLANNING & IMPLEMENTATION OF MODULE II**

### **2.1 Planning for the Courses**

The planning phase comprised of the Technical Working Group (TWG) & Principals' meetings, supplementary training in-between the modules, recruitment and registration of participants and other administrative activities. There was synergy between the TWG and the Principals with adequate guidance and support. Good inter-institutional work-relations were maintained all through the planning phase with effective internal & external communication. There was low publicity as no new recruitment of trainees was done for the second module.

### **2.2 Supplementary training**

With the support of SmW and involvement of the local partners, two supplementary trainings were organized for the trainees in-between the modules. Further, an expert was available to offer guidance to trainees every Tuesday, in addition to unlimited access to an ultrasound machine for own practice throughout the week.

Despite the low uptake of the supplementary training especially by trainees from the far-flung areas, the trainees who participated described the training as “helpful” as continuous practice honed their skills in obstetrical ultrasonography.

### **2.3 Implementation of Module II**

The module II training was carried out in November, 2022 about 5 (five) months after the initial module I in May/June 2022. No new recruitment of trainees was done a high transition rate was expected. However, only 38

(77.6%) transitioned from module I to Module II, from a total 49 registered trainees in module 1. The actual figures are as presented in the table 2.1 below.

*Table 2.1: Trainees transition from Module I to II*

S/No.	Course	Beneficiary institutions	Participants' transition		Rate (%)
			Module I	Module II	
1.	Course I (Pilot)	Sub-County hospitals (Meru County), MeTRH, KeMU & MUST.	25	14	56.0
2.	Course II	Private, faith-based, MeTRH, MUST	24	24	100
<b>Total:</b>			<b>49</b>	<b>38</b>	

It was noted that there was poor transition for Course I participants compared to their Course II counterparts. Further, it was noted that Course I participants were sponsored by the County Government of Meru as this was a pilot course, while Course II participants were self-sponsored or sponsored by their respective institutions.

The module II training sessions were officially opened by Dr. Joseph Wahome Mukundi - the Chief Executive Officer MeTRH & Ag. Chief Officer, Health - County Government of Meru on 15<sup>th</sup> November, 2022. The faculty included a mix of both local and international experts. A blend of both short lectures sandwiched by practical sessions were adopted in the delivery the course content. Adequate training consumables and pregnant mothers were availed throughout the training period.

However, the lecture venue, which was within a basement of an ongoing construction site was not very conducive for learning due to occasional noise. Also, 2 (two) of the 6 ultrasound machines broke-down during the second course. Time management was great, though affected by late delivery of meals on some days.

## **2.4 Management of pregnant mothers**

The pregnant mothers' data were well maintained all through the training save for the examination days. Patients were kept engaged as they waited for the services. They were sensitized on the importance of ultrasound scan/pregnancy screening at various stages of pregnancy and advised on proper nutrition.

## **3.0 PRIMARY TRAINING OUTPUTS/DELIVERABLES**

### **3.1 Course Evaluation**

Following successful implementation of the two modules, the students/trainees who presented 50 (fifty) properly pre-filled ultrasound scan forms sat examination comprising of both practical and theory parts. The

examination pre-requisites had earlier been communicated to all trainees. Table 3.1 below presents a summary of examination statistics.

*Table 3.1: Summary of registration and examination statistics*

Course	Pre-registered	Registered/ Attended	New trainees	Sub-total	Eligible to sit exams	Candidates re-sitting the exams	Total examined	Sat & passed Exams	Failed
Course 1	22	14	1	<b>15</b>	12	0	12	9	3
Course 2	26	24	0	<b>24</b>	23	2	25	23	2
<b>Totals</b>	48	38	1	<b>39</b>	35	2	37	32	5

**NB:**

1. Two (2) of the three (3) candidates who failed in Course 1 did a re-take during course II and passed. The 3<sup>rd</sup> Candidate did not turn-up.
2. Two (2) candidates failed during Course II and will re-take exams in March 2023.
3. A total of 32 out of 35 trainees sat examinations and their performance was satisfactorily to the examiners. They were thus awarded 'a Certificate of Completion'.

It was agreed that trainees who failed examinations be contacted to re-sit the same in March, 2023.

### **3.2 Pregnant mothers**

During the two courses, a total of 248 mothers received free ultrasound services.

## **4.0 ADDITIONAL DATA FROM SHORT COURSE TRAINING**

During the 8-day training, a total of 248 mothers (n=248, 100%) received free ultrasound services. During this period, specific data was collected by use of a pre-approval form by MeTRH. The main objective was to maintain a proper record of mothers who receive ultrasound services and follow-up on those that required specialized attention.

