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Master of Science in Health Informatics

Project work:

Evaluating know-how of Partograph among Health Professionals toward improvement of its utilization: Case of Horo Guduru Wollega Zone

By

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DECLARATION

By my signature below, I declare and confirm that this project is my original work. I have followed all ethical principles of scholarship for preparation, data collection, data analysis and completion of this project. All scholarly matters that are included in the project have been given recognition through citation. I confirm that I have cited and referenced all sources used in this document.

This project work was submitted in partial fulfillment of the requirements for the Masters of Science degree from the School of Graduate Studies at Addis Ababa University. I declare that this project work has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

_____

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June 19, 2015

This project has been submitted for examination with my approval as university advisor.

_____

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June 19, 2015

DEDICATION

This project was dedicated to my beloved family especially my wife **Raji Wakuma** and our son **Gamachis** and our daughters **Lense, Simbo** and **Dibuhura**, who have been a source of support and inspiration throughout this project. This project was also dedicated to all health professionals who believe in the richness of care rendered for the promotion of maternal and neonate health.

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LIST OF ABBREVIATIONS

APGAR	Appearance, Pulsation, Grimace, Activity and Response
ALSO	Advanced Life Support in Obstetrics
AVD	Assisted Vaginal delivery
BP	Blood Pressure
BPM	Beats Per Minute
CPD	Cephalo-Pelvic Disproportion
C/S	Caesarean Section
EmONC	Emergency Obstetrics and Neonatal Care
FHR	Fetal Heart Rate
FMOH	Federal Ministry of Health
HO	Health Officer
IPD	Inpatient Department
MCH	Mother and Child health
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
PHCU	Primary Health Care Unit
OPD	Out Patient Department
PPH	Post Partum Hemorrhage
SVD	Spontaneous Vaginal Delivery
WHO	World Health Organization

ABSTRACT

Partograph is manual base information/data capturing tool during the qualified monitoring of labour progress, maternal and fetal conditions in labour. If the partograph is used consistently, recorded on correctly, analyzed and interpreted insightfully, can save the lives of both mother and child. The use of the partograph therefore becomes an essential decision-making tool to assist the health professionals in making the correct decisions for the woman and her baby.. The project aimed to evaluate the know-how of partograph utilization and towards its improvement among health professionals working in public health facilities to monitor labouring mother during delivery and partograph utilization practice of health professionals and providing appropriate intervention and conducting post intervention evaluation.

Facility based cross-sectional descriptive study design was used to determine the know-how of the partograph among health professionals working in project area. In addition, review of document was conducted within the selected health facilities. Finally, on the job training was conducted as an intervention to improve the know-how of partograph among the health professionals. Training was conducted by the principal investigator for two days. A multi-stage cluster sampling technique was used for the project. Depending on the main objective of the project to evaluate the know-how of partograph utilization towards its improvement, the result revealed most of the participants were male and young. The participants of the project were health professionals working at health centers (PHCU). Most of the participants served 2-5 years .The majority of them did not receive in service training on the manegemanent of labour. Few of them previously used partograph to manage labour. Most of the participants didn't know the components of the partograph.

Generally, the project identified that the knowledge and the utilization practice of health professionals during the intervention was different from that of post-intervention. This shows that training and managerial commitments did have a greater influence on the utilization of partograph to monitor labour. Since the know-how of partograph utilization of partograph was poor, continuing with updating the health professionals regarding obstetric care on the use of partogram should be provided for all health professions in order to provide the quality of obstetric care in the Zone.

KEY WORDS: Knowledge, Utilization, Partograph, Alert line, Action line

CHAPTER ONE

1. INTRODUCTION

1.1. Back ground of evaluating know-how of partograph towards improvement of its utilization

Partograph is manual base information/data capturing tool during the qualified monitoring of labour progress, maternal and fetal conditions in labour. If the partograph is used consistently, recorded on correctly, analyzed and interpreted insightfully, can save the lives of both mother and child. The use of the partograph therefore becomes an essential decision-making tool to assist the health professionals in making the correct decisions for the woman and her baby. Partograph is a device that is designed for the purpose of regulating, guiding or administering a process. Within this study context, the "partograph", as a tool, has been designed to guide the management of labour with the purpose of identifying complications that may arise [1].

Partograph as a tool helps for the transformation and summarization of data on logical patterns is called information. This information turned into knowledge when it can be used for actions and decision making. Partograph is a tool for knowledge management process generically can be represented as four cyclic actions: knowledge acquisition, codification of knowledge, knowledge transformation and knowledge Application for better quality of service deliver [2]. The management of labour using a partograph is believed to be the appropriate pregnancy related data management tool to improve the maternal, fetal and child health service. In addition, the partograph is pregnancy related data management tool that helps as an early warning mechanism and assist as an early decision- making support tool for such an appropriate actions to be taken as on transfer, augmentation or immediate delivery [3].

The partograph is the simplest tool which can be understood by everyone and yet the most effective for the real management of labour. The idea of a graphical representation of the progress of a labour seems common to us now, but it was not there until the 1960s that it began to be used in obstetric practice [4].Literatures revealed that globally the Maternal Mortality Ratio

(MMR) has decreased by 45% between 1990 and 2014. While countries realization to attain MDG in order to reduce maternal mortality was on the way, literature shows that still there was an estimated 289, 000 maternal deaths per 100,000 in 2014 due to pregnancy and pregnancy complication, which means there were 24,084 and 803 Maternal Mortality in monthly and daily bases respectively. Out of the maternal mortality that was accounted yearly on the world the greatest figure was in the developing countries, which accounts 99% of the global maternal mortality. Some countries like Oceania is the region with the fewest maternal deaths at 510.This show that MMR in developing countries was 14 times higher than in developed countries [5].

Similarly partograph is an important and useful information/data capturing tool during the qualified monitoring of labour progress, maternal and fetal conditions in labour. Even though partograph is a manual base data capturing, it helps as a computer technology to capture information (input), Process to provide output for decision making and also for storing the data.

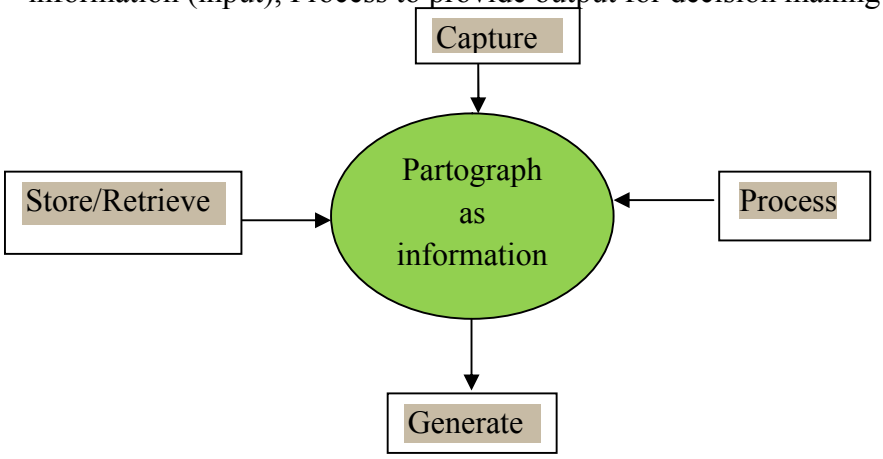

Fig.1. Partograph as information/data capturing tools

The WHO recommends that the main objectives of using partograph to follow labour and delivery is to improve the quality of health care during delivery and reduce maternal and fetal morbidity and mortality. Partograph is a cost-effective and affordable health interventional tool in order to prevent maternal deaths and complications that could be resulted from obstructed and prolonged labour [6].Partograph was endorsed and modified as delivery management tools by the World Health Organization (WHO) between 1990 and 2000 to monitor the fetal; the progress of labour and maternal wellbeing during the active stage of labour [7].

Partograph is a printed paper base form on which labour progress, maternal and fetal observations are recorded during labour and also is a means for recognizing and predicting

abnormality through comparison with an ideal progress. Literature shows that, the partograph that owned popularity since 1970's was initially introduced by Philpot; and endorsed by WHO as simple and accurate instrument for early recognition of the true nature of labour. it is one of the most appropriate tool in the developing world for intrapartum management, it helps for easily identification of the nature of labour over time, and it also helps to identify pregnancy complications such as prolonged and obstructed labour, which accounts for about 8% of maternal deaths, similarly it helps to know when to take appropriate actions that results in reduction of duration of labour by 3%, augmentation by 11%, Post Partum Hemorrhage by 5%, assisted delivery by 0.9% and increase Spontaneous Vaginal Delivery by 2% [1,9].

During the active phase of labour the first recording of cervical dilatation is plotted on the appropriate position on the alert line. Ideally labour should then proceed along the alert line. If labour is progressing more slowly the plot of dilatation against time will tend to move toward the action line. Once the plot has crossed the action line it becomes appropriate to consider action [8]. The WHO describes the partograph as a tool for managing labour and it is a graphic representation of events of labour plotted against time in hours. World Health Organizations indicates that the partograph consists of three parameters namely fetal condition, maternal condition and the progress of labour, and can be used for monitoring labour in hospitals and health centers[14]. The aim of the partograph was to provide a pictorial overview of labour to alert care providers to deviations in labour progresses, maternal and fetal well being. If the partograph is used effectively, it helps to ensure careful monitoring of the woman in labour, avoids unnecessary interventions, recognizes and responds to complications in a timely manner all of which can help to prevent maternal and neonatal morbidity and mortality [15].

During labour fetal status was assessed by auscultation of the fetal heart rate and checking the colour of amniotic fluid. The normal fetal heart rate ranges from 120 beats per minute (BPM) to 160 BPM without accelerations or decelerations. The fetal heart rate is auscultated every 2 hours in the latent phase of labour and half hourly in the active phase of labour. The progress of labour is assessed by performing a vaginal examination whereby cervical effacement, cervical dilatation, moulding and descent of the fetal skull are assessed. In the latent phase, the progress of labour is checked four hourly and during the active phase of labour two hourly , and findings were plotted on the partograph accordingly. The maternal condition is observed

on the partograph by assessing the maternal status of the pregnant woman in labour - this includes temperature, pulse, blood pressure and urinalysis. These observations are plotted 4 hourly during the latent phase of labour. Blood pressure and pulse are observed hourly in the active phase of labour [4, 7, and 19]. The project was conducted in Horo Guduru Wollega zone, West Oromia. Horo Guduru Wollega Zone was one of the eighteen Zones of Oromia Regional state with a total population of 715,222 among which 49.8% constitutes females. Horo Guduru Wollega Zone was divided in to ten Districts.

1.2. Statement of the problem

World Health Organization recommended the use of partograph for management of data on the maternal and fetal condition, but still not widely used in the developing world. The estimated proportion of health units in which the partograph was used in the district to monitor labour was at 30%.Similarly, since there is no attention for the use of partograph during labour management, most parameters on the partograph are not filled and even most health care workers do not document their findings on the partograph after reviewing the situation during monitoring of labouring mother[3]. As the result of not using partograph, the progress of labour may not be closely monitored or labour monitoring may not translate into actions required when need arise[4].Even though, there was no study that shows the status of use of partograph in Horo Guduru Wollega Zone, there also a problem on the use of partograph to monitor labour.

Due to miss interpretation in some countries, the partograph serves only as a record of labour and not as a tool to guide decision-making process during labour, Even it is only completed after the baby has been born [7]. A notable fact in developing countries is that knowledge of the use of the partograph for labour management is very low among nurses, midwives, and doctors working in health care. Additionally, the general inability of the health facilities to produce benchmarks on the use of this chart in labour, poor managerial support regarding the procurement of necessary supplies, and lack of motivation of the health workers, constitute major obstacles in the use of the partograph [15].The partograph utilization of the health professionals in Horo Guduru Wollega Zone was poor. Therefore, since the intention of health professionals use partograph during the management of labour is poor especial attention is mandatory in order to reduce maternal and new born mortality as the result of mismanagement during child birth.

1.3. Objectives

1.3.1. General objective

To evaluate know- how of partograph among health professionals and improving its utilization in view of providing information support to delivery service management in Horo Guduru Wollega Zone, Oromia Regional state, Ethiopia, 2015

1.3.2. Specific objective

- To assess knowledge and use of partograph among Nurses, Midwives, Health officers and Doctors in MCH department of the health facilities.
- To describe factors influencing the utilization of partograph among the health professionals.
- To review the partograph recording practice of the health professionals during labour from documents.
- To provide an appropriate intervention and evaluating the improvement of post intervention.

1.4. Significance of the project

This project contributes to the safety of delivering Mother by enabling the health professionals to adopt the habit of using partograph to monitor labour in order to reduce maternal and fetal death and to maximize effectiveness and efficiency of knowledge and utilization of partograph. Even though, it is intended to fulfill academic requirement: it can also serve as a good starting point to initiate further evaluating the know-how of partograph utilization in private health facilities. Finally, this project can also be used as baseline for interested individuals who want to evaluate the project against this finding. Thus, the finding of this project can be considered as important input to the WHO and FMoH to enforce the health professionals in order to use of partograph as a tool to assess birth giving mother.

1.5. Scope and limitation of the project

1.5.1. Scope

The Project was conducted in Horo Guduru Wollega Zone in selected public health facilities of health professionals from the cluster District. Data from private health facilities did not included because of time and resource constraints. The project was aimed at evaluating the know-how of partograph towards its improvement among the health professionals in the maternity room to reduce maternal and child morbidity and mortality during delivery. In addition, the project address the current know-how and partograph utilization practices of health professionals responsible in recording the information on partograph for appropriate decision making during delivery, providing the appropriate intervention to improve the know-how of partograph utilization and also conducting post- interventional evaluation to assess changes.

1.5.2. Limitation of the project

The project had several limitations

- Work load of the health professionals to spend their time on the project's aim to create awareness on evaluating know-how of partograph towards improving its utilization and to discus on the solution to alleviate the problem that hinder the utilization of partograph during delivery to monitor labour.
- Limited time and budget: The project's implementation time was too short to accomplish further post- intervention evaluation and the total budget of the project was not enough to accomplish further interventions.
- Multivariate analysis was not done in this project, because the emphasis of this project was to measure the deliverable.
- Availability of limited literatures: The most of all was lack of similar project work in the area made, so it was difficult to compare the achievement made.
- Even though, the literature on a partograph in general is very wide, there was lack of project-based studies on intervention and post intervention evaluation.
- The impact of other factors that may improve the utilization of partograph was not assessed due to congestion of time schedule, while evaluating post- intervention.

CHAPTER TWO

LITERATURE REVIEWS

2.1. Over view of the partograph

The partograph is a printed chart on which observations in labour are recorded in a graphic format to provide an overview of labour, aiming to alert midwives and obstetricians to deviation in labour progress as well as maternal or fetal wellbeing and it is also a method for recognizing and predicting abnormality through comparison with an ideal progress. It is a graphical record of cervical dilatation in centimeters measured against duration of labour in hours [3]. Partograph is the simplest and the most effective tool to the logical management of labour that has ever been used. The partograph was not begun until the 1960s to be used in obstetric practice. In 1987, the WHO introduced the Safe Motherhood Initiatives with the aim of reducing maternal and child mortality rates. The partograph is a record of all of the observations made on a woman in labour, the central feature of which is the graphic recording of the dilatation of the cervix as assessed by vaginal examination [4].

