# OUTCOMES OF DELIVERY LIFE SUPPORT PROJECT IN BATTAMBANG AND PAILIN PROVINCES, CAMBODIA

**HA SAM OL**

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Thematic Paper
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.....
Mr. Ha Sam Ol
Candidate

.....
Assoc. Prof. Chaweewon Boonshuyar,
M.S., M.S.P.H. (Bios.)
Major advisor

.....
Assoc. Prof. Oranut Pacheun, Dr.P.H.
Co-advisor

.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Oranut Pacheun, Dr.P.H.
Program Director
Master of Public Health
Faculty of Public Health
Mahidol University

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on
March 28, 2013

.....
Mr. Ha Sam Ol
Candidate

.....
Prof. Pensri Phijaisanit,
M.D., M.P.H., American Board of Paediatrics
Chair

.....
Assoc. Prof. Chaweewon Boonshuyar,
M.S., M.S.P.H. (Bios.)
Member

.....
Assoc. Prof. Oranut Pacheun,
Dr.P.H.
Member

.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Phitaya Charupoonphol,
M.D., Dip Thai Board of Epidemiology
Dean
Faculty of Public Health
Mahidol University

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HA SAM OL 5536755 PHMP/M

PUBLIC HEALTH

THEMATIC PAPER ADVISORY COMMITTEE: CHAWEEWON BOONSHUYAR, M.S., M.S.P.H., ORANUT PACHEUN, Dr.P.H.

ABSTRACT

This was a cross-sectional study to assess trends in MMR and PMR and to evaluate the knowledge and practice among the stakeholders of the project on emergency obstetric care.

MMR in project areas had significantly decreased, from 5.74 in 2005 to 1.22 per 1000 deliveries in 2009 (p-value=0.004). There was a remarkable reduction of delivery with TBA from 20.06 in 2005 to 1.63 per 1000 deliveries in 2009. Risk of dying was 5.3 times higher among deliveries with TBA than with health personnel. PMR reduced significantly, from 43.13 in 2005 to 8.04 per 1000 live births in 2009 (p-value < 0.001). Early NMR had also significantly reduced from 43.17 in 2005 to 8.11 per 1000 live births in 2009 (p-value < 0.001).

It was found that the knowledge among medics and midwives on emergency obstetric care needed to be improved or refreshed. Regarding the knowledge of TBA and VHSG on the emergency obstetric care, it was found that Pailin and Samlot had a higher level of knowledge than Sampov Luon, 89.7%, 56.5% and 35.9% respectively. Among the 129 village women it was found that the majority of them, 82.5% in Sampov Luon, 67.5% in Pailin and 76.0% in Samlot, needed improvement. However, it was found that the more health promoters have met, and the level of their knowledge increased.

It was concluded that there was a reduction in MMR, PMR and early NMR in the project areas. There was a need for improving the knowledge among stakeholders, especially the care providers.

KEY WORKDS: MMR PMR NMR KNOWLEDGE TBA

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| | |
|---|---|
| TCFC | Trauma Care Foundation Cambodia |
| NORAD | Norwegian Development Agency |
| DLS | Delivery Life Support |
| MMR | Maternal Mortality Ratio |
| PMR | Perinatal Mortality Ratio |
| NMR | Neonatal Mortality Ratio |
| VHSG | Village Health Support Group |
| TBA | Traditional Birth Attendant |
| SBA | Skilled Birth Attendant |
| BTLS | Basic Trauma Life Support |
| ATLS | Advanced Trauma Life Support |
| WHO | World Health Organization |
| CPR | Cardio-Pulmonary Resuscitation |
| TMC | Tromsoe Mime Victims Resource Centre |
| MDG | Millennium Development Goals |
| NICU | Neonatal Intensive Care Unit |
| CI | Confidence Interval |
| NGO | Non-governmental Organization |
| OD | Operational District |
| HC | Health Centre |
| RH | Referral Hospital |
| ANC | Ante-natal Care |
| CS | Caesarean Section |
| NIS | National Institute of Statistics |

# CHAPTER I
# INTRODUCTION

## 1.1 The Delivery Life Support Project

Trauma Care Foundation Cambodia (TCFC) is a non-governmental organisation operating in rural area of Battambang and Pailin provinces in the North-Western of Cambodia. The organization is receiving funds from the Norwegian Development Agency, the NORAD, for running its projects. There are three major projects operating at the moment, the traumatic injury management project, the delivery life support (DLS) project and the landmine accident survivors' rehabilitation project. The delivery life support project itself is going on for more than seven years. The initial project was involving the conducting the pre-intervention survey of maternal mortality ratio (MMR) and perinatal mortality ration (PMR) in the study area to use as historical baseline information.

Phase one of the project was to build the rural network by training health personnel at the health centre and hospital levels and upgrading health facilities with some necessary equipment. After the stakeholders trained, the data collection started on all consecutive deliveries in the project areas.

Phase two of the project was to get the stakeholders to provide delivery life support at health facility, and register data on treatment and outcomes.

### 1.1.1 The project Description

The project operates in three rural catchment areas in co-operation with the Provincial Health Departments of Battambang and Pailin provinces.