Although this was not the main objective of mounting the short courses, the collected data was, nevertheless, analyzed for informed decision making. Below is a breakdown of various data sets that were collected during the training period.

### **4.1 Age of Pregnant mothers in years**

The mothers' ages ranged from 15 and 45 years with the mean age being 26.6 years.

Table 4.1: Age of mothers

Variable	n	Minimum Age	Maximum Age	Mean Age
Age in years	246 (99.2%)	15.00	45.00	26.6

Most mothers fell between 20-24 age bracket consisting of 83 (33.7%) closely followed by 25-29 age bracket with 73 (29.8%) and 30-34 category with 44 (17.9). This indicated that majority of the mothers were within the recommended reproductive age. However, there were high-risk pregnancies comprising of 21(8.5%) underage/teen pregnancies aged between 15-19 years and 25 (10.2%) for the over 35-year old mothers.

Table 4.2: Ages of mothers per category

Age Category in years	n	%
*15-19	21	8.5
20-24	83	33.7
25-29	73	29.8
30-34	44	17.9
35-39	19	7.7
40-44	5	2.0
45 and above	1	0.4
<b>Total:</b>	<b>246</b>	<b>100</b>

The ages of two (2) mothers were not recorded during the data collection stage (n=246, 100%)

## 4.2 Mothers' place of residence

The data was collected and analyzed as per mother's Sub-County of residence. The data was distributed across all the nine sub-counties within the Meru County. The data was analyzed and presented in the table 4.3 below:-

Table 4.3: Sub-county of Residence

Variable	Frequency (n)	Percentage (100%)
Buuri East	13	5.2
Buuri West	2	0.8
Igembe North	0	0.0
Igembe South	5	2.0
Imenti North	154	62.1
Imenti South	19	7.7
Imenti Central	17	6.9
Tigania East	6	2.4
Tigania West	17	6.9
Not indicated	15	6.0
<b>Total</b>	<b>248</b>	<b>100.0</b>

Majority of the mothers representing 154 (62.1%) were from Imenti North Sub-county followed by Imenti South 19 (7.7%), Imenti Central 17 (6.9%), Tigania West 17(6.9%), Buuri East 13 (5.2%), Tigania East 6 (2.4%), Igembe South 5 (2.0%) and Buuri West with the lowest number of 2 (0.8%) mothers. There were no

mothers from Igembe North sub-county. 15(6%) of the mothers did not provide data on the sub-county of residence.

The location of MeTRH within the meru municipality - Imenti North sub-county may have contributed to the high number of mothers registered from the sub-county. The residents may also have benefited from the readily available information on free ultrasound scans due to their close proximity to the hospital. Igembe North, Buuri and Igembe South had the lowest number of mothers. These sub-counties are far-flung from MeTRH hence distance and general accessibility to information on free ultrasound services may have been the major contributing factors.

### 4.3 Date of Last Menstrual Period

Table 4.4: Dating by Last Menstrual Period

Variable	Frequency (n)	Percentage
LMP known	194	78.2
LMP unknow	54	21.8
<b>Total</b>	<b>248</b>	<b>100</b>

Majority of the mothers 194 (78.2%) had knowledge of their last menstrual period dates while 54 (21.8%) were unsure.

### 4.4 Gestation in weeks based on LMP

Table 4.5: Gestation Age

Variable	Frequency (n)	Percentage(100%)
First Trimester: Up to 13 weeks	10	5.2
Second Trimester:14 - 28 weeks	69	35.6
Third Trimester (29 - 40 weeks)	109	56.2
Over 41 weeks	6	3.1
<b>Total</b>	<b>194</b>	<b>100.0</b>

The data indicated that the highest number of mothers 109 (56.9%) sought ultrasound services in the third trimester (29-40 weeks of pregnancy) while 69(35.6%) and 10(5.2%) sought the services in their second and first trimesters respectively. It was also noted that there were 6(3.1%) mothers with post-datism. From the above data, most mothers sought ultrasound services during the third trimester – a stage when pregnancy dating may not be accurate and anomalies not detectable – thus undermining the very essence of undertaking an ultrasound scan.

### 4.5 History of Previous ultrasound scan within the current pregnancy

The data set was collected to help understand whether mothers were aware of the importance of ultrasound scan and whether they had done earlier scans within the same pregnancy. Table 4.6 below summarizes this data:-

**Table 4.6: Previous u/s scan**

Variable	Frequency (100%)	Percent (100%)
No	178	71.8
Yes	56	22.6
Not indicated	14	5.6
<b>Total</b>	<b>248</b>	<b>100.0</b>

The data indicated that only 56(22.6%) had done an ultrasound scan within the current pregnancy. The largest number 178 (71.8%) undertook their first ultrasound scan during the training period, with 14 (5.6%) not indicating whether or not they had carried out any previous ultrasound scan during the current pregnancy. The World Health Organisation (WHO) recommends one scan every trimester. However, in instances when this is not possible carryout the three scans, at least one scan during the 20-24 weeks of gestation is highly recommended to check for anomalies.