A partograph is one of the important tools in use in order to improve the quality of monitoring labour progress, and maternal and fetal wellbeing during the management of labour in the delivery room. This can be realized through the enabling of health professionals (midwives, nurses and doctors) to record their examinational findings on a standardized form, which helps to generate a pictorial overview of labour progress, and maternal and fetal condition, in order to allow for early identification and diagnosis of pathological labour. While partograph is critically used in preventing maternal and perinatal morbidity and mortality and therefore has applicability in developed and developing countries [5].The partograph is a chart that, when used routinely for the monitoring of labour it provides early warning of the need for intervention, so health workers can provide on time, appropriate care. This improves birth outcomes because mothers receive better treatment, and may prevent life-threatening conditions, such as birth asphyxia and bleeding after delivery [6, 8]. The partograph is a printed graph representing the stages of labour. Once a woman is in active labour, the skilled provider regularly plots the descent of the baby as well as the dilation of the woman’s cervix to help keep track of whether the woman’s labour is progressing normally and identify when intervention may be needed. In addition, the provider

records details about the condition of both mother and fetus, including the fetal heart rate, the color of the amniotic fluid, the presence of molding, the contraction pattern, and the medications that have been given to the woman [9].

The chart often contains an alert line (a signal of alert to deviations in labor progress) and an action line, which is the mandatory time to commence actions to correct the deviations in labour progress. An alert line is a visual representation of a cervical dilatation at a rate of 1 cm per hour labour progress sustained throughout the active phase, and is the slowest rate of active phase labor progress for normal labor outcome. This is so because normal labour progress in active phase is defined as a minimum cervical dilatation at a rate of 1 cm per hour and therefore a labor progress less than 1 cm per hour is diagnosed as slow labor progress. In clinical practice, when labour observations are elicited as baseline at admission in active phase, and at subsequent assessment for progress, and then plotted on the partograph, any cervical dilatation at a rate of less than 1 cm per hour will cross the alert line, which will visually show this as slow labour progress. The alert line is plotted to correspond with the onset of the active phase of labour (dilation of the cervix to 4 centimeters). When the woman's cervix reaches 4 centimeters, the provider should expect dilation to continue at about the rate of 1 centimeter per hour. The action line is plotted 4 hours after the alert line. If the woman's labour is not following the expected course after 4 hours, the plot of her labour will begin to approach the action line, signaling the need to take action. Interventions that may be appropriate when the action line is crossed include the use of Oxytocin to augment labor, vacuum-assisted birth (if the cervix is fully dilated), or cesarean section [10,21].

The partograph helps for the follow up of maternal condition, fetal condition, and cervical dilation versus time during labour. When partograph was used correctly, it can serve as a tool for early detection of serious maternal and fetal complications during labour, especially in rural countries where transportation is a great problem. Early detection allows to make transport decisions in time for a woman to reach a regional facility capable of performing emergency obstetric procedures [17]. Maternal condition is monitored to assess the well-being of the mother. If mother's well-being is compromised, certainly the fetal condition is also compromised and labour may not be allowed to continue to save life of both mother and baby. Maternal condition is observed through checking of blood pressure which helps to detect

pre- eclampsia and eclampsia. Pulse rate is observed to detect dehydration or sepsis during labour. Temperature checking helps to identify raised temperature which indicates sepsis. Urine output is checked to exclude protein urea and dehydration but also to keep bladder empty. A full urinary bladder obstructs fetal head descent. Fetal condition is monitored to assess the well-being of the fetus. If fetal condition is compromised, even though, the mother is healthy, normal labour may also be discontinued by an intervention to save the life of the baby. Fetal Heart Rate (FHR) monitoring is assumed to identify babies being at risk of running short of oxygen (hypoxic). The nature of the membranes show the risk of baby and mother to ascending infections if ruptured for long. The health worker would anticipate vaginal delivery if there is no excessive moulding and caput. Labour progress is captured through monitoring cervical dilatation which tells whether labour is precipitated, normal or prolonged. Meaningful interpretation of the cervical dilatation is aided by alert and actions lines on the graph. The crossing of the alert line is associated with fetal distress which increase need for resuscitation of the baby. Action line is a graphic line drawn four hours to the right of alert line. The action line represents slow labour progress [9, 18, 22].

The early detection of progress of labour by the use of partograph will helps to prevent prolonged labour and the problem that may happen and to identify the appropriate action to alleviate the complication that was the squeal and which are the major factors results to maternal morbidity and mortality [18]. The provision of measurable and qualified care during delivery is believed to make a difference between life and death or lifelong disability for millions of women during delivering mother . One of the major components of qualified care during child birth is the involvement of trained human power in the management of delivering mother [19].The partograph can be used to assess the progress of labour and to identify when interventions are necessary and it also helps to identify the type of intervention to be under taken. Research has shown that using the partograph can be highly effective in reducing maternal complications caused by prolonged labour such as postpartum hemorrhage, sepsis, uterine rupture and infant complications such as anoxia, infections, and death. The partograph is also used for monitoring the descent of fetal head, uterine contractions, fetal heart rate, membranes and liquor. Additionally, the partograph can be used to monitor maternal conditions such as pulse, blood pressure, temperature and the use of drugs. The partograph is an inexpensive

effective tool that can be used in a variety of different settings, both in developed and developing countries [8, 22].

The partograph is not as inexpensive or simple as it seems it needs attention like medical equipments which helps to manage patient. It requires specific competencies in order to make the partograph valuable such as accurate assessment of cervical dilatation, precise graphic plotting, analytical and interpretative skills and sound decision-making skills, which require theoretical training and months of practice under supervision. There should be legal protocol for the implementation of partograph. Every health facility should have well-documented clinical standards and protocols for delivery and labour [22]. The first WHO partograph which is called 'Composite partograph: covers a latent phase of labour of up to 8 hours and an active phase beginning when the cervical dilatation reaches 3 cm. The active phase is depicted with an alert line and an action line, drawn 4 hours apart on the partograph. This partograph is based on the principle that during active labour, the rate of cervical dilation should not be slower than 1 cm/hour. Since a prolonged latent phase is relatively infrequent and not usually associated with poor perinatal outcome, the usefulness of recording the latent phase of labour in the partograph has been questioned. Moreover, differentiating the latent phase from false labour is often difficult [16].

2.2. History of the partograph

According to the various literature reviewed, the first realistic human recording of labour was described by Dr E. A. Friedman in 1954 where he outlined a normal cervical dilatation pattern after he had conducted a large study on women in the USA. Dr Friedman ,1954 described labour as divided into two phases: the early latent phase lasting eight hours, where the cervix dilated from 0 to 3 cm; and the active phase where the cervix dilated from 3-10 cm. The active phase is an accelerated phase of cervical dilatation. Therefore, it is shorter than that of the latent phase. The partograph was developed by Friedman, an obstetrician, who had used it to monitor cervical dilation and called **cervicograph** [22]. In 1972; Philpott further developed the cervicograph into the partograph which became a practical tool for recording all intrapartum observations in addition to cervical dilation. In Philpott's partograph, he designed alert and action lines which helped to capture prolonged labour. In 1988, Safe Motherhood Initiative launched the use of partograph as an international standard practical tool to monitor labour and

prevent prolonged labour. In 1994, WHO extensively tested its efficacy and established its scientific basis and rationale for its use in prevention of prolonged labour. Its use reduces the incidence of prolonged/ obstructed labour and can also detect fetal heart abnormalities which can result in intrapartum fetal hypoxia. World Health Organization declared universal application of the partograph in all countries in 1994 after the confirmation of its efficacy. Partograph was introduced through the pioneering work of Philpott and Castlein1972, used convincingly in 1973, and later modified and adapted for global usage [7, 9, and 22].

The National Department of Health in South Africa faces the great challenge of reducing maternal and child mortality and have come up with many strategies. As stated in the South Africa's Strategic Plan for a Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa ,40% of all maternal deaths are avoidable, such as Prolonged labour and obstructed labour .The adoption of the partograph by the WHO was born out of the Safe Motherhood Conference in Nairobi, Kenya in 1987, which set out to address the worrying statistics of maternal and infant mortalities on the worldwide[15,22].The aim of the partograph is to provide a pictorial overview of labour to alert care providers to deviations in labour progresses, maternal and fetal wellbeing [22].

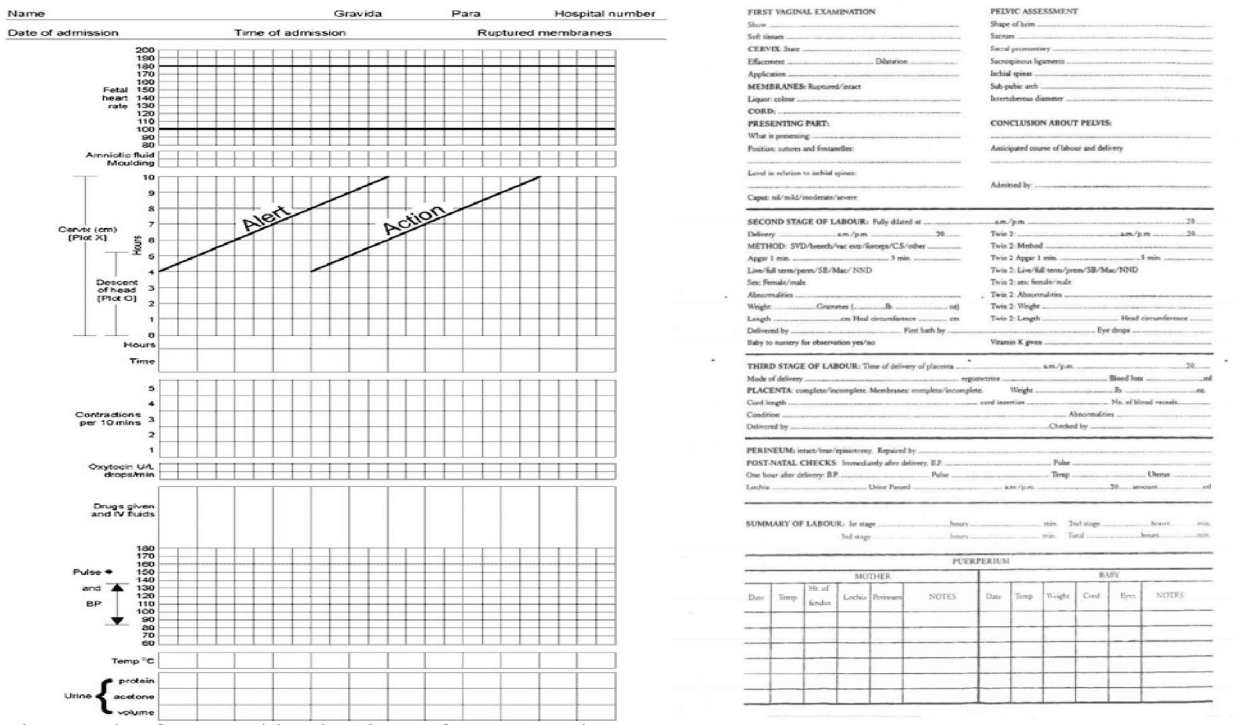

Fig. 2. The front and back View of Partograph

Partograph as a data base captures: Name, Age, Sex, Gravida, Para, Health institution number, Date of admition, Time of admition and the nature of the membrane

2.3. Knowledge and utilization of partograph

The study conducted in south Africa shows that the factors for the inefficient use of partograph were: shortage of midwives (65%), which seemed to be a major concern that also limits an opportunity to attend in-service training as reflected by 38% of respondents who never attended in-service; the shortage of partograph, the increased number of students to be facilitated in partograph use, lack of understanding the skill of recording, lack of commitment by midwives and ignorance[1].

However, in order to be effective, the partograph must be used correctly. Recent studies in Kenya reported that less than one fourth of partograph were completed in accordance with WHO guidelines. In developing countries, lack of training and continuing education, exacerbated be limited resources, represents a serious barrier to effective partograph use. The study conducted in South-South Nigeria identified the factors related against the use of the partograph were little or no knowledge on the partograph (79%), non availability of the instrument in labor wards (58.6%), and shortage of staff (46.9%) [4,7]. World Health Organization conducted a prospective non-randomized study in South-East Asia and concluded that the partograph was a necessary tool in the management of labour. Findings indicated the use of partogram reduced prolonged labour (from 6.4% to 3.4%), the proportion of labour requiring augmentation (from 20.7% to 9.1%), emergency caesarean section (from 9.9% to 8.3%) and stillbirths (from 0.5% to 0.3%). Therefore, proper use of a partograph in an environment where referral and timely intervention are possible would greatly contribute to reduction of maternal mortality and morbidity in the region [1,9].

The use of the partograph is hindered by poor knowledge, lack of the charts in the labor wards, shortage of health care personnel, time-consuming tasks for the low numbers of staff, and poor appreciation of its advantages in preventing obstructed labor. A notable fact in developing countries is that knowledge of the use of the partograph for labor management is very low among nurses, midwives, and doctors working in the primary and secondary health care levels and private health care centers when compared to tertiary level care. Additionally, the general inability of the peripheral hospitals to produce benchmarks on the use of this chart in labor, poor

managerial support regarding the procurement of necessary supplies, and lack of motivation of the health workers, constitute major obstacles in the use of the partograph [15].

The use of partograph is to improve maternal and perinatal outcomes was low, due to the lack of especial attention on the use of partogram all over the world. The study which was conducted in Brazil, found out that partogram was used in only 28.5% of women in labour. Another study conducted in Uganda on the assessment of partogram use during labour, found that good APGAR score was statistically significant associated with standard fetal monitoring. Similarly the study conducted in Uganda on the review of documented partograph found out that partogram that fulfilled the standard monitoring of fetal heart rate were only 2% of the reviewed partogram. Also in similar way the study conducted in Tanzania, found that fetal heart rate were not recorded in 6% of the reviewed partogram and in those recorded 86% of them were judged substandard. Other parameters like cervical dilatation, uterine contraction, maternal BP and maternal pulse rate in high proportions were also judged substandard. The study done in Nigeria, found that only 32.3% of the respondents used partogram to monitor labour [21, 22].The American women's college of midwifery recommend to all midwives to use the partogram entirely during the labour process because correct recording is a reliable tool to estimate midwives' operation. In spite of the fact that partogram use has shown to improve maternal and perinatal outcomes, the partogram is not used all over the world[22].

2.4. Review of related work

The real fact in developing countries is that knowledge of the use of the partograph for labor management is 28.5% among nurses, midwives, and doctors working in the health facilities [15]. The World Health Organization calls every health professionals working in labour ward of the health facilities for use paper partograph as the single most effective tool for monitoring labor and reducing labour complications in developing countries. The study conducted in Charlotte Maxeke Academic Hospital of South Africa revealed that significant percentage (74%) indicate that the partograph is important in the management of labour as it helps in monitoring the progress of labour. Similarly the study also showed that a reasonable number of respondents (63%) stated that the partograph was used by most of the labour ward personnel. However, only 53% of the respondents could be explicit as to when to initiate recording on the partograph. The implication could be that respondents with a 61 to 90%

rating could have initiated it late when the woman is already in an advanced stage of labour [6,20].

Many researchers Such as Lester , Basu, Hoosain, Leballo, Leistner, Masango, Mercer, Mohapi, Petkar and Tshiovhe state that the partograph although a tool of great value, it is very much under-utilized. They also found that the partogram was a poorly used as monitoring tool in a large Johannesburg Hospital, and assumed that inadequate recording on the partograph was one of the factors contributing to maternal mortality and morbidity [22]. The partograph can serve as a tool for early detection of serious maternal and fetal complications during labor, allowing sufficient time for an appropriate response. The study conducted Public health institute of Addis Ababa showed that Knowledge of the function of alert line compared with action line was poor. Only 104 (53.3%) of the respondents could explain the function of alert line while 161(82.6%) of the respondents could explain the function of action line, which may indicate the need for very urgent steps to improve the knowledge of obstetric care givers on the partograph through training and seminars in order to maximize the utilization and proper use of the partograph and also the study was signify that Only 104(53.3%) respondents could correctly explain the function of alert line while 53 (27.2%) and 38 (19.5%) of the respondents gave incorrect explanation and didn't know the correct function of alert line at all respectively. One hundred and sixty one (82.6%) of the respondents could correctly explain the function of action line while 16 (8.5%) of the respondents couldn't correctly explain the function of action line and 18 (9.2%) of the respondents didn't know the function of action line at all [3, 5].