Figure 1.1: Map of Cambodia. Indicating the two provinces in the circle, where project operates
Source: Advance Study Khmer. http://manoa.hawaii.edu/ask/aboutCambodia.html visited on November 21, 2012

**1) Sompouv Luon district**

This is an operational district, which is one of the catchment areas under the study. The district comprises of three administrative districts. There are six health centres and one referral hospital in Sompouv Luon operational district. All these health facilities are covering more than 147,718 inhabitants among this 66,915 are females. This district is referring as catchment area one in the study project.

**2) Samlot district**

This district is located in a separate administrative district of Battambang province. It is referred, as the catchment area number two which is comprises of five health centres. There is no referral hospital in the district. All cases need hospitalization were transferred to Battambang Provincial Hospital. The

estimated people in the second study catchment area were around 39,928 inhabitants, among this 19,689 are females.

**3) Pailin Province**

This is a third catchment area in the project operation areas. This province comprises of two administrative districts combined to be one operational district for health administration. The operational district comprised of 6 health centres and one referral hospital. In this catchment area there were 68,748 inhabitants, 34,700 of them are females.

### 1.1.2 Training program and treatment protocol

The training of delivery life support (DLS) procedures was conducted at three levels in the study area:

- At the surgical referral hospitals. At this level the training aiming at getting the persons involved to understand the process of the DLS referral system from the village.
- At health centres: this level the focus of the training is on midwives and at least one medical assistant who is responsible for dealing emergency traumatic injury management. This group works together when transferring the complicated delivery cases to the next health facility.
- At village level: the traditional birth attendance (TBA) and the village health support group (VHSG) were involved.

At each of the three levels, two groups of health workers were trained. At health centre, the medics and midwives were trained:

**1) Medics**

The medics were nurses or medical assistant who has had formal bachelor of nursing science and the medical assistant has six years of medical study at the university and post to work at the provinces or hospital. Under the project, the medic was referring to experienced nurse and medical assistant working in the health centre, especially on the small traumatic injury. The medics in the project were staffs already trained in basic and advanced trauma life support (BTLS and ATLS) at

health centre and hospital level were then upgraded to provide basic life support for DLS as well.

**2) Midwife**

One programme delivered qualifications to become a primary level midwife, the other a secondary level midwife. The primary midwife-training programme was one-year in duration, and the entry requirement called for completion of a secondary school education, although not necessarily attainment of a 12th grade pass. The secondary midwife-training programme on the other hand was three years in duration. The first year was a common year with secondary nursing students, and the last two years were dedicated to midwifery content and developing midwifery specific knowledge and skills. It was generally acknowledged that although both midwives could work at any level of health care system, the intention was that primary midwife would work at health centres in a supportive role to secondary level midwives. In the project midwives at the referral hospitals, midwives at the health centres, and village TBAs were trained in the basics of life support and in DLS. The diagram below indicates the level of the referral system in the project.

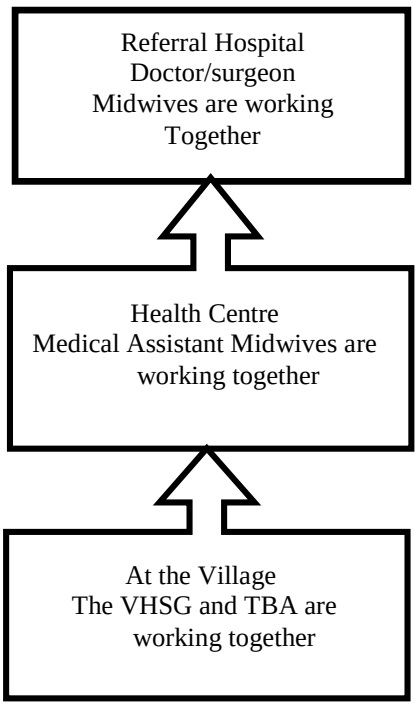


Figure 1.2: Summary of the Referral and Life Support System from village to referral hospital

The training and treatment protocols were following the guidelines set by the World Health Organization (WHO) and leading international experts on maternity care in developing countries (1). The training in basic life support procedures built upon TCFC training manual for trauma care, the “Save Lives, Save Limbs”(2) book. The diagram below indicates the specific DLS rescue and treatment procedures at different levels of emergency care:

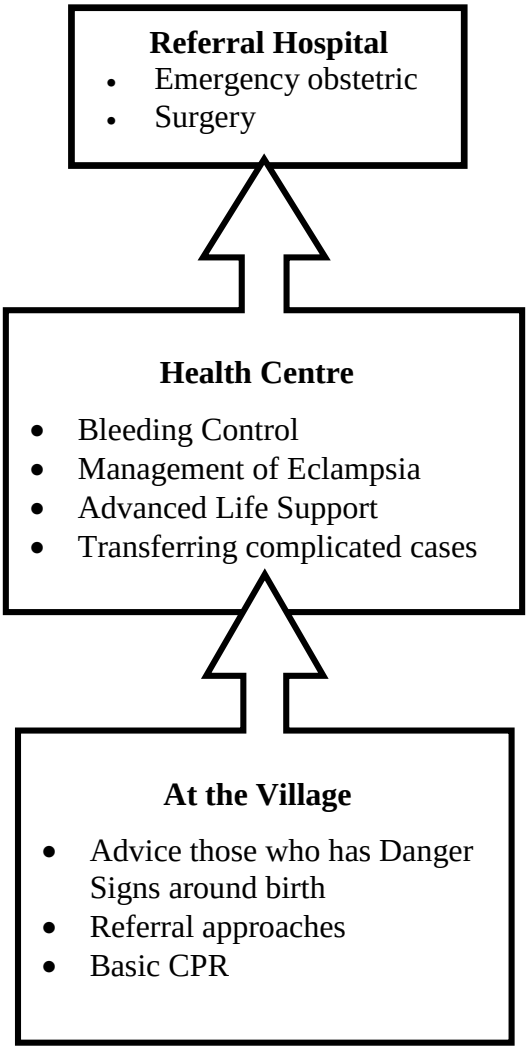


Figure 1.3: The summary of the care provided at different level of care under the project

The following table indicates some of the topics provided in the training of the service providers at different levels of care. It provides with the basic information

about the training contents of the DLS project at different level of health care structures in Cambodia.

Table 1.1: The summary of the training content at different levels of care

| Level of training | Main focus in pregnancy | Main focus delivery | Practical procedures |
|---|---|---|---|
| Obstetric emergencies for doctors at district-hospitals 3 days.<br><br>Rehearsal classes twice during the observation period. | | Identify and treat prolonged or obstructed labor.<br><br>Identify and treat eclampsia | The use of vacuum extractor, c. section, B-Lynch suture<br><br>The use of condom tamponade.<br><br>The use of magnesium |
| Core training midwives and medics<br>10 days.<br><br>Rehearsal classes 1-2 times a year. | Identify danger signs in pregnancy<br><br>Nutrition<br><br>Reproductive health | Indentify and treat prolonged labor and infection.<br><br>Treat pre -eclampsia and eclampsia.<br><br>Treatment of hemorrhage.<br><br>Advanced CPR both mother and newborn | Bleeding Control using Misoprostol and condom tamponade<br><br>The use of vacuum extractor.<br><br>Manual removal of placenta.<br><br>The use of diazepam and Magnesium. |
| Training of TBAs and VHSGs<br><br>Quarterly meeting as refreshment course conducted at health centre | Identify danger signs in pregnancy<br><br>Nutrition | Basic CPR mother and child.<br><br>Identify eclampsia<br><br>Identify prolonged and obstructed labor.<br><br>Treatment of post-partum hemorrhage. | Training with mannequins. |

In order to maintain the level of knowledge and alertness among the stakeholders, the refreshment courses conducted regularly, with 6 and 12 months intervals. The midwives and medical assistants refreshment is conducted twice a years. The refreshment course was often used as session to discuss the problems and sharing new skills among the participants.

For the TBA and the VHSG, the refreshment course is conducted in the form of quarterly meeting at the health. The meeting is officially conducted by the midwives and medics at the health centre.

### 1.1.3 Material input to the project

At the start of the project, local infrastructure was short of resources, the project was upgrading some of the basic health facilities, including.

1) Reorganizing the blood bank service and instruments for obstetric surgery. One referral hospital, at a district level, blood-banking service was setting up. The staff were trained and equipped with necessary equipment and tool to start blood bank service, especially for the emergency obstetric surgery.

2) Health centers: Basic obstetric instruments, head lights, Misoprostol, and magnesium sulphate and obstetric emergency delivery kits for using when the emergency transports the woman with the complicated case to the next treatment facility

3) At the village level, TBA were providing with some material for emergency use only such as, mucus extractors for newborn, head lights and some delivery materials.

Teaching aids were provided with the Mannequins for CPR and endotracheal intubation training (adult and newborn size) which can be circulated in the area throughout the study period.

### 1.1.4 Risk and success factors for the project

In this project, success or failure depended on two main factors: To achieve genuine indigenous operation of the program and to transfer life-saving skills to non-graduate health workers. For years, humanitarian medical relief organizations

have conducted training programs in “safe motherhood” for TBAs in poor rural societies. Still, maternal and perinatal mortality remains high in the target areas. From this it should not conclude that training is in vain, but that the design of the intervention is crucial. Local anchoring of knowledge and mutual confidence within the life support network is instrumental.

From 1947 to 1957 countries like Sri Lanka and Malaysia reduced MMR from levels above 1,000 to less than 400 per 100,000 live births. Their success was mainly due to extensive networking between well-trained rural midwives and the TBAs in the villages (3). After the World War Two, most of industrialised countries halved the MMR by improving access to care and improving skills of care workers. The project underlined the importance of improving the existing facilities and adapting to the local culture and situation (4). The foundation for the actual project was upgrading of an already operational local trauma system that has proved its success. From studies of the traumatic injury care system, we can document that training of 4,000 layman first helpers in the villages significantly improves trauma survival. The knowledge of life support is thus already well anchored locally (5). Using this trauma system as the core of a local DLS network, and training new DLS providers under the approach of “Khmer teaches Khmer”, we hold that the actual intervention has reasonable prospects for success.