#### **4.6 Results of the current Ultra-sound scan**

During the practical session, it was required that trainees would record the overall results/findings in the patient's reporting form. Below are the results/findings as was captured in the forms.

*Table 4.7: Ultrasound scan results*

Variable	Frequency (100%)	Percentage (100%)
Singleton, Normal Obstetric scan	221	89.1
Twin Pregnancy, Normal Obstetric scan	11	4.4
IUFD (Intra-Uterine Fetal Death)	3	1.2
Abortion	2	0.8
Not indicated	10	4.0
Pseudocyesis	1	0.4
Not indicated	10	4.0
<b>Total</b>	<b>248</b>	<b>100.0</b>
*IUFD: All above 20 wks gestation based on LMP		

From the above data, mothers with singleton – normal obstetric scan pregnancies were the majority comprising of 221 (89.1%). There were 11 (4.4%) mothers with twin pregnancies with normal obstetric scan. According to World Health Organization's Guidelines, these fell within the acceptable range of twinning (4-8%) in Africa. Other results included Intra Uterine Fetal Deaths of 3(1.2%), abortion 2(0.8%) and absence of result summary /incomplete reporting for 10(4.0%) of the scanned mothers.

## 5.0 CONCLUSION

Based on the available data relating to preparation, actual delivery of module II short courses, and in line with the training objectives, it was concluded that:-

- a) The objectives of the collaboration were largely met having successfully completed module I & II (courses I&II) in 2022.
- b) The short courses were a success with 32(65%) out of 49(100%) initial trainees successfully completing the short course on Basic obstetrical ultrasonography level 1 and pregnancy screening.
- c) In the overall preparation of the courses, there was great improvement in module II compared to the inaugural module I courses. This was continual improvement was attributed to learning from previous experiences.
- d) Self-driven/highly motivated trainees are likely to transit to subsequent courses and complete their courses within the stipulated time while the opposite is true.
- e) There was need to always recruit trainees for module II to replace those that do drop out from the course in order to tap to the economies of scale.

From the data collected relating to the pregnant mothers, it can be concluded that the publicity instruments were effective as information was able to reach most of the sub-counties in Meru. However, there was need to intensify publicity in the far flung areas of the county as well as sensitize women on the importance of carrying out an ultrasound scan during pregnancy.

## 6.0 RECOMMENDATIONS

Based on the findings and conclusions, the TWG recommends that:-

- a) Obstetrical ultrasonography services be introduced closer to the people especially in far flung areas of Meru County (especially Igembe North & Buuri Sub-counties) by having more ultrasound machines and encouraging more healthcare professionals from the areas to train.
- b) Mixing of participants (faith-based/private with public hospitals sector) to create highly motivated teams.

- c) Regular sensitization of mothers on the importance of ultrasound scanning in pregnancy to increase uptake of the service at the right gestation age especially in the second trimester of pregnancy.
- d) Roll out the training to other counties to broaden the catchment area and replicate the skills across Kenya.
- e) The Patients' Data Form be revised to include more parameters thus making data collected more complete.
- f) Trainees to provide duly-filled-in report forms including summary of the findings to avoid possible reporting gaps.
- g) The construction of the New Ward Block be fast-tracked to ensure it is completed before the next courses if possible.
- h) The faulty ultrasound machines be repaired before the onset of the 2023 courses.
- i) Early recruitment (for all modules) to ensure adequate numbers as well as early engagement with Sponsors and/or trainees to help them understand the course requirements/expectations by/from various stakeholders prior to enrolling to the course.
- j) Post-training impact assessment be undertaken to establish the impact of the training at various levels e.g. reduced pregnancy related referrals to MeTRH as a result of training at sub-county levels and private/faith based institutions, reduced neonatal and maternal deaths etc.
- k) For sustainability of the courses, charge a fee of Kshs.25,000 per head to cover the 2 (two) modules as well as maintain two cohorts/courses running for 4 days each.

It is hoped that there will be a marked drop in referrals from the sub-county hospitals to MeTRH as more healthcare personnel get trained to offer obstetrical ultrasound services at the point of care.

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Date: 6<sup>th</sup> February, 2023

**REVIEWED BY:**

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