Childbirth is considered a life-changing event for most women and families all over the world, but childbirth is also associated with great risks, and in severe cases disability and even death for mother or child. Guidelines for how deliveries should be managed vary between regions and are constantly changing as new evidence arises and is implemented in the health care. The study conducted in South Africa revealed that a significant majority of the participants (90.9%) were in agreement that the partograph was a tool for implementing safe motherhood. Similarly, AWilcoxon signed ranks test showed that most participants agreed that the partograph was a tool that can be used to reduce maternal and new-born mortality and morbidity, as well render efficient and quality care to the client in labour[9,22].

The 1994 WHO study underscores the incredible impact of careful labor monitoring on maternal health outcomes in the developing world, and highlights the partograph as an inexpensive one-page form that significantly enhances birth attendants' ability to give patients the care they need. The study conducted in South Africa Showed that, 100% of participants were familiar with the partograph. This response is expected , since participants would have used a partograph at some stage of their training or during their work experience. A significant number of participants (97%) also indicated that partograph were available in the labour wards. Since the newer designs of the maternity carrier cards are more like booklets and include a partograph, it is always available[11,22].

The partograph is an important tool to provide a framework for assessing maternal and fetal condition and labour progress during labour. Maternal condition is monitored to assess the well-being of the mother. If mother's well-being is compromised, certainly the fetal condition is also compromised and labour may not be allowed to continue to save life of both. Maternal condition is observed through checking of blood pressure which helps to detect pre-eclampsia and eclampsia. Pulse rate is observed to detect dehydration or sepsis during labour. Temperature checking helps to identify raised temperature which indicates sepsis. Urine output is checked to exclude protein urea and dehydration but also to keep bladder empty. A full urinary bladder obstructs fetal head descent. Fetal condition is monitored to assess the well-being of the fetus. If fetal condition is compromised, even though the mother is healthy, normal labour may also be discontinued by an intervention to save the life of the baby. Fetal Heart Rate (FHR) monitoring is assumed to identify babies being at risk of running short of oxygen (hypoxic)[10, 13].

The state of colour of liquor can tell whether the fetal life is compromised or not. The health worker would anticipate vaginal delivery if there is no excessive moulding and caput. Labour progress is captured through monitoring cervical dilatation which tells whether labour is precipitated, normal or prolonged. Precipitated and prolonged labours are potential risks of Post-Partum Hemorrhage (PPH). Meaningful interpretation of the cervical dilatation is aided by alert and actions lines on the graph. Alert line is a graphic line drawn from 4cm to 10cm dilatation. The role of alert line is to separate normal labour from abnormal labour. The crossing of the alert line is associated with fetal distress

which increase need for resuscitation of the baby. Action line is a graphic line drawn four hours to the right of alert line. Consistent and regular monitoring of contractions can show whether progression of labour is normal or not. If not, interventions can be instituted like augmentation of labour. Descent shows compatibility of fetal head and pelvis and failure of presenting part to descend in presence of strong contractions indicates Cephalo-pelvic disproportion (CPD) which is the common cause of obstructed labour. Consistent and regular monitoring of descent can guide the health worker the method of delivery to anticipate. The expectation is that the graph should be used on every woman reporting in labour to guide in monitoring of labour and assist in identifying problems. The reports of studies conducted in Malawi indicated that use of the partograph had improved referral of women from primary to secondary levels of care. Apart from improving referrals, the partograph had proved to reduce prolonged labour, perinatal mortality and reduce Caesarean Section (C/S) in secondary and tertiary levels [3,10].

Maternal mortality continues to be a global burden worldwide. Each year, more than 200 million women become pregnant and a large number of mothers die as a result of complications of pregnancy or childbirth. Rwanda is still one of those developing countries with high maternal mortality ratio and child mortality rate, estimated at 340/100,000 and 21/1000 live births respectively. A host of researchers ascertain that to effectively use the partogram, requires knowledge and skills. For instance, a study conducted in Ethiopia by Yisma, Dessalegn, Astatkie & Fesseha found that knowledge about the partogram was fair at 96.6%. The utilization of the partograph was significantly higher among obstetric care givers working in health centers (67.9%) compared to those working in hospitals (34.4%). Hence, it is recommended that pre service and on-job training of obstetric care givers on the use of the partogram should be emphasized. The aim was to raise awareness about the numbers of women dying each year from complications of pregnancy and childbirth. The target was to reduce maternal morbidity and mortality by 50% by the year 2000[11, 22].

The partograph, introduced by Philpott (1972) in Zimbabwe, was designed as a managerial tool for monitoring and decision making in the early detection of prolonged and obstructed labor. It may thus be used to assist: Referral decisions in health centers, Intervention decisions in hospitals, ongoing evaluation of the effect of interventions [13]. The active phase of labour,

which commences at 3 centimeters of cervical dilatation, and the latent phase of labour should not last longer than 8 hours. During the active phase of labour, cervical dilatation should not be slower than 1 cm per hour, a lag time of 4 hours between a slowing of labour, and the need for intervention is unlikely to compromise the fetus or the mother and avoids unnecessary intervention[14]. Implementation of the partograph also implies a functioning referral system with essential obstetric functions in place which will improve the efficiency and effectiveness of maternity services .Even though, the World Health Organization advocating and recommending that the partograph be compulsorily used in monitoring the labour process, it was and is still reported to be used to a limited extent in Africa or elsewhere in developing countries. Despite the long introduction of the partograph to the health care industry and wide documentation of its effectiveness, Some researchers in Nigeria have documented disparities in usage across health care facilities in Nigeria[15]. A notable fact in developing countries is that knowledge of the use of the partograph for labor management is very low among nurses, midwives, and doctors working in the primary and secondary health care levels and private health care centers when compared to tertiary level care. The use of the partograph is hindered by poor knowledge, lack of the charts in the labor wards, shortage of health care personnel, time-consuming tasks for the low numbers of staff, and poor appreciation of its advantages in preventing obstructed labour [16].The partograph is an inexpensive tool designed to provide a continuous pictorial overview of labour and has been shown to improve outcomes when used to monitor and manage labour. It is a single sheet of paper which includes information about the fetus heart rate, uterine contraction, any drugs used and other important factors that could help avoid extensive descriptive notes [17].

The partograph facilitates the tracking of maternal condition, fetal condition, and cervical dilation versus time during labour[18]. Apart from reducing the maternal and perinatal mortality and morbidity, it will also increase the quality and regularity of all observations on the fetus and the mother in labour and aids early recognition of problems [19]. Introduction of partograph at the maternity and health centers in developing countries is urgently needed to reduce the rising incidence of maternal and perinatal mortality and morbidity rising from mismanaged labour. A significant cause of maternal mortality in our population is prolonged labour and injudicious management of labour. The early detection of abnormal progress of labour by the use of partograph will prevent prolonged labour and its attendant risks of

postpartum hemorrhage and sepsis, eliminate obstructed labour, uterine rupture and its squeals; all of which are the major causes of maternal mortality and morbidity in our environment [20].

The American women's college of midwifery recommend to all midwives to use the partogram entirely during the labor process because correct recording is a reliable tool to estimate midwives' operation. The management of labor using partogram is the standard way of improving both maternal and perinatal outcomes. The partogram increases the quality and regularity of all observations on the fetus and the mother in labor and aids early recognition of problems in both mother and fetus. The partogram has three components, which includes the fetal condition, the progress of labor and the maternal condition. One of the parameters used in monitoring of fetal condition during labour include fetal heart rate, according to WHO protocol is recorded half hourly in first stage of labour and every 15 minutes in second stage of labor. It is judged to be standard if at least recorded hourly [21].

CHAPTER THREE

METHODS AND MATERIALS

3.1. Project area and setting

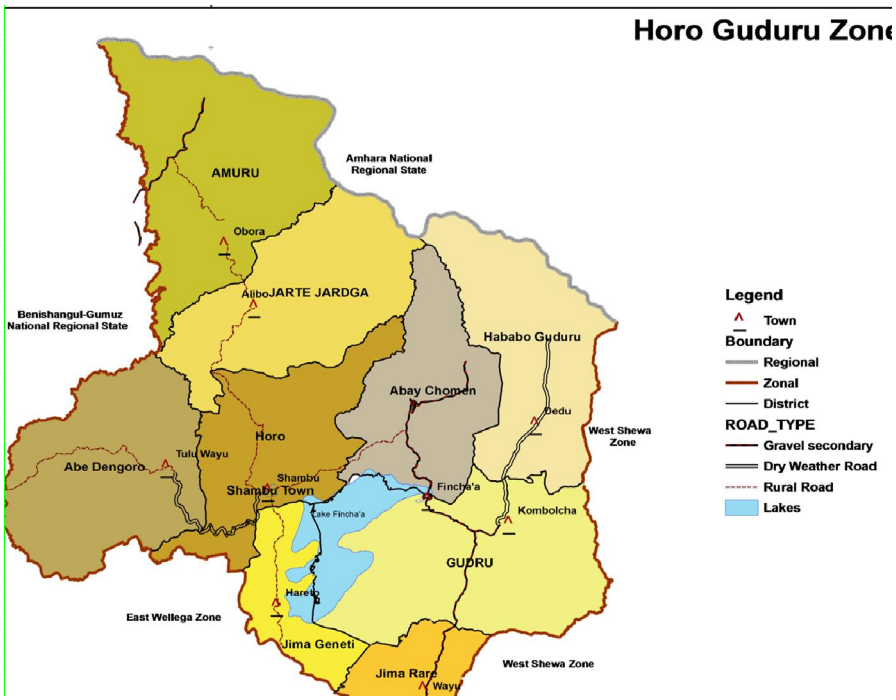

Fig.3. Map of Horo Guduru Wollega Zone

The study would be conducted in Horo Guduru Wollega zone, West Oromia to evaluate know-how of partograph among the health professionals towards improvement of its utilization. Horo Guduru Wollega Zone is one of the 18 Zones found in Oromia Regional state, with a total population of **715,222** from which, females constitute 49.8% and (95% of the population were living in rural areas. Horo Guduru Wollega Zone was divided in to 9 Rural Districts and 1 town Districts, and also 178 Rural Keble's and 24 Urban Keble's ,with regard to health facilities there was 49 Public health centers, 1 non profit Government Health centers, 1 Rural Hospitals and 202 Health posts. There were also 5 private medium clinics and 64 lower private clinics in the Zones. The number of health professionals working in public health facilities in the zones are: 6 medical doctors (general practitioners and specialists), 68 health officers,375 nurses and 91 midwives (2006 Zonal Health Report).

3.2. Project Design

Facility based descriptive cross-sectional study design was used to determine the know-how of the partograph towards its improvement among health professionals working in the project area. In addition, review of document was conducted within the selected health facilities. Finally, on the job-training was conducted as an intervention to improve the know-how of partograph among the health professionals. The training was conducted by the principal investigator for two days, from February 10-11, 2015 on Shambu town to improve the know-how and utilization of partograph the health professionals working in Horo Guduru Wollega Zones selected public health facility. The interventions emphasized on enabling the health professionals to capture the quality data with partograph during labour for appropriate decision making that helps to reduce maternal and child mortality due to pregnancy and pregnancy complication.

4.2.1. The topics of training:

- Labour management and use of Partograph.

4.2.2. Content:

- Labour and stages of labour.
- The management of each stage of labour
- The use of partograph as information/data capturing tools for decision making

The intervention mainly emphasized on the quality of delivery service provision based on the information/data captured on the partograph by enhancing health professionals' know-how of partograph towards improving its utilization. Post- intervention evaluation was conducted to assess and describing the changes as the result of intervention.

3.3. Source and Study population

3.3.1. Source population: The source population of the project was all health professionals working in the Public health facility, those working labour ward and having a chance to work in the labour management department (obstetric care unit).

3.3.2. Study population: The study population of the project was all health professionals, namely: - Doctors, Health Officers, BSc Nurses, Diploma Nurses, and BSc Midwifes and Diploma Midwifes from selected health facilities found in Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia

3.4. Sampling procedure and Sample size

3.4.1. Sampling procedure

A multi-stage cluster sampling technique was used for the project. The project was conducted in Horo Guduru Wollega Zone. The Zones was clustered in to four clusters depending up on the relative neighborhood and similarity in working. Accordingly, **four clusters** of districts, including **Cluster 1:** Hababo Guduru and, Amuru **Cluster 2:** J/Rare**, Abey**- comen ,Horo and Shambu town, **Cluster 3**: Guduru, and J/Jardega **Cluster 4:**, J/Genet , and Abe-Dengoro were formed. Then, a representative District sample was randomly selected from each cluster. Next, the health facility in the selected District was clustered and a sample health facility was selected from each cluster of the health facilities, and the sample representative participants were selected randomly from each of the selected health facilities. Even though there was a design effect in the multi stage sampling technique, then, all health professionals of primary health Care Units (PHCU) were included to evaluate know-how of partograph utilization among the health professionals towards its improvement. During the schematic sampling procedures, in the first stage of schematic sampling procedures the sampling health facilities were included and in the second stages of schematic sampling procedures the health professionals were included.

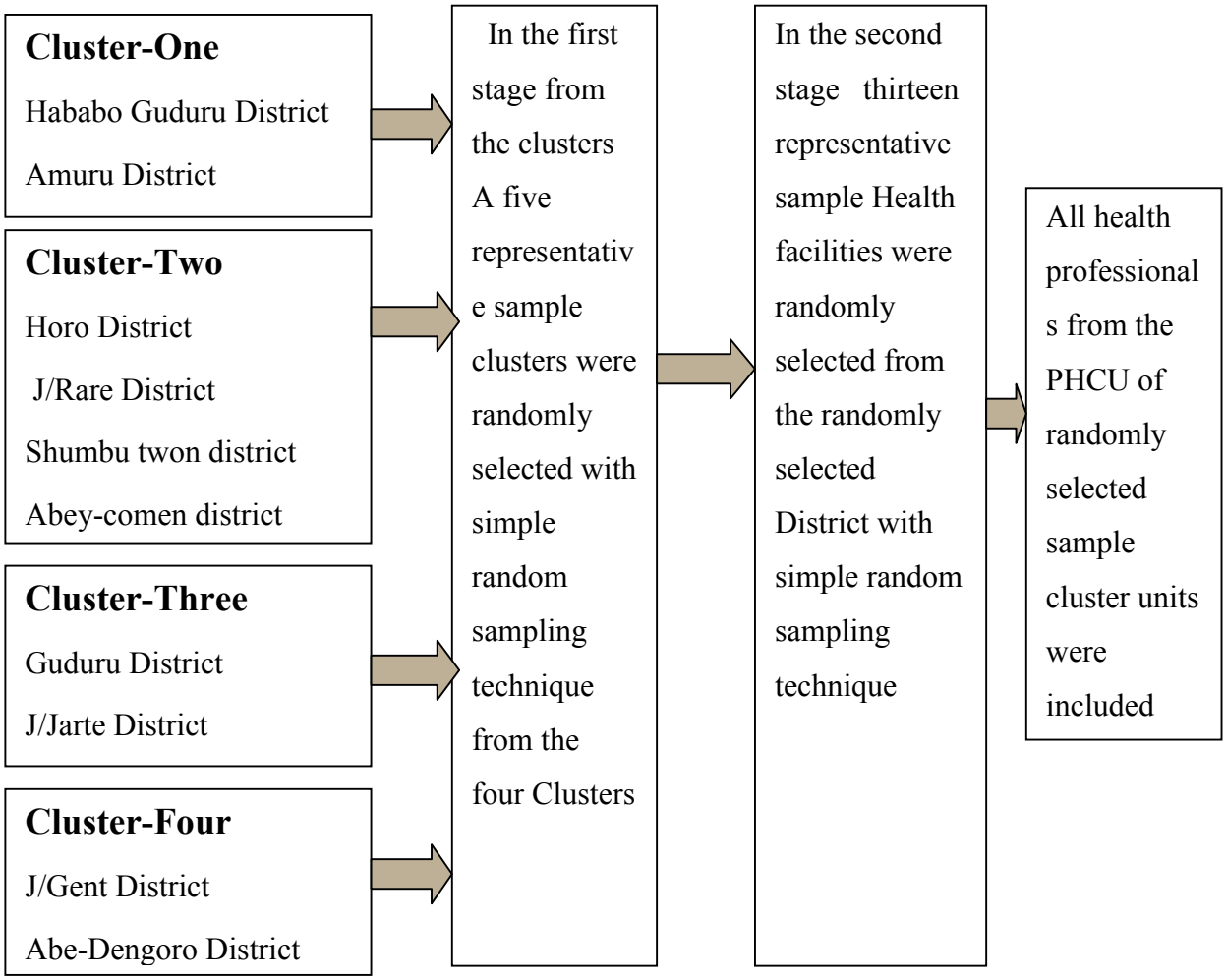

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Fig.4. Schematic sampling procedures of clusters

After clustering of Zone first five representative Districts were randomly selected from each cluster. Second the health facilities in the selected District was clustered and thirteen representative health facilities were randomly selected from each cluster and the representative health professionals were randomly selected as mentioned below.