Regarding delegation of life-saving procedures to non-graduated care providers and first helpers where “there are no doctors”: The positive effect of the approach was well documented. In a prospective study of obstetric surgery by assistant medical officers in Mozambique, Vaz et al documented that well trained non-graduate surgeons do as well as graduate doctors (6). In a study from a referral hospital in Tanzania, Mbaruku and Bergström reported the reduction of in-hospital MMR from 933 to 186/100,000 after upgrading of quality of care. Also in Cambodia TCFC has been working along this line. Since 2001, Tromsoe Mime Victims Resource Centre (TMC) has trained trauma surgery with the medical assistants at six district hospitals in the actual study areas. A result from this program indicated low rates of postoperative mortality and infectious complications after low-cost upgrading and training programs(7). It should not be controversial to conclude that it is both

necessary and safe to establish the emergency obstetric service much closer to the pregnant woman.

In November 2004, the training started with the core team, training which including the training of trainers of 16 midwives and 10 medical assistants. Among these participants, some were selected and trained to be trainers. With this core team the training has expanded to cover:

Table 1.2: Number of stakeholders in the project

| Stakeholders | Number |
|---|---|
| Traditional Birth attendants (TBA) | 375 |
| Village Health Support Group (VHSG) | 150 |
| Midwives | 25 |
| Medical assistants | 25 |
| Hospital Staffs (doctors and surgeons) | 4 |

Among these participants are the stakeholders involving in the project. The stakeholders were divided into:


Figure 1.4: The diagram indicated service users and service providers

### 1.1.5 The objectives of the project were

The design of the project it was aiming at:

1) Building rural referral network to manage delivery complications, and thereby,
2) Reducing the maternal and perinatal mortality in the study areas

## 1.2 The evaluation project

The research project was to evaluate the delivery life support project outcomes after the implementation in rural area of Battambang and Pailin provinces, Cambodia. The evaluation was focusing on the outcomes related to the maternal death and perinatal and general level of knowledge and practice on the emergency obstetric care, in the project areas from 2005 to 2009.

## 1.3 Research Objectives

The objectives of the evaluation project would be:

1) To assess the outcomes related to trends of maternal and perinatal mortality in the project catchment areas in the project period 2005 to 2009.

2) To evaluate the knowledge of the village women reproductive age years, the TBA, VHSG, the health centre midwives and the medics, regarding the emergency obstetric care measures and danger signs around birth generated from the training provided by the projects.

3) To observe the practises of the village women at reproductive age years, the TBA, VHSG, the health centre midwives and the medics after receiving the training provided by the project.

## 1.4 Scope of the Study

The evaluation research determined the impact of the project on the maternal and perinatal deaths during the period of the project implementation. During

the project implementation period data on mothers and babies were collected by the midwives involved in the training. Therefore for this evaluation research, the existing data will be used for analysis. The impacts of the project would be measured the trends of the maternal and perinatal mortality for the project period in the catchment areas. The evaluation would also measure the knowledge and practices of the all stakeholders involved in the project regarding the referral system, emergency obstetric care measures and dangers around births.

## 1.5. Operation Definitions

**Evaluation:** is a systematic investigation of the worth or significance of an object. Evaluation normally involves some standards, criteria, measures of success, or objectives that describe the value of the object.

**Project evaluation:** assesses activities and outcomes that were designed to perform and to achieve in a specified task in a specific period of time.

**Maternal death:** 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, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO).

**The maternal mortality ratio (MMR)**: is defined as number of maternal deaths during pregnancy and delivery per 100,000 live-births

**Perinatal Death:** death of newly born baby within first week of life and foetal death (stillborn) after 28 weeks of gestation

**The perinatal mortality rate (PMR):** is defined as the number of stillbirths and first week-newborn deaths per 1000 live births in that period.

**Early neonatal mortality:** refers to a death of a live-born baby within the first seven days of life

**Late neonatal mortality:** covers the time after 7 days until before 28 days

**Neonatal mortality:** is including the early and late neonatal mortality

**Skilled birth attendant (SBA):** referring to medical professional midwives obtaining the knowledge and skills through formal professional education. WHO defines an SBA as someone “trained to proficiency in the skills needed to

manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborn.

**TBA:** traditional birth attendants referring to indigenous midwife who gained knowledge through practical experience and oral tradition, rather than formal training

**Village health support group (VHSG):** is non-medical background person volunteered to assist the public health networking at the village level. It is recognised by the national public health structure and appointed at least one VHSG in a village.

**Medic**: in this document was referring to the medical assistants or nurses participated in the traumatic injury management training conducted by TCFC. They were Government staff working at the health centre, with formal education qualification acknowledged by the Government.

**Health Promoters**: referring to the TBA, VHSG and health centre staff members who had been involving in the village education program during the project period.

**Stakeholders:** referring to those who had involved in the project. TBAs, VHSGs, midwives, medics and village women.

**Knowledge:** of dander signs and emergency obstetric care means the level of understanding of each level of the stakeholders, village woman, the TBA, VHSG, medics and midwives about the danger around pregnancy, complication of pregnancy, procedures and measure taken for helps.