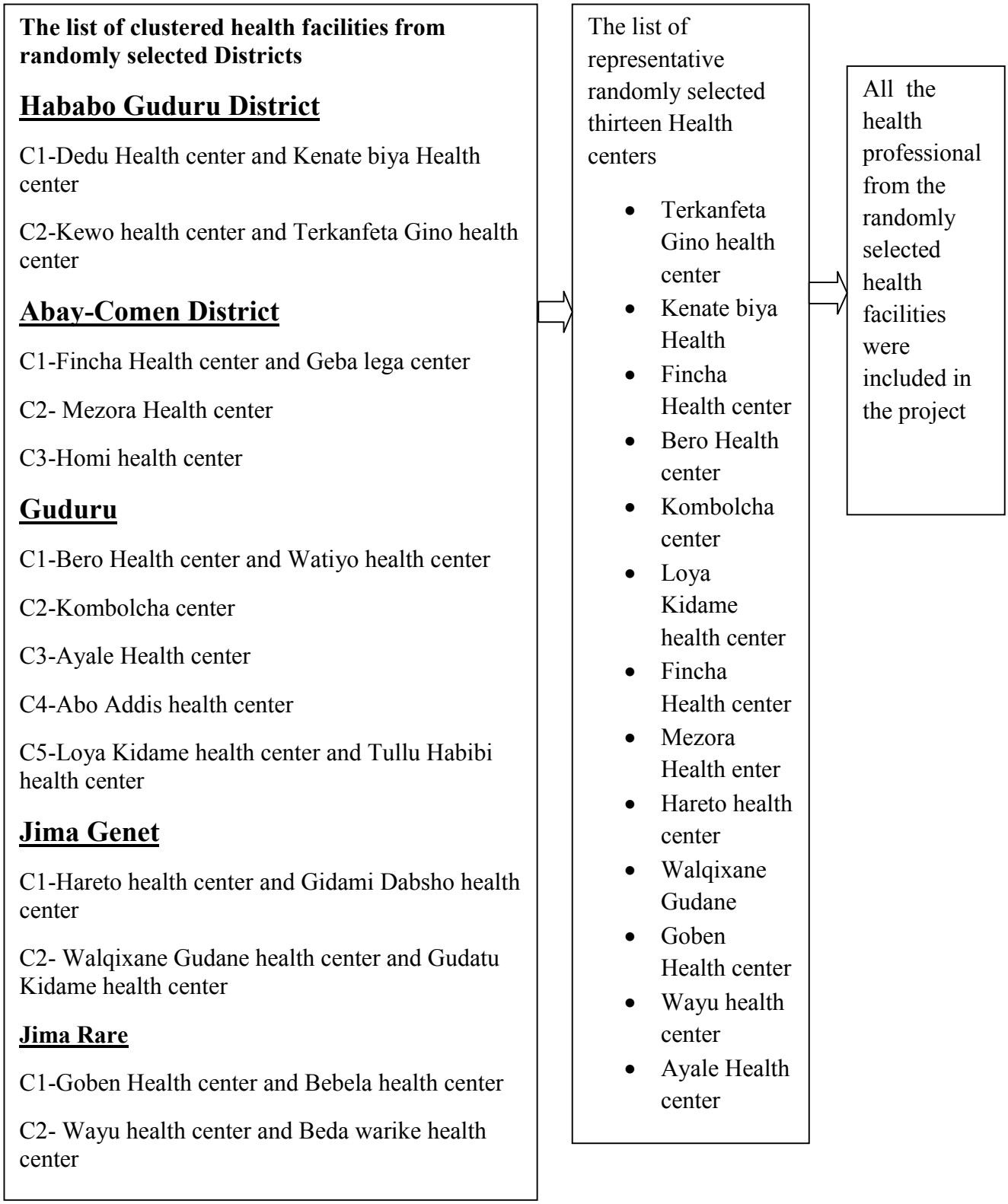

Fig.5.List of health facility and Schematic sampling procedures of randomly selected health centers.

3.4.2. Sample size

The required sample size of eligible participants for the project was determined using a single proportion formula n = ($Z^2_{1-\alpha}$* P (1-P)/ d2). where n is the required sample size, z is the standard normal deviate, set at 1.96 (for 95% confidence level), d is the desired degree of accuracy (taken as 0.05) and p is the estimate of the proportion of health professionals who had good knowledge of the partograph . The following assumptions were taken while calculating the sample size. A 95% probability of obtaining the population proportion of health professionals who had good knowledge of the partograph and a 5% margin of error. In order to produce a more objective assessment of knowledge of the partograph, a scoring method was an imagination and a 'knowledge score' for each of the personnel was obtained by adding up the scores for correct answers given to selected questions in the questionnaire.

3.5. The criteria for scoring knowledge

The criteria for scoring knowledge are displayed in Table 1.

Parameters	**Yes**	**No**
Awareness of partograph	0	2
Correct definition of the partograph	0	3
Knows the benefit of the partograph to parturient	0	2
Knowledge of observations on the partograph		
Cervical dilatation	0	3
Fetal heart rate	0	2
Uterine contraction	0	2
Descent of the presenting part	0	2
Maternal blood pressure	0	2
Maternal pulse	0	2
Color of liquor	0	2
Maternal temperature	0	2
Oxytocin regimen	0	2
Intravenous fluids & drugs	0	2
Urine test results	**0**	**2**

Table 1 Criteria for the partograph knowledge score align="center "Minimum score: 0; Maximum score: 30. Scores, 0–10, poor level of knowledge; 11–20, fair level of knowledge; 21–30: good level of knowledge [1]. The minimum sample size required for the study was estimated to be 384 using the above formula, where n is the sample size, Z is the standard normal score set at 1.96, d is the margin of error to be tolerated and p is the estimate proportion of health professionals who had good knowledge of the partograph[18]. since

there was no previous project done on evaluating know-how of partograph towards improving its utilization in Horo Guduru Wollega Zone Proportion of 0.5 is used ,that means p=0.5 and q=0.5,95% confidence level and 5% margin of error. Thus n=384. Since the population size (N=540) which is less than 10,000, Therefore, the correction formula is used, that means: $\mathbf{n_{correction}=\frac{n}{1+\frac{n}{N}}=n_c=\frac{384}{1+\frac{384}{540}}=224}$, the sample size required for this project was estimated to be **224** participants. In case of my project the health professionals from the randomly selected cluster health facilities was **162** health professionals, which was less than the calculated estimation of the sample size .Even though, the design effect in multi stage sampling technique should be considered to increase precision, since the randomly selected study populations from the cluster representative health facilities was smaller than the calculated sample size, therefore, all(162) health professionals from the randomly selected sample cluster units of PHCU was included in the project. For the secondary data 10 documents from each selected representative thirteen health center **(n=130)** randomly selected from the documented partograph was reviewed.

3.6. Data collection instrument

Data was collected using self-administered questionnaire adapted from previous study to evaluate knowledge and utilization of partograph prepared in English language[8], based on evaluating know-how of partograph utilization among health professionals towards its improvement to collect the primary data. Since the participant of the project was educated people, it was not compulsory to translate to the local Language. Review of documents was conducted with a prepared check list attached in annex to collect the secondary data of the partograph utilization practice of the health professionals. Training was given to the data collectors and field supervisors before the actual data collection on the aim of project started. In addition, the training also focused on the art of interviewing the respondents.

3.7. Data analysis

The result of this project revealed a total 162 questionnaires distributed to the health professionals, Namely Midwives, Nurses and Health officers attending to pregnant mother during labour. Out of the distributed questionnaires, two of the distributed questionnaires has a missing data and was therefore excluded from analysis, and four was not returned back. Hence, data from 156(n=156) gives a response rate of 96.3%.Self-administered questionnaires and a

randomly selected one hundred thirty documents reviewed (n=130). The data was entered to Epi-data version 3.1. After data entry data cleaning and screening were done to ensure that there were neither errors nor missing, then data was analyzed using the statistical package for social sciences (SPSS) version 20 to capture and analyze data. Data was analyzed in two steps: first, univariate analysis was used to summarize data in terms of frequency distributions of the variables under study. Second, Bivariate analysis was used to summarize data in terms of cross tabulation to identify associations between the independent variables to the project Professional qualification, years of experience and the dependent variables of the proper use and not proper use of the partograph by the health professionals in public health facilities for monitoring pregnant women in labour in the randomly selected public health facilities. Bivariate analysis was also used to determine the relationship between dependent variable use of partograph by the health professionals and independent variables, Professional qualification, Years of Experience and other selected variables under study. In this case, the cross-tabulations together with the chi-square test for independence were employed for categorical variables.

3.8. Data quality issues

A questionnaire which was adopted from previous study was pre-tested and confirmed for the validity to evaluate and improve the know-how and utilization of Partograph by health professionals in Horo Guduru Wollega Zone. Pre-testing of the questionnaires was conducted on sixteen randomly selected health professionals who were not included during the actual project work. The pre-testing was conducted to assess clarity, understandability, and flow of questions as well as the time needed to fill the questionnaires. Based on the findings some question was modified as needed. Training was given to data collectors for five days about the contents of the questionnaires for completeness. Incomplete or misfiled questionnaires were sent back to the respective data collector for correction.

3.9. Dissemination of the result

After the project was completed, the result would disseminate to Addis Ababa University, and Horo Guduru Wollega Zone that potentially could be benefited from the project deliverables. The report of the project would also place in the libraries of both Addis Ababa University and Horo Guduru Wollega Zone for those who are interested in the areas to make further investigation for references purpose.

3.10. Operational definitions of the terms

Utilization : In this project utilization refers to plotting the partograph correctly and making appropriate decisions while monitoring of labour in the labour ward.

Partograph or partogram: a partograph is a graphic recording that comprehensively allows management of maternal and fetal condition related data (WHO 1994).

Labour: is a physiologic process during which the products of conception (i.e. the fetus, membranes, umbilical cord, and placenta) are expelled outside of the uterus.

Maternal mortality: is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy or the cause of death.

Contractions: Frequency (expressed as number of contractions in 10 minutes)

Knowledge: Knowing about something.

Understanding: How to apply the knowledge in to practice

3.11. Ethical clearance

In undertaking this project, Permission was obtained from the Ethical Clearance Committee of Addis Ababa University, School of Public Health and the Zonal Health Department. Protection of the rights of the study participants was ensured by giving them due freedom to participate in the project or not to participate. Privacy and confidentiality was maintained during interview. The subjects were told any information they provided was kept confidential. Participants' names were not linked to any questionnaire. Additionally, the study subjects were informed that their responses would not bring any harm to them and would not in any way affect their job. At each of the selected study sites, the primary health care unit directors were contacted for permission and necessary information before the commencement of the study. The purpose, general content and nature of the investigation would be explained to each respondent to obtain a verbal consent before inclusion into the project.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4. Results

The result of this project revealed from randomly selected cluster health facilities a total of 162 questionnaires were distributed among health professionals, Namely Midwives, Nurses and Health officers attending to pregnant mother in labour, in Horo Guduru Wollega Zone. Out of the distributed questionnaires 156 questionnaires were fully completed, and thus giving a response rate of 96.3% .Two of the distributed questionnaires has a missing data and was therefore excluded from analysis, and four was not returned back. Hence data from 156(n=156) self-administered questionnaires and reviewed document (n=130) was entered to Epi-data version 3.1. After data entry data cleaning and screening were done to ensure that there were neither errors nor missing, then data was analyzed using the statistical package for social sciences (SPSS) version20 to capture and analyze data. The result are presented in terms of frequencies, using tables and figure displays

4.1.1. Respondents demographic profile

As noted on Table 1 below, of the 156 health professionals, 64.3% of them were males and 35.7% of them were females. The majority (56.1%) of the participants' age was lying between 20 -29 years, only 11.1 % of their age was more than 40 years. The mean and standard deviation of the participants age was 25.2 and $\pm$5years, while the minimum age was 23 years and the maximum age was 55 years. The ages were recorded in to three different age groups with age interval of 10 years. Significant percentages, 75.2% of them were married. Most respondents, 60.2% were BSc and Diploma nurses followed by 25% Health officers. Among the participants only, 47.8% of them had a professional experience between 2-5 years and followed by 39.1% more than five years. The Table below presents distribution of demographic characteristics of the respondents

Table 1. Socio-demographic characteristics of the participants, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia, March 2015(n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Sex				
Female	56	35.7	35.7	35.9
Male	100	64.3	64.3	100.0
Total	156	100.0	100.0	
Age				
20-29 years	50	31.8	31.8	31.8
30-39 years	88	56.1	56.1	87.9
40+ years	18	11.1	11.1	100.0
Total	156	100.0	100.0	
Marital status				
Married	118	75.2	75.2	75.2
Single	38	24.8	24.8	100.0
Total	156	100.0	100.0	
Professional qualification				
Health officers	39	24.8	24.8	24.8
Midwifes(BSc and Diploma)	22	14.0	14.0	38.8
Nurses(BSc and Diploma)	95	60.2	60.2	100.0
Total	156	100.0	100.0	
Years of experience				
Less than 2 years	19	12.5	12.5	12.5
2-5 years	75	47.8	47.8	60.3
5+ years	62	39.7	39.7	100.0
Total	156	100.0	100.0	

4.1.2. Participants obstetric training history

As presented in Table 2 below, it was found that only, 20.4% of the participants received in-service training on the manegemanent of labour. The majority (79.6%) of them didn't receive in-service training on the management of labour. Of the participants received in-service training on the management of labour, 56.1% were trained from colleague/University and only 21% was from both colleague/University. Among the health professionals only, 30.6% of them received in-service training on the use of Partograph to monitor labour. Of the participants received in-service training on the use of partograph, more than three-fourth of them was trained during EmONC. Of all participants only 14% were permanently working in labour wards and 23% of them was working in MCH units (Antenatal department, Family planning department, post natal dep. and under five clinic) and 63% of them was working in other departments (OPD, IPD, Emergency). Significant percentages, 92.3% of them had need for receiving in-service training on the use of partograph.

Since only about one-fourth of the health professionals received training on the management of labour and use of partograph, they did not consider the partograph as a tool to capture a data needed for decision making purpose during labour.

Table 2. Training history and the current working area of the participants, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia, March 2015(n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Receiving in-service training on the management of labour				
Yes	32	20.4	20.4	20.4
No	124	79.6	79.6	100
Total	156	100	100	
Source of in-service training on the management of labour				
University/college	88	56.1	56.4	56.4
In service training	35	22.3	22.3	78.7
Both	33	21.6	21.6	100
Total	156	100	100	
Receiving in-service training on the use of partograph				
Yes	48	30.6	30.6	30.8
No	108	68.4	64.8	100
Total	156	100	100	
Source of in-service training on the use of partograph				
EmONC	44	91.7	91.7	91.7
ALSO	4	8.3	8.3	100
Total	48	100	100	
Current working department				
ANC	11	7.1	7.1	7.1
Family planning	14	8.9	8.9	16
Labour ward	22	14	14	30
Post natal	11	7	7	37
Others	98	63	63	100
Total	156	100	100	
Willingness to have training on the use of partograph				
Yes	144	92.3	92.3	92.3
No	12	7.7	7.7	100
Total	156	100	100	

4.1.3. Knowledge of the participants on the partograph

Depending up on the knowledge scoring criteria expressed in the methodology section, the figure below show that among the health professionals enrolled in the project only 39.5% of them did used partograph previously. The majority (60.5%) of them didn't used partograph previously to monitor labour in the labour ward.

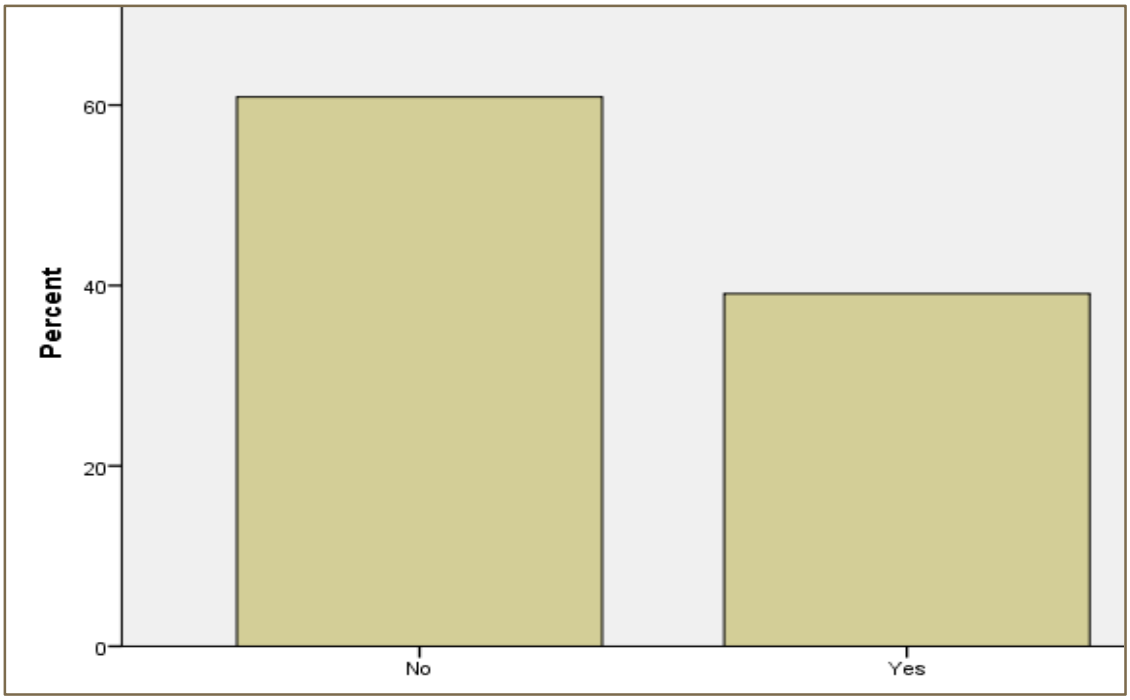

Fig.6. The partograph utilization practice of the respondents

Depending on the knowledge scoring criteria mentioned in the methodology the Table 3 below revealed that, more than half 56.1 % of them didn't know the components of the partograph. Significant percentages (73.9%) of them agreed that the function of a partogram as one of a tool to realize safe motherhood program and similarly, 79% of them agreed that knowing the function of alert line and action line is important. The majority (86.6%) of them agreed that a partograph is a tool used by the midwives to monitor labour during delivery. Even though the majority of the participants agreed on the importance of partograph as information capturing tool they did not use previously for quality of delivery service. The majority (87.3%) of the respondents agreed that partograph is a simple graphic recording of progress of labour and salient conditions of mother and fetus against time in hours.

Table3. Participants knowledge on the partograph, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia, March 2015(n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
A partograph have three components?				
Yes	69	43.9	43.9	43.9
No	66	42	42	85.9
I don't know	21	14.1	14.1	100
Total	156	100	100	

A partogram is used to realize safe mother hood program				
Agree	116	73.9	73.9	73.9
Disagree	14	8.9	8.9	82.8
I don't know	26	17.2	17.2	100
Total	156	100	100	
Knowing about the alert line and the action line is very important				
Agree	119	75.8	75.8	75.8
Disagree	15	9.6	9.6	85.4
I don't know	22	14.6	14.6	100
Total	156	100	100	
Using partogram during labour is important				
Agree	124	79	79	79
Disagree	12	7.6	7.6	86.6
I don't know	20	13.4	13.4	100
Total	156	100	100	
Partogram is a chart used by a Doctors				
Yes	75	47.8	47.8	47.8
No	59	37.6	37.6	85.4
I don't know	22	14.6	14.6	100
Total	156	100	100	
Partogram is a chart used by Nurses & HO				
Yes	118	75.2	75.2	75.2
No	16	10.2	10.2	85.4
I don't Know	22	14.6	14.6	100
Total	156	100	100	
Partograph is a chart used by midwifes				
Yes	136	86.6	86.6	86.6
No	6	3.8	3.8	90.4
I don't know	14	9.6	9.6	100
Total	156	100	100	
Partograph is a simple graphic recording of progress of labour and salient condition of mother and fetus against time in hours				
Agree	137	87.3	87.3	87.3
Disagree	4	2.5	2.5	90.4
I don't know	15	10.2	10.2	100
Total	156	100	100	

4.1.4. Participants level of understanding on the utilization of partograph

The result from Table 4 below shows that a big percentage(87.3%) of the participants acknowledge the use of partograph reducing maternal death with 84.1% agreeing that this tool plays a key role towards reducing newborn deaths. The health professionals' value of partograph as an important device to capture data for analysis to made appropriate decision on time during labour. Significantly larger percentages (65%) of them agreed that in a normal progress of labour a plot/graph on the partograph falls on right of the alert line with, only 35% disapproving. The

majority (73.9%) of them agreed that in a normal labour a woman got three contractions every 10 minutes with, only 18.6% disagreement. Out of the participants, 44.2% of them disagreed that in a normal progress of labour, minimum duration of strong contraction is 40 seconds. The majority (90.9%) of them agreed that the time required to effectively assess adequacy of contraction is ten minutes. Similarly, 86% of the participants agreed that the progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part. Out of 156 respondents, 80.8% of them agreed that labour is prolonged when it lasts more than 12 hours with, only 10.9% disagreement. In similar way 85.3% of them agreed that the function of the action line is important to indicate the appropriate action to be taken. More than three-fourth of them agreed that the action line on the partograph allows time for the woman to be adequately assessed for appropriate intervention. The majority (89.8%) of them agreed that they usually enter information/ data/ on the partograph while on the delivery.

Table 4. Participants level of understanding on partograph utilization, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia (n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Partograph is used to reduce maternal death				
Agree	137	87.3	87	87
I don't know	15	9.6	9.6	97
Disagree	4	3.1	3.1	100
Total	156	100	100	
Partogram is used to reduce newborn death				
Agree	132	84.1	84	84
I don't know	15	9.6	9.6	94
Disagree	9	6.3	6.3	100
Total	156	100	100	
In normal progress of labour the graph/plot falls on the alert line				
Agree	80	51	51	51
Disagree	54	34.4	34	85
I don't know	22	14.6	15	100
Total	156	100	100	
In normal progress of labour the graph/plot falls on the left alert line				
Agree	102	65	65	65
Disagree	30	19.2	19	84
I don't know	24	15.8	16	100
Total	156	100	100	
In normal progress of labour the graph/plot falls on the right of alert line				
Agree	102	65	65	65
Disagree	30	19.2	19	84
I don't know	24	15.8	16	100
Total	156	100	100	

In normal progress of labour a women got three contractions every ten minutes				
Agree	116	73.9	74	74
Disagree	29	18.6	19	93
I don't know	11	7.5	7.5	100
Total	156	100	100	
In a normal labour minimum duration of strong contraction is 40 seconds				
Disagree	69	44.2	44	44
Agree	62	39.7	40	84
I don't know	25	16.1	16	100
Total	156	100	100	
You require ten minutes to effectively assess the adequacy of contraction				
Agree	142	90.9	91	91
Disagree	12	7.4	7.4	98
I don't know	2	1.7	1.7	100
Total	156	100	100	
Progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part				
Agree	135	86	86	86
I don't know	16	10.2	10	96
Disagree	5	3.8	3.8	100
Total	156	100	100	
Labour is prolonged when it lasts more than 12 hours				
Agree	126	80.8	81	81
Disagree	17	10.9	11	92
I don’t know	13	8.3	8.3	100
Total	156	100	100	
The function of the action line is to indicate appropriate action to be taken				
Agree	133	84.7	85	85
I don't know	13	8.3	8.3	93
Disagree	10	7	7	100
Total	156	100	100	
The action line allows time for a woman to appropriate intervention				
Agree	130	83.3	83	83
Disagree	12	7.7	7.7	91
I don’t know	14	9	9	100
Total	156	100	100	
In your facility you enter data on partograph up on diagnosis				
Agree	109	69.4	69	69
Disagree	34	21.7	22	91
I don't know	13	8.7	8.7	100
Total	156	100	100	
In your facility you enter data on partograph while on delivery				
Agree	141	89.8	90	90
Disagree	12	7.7	7.7	98
I don't know	3	2.5	2.5	100
Total	156	100	100	
In your facility you enter data on partograph after delivery				
Agree	79	50.3	50	50

Disagree	42	26.8	27	77
I don't know	35	22.9	23	100
Total	156	100	100	

4.1.5. Characteristics of partograph utilization

As noted below, 85.4% of the respondents was confirmed that the availability of partograph in labour ward. Even though the majority of them were agreeing on the availability of partograph only, 77.6% used partograph to monitor labour. Out of participants used partograph to monitor labour, 64.7% of them used partograph rarely and only 25.6% of them used partograph routinely. Significant percentages (64.7%) of them used partograph once/30 minutes during the active phase of labour. Significant percentages (83.3%) of them agreed that partograph has greater importance on the Obstetric review. Similarly, 80.1% of them agreed on the need of developing managerial guideline/protocol on utilization of partograph that enables the health professionals to monitor labour.

Table 5. Characteristics of partograph utilization among the participants, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia (n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Is partograph available in your labour ward				
Yes	134	85.4	85.4	85.4
No	22	14.6	14.6	100.0
Total	156	100.0	100.0	
Is partograph used to monitor every woman in labour				
Yes	121	77.6	77.6	85.4
No	35	22.4	22.4	100.0
Total	156	100.0	100.0	
How often?				
Routinely	40	25.6	25.6	25.6
Rarely	101	64.7	64.7	90.4
Occasionally	15	9.7	9.7	100.0
Total	156	100.0	100.0	
How often used once active phase of labour started				
Once/30minutes	101	64.7	64.7	64.7
Once/4 hour	51	32.7	32.7	97.4
Once/6 hour	4	2.6	2.6	100.0
Total	156	100.0	100.0	
A partogram is useful in Obstetric review				
Agree	130	83.3	83.3	83.3
Disagree	16	10.3	10.3	93.6
I don't know	10	6.4	6.4	100.0
Total	156	100.0	100.0	
Need to develop managerial guide line on the use of partogram				

Agree	125	80.1	80.1	80.1
Disagree	22	14.1	14.1	94.2
I don't know	9	5.8	5.8	100.0
Total	156	100.0	100.0	

4.1.6. Discribing factors affecting utilization of partograph during labour monitoring

As noted on Table 6 below, 58.3% of health professionals agreed that the non- availability of partograph not a problem to monitor labour with the use of partograph. Significant percentages (76.6%) of the participants were agreed that managerial guidelines/protocols developed for each unit can facilitate the effective use of partograph to monitor labour**.**

Table .6 Describing the factors affecting utilization of the partograph in labour monitoring, Horo Guduru Wollega Zone, Oromia Regional state, Ethiopia (n=156)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Do you consider non-availability of partograph a problem in monitoring of labour				
Yes	65	41.7	41.7	41.7
No	91	58.3	58.3	100.0
Total	156	100.0	100.0	
Do you think managerial guide line developed for each unit facilitate the effective use of partograph				
Yes	121	77.6	77.6	77.6
No	35	22.4	22.4	100.0
Total	156	100.0	100.0	

4.1.7. The pre-intervention review of documented partograph

As shown in Table 7 below, out of 130 reviewed partograph, the majority (58.8%) the fetal heart rate was not recorded .In similar way out of the reviewed partograph, 67.9% shows that the nature of the membrane was not recorded. Ninety-four reviewed partograph shows that the nature of the liquor quality was not recorded with, only 13.7% recorded. In significant percentages (59.5 %) reviewed partograph moulding, cervical dilatation, decent of the presenting part and uterine contraction was not recorded. Out of the reviewed partograph, 69.5% didn't shows any abnormality noted in dilatation with, only 30.5% approving. The majority, 99.2% the abnormality noted in dilatation was augmented with oxiytoc. A significant percentage (59.5%) of reviewed partograph shows that the maternal blood pressure, body temperature and urine test was not recorded. The majority, 92.4% the reviewed partograph shows the mode of delivery was

SVD. Out of 130 documented partograph reviewed, 97.7% shows the maternal outcome after delivery was good.

Table 7.The pre-intervention review of documented Partograph, Horo Guduru Wollega Zone, Oromia Regional State, Ethiopia (n=130)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Fetal heart rate				
Not recorded	77	58.8	58.8	59.5
Recorded	52	40.2	40.	100.0
Total	130	100.0	100.0	
Membrane				
Not recorded	89	67.9	67.9	69.5
Recorded	39	30.5	30.5	100.0
Total	130	100.0	100.0	
Liquor quality				
Clear	18	13.7	13.7	13.7
Not recorded	94	72.6	72.6	86.3
Recorded	18	13.7	13.7	100.0
Total	130	100.0	100.0	
Moulding				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0
Total	130	100.0	100.0	
Cervical dilatation				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0
Total	131	100.0	100.0	
Descent				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0
Total	130	100.0	100.0	
Uterine contraction				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0
Total	130	100.0	100.0	
Any abnormality noted in dilatation				
No	91	69.5	69.5	69.5
Yes	39	30.5	30.5	100.0
Total	131	100.0	100.0	
Action Taken				
Augmentation with oxiytoc	38	99.2	99.2	99.2
None	1	.8	.8	100.0
Total	39	100.0	100.0	
Maternal blood pressure				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0

Total	130	100.0	100.0	
Maternal body temperature				
Not recorded	78	59.5	59.5	59.5
Recorded	52	40.5	40.5	100.0
Total	130	100.0	100.0	
Urine test				
Recorded	52	40.5	40.5	40.5
Not recorded	78	59.5	59.5	100.0
Total	130	100	100	
Mode of delivery				
SVD	30	92.4	92.4	92.4
AVD	9	7.6	7.6	100.0
Total	39	100	100	
Immediate maternal out come				
Good	127	97.7	97.7	97.7
Unknown	3	2.3	2.3	100.0
Total	130	100	100	

4.1.8. DISTRIBUTIONOFRESPONDENTS ACCORDING TO PROFESSIONAL QUALIFICATION AND YEARS OF EXPERIENCE ON THE UTILIZATION OF PARTOGRAPH

As shown in the figure below, out of 22 midwifes involved in the project, the majority (86.4%) of them used partograph to monitor labour. In contrast, only 25.6% of the health officers used partograph .Significant percentages (66.3%) of nurses did not use partograph.