**Practice:** referring to usage of the knowledge of the danger around pregnancy, complication of pregnancy, procedures gained from the training by village woman, the TBA, VHSG, medics and midwives to provide assistance, care and emergency care to pregnant women

**Satisfaction:** referring to experiences of the village woman, the TBA, VHSG, medics and midwives that exposed to services provided by the project during the project period. This may include the referral services and materials supplies by the project.

# CHAPTER II
# LITERATURE REVIEW

## 2.1 The Global Issues

The world MMR was reported to be around 210 per 100 000 live births, with the range of uncertainty of 179 to 300 and life risk of maternal death was 1 in 180. Where in developed region it was reported to be around 16 per 100 000 live-births ranging from 14 to 18, with the life risk of maternal death of 1 in 3800. In developing region, the MMR was reported to be 240 ranged from 190 to 330 and the life risk of maternal death was reported to be 1 in 150 (8).

In sub-Saharan African region the MMR was high comparing to the world figures. It was reported to be around 500 per 100 000 live births. The range of uncertainty was reported to be between 400 and 750 per 100 000 live births. The life risk of maternal death was around 1 in 39.

The MMR in Southern Asia region was reported to be not much different from the developing region. Southern Asia including India was reported to be around 240(8).

In the Oceania the MMR is around 200 per 100 000 live births. In Africa and Asia, the MMR remain very high comparing to the developed regions (8). Among those deaths around 99% were occurring in the developing countries, in sub-Saharan Africa and South Asia accounted for 86% of the maternal deaths (4, 9, 10).

The maternal deaths made the family lost not only the mother for the newborn baby, but also lost of economic for the family and at the same time lost a leader of the family. In China, the household that had the maternal death spent significantly higher than those who did not have, (US$2, 248 vs. US$ 305). To cover this expense the family has to loan from others, the reimbursement from hospital and help from the relatives (11).

## 2.2 Causes of maternal deaths

The causes of maternal death differed from country to country. In Asia, in 2008, the major causes were reported to be related to obstetric haemorrhages (30.8%); anaemia (12.8%); sepsis/infection (11.5%); obstructed labour (9.4%); hypertensive disorders/eclampsia (9.1%); unsafe abortions (5.7%)(12). In Cambodia, in 2010, the single most common cause of maternal mortality was reported to obstetric haemorrhages, which was accounting for 25—33% of all maternal deaths. Unsafe abortion was also reported high in Cambodia, accounted for around 14% (13, 14). In Tanzania, reported in 2010, the major causes of maternal deaths were infection (40%), abortion (25%), eclampsia (13%), post-partum haemorrhaged (12%), obstructed labour (6%) and others (4%)(15).

Lao PDR and Cambodia were considered to be the two countries in Asia which were included in the seven countries that have highest MMR in outside of the sub-Saharan African countries. In Asia, Indonesia is one of the 11 countries that accounted for around 65% of the maternal deaths in the world (14). In Cambodia, the maternal death was reported to be around 540 deaths per 100 000 live births in 2006 (12).

The access to health was difficult in the remote areas, especially for maternal and childcare. Landmines and unexploded ordnance were also limiting the access to remote villages. In addition to that, most of the families in the project areas were farmers, prone to be effected by malaria. The project areas have been reported with multi-resistant malaria and Falciparum was endemic and also reported high prevalence of Hepatitis B and Hepatitis C among adult population (16-19).

## 2.3 The Reduction of MMR

For the past 20 years there were reports of decrease in the MMR across the globe. In the world it has reduced from 400 deaths per 100 000 live births in 1990 to 210 in 2010. The annual reduction was reported to be around 3.1%. All regions defined for the MDG target has the reporting the declination of the MMR within the last 20 years. In Eastern Asia region it has been reported a reduction of about 69%.

Where in Northern Africa there was reduction of the 66%. In Southern Asia the reduction was reported to be around 64%, and in Sub-Saharan Africa was around 41%. In Latin America, the Caribbean and Oceania, the reduction was reported to be around 41% and 38% respectively. The Caucasus and Central Asia region was reported to be around 35% reduction(8).

There were around ten countries, which achieved the fifth MDG which was aiming at improving the maternal health and targeting the reduction of MMR by 75%, namely Estonia (95%), Maldives (93%), Belarus (88%), Romania (84%), Bhutan (82%), Equatorial Guinea (81%), Islamic Republic of Iran (81%), Lithuania (78%), Nepal (78%) and Viet Nam (76%)(8).

In Cambodia has also reported a reduction from 472 in 2005 to around 206 in 2010, estimated by the National Institute of Statistics (NIS). This reduction was remaining in the same range as reported in the regions. However, this reduction seems a little bit faster than one expected.

## 2.4 Perinatal Mortality

The perinatal mortality ratio (PMR) is defined as the number of stillbirths and first week-newborn deaths per 1000 live births in a specific period. In countries with high MMR, the pregnancy related death risk for mothers and babies tend to correlate, PMR was being 8 to 10 times higher than the MMR. The causes of high perinatal mortality varied between countries; the main contributors can be listed as asphyxia, prematurity/low birth weight, malaria, and tetanus (20). Prior to the start of the project, the baseline survey indicated that the perinatal mortality was around 5% (21). As the majority of deliveries and also perinatal deaths occurred at village level, the actual PMR in the study area may well be higher.