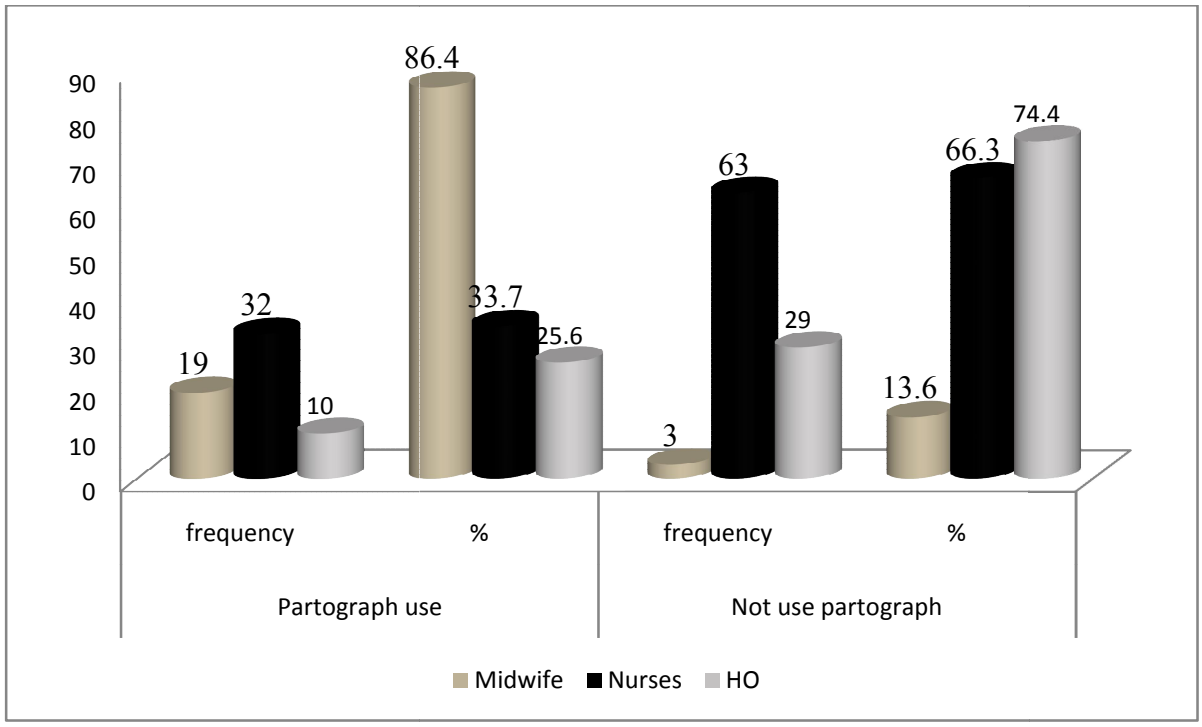

Fig.7.Distribution of respondents according to Professional qualification on the use of Partogram (properly used or not properly used)

The figure below revealed that significant percentages (63%) of them with less than 2 years of experience used partogram properly to monitor labour. Fifty-four percent of them with experience more than 2 years didn't use partogram properly to monitor labour.

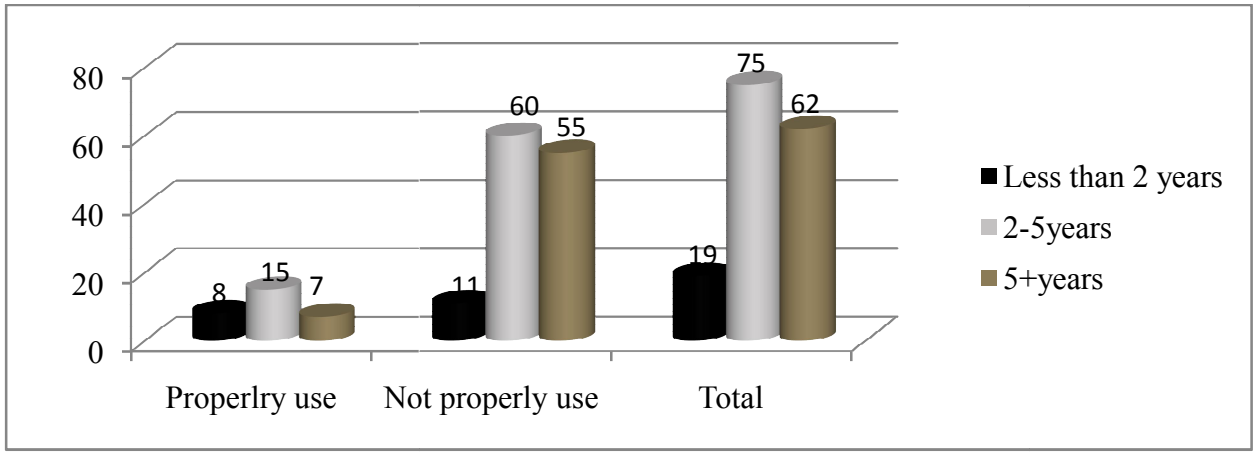

Fig.8. Distribution of respondents according to years of experience on the use of partograph

4.1.9. The knowledge level of the respondents on the use of partograph in different profession

Based on the knowledge scoring criteria in the methodology the figure below shows, out of midwives enrolled in the project significant percentages (89%) of them had a good knowledge on the partograph. Out of the Nurse and Health officer, less than half of them had a good knowledge on the partograph.

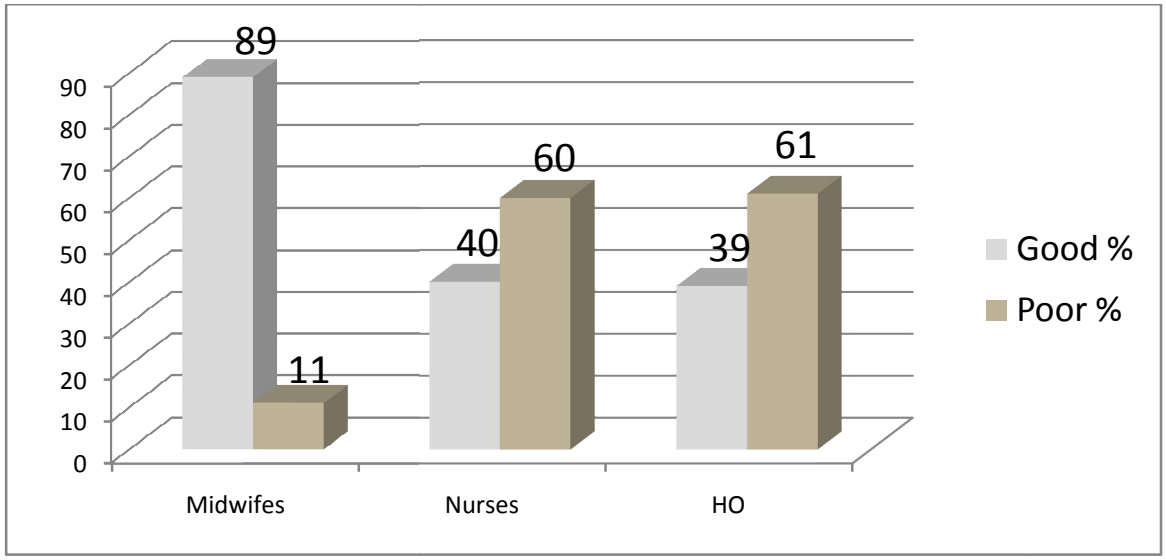

Fig.9.The knowledge level of the participants according to qualification on partograph

4.1.10. A summary of association between professional qualification and selected variables

Table 8 below shows, that the association of professional qualification with selected variable which could help us to discuss the relation. The result revealed among the health professionals enrolled in the project large number of midwives did received in-service training on the management of labour and use partograph. Similarly the majority, 82.7% of them did have a good knowledge on the use of partograph. The professional qualification did have an association with knowledge on the components of partograph (Chi-square(X2) =13.53772, P-value =.00 < 0.005 level of significance). More than half of Nurses and health offices didn't know about the value of partograph to realize safe mother hood program. Significant percentages, 74.4% of them agreed that the knowledge of the action line and alert line is very important in order to monitor labour with partograph.

Table 8.Association between professional qualifications and selected variables

Variable	Response of the participants		Total	Chi-square(X2)	df	P-Value
	Receive in-service training on the management of labour					
Professional qualification	No	Yes	Total	Chi-square(X2)	df	P-Value
Health officers/HO/	32	7	39			
Midwife(BSc+Dipiloma)	5	17	22	13.53772	6	<0.01
Nurses(BSc+Dipiloma)	85	10	95			
	Receive in-service training on the use of partograph					
Professional qualification	No	Yes	39			
Health officers/HO/	32	7	22			
Midwife(BSc+Dipiloma)	7	15	95	25.1092	6	<0.01
Nurses(BSc+Dipiloma)	69	25	39			
	Knowledge on the use of partograph					
Professional qualification	No	Yes	Total			
Health officers/HO/	7	32	39			
Midwife(BSc+Dipiloma)	2	20	22	13.53772	6	<0.01
Nurses(BSc+Dipiloma)	18	77	95			
	Knowledge about the component of partograph					
Professional qualification	No	Yes	Total			
Health officers/HO/	24	15	39			
Midwife(BSc+Dipiloma)	6	16	22	25.1092	6	0.04
Nurses(BSc+Dipiloma)	65	30	95			
	Partograph is realize safe mother hood program					
Professional qualification	No	Yes	Total			
Health officers/HO/	22	17	39	21.85885	9	0.01
Midwife(BSc+Dipiloma)	6	16	22			
Nurses(BSc+Dipiloma)	58	37	95			
	Knowledge about the function of action line& alert line					
Professional qualification	Agree	Disagree	Total			
Health officers/HO/	30	9	39	17.43633	9	0.04
Midwife(BSc+Dipiloma)	19	3	22			
Nurses(BSc+Dipiloma)	67	28	95			

4.1.11. Summary of the association between professional qualifications, years of experience, in -service training on the use of partograph as a mortality reduction in bivariate analysis

Variables such as Professional qualification, years of experience and in service-training had a significant association with knowledge of partograph in bivariate analysis. However, only profession; being midwife(X2) =13.53772, P-value 0.01<0.05 level of significance) and in-service training on the management of labour and use of partograph (X2) =202.627, P-value

0.001<0.05 level of significance) were the two variables that had maintained their statically significant association with over all knowledge of the health professionals. Forty-six percent of Nurses and health officers knowledge on the use of partograph was associated ((X2) =271.032, P-value 0.01<0.05 level of significance) with proper use of partograph to monitor labour. regarding experience based use of partograph majority (63%)of less than 2 years of the participants have had a good knowledge on the use partograph was association (X2) =271.032, P-value 0.04<0.05 level of significance) with proper use of partograph to monitor labour. Similarly 70% of the health professionals who was involved in the project and having a knowledge on the use of partograph as a reduction maternal and newborn mortality have had an association with (X2) =271.032, P-value 0.04<0.05 level of significance) proper use of partograph to monitor labour.

Table.9. The association between professional qualification and use of partograph

Characteristics	Use of partograph						Chi-square(X^2)	df	P-Value
	Properly used	%	Not properly used	%	Total	%			
Professional qualification									
Midwives(BSc+Dip.)	44	46	51	54	95	100	354.897	9	0.01
Nurses (BSC+DiP.)	18	46	21	54	39	100	269.407	9	0.01
Health officers	14	63	8	37	22	100	271.032	9	0.01
Years of professional experience									
Less than 2 Years	47	63	28	37	75	100	354.897	9	0.01
2-5years	30	46	35	54	65	100	296.173	9	0.01
5 and more years	7	46	9	54	16	100	295.452	9	0.01
In service training on management of labour									
Yes	82	70	35	30	117	100	202.627	9	0.01
No	3	6	36	94	39	100	317.066	9	0.01
Partograph as reduction of maternal & newborn mortality									
Yes	86	70	37	30	123	100	197.099	6	0.01
No	3	6	30	94	33	100	301.585	9	0.01

4.1.12. Summary of findings

The result of the study revealed that, 35.7% of respondents were females and 64.3% of them were males. The participants' age were categorized into three Groups (20-29years, 30-39years and 40+years) from the three groups the most plentiful age group was 30-39years which 56.1% and followed with 20-29years which was 31.8%. Similarly the most plentiful qualification health professionals were nurses (BSc and Diploma) 60.2%. Out of 156, only fourteen percent of them

were midwives. Out of the participants,47.8% of them served between 2 to 5 years, and 12.1 % of them served less than 2 years. It is found the majority (79.6 %) them received in -service training on the management of pregnant mothers in labour. Out of 156, only 37% of them were working in labour wards and MCH departments. Significant percentages (79%) of them agreed that partogram is an important tool in a pictorial overview of labour for the use by the midwives. A big percentage (87.3 %) of them acknowledged the use of partogram in reducing maternal mortality, similarly 84.1% of them agreed that partograph plays a key role in order to reduce newborn mortality. The majority (84.7%) of them agreed the role of action line on the partogram is to take appropriate action.

The small percentage (48%) of them was properly using the partogram to monitor labour. Bivariate analysis was used to determine the relationship between dependent variable and other selected variables under study. The results, indicated that the health professionals qualification having a knowledge of partogram has a significant association with its use to monitor labour (X2) =271.032, P-value 0.01<0.05 level of significance). Out of the participants, 47.8% the knowledge of partograph with years of experience 2-5years. (X2) =271.032, P-value 0.01<0.005 level of significance) had an association with the proper use of partograph to monitor and in-service training had an association with the proper use of partograph to monitor labour. With the Hosmer - Lomeshow goodness-of-fit test, only 2 independents variables made a unique statistically significant contribution to the model (training in management of pregnant mother in labour reporting a p-value of 0.01, and number of years of experience reporting a p-value of 0.01). The strongest predictor of reporting the proper use of the partogram was the fact of being trained in the management of pregnant mother in labour.

4.2. Intervention on knowledge and utilization of partograph Guduru Wollega zone

As the objective of the project, after the evaluation of the existing practice of the know-how partograph utilization among the health professionals working in public health facilities, intervention was conducted through training.

During the intervention from 162 participants, 96.3% were participated on a training conducted for two days session.

Fig. 10. Intervention conducted at Shambu town on Partograph, February 10, 2015

4.3. Post intervention evaluation of the selected variable category during the project

As mentioned in the very beginning in the object of the project the main aim of this project was to evaluate the current know-how of partograph utilization practice of health professionals to monitor labour and towards its improvement to reduce the maternal and newborn mortality in order to attend the MDG goal especially MDG 4 and 5 which was setted as the health sector goal. Therefore, post evaluation after intervention was conducted after intervention to describe the post-intervention changes. As pre my understanding it was better to classify the expected outcome in to two categories.