Placenta abruption, prematurity, foetal demise and congenital abnormalities were also major causes of perinatal mortality (22. The main cause of morbidity was respiratory distress syndrome. In neonatal period 28% of newborns needed neonatal intensive care unit (NICU) and 12.1% received positive pressured ventilation(23).

In a population based controlled study indicated that training of traditional birth attendants to take care of the newly born baby reduced the perinatal mortality (24).

## 2.5 Success of Training program

Most of maternal deaths were preventable, providing the mothers have the immediate health care service. In China a population-based maternal mortality surveillance data analysis indicated that there were around 86% of the maternal deaths were preventable if the delivery facilities were accessed(25). The barriers to the access of the health care for the rural women were the financial resource, transport facilities. Providing the some accesses to the transportation and improving the health care facilities will reducing those barriers and will lead mothers to have better delivery service(26).

The process of upgrading the knowledge among the population may have help reducing the maternal and perinatal mortality. A 50 year-natural experimental study in Chile can help reducing the MMR from around 294 to 18 per 100, 000 live births. This was about 94% reduction. The success was also resulted from the improvement of the health facilities, improving the skills of the births attendants(27).
In some situation and society, training the TBA and give full support package may help reducing the perinatal and neonatal mortality(28). However, in other context, allowing the TBA to delivery at home made the maternal death remain high (29).

The delivery by skilled attendants was also targeted by the fifth MDG; at least it was target to have 80% of women delivered with the skilled attendants by 2005, 85% by 2010 and 90% by year 2015. WHO, in 2007, estimated that there were around 63% of women delivered with skilled birth attendants, where in the developed countries was around 99% comparing to 59% in the developing regions. The lowest percentage was reported to be in Asia, which was reported to be around 44% only(30).

# CHAPTER III
# MATERIALS AND METHODS

## 3.1 Research Design

The research design was a formative cross-sectional research, conducted among the key informants comprised of the service users and service providers at community levels of care.

The service users are the pregnant mothers who are living in the village and have used the service at one of the service level. The service providers are including the TBA, VHSG, midwives and medical assistants working at health centres and hospitals.

## 3.2 Study period

The study was conducted during 24th January to 28th February, 2013

## 3.3 Sites of study

The study was conducted in the three catchment areas of the project operates by the Trauma Care Foundation Cambodia in Battambang and Pailin Provinces. Two districts, Samlot and Sampov Luon in Battambang province and all districts in Pailin province.

The study targets population were women at reproductive age, the TBAs and VHSGs at the villages, midwives, medical assistants and surgeons at health centres and hospitals.

## 3.4 Population and sampling

### 3.2.1 The existing data

The study population were 10,538 women who delivered during the period of 2005 to 2009. This was including 2,439 from Samlot district, 4,507 women from Sampov Luon operational district and 3, 419 women from Pailin province and 173 were not able to identify which district they were coming from. There were total of 10518 babies born during the project period.

### 3.2.2 Inclusion criteria

- All delivery cases from the three project catchment areas will be included.
- All stakeholders involved in the project who are still alive and living in the project catchment areas
- Those informants who are willing to participate in the study

### 3.2.3 Exclusion criteria

- The cases from other district were excluded at time of the entry.
- Delivery and death cased out of the defined operation definition were not included in the study.
- Stakeholders who are recently joint the project less than a year

### 3.2.4 Discontinuation criteria

If the participants feel any inconvenience in giving the information s/he has the rights to discontinue from the study.

### 3.2.5 Validating the existing data

The relevant supervisor of midwives in each catchment area was responsible for collecting the data charts from every health centre. The data charts

completed by TBAs for village delivery and completed by midwives for health centres and hospital delivery. Then supervisor in each operational district verified and validated the charts then sent them to the organization head office at Battambang province. The project coordinator verified and validated again. Then the charts kept in the locked cabinet for the registration.

Data set from the record sheets were entered into a database in Excel® for Windows by local employees from TCFC. Records with imprecise information was tried to be recoded or otherwise coded as missing. The final database included 10, 973 births from December 2004 to the end of December 2009 when the database was closed. Quality control of the database was done in several steps, using Excel and Stata by the research partners in the TCFC.

First, the mother database was cross-checked with the child database to identify discrepancies in coding of mother identity number and delivery/birth date. Where discrepancies were found (n=311), the original data were consulted and corrections made. All mother identification number's discrepancies were corrected this way, and most date discrepancies as well. Records with no delivery date or information about mother death or not were deleted. For other variables, district of delivery, birth attendant (TBA or midwife/MD), parity, maternal age, missing values were recorded into a separate category. Review of all dead babies also revealed some of them to be categorized as abortions, and they were thus deleted from the mother database. The total number of mothers is 10, 538 in the final database.