The expected outcome categories were:-

- The outcome which was belongs to the knowledge based of the health professions and which need long time to measure. such as the Knowledge of the health profession on partograph components, the drawing of the lines to monitor labour…etc
- The outcome which was belongs to the organization and managerial adjustments which need short time of duration to measure. such as the accessibility of partograph, utilization practice of the health professionals through managerial enforcement….etc

As mentioned above, Even though, the expected outcome was categorized in to two the one which need short time to be measured was the priority emphasized during this project and on the

second category of the outcome which need long time to be measured, was recommended because of budget and time constraints. Post intervention assessment was conducted with generally selected questionnaire on practice of partograph utilization and check list based on the setted objective of the project. The check lists mainly emphasize to measure the organizational improvement after the intervention.

4.3.1. The respondents utilization practice of partograph (n=156)

The result shows that, after the intervention significant percentages, 98.1% of them were being able to mention the three components of partograph. The majority, 93.6 % of the respondents were used partograph during management of pregnant women in labour. Out of the participants enrolled in post intervention evaluation, only 1.9% of them used partograph rarely to monitor labour. In similar way small numbers of the participants were disagree on the time when to enter data on the partograph.

Table -10. The post evaluation partograph utilization practice

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Mention of the component				
No	3	1.9	1.9	1.9
Yes	152	98.1	98.1	100.0
Total	156	100.0	100.0	
Use of partograph				
No	10	6.4	6.4	6.4
Yes	146	93.6	93.6	100.0
Total	156	100.0	100.0	
Frequency of partograph use				
Rarely	3	1.9	1.9	1.9
Routinely	152	98.1	98.1	100.0
Total	156	100.0	100.0	
On time of enter data on partograph				
Agree	152	98.1	98.1	98.1
Disagree	3	1.9	1.9	100.0
Total	157	100.0	100.0	

In addition as mentioned in the pre intervention evaluation findings shows that there was shortage of the a availability of partograph in the health facility and there was also law managerial influence for the partograph utilization among the health professionals which was included in the project, but after the intervention the availability of paper printed partograph was tenable in each health facility through the integrative effort of the District health office and Zonal

health department. Similarly after the intervention the health facilities established committee which was responsible to evaluate and monitor the use of partograph to monitor labour in the delivery room and also to monitor the completeness of the information that should be fulfilled during delivery. The health professionals themselves try to evaluate the utilization behavior of the health professions assigned in delivery room during the morning session on the behave of knowledge sharing among the staff as a result health professions were enforced to use partograph .Even there might be other factors that enhance the know-how of the participants was not controlled figure 10 below shows, after the intervention 100% of the midwife and more than three-fourth of Nurses and health officers were properly used partograph to monitor labour during delivery.

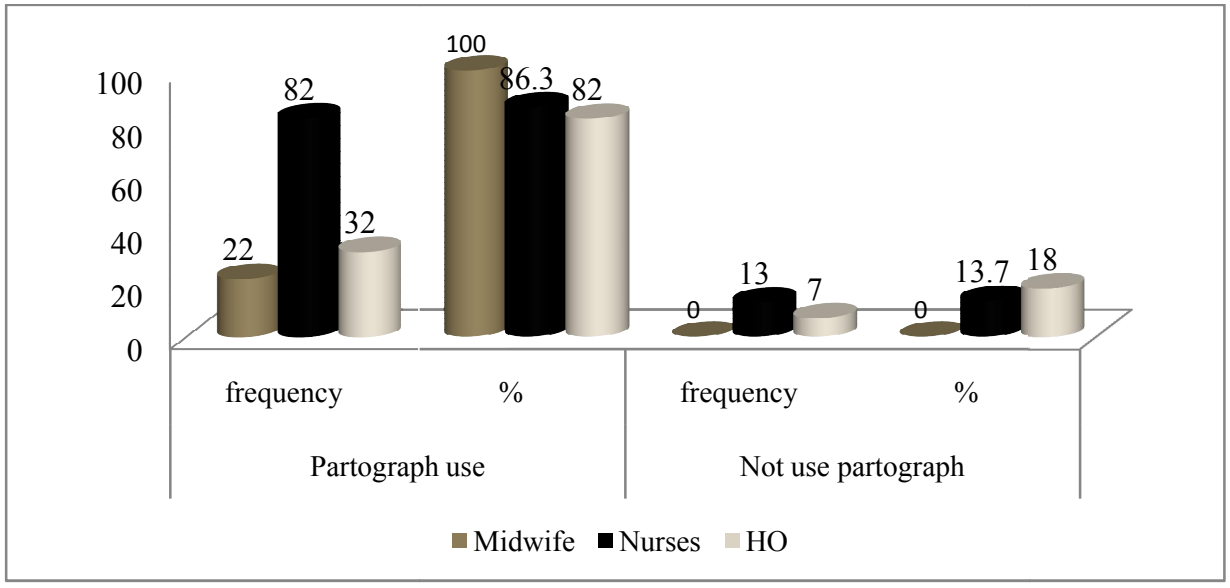

Fig.11. Partograph utilization among the participants in post intervention evaluation

4.3.2. Description of reviewed partograph during post- evaluation (n=130)

Post- intervention evaluation was conducted as a setted objective to measure the improvement after intervention on previously selected health facilities during pre-intervention. The post-intervention evaluation was conducted on 13 health centers (10 documented partograph from each health center) randomly selected shows that the majority (88.5%) of documented partograph was fully completed with the three components (fetal, progress of labour and maternal) in acceptable manner. This was in line with the study conducted in Nigeria, which shows training on partograph use and recordings showed to have impact in terms of correct use

of pantographs. Even though, the significant percentages (88.5%) of assessed documents revealed completeness with the major components of the partograph, still there was a problem to fill partograph components correctly.

Table 11. Post evaluation Reviewed documented partograph

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
Fetal component				
Not recorded	15	11.5	11.5	11.5
Recorded	115	88.5	88.5	100.0
Total	130	100.0	100.0	
Progress of labour				
Not recorded	15	11.5	11.5	11.5
Recorded	115	88.5	88.5	100.0
Total	130	100.0	100.0	
Maternal component				
Not recorded	15	11.5	11.5	11.5
Recorded	115	88.5	88.5	100.0
Total	130	100.0	100.0	

Next the result of the findings was discussed in the light of their relevance and how they compare with other relevant researches in the field.

4.4. Discussion

This study attempted to assess the level of several outcome variables with regard to the partograph and obstetric care in the project area. In this project, we tried to find out the level of knowledge of the participants about components the partograph, functions of both alert and action lines, knowledge of obstetric care and their comprehensive knowledge of the partograph. Participants' attitude towards the importance and utilization status of partograph was also assessed. The assessment result of respondent's know-how on partograph utilizations was discussed in relation to the objectives of MDGs as well as relevant literatures reviewed. The response rate of the respondents in pre-intervention and post-intervention evaluation was 96.3%. This revealed that the administered questionnaires during the project was relevant and could be beneficial to manage pregnant mothers with the use of partograph in Horo Guduru Wollega Zone. This project focused on the health professionals' knowledge and utilization of partograph to gain an insight in to how they monitor obstetric labour since this was crucial to the achievement of the MDG's 4 and 5.

The result indicated that significant percentages, 64.3% of the participants were males .This was contrary with the study conducted in Amhara and the study conducted in Addis Ababa [3, 19]. The reason for the variation might be due to the project that I was conducted includes all health professionals (which have a chance to be assigned in the delivery room and those permanently assigned in the delivery room) rather than emphasizing only professions assigned in the delivery room. The majority, 60.2% of the professionals qualification enrolled in the project was Nurses (BSc and Diploma).This might be the most abundant health profession in the health center was Nurses (BSc and Diploma). This was in contrast with the study conducted in Amhara Region [19]. Significant percentages, 47.8% of the respondents served 2-5 years. This was in line with the study conducted in South-South Nigeria[7].This might be due to the reason that health professions would interested to change their place of work as long they have experienced to more advantages area for social life satisfaction . Only, 20.4% of the participants were received in-service training on the management of labour. This was similar with the study conducted in Charlotte Maxeke Academic Hospital, South Africa and Amhara Region [19, 20].This shows the attention given to support and updating health professionals was very low. The majority, 88(56.1%) of them mentioned that source of training for in-service training on the management

of labour was University/college this signify that most of the health professionals obtain during the academic stay in the University/College. Only, 30.8% of them obtained in-service training on the use of partograph. The majority, 91.7% of them obtained during EmoNC training. This was similar with the study conducted in Charlotte Maxeke Academic Hospital, South Africa and Amhara Region [19, 20].This might be the emphasis to update health professionals on the job to increase the utilization of partograph to monitor labour.

The majority, 63% of them did work in other departments (OPD, IPD) than labour ward department and MCH departments. This might be due to the departments were health care service delivery in which health professionals involved in the project assigned was larger in number than the labour ward and MCH departments. Out of 156, 92.3% of them have had the willingness of in-service training on the use of partograph. This shows that training did have a greater influence in order to synergies the health professionals. Significant percentage, 60.9% of them didn't use partograph to monitor labour. This was in line with the study conducted in ObafemiAwolowo University,Ile-Ife,Nigeria and contrary with the study conducted in public health institutions of Addis Ababa, Ethiopia in which the majority57.4% of the respondents used the modified WHO partograph to monitor women in labour. [3,18]. This might be due to the negligence of the health professionals to monitor labour by using partograph. Out of 156, only 44.2% of them did know three components of a partograph. This study was in line with the study conducted in Amhara Region and in contrast with the study conducted in Addis Ababa [19].This might be due to negligence of the health professionals to get a greater attention to the main components of the partograph

The majority (73.9%) of the health professions enrolled in the project agreed that partograph is important tool in order to realizing safe mother hood program. Partograph is an important tool in order to capture the information/data of the delivering mother during labour to identify the nature of labour prediction. This was in agreement with the study conducted in to evaluate the use of the partograph in one of the urban hospitals in Uwimana, Rwanda with results showing that the majority of midwives and nurses 88% reported that a partogram is a tool of decision making in the labour ward, and 98% confirmed that the correct use of partogram can improve the management of pregnant women in a labour ward [11]. Significant percentages, (75.8%) of them agreed that knowing about the function of alert line and action line is important. Similarly, 79%

of them agreed that using partograph during labour management is important. This was in line with the study conducted in Rwanda, South Africa and Amhara Region. This might be due to the fact that most respondents in the present study were served less than five years.[13,19, 21, 22,].

The majority (86.6%) of them used partograph to monitor labour by Midwifes and followed by 75.2% of Nurses and Health officers. This was in line with the study conducted in South Africa [3]. This might be due to most of the time midwife was assigned in labour ward department than Nurses and Health officers. The study shows that, the majority (87.3%) of them agreed that partograph is a simple graphic recording of progress of labour and salient conditions of mother and fetus against time in labour. This was in line with the study conducted in South Africa [6].This might be due to the integration effect of in-service training and academic education. The majority (87.3%) of them did elicit that partograph was an important tool in order to reduce maternal mortality and similarly, 84.1% of them agreed that partogram plays a key role in order to reduce new born mortality. This was similar with the study conducted in the public hospitals in the Umgungundlovu district, Kwazulu-natal, South Africa [22].This might be due to the awareness of the health professionals on the importance of partograph.

Significant Percentages (65%) of them agreed that in normal progress of labour the graph/plot falls on the left of alert line. This was supported by WHO recommended standard use of partograph [7]. The majority (73.9%) of them agreed that in a normal progress of labour a woman got three contractions every ten minutes. This was in line with the study conducted in the public hospitals in the Umgungundlovu district, Kwazulu-natal, South Africa in which a significant majority 86.3% (n=170) responded that three contractions in every ten minutes is normal[22]. The study shows that from the total health professions involved in the project (n=156), only 39.7% of them agreed that in a normal progress of labour the minimum duration of a strong contraction is forty seconds. This was contrary with the study conducted in South Africa in which it had a significant number 80.7% (n=159) of respondents conceding ‘yes’ [22]. Significant percentages, 90.9% of them agreed that ten minutes being required to effectively assess adequacy of contractions. This was similar with the study conducted in the public hospitals in the Umgungundlovu district, Kwazulu-natal, South Africa in which a significant high majority 87.8% (n=173) of ‘yes’ responses [22].

The study reveals that the majority (86%) of them agreed that the progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part. This result was similar with the study conducted in the public hospitals in the Umgungundlovu district, Kwazulu-natal, South Africa in which a significant majority (92.9%) (n=183) also responded 'yes' that progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part[22]. Significant Percentages, 80.8% of them agreed that labour is prolonged when it lasts more than twelve hours which make confused, since normally labour is prolonged when it lasts more than eight hours. This was similar with the study conducted in the public hospitals in the Umgungundlovu district, Kwazulu-natal, South Africa in which a substantial majority 71.6% (n=141) also answered 'yes' that labour is prolonged when it lasts more than twelve hours which makes them incorrect, since labour is prolonged when it lasts more than eighteen hours [22]. The majority, 84.7% of them agreed that the function of action line was to indicate the appropriate action to be taken and similarly 69.4% of them agreed that action line allows time for women to appropriate intervention. This idea was supported with WHO recommended use of partograph [7].

The majority, 89.8% of them agreed that in their health facility they enter data on partograph while in delivery and up on diagnosis and only, 14.1% of them agreed that they enter data on partograph after delivery. This was in line with the study conducted in South Africa in which significantly more 57.4% (n=113) they said that they enter data up on diagnosis and significant fewer 1% (n=1) said that they enter data on partograph which was after delivery [22]. Significant percentages (85.4%) of them mentioned that partograph is available in their health center with, only 14.6% of them disagreement. This result was similar with the study conducted in South Africa [21]. The majority (85.4%) of them mentioned as they were used partograph to monitor every woman in labour and the majority (64.7%) of them used partograph rarely to monitor labour. Significant percentages (64.7%) of them used partogram once/30 minute once active phase of labour started. The majority, 83.3% of them agreed that partograph is a useful tool in obstetric review. Significant percentages (80.1%) of them agreed that it is mandatory to develop a managerial guide line that enforces the use of partograph. More than half of the reviewed partograph shows that all the components (fetal heart rate, the nature of the membrane, liquor quality moulding, cervical dilatation and decent of the presenting part) was not recorded. This result was in line with study conducted in Jimma University which showed that out of the 19

(6.9%) mothers for those in which partograph was used; FHR was monitored to standard in 3 (15.8%), states of membrane (liquor) was in 1 (5.3%) but in none of the cases the molding status of fetal head was monitored to standard; labour parameters (cervical dilation, station, uterine contractions, interval of contraction, and duration of contraction) were monitored to standard in 2(10.5%) of the cases[5].

The majority (59.5%) of the reviewed partograph shows all the maternal components was not recorded. This was similar with the study conducted in Lilongwe - Malawi in which documentation on the partograph was less than 5% properly filled on all the parameters [8].After the evaluation of the existing condition of the health professionals on the use of partograph to monitor labour, intervention was conducted to the participants enrolled in the project. The result of post intervention evaluation revealed that the majority (82.7%) of the participants used partograph to monitor labour during delivery. This was different from the result obtained during the pre-intervention evaluation. The variation might be due to the intervention and the facility management influence to use partograph while managing labour in the delivery room.