### 3.2.6 Samples

The sample size was calculated for this study to get the minimum requirement was obtained by using the following formula (31).

$$n = \frac{Z^{2}_{\sim/2} P(1-P)}{d^{2}}$$

n = Estimated sample size

Z = 1.96 which is a standard statistical value, under normal distribution curve, with the significant level of 5% ($\alpha = 0.05$)

P = 0.73 (32) Expected proportion of individual in population possessing a knowledge after the launching of the awareness project

d = 10% error allowance for the proportion estimation (p ± 10%)

DEFF = Design effect, for this study two stage cluster random sampling, therefore the minimally the effect = 1.7

The sample for the study would be

$n = \frac{1.96^2 \times 0.73 \times 0.27}{0.1^2} = 75.71$ = 76. The total samples would be

N=76x1.7 = 129.

This sample sizes were estimated for the village women and TBA/VHSG group. Where the midwives and medics the maximum were selected for this study.

Table 3.1: The summary of samples in the study

| | Quantitative Samples | Qualitative Samples |
|---|---|---|
| Number of deliver mother | 10,538 | |
| Number of babies (excluded stillborn) | 10 518 | |
| Village Women | 129 | 2 |
| TBA and VHSG | 116 | 4 |
| Medics and Midwives | 29 | 3 |

In order to collect the data, four research assistants were trained for assisting in collection of data. Two assistants were responsible for catchment one as the areas are larger. One assistant will be responsible for catchment two and other will be responsible for catchment three. The researcher was moving between the three catchment areas.

Permission from Provincial health department obtained prior to the start of data collection in each area. All the informants, detail explanation of the information related to the study were read out and information sheet were given in order to obtain the inform-consent form prior to the start of interviewing. Most of the informants were interviewed at their home/residence. The midwives and medical assistants will be interviewing at the health centre, as best place to be met.

### 3.2.7 Primary data collection and research instruments

The primary data collection was face-to-face interviews with local language questionnaires, which were ready-made.

There were three sets of questionnaires:

Form 1: for village women consisted of 24 questions. The first part of the items covered the general information and characteristic of the informants. The second part of the questionnaires covered the general knowledge and practice of the village women when they were pregnant. There the total of 26 items covered general knowledge of the pregnancy related issues (Table 3,2).

Table 3.2: Score assigned to each item of the knowledge and its classification criteria for village women

| Item of knowledge | Score |
|---|---|
| Delivery Preparation | |
| Saving money for delivery | 1 |
| ANC check up | 1 |
| Discuss about place for delivery | 1 |
| Knowledge about danger signs | |
| Pregnant at old age | 1 |
| Pregnant at young age | 1 |
| The pregnant woman is too tall | 1 |
| Pregnant woman who is fat | 0 |
| Pregnant woman is too short | 1 |
| Already has many children | 1 |
| Bleeding during the pregnancy | 1 |
| Swelling during the pregnancy | 1 |
| Convulsion during the pregnancy | 1 |
| High fever and chills when pregnant | 1 |
| Amniotic broke before labor pain | 1 |
| Pregnant woman has Anemia | 1 |
| Vomit too many much during pregnant | 1 |
| Severe headache | 1 |
| Pregnant woman has history of Caesarean Section | 1 |

Table 3.2: Score assigned to each item of the knowledge and its classification criteria for village women (cont.)

| Items of knowledge | score |
|---|---|
| Knowledge about food | |
| All kind of food and drink with high protein | 1 |
| All kind of food and drinks which provide energy | 1 |
| All kind of food and drinks with alcohol concentration | 0 |
| All kind of food and drinks with iron and vitamin | 1 |
| Knowledge about some dos and don'ts | |
| Lift heavy weight | 1 |
| Working too hard | 1 |
| Exposed to pesticide | 1 |
| Smoking | 1 |
| Drinking Alcohol | 1 |
| Taking medicine without prescription | 1 |
| Total possible score (0-26) | |
| Classification Criteria: | |
| 1). Total score 15 and lower will be poor level of knowledge (<60%) | |
| 2). Total score 16-21 Fair level of knowledge (60-80%) | |
| 3). Total score above 21 Good level of Knowledge (>80%) | |

Form 2, for the traditional birth attendants (TBA) and village health support group (VHSG). The first part of the questionnaires related to general information of the informants. The second part consisted of 21 questions with 27 items to answer. Total of 34 items covered the knowledge (Table 3.3).

Table 3.3: Score assigned to each item of the knowledge and its classification criteria for TBA and VHSG

| No | Statement | Score |
|---|---|---|
| 1 | Pregnant at old age | 1 |
| 2 | Pregnant at young age | 1 |
| 3 | The pregnant woman is too tall | 1 |
| 4 | Pregnant woman who is fat | 0 |
| 5 | Pregnant woman is too short | 1 |
| 6 | Already has many children | 1 |
| 7 | Bleeding during the pregnancy | 1 |
| 8 | Swelling during the pregnancy | 1 |
| 9 | Convulsion during the pregnancy | 1 |
| 10 | High fever and chills when pregnant | 1 |
| 11 | Amniotic broke before labour pain | 1 |
| 12 | Pregnant woman has Anaemia | 1 |
| 13 | Severe headache | 1 |
| 14 | Vomit too many times during pregnant | 1 |
| 15 | Pregnant woman has history of Caesarean Section | 1 |
| 16 | All kinds of food and drinks with high protein | 1 |
| 17 | All kind of food and drinks with provide energy | 1 |
| 18 | All kind of food and drink with high alcohol concentration | 0 |
| 19 | All kind of food with high iron and Vitamin | 1 |
| 20 | Lift heavy things | 1 |
| 21 | Working too hard | 1 |
| 22 | Smoking | 1 |
| 23 | Expose pesticide/insecticide | 1 |
| 24 | Drinking alcohol | 1 |
| 25 | Take medicines without doctor's prescription | 1 |
| 26 | Severe headache | 1 |
| 27 | Convulsion | 1 |
| 28 | Blur vision | 1 |
| 29 | High Blood Pressure | 1 |
| 30 | Swelling on the legs | 1 |
| 31 | Vaginal bleeding | 0 |

Table 3.3: Score assigned to each item of the knowledge and its classification criteria for TBA and VHSG (cont.)

| No | Statement | Scoring |
|---|---|---|
| 32 | Give chest compression | 0 |
| 33 | Give mouth-to-mouth ventilation | 1 |
| 34 | Give bag-to-mouth ventilation | 1 |
| 35 | Hit baby's buttock gently | 0 |
| 36 | Do chest compression | 0 |
| 37 | Provide Oxygen by giving air ventilation | 1 |
| 38 | Give CPR | 1 |
| 39 | Hit the baby so that he/she cry | 0 |
| 40 | Do chest compression | 0 |
| 41 | Provide Oxygen by giving air ventilation | 1 |
| 42 | Give CPR | 1 |
| 43 | Hit the baby so that he/she cry | 0 |
| | Total possible score : 0-34 | |
| | Grouping Criteria | |
| | Total score less than 20 score (<60%) | Poor |
| | Between 20-27 (60%-80%) | Fair |
| | Score more than 27 (>80%) | Good |

Form 3, for midwives and medical assistants at the health centre. The first six items was general information of the informants. The second part of the questionnaires consisted of total of 23 items related to knowledge, five items related to practices and eight items related to general information related to the project (Table 3.4).

Table 3.4: Score assigned to each item of the knowledge and its classification criteria for medics and midwives

| General Knowledge | Score |
|---|---|
| Knowledge about seeking help when faced problem | |
| Operational District Authority | 1 |
| Technical Office at province | 1 |
| Technical Office at district | 1 |
| Health Centre staff | 1 |
| Private clinic | 1 |
| Knowledge of Eclampsia | |
| High BP | 1 |
| Convulsion | 1 |
| Some vaginal bleeding | 0 |
| Severe headache | 1 |
| High Protein in urine | 1 |
| Blur vision | 1 |
| Treatment of eclampsia at the health centre | |
| Diazepam, Magnesium and Recovery position | 1 |
| Diazepam, Magnesium | 1 |
| Diazepam | 1 |
| Hydralazine | 1 |
| Knowledge of Control Bleeding | |
| Condom Temponade | 1 |
| Aorta Compression | 1 |
| Use medicine Cytotec | 1 |
| Oxytocine | 1 |
| Knowledge of Cytotec Dose | |
| Oral | 0 |
| Minimum Dose 3 | 0 |
| Maximum Dose 9 | 0 |
| Rectal | 1 |
| Minimum Dose 3 | 1 |
| Maximum Dose 9 | 1 |
| Knowledge about RPC | |
| Give CPR by 2 Blows: 30 Chest compression | 1 |
| Give CPR by 2 Blows: 15 Chest compression | 1 |
| Give CPR by 1 Blow: 15 Chest compression | 0 |
| The possible total score is 0-23 | |
| Grouping Criteria | |
| > 18 (or greater than 80%) is Good | |
| 14-18 (60% to 80%) is Fair | |
| <14 (Less than 60%) is Poor | |

### 3.2.8 Data Analysis

#### 1) Quantitative study

The data entry software, Epidata 3.1 was used to entry the collected data. Checking and cleaning of data were made prior to the exporting the data for analysis.

#### 2) Statistics

For the descriptive data was calculated by percentage, mean and standard deviation of general characteristic, knowledge and practices. For the Inferential Statistics, Chi-square testes were used for comparison of the level of knowledge of the samples from different study sites. The significance level was set at 5%.

### 3.2.9 Validity

The contents validity was checked with the experts of the training and the project manager. The verification with the training manual established for the training program, has been made prior to the data collection process. The corrections and revisions of the questionnaires have been made according to suggestions and recommendations from the experts and supervisors.

### 3.2.10 Qualitative Interview

A qualitative interview is more than just an everyday conversation that people communicate to each other. In this study, the researcher used formal discussion with the selected informants while collecting the quantitative data. It is a research tool that requires good preparation and some skilful interviewers. Major topics to be covered in the interviewing session must be well layout in advance. From the interview we can also generate the insights and additional concepts from the key informants regarding the impact of the project on the community and individual (33, 34).

In the field, notes were taken when interviewing the informants and well as digitally recorded the