Similarly significant percentages (97.4%) of them did able to define the components of partograph and similarly significant percentages (97.4%) of them agreed that knowing the function of alert line and action line is important. This result was great different from the result of pre-intervention evaluation which was 44.2% and 75.6% respectively. This different might be due to the effect of intervention on the knowledge of the participants' knowledge on the importance of partograph to monitor labour. In similar way majority (97.4%) of the participants' were agreed that the frequency of partograph use to monitor labour in the delivery was routinely. This result was great different from the result during the pre-intervention evaluation. This difference might be as a result of the effect of intervention. Post intervention evaluation of the partograph utilization practice reviewed partograph shows the significant percentages, 85.5% of the reviewed the three (fetal, progress of labour and maternal) components were filled full. This show that the result was contrary to the study conducted in Jimma University and the result of the pre- intervention evaluation of the project [5].This difference might be due to the effect of training conducted during the intervention and continuous follow up, as well as managerial pressure and health professions commitment that increase the partograph utilization to monitor labour in the delivery room. The study revealed that there was an association between receiving

in-service training on the management labour of and professional qualification,(X2) = 13.53772,P-value0.01<0.05 level of significance) and also there was an association between receiving in-service training on the use of partograph and professional qualification, (X2) =25.1092 , P-value0.01<0.05 level of significance). The results from this project shows that a statistical significant association between the utilization of partogram and the received in – service training, and the number of years of experience as well as the professional qualifications with(X2 = 13.53772,P-value0.01<0.05 level of significance).To sustain the outcome and to provide the quality of delivery service the managerial commitment to provide sustainable supportive supervision and support was important.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The majority of the health professionals enrolled in the project was males and the most abundant age groups were 30-39 years. The most predominant health professionals involved in the project was Nurses. Of the participants enrolled in the project, the majority of them didn't use before a partograph to monitor labour. Even though, the majority of the participants agreed that a partogram used to realize a safe mother hood program, the health professionals' habit of using partogram to monitor labour was 28.5%. Similarly, the large percentages of the health professionals knew the function of the action line which helps for appropriate action to be taken. The majority of the health professionals didn't use partograph for decision making process during labour management. The majority of the study participants agreed that a partograph is a tool used by midwifes to monitor labour.

More than three-fourth of the participants agreed that the use of partograph to monitor labour did have a greater importance in order to reduce maternal and newborn mortality. Similarly more than three- fourth of the participants agreed that the progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part. The majority of them agreed that labour is prolonged when it lasts more than twelve hours, which misleads them, in which the real definition of prolonged labour was eight hours. The professional qualification and years of professional experience as well as having received in-service training on the managing pregnant mother in labour were found to be the determining factors for the proper use of partogram. This also perceived as the conceptual frame work guiding the present study which was patricia Benner's model of Nursing practice suggesting that knowledge and clinical skills of nurses and mid wives to the use of partogram should improve as the nurse and mid wife pass through the competency levels of the Benner's model.

The findings in this study could be useful in designing professional continuing education program for health professionals, especially for that was in line with the management of pregnant mother in labour during delivery. The study revealed that there was an association between

receiving in-service training on the management of labour and professional qualification,(X2) = 13.53772,P-value 0.01<0.05 level of significance) and also there was an association between receiving in-service training on the use of partograph and professional qualification, (X2) =25.1092 , P-value 0.01<0.05 level of significance),but the changes obtained during post-evaluation assessment could not exactly show the effect of intervention, because the factors such as other similar training that may add value to the change was not considered.

Finally, the value of the result during the post- intervention evolution on all the variables used in the project showed was far different from that of pre- intervention evolution, from this one concludes that training, managerial enforcement and professionals commitment has a greater influence on the utilization of partograph in each and every units of health facility.

5.2. Recommendations

Based on the finding of the project, the following recommendations were made to the concerned bodies.

- Horo Guduru Wollega Zone health department and the District health office Should work together in order to provide in-service training on continuing with updating the health professionals regarding obstetric care on the use of partogram for all health professionals having relation to improve the knowledge and utilization of partograph in order to provide quality obstetric care in Zone.
- District health office should provide regular supportive supervision in order to motivate staffs to utilize the partograph and record their findings accordingly and used partograph as a decision making tool in order to reduce maternal and new born mortality and provide quality of health care delivery.
- Regional health department, Zonal health department and District health office should work together to secure sustainable distribution of partograph papers in order to alleviate the problem.
- To have a complete picture of the know-how practice of partograph utilization of the Zone, the involvement of private health care facilities recommended.
- To sustain the work, sustainable monitoring and evaluation was recommended.
- Further project for automating partograph as a tool for capturing, storing or managing data related to pregnant mother and infant health during labour.
- Finally, it was believed that increasing the sample size and employing other methods may furnish better results and complement of the findings, so I would like to recommended and call others for conducting on post intervention evaluation to confirm implementation of the know-how of partograph utilization among the health professionals in Horo Guduru Wollega Zone to justify the know-how of the health professionals post interventional changes.

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ANNEX –A

DATA COLLECTION TOOL (QUESTIONNAIRE) ON PARTOGRAM (ENGLISH VERSION) FOR PRE- INTERVENTION EVALUATION AND IMPROVEMENT ON KNOWLEDGE AND UTILIZATION OF PARTOGRAPH

Dear Respondent, I am Tarekegn Tadesse, master's student at the Addis Ababa University in the Department of Health informatics. I am carrying out a study to evaluate the know-how of partograph utilization among health professions in public health facilities Horo Guduru Wollega Zone, Oromia Regional state, Ethiopia. The project is purely for the academic purpose. It will however provide data to evaluate the know-how of partograph utilization among Midwife's, Nurses, HO and Doctors. This may be useful and contribute to the improvement of the quality of care for women in labour. Participation to this study is strictly voluntarily and anonymity will be respected. I solicit your cooperation to participate in this project. You are required to fill this questionnaire with the options that best represent your response.

Information provided will be treated with confidentiality.

SECTION A: Demographic Characteristics: Tick as applicable.

1. Sex: Female ☐ Male ☐

2. Age: 20-29years ☐ 30-39years ☐ 40+years ☐

3. Marital status: Single ☐ Married ☐ Divorce ☐

4. Professional qualification/ Educational level

A. Midwife (BSc+Dipiloma) ☐ B. Health Officer/HO/ ☐

C. Nurses (BSC+Dipiloma ☐ D. Doctor ☐

☐ ☐

5. Your place of work: Hospital ☐ Health Center ☐

6. Years of experience:

A. Less than 2years ☐ B. 2-5 years ago ☐ C. More than five years ☐

7. Did you receive any in service training in the management of a pregnant mother in labour?

Yes ☐ No ☐

If your answer is yes for Question No 7, answer the following question

8 . The source of your in- service training in management of pregnant mother in labour was:

A. Emergency Obstetric and Neonatal care (EmONC) ☐

B. Advanced Life Support in Obstetrics ☐ C. None of the above ☐

9. What is your current working department?

A. Antenatal Department ☐ B. Family planning Department ☐

C. Labour ward Department ☐ D. Post natal ward Department ☐

E. Other units (Specify):…….

10. Did you receive any training on the use of partogram? Yes ☐ No ☐

If your answer is yes for Question No10, where have been trained on the use of partogram?

11.1. From a colleague, Yes ☐ No ☐

11.2. From in –service training, Yes ☐ No ☐

12. Are you willing on receiving in service training on the use of Partogram?

Yes ☐ No ☐

SECTION B: Knowledge on the Partograph: Tick as applicable.

13. Have you ever used a partograph before?

Yes ☐ No ☐

14. A partogram have three components:

Yes ☐ No ☐ I don't know ☐

15. Partogram is used to realize the safe motherhood program:

Agree ☐ Disagree ☐ I don't know ☐

16. Knowing about function of action line and alert line is important:

Agree ☐ Disagree ☐ I don't know ☐

17. Using a Partogram during lobour is important

Agree ☐ Disagree ☐ I don't know ☐

18. For you, the partogram may be defined as:

18.1. A chart for monitoring of labour by doctors: Yes ☐ No ☐ don't know ☐

18.2. A tool with pictorial overview of labour for the use by midwives:

Yes ☐ No ☐ I don't know ☐

18.3. A tool with pictorial overview of labour for the use by Nurse& HO:

Yes ☐ No ☐ I don't know ☐

18.4. A simple graphic recording of progress of labour and salient conditions of mother and fetus against time in hours: Yes ☐ No ☐ don't know ☐

Section C. Indicate your understanding about the partograph by choosing Agree, Disagree or I don't know:

19.1. The partogram will reduce maternal deaths: Agree ☐ Disagree ☐ I don't know ☐

19.2. The partogram will reduce new born deaths: Agree ☐ Disagree ☐ I don't know ☐

19.3. In a normal progress of labour, the graph/plot on the Partogram should fall on the alert line: Agree ☐ Disagree ☐ I don't know ☐

19.4. In a normal progress of labour, the graph/plot on Partogram should fall on the left of alert line: Agree ☐ Disagree ☐ I don't know ☐

19.5. In a normal progress of labour, the graph/plot on Partogram should fall on the right of alert line: Agree ☐ Disagree ☐ I don't know ☐

19.6. In normal labour, a woman has got 3 contractions in every 10 minutes: Agree ☐ Disagree ☐ I don't know ☐

19.7. In normal labour, minimum duration of a strong contraction is 40 seconds: Agree ☐ Disagree ☐ I don't know ☐

19.8. You require 10 minutes to effectively assess adequacy of contractions: Agree ☐ Disagree ☐ I don't know ☐

19.9. Progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part: Agree ☐ Disagree ☐ I don't know ☐

19.10. Labour is prolonged when it lasts more than 12 hours: Agree ☐ Disagree ☐ I don't know ☐

20. The followings are functions of the action line on the Partogram ☐

20.1. Indicates appropriate action must be taken: Agree ☐ Disagree ☐ I don't know ☐

20.2 .Allows time for the woman to be adequately assessed for appropriate intervention:

Agree ☐ Disagree ☐ I don't know ☐

21. In your hospital/health center, you usually enter information data on to the Partogram up on diagnosis:

Agree ☐ Disagree ☐ I don't know ☐

22. In your hospital/health center, you usually enter information data on to the Partogram while the woman is still in labour:

Agree ☐ Disagree ☐ I don't know ☐

23. In your hospital/health center, you usually enter information data on to the Partogram after delivery of the baby:

Agree ☐ Disagree ☐ I don't know ☐

SECTION D- Characteristics of Partograph utilization: Tick as applicable.

24. Is the Partogram available in your labour ward? Yes ☐ No ☐

25. Is the Partogram used to monitor patients during labour in your hospital/ Health Center?

Yes ☐ No ☐

26. If Yes for Question No 25 How often is it used? Routinely ☐ Rarely ☐ Occasionally ☐

27. How often is it used once active phase of labour started?

Once/30minutes ☐ Once/Hour ☐ Once /6 Hours ☐ Once/12 Hours ☐

28. A Partogram is useful in obstetric review?

Agree ☐ Disagree ☐ I don't know ☐

29. Is it a managerial policy that all women in labour should be monitored with a Partogram?

Agree ☐ Disagree ☐ I don't know ☐

SECTION E: Describe factors influencing utilization of the Partograph in labour monitoring: Tick as applicable.

30. Do you consider non-availability of the Partogram a problem in monitoring of labour?

Yes ☐ No ☐

31. Do you think managerial guidelines/protocols developed for each unit can facilitate effective use of partogram? Yes ☐ No ☐

32.Others,specify:_____
_____

Thank You!!

ANNEX-B

PRE_INTERVENTION AND POST INTERVENTION CHECKLIST

1. Check list number -----2. In Patient number ------

3. Age-----4.Gravidity ------5. Parity ---------

6. Gestational age (weeks) --------- 7. Time of admission ------Time of onset of labour ------

8. Time of 1st pelvic assessment ---------- (Time between admission and 1st pelvic assessment ---------- Minutes

9. Fetal part

9.1. Fetal heart rate: (2) Not recorded ☐ (1) Recorded ☐

9.2 Membrane: (2) Not recorded ☐ (1) Intact ☐ (2) Ruptured ☐

9.3. Liquor quality: (2) Not recorded ☐ (1) Clear ☐ (3) Me conium stained ☐

10. Progress of labor

10.1 Cervical dilatation: (1) recorded ☐ (2) Not recorded ☐

10.2 Descent :(1) Not recorded ☐ (2) Recorded ☐

10.3 Uterine contractions: (1) Not recorded ☐ (2) Recorded ☐

10.4 Any abnormality noted in cervical dilatation: (1) No ☐ 2) Yes ☐

10.5 Action taken :(1) None ☐ (2) Augmentation with oxiytoc ☐ (3) Operative ☐ delivery

11. Maternal condition

11.1. Maternal blood Pressure: (1) not recorded ☐ (2) Recorded ☐

11.2. Maternal body temperature: (1) Not recorded ☐ (2) Recorded ☐

11.3. Maternal pulse rate: (1) Not recorded ☐ (2) Recorded ☐

11.4. Urine test :(1) Correctly recorded ☐ (2) Half recorded ☐ (3) Not recorded ☐

12. Mode of delivery :(1) Spontaneous Vaginal delivery ☐ (2) Assisted vaginal delivery ☐ (3) Caesarean section ☐

13. Fetal outcome

13.1 Agar score: At 1minute, Recorded ☐ Not Recorded ☐

At 5 minute, Recorded ☐ Not Recorded ☐

13.2. Live ☐ Dead ☐ Not recorded ☐

13.3. Resuscitation done :(1) Yes ☐ (2) No ☐

13.4. Sex of the newborn: Male ☐ Female ☐ Not recorded ☐

13.5. Weight of the newborn: Recorded ☐ Not recorded ☐

13.6. Admitted neonatal ward for special care: (1) Yes ☐ (2) No ☐

13.7. If yes for the above, Reason :(1) Low S☐ (2) Prematurity ☐ (3) Low birth weight ☐ (4) Others specify ----------

14. Immediate maternal outcome :(1) Good ☐ (2) Adverse (Death, perineal tear, PPH, Visceral injury, Need blood transfusion) ☐

ANNEX-C

DATA COLLECTION TOOL (QUESTIONNAIRE) ON PARTOGRAM (ENGLISH VERSION) FOR POST INTERVENTION EVALUATION AND IMPROVEMENT ON KNOWLEDGE AND UTILIZATION OF PARTOGRAPH

Dear Respondent, I am Tarekegn Tadesse, master's student at the Addis Ababa University in the Department of Health informatics. I am carrying out a study to evaluate the know-how of partograph utilization among health professions in public health facilities Horo Guduru Wollega Zone, Oromia Regional state, Ethiopia. The project is purely for the academic purpose. It will however provide data to evaluate the know-how of partograph utilization among Midwife's, Nurses, HO and Doctors. This may be useful and contribute to the improvement of the quality of care for women in labour. Participation to this study is strictly voluntarily and anonymity will be respected. I solicit your cooperation to participate in this project. You are required to fill this questionnaire with the options that best represent your response.

Information provided will be treated with confidentiality.

SECTION A: Demographic Characteristics: Tick as applicable.

1. Sex: Female ☐ Male ☐

2. Age: 20-29 years ☐ 30-39 years ☐ 40+ years ☐

3. Marital status: Single ☐ Married ☐ Divorce ☐

4. Professional qualification/ Educational level

A. Midwife (BSc+Dipiloma) ☐ B. Health Officer/HO/ ☐

C. Nurses (BSC+Dipiloma ☐ D. Doctor ☐

5. Your place of work: Hospital ☐ Health Center ☐

6. Years of experience:

A. Less than 2years ☐ B. 2-5 years ago ☐ C. More than five years ☐

7.. What is your current working department?

A. Antenatal Department B. Family planning Department

C. Labour ward Department D. Post natal ward Department

E. Other units (Specify):…….

SECTION B: Knowledge on the Partograph: Tick as applicable.

8. Can You mention the three components of Partograph?

Yes No I don't know

9. Do you thing that partograph available in your health facility ?

Yes No

10. Do you use Partograph to monitor labour during delivery?

Yes No I don't know

11. If yes, for question No. 10 how often?

Routinely Rarely Occasionally

12. In your hospital/health center, you usually enter information data on to the Partogram while the woman is still in labour:

Agree Disagree I don't know

Thank You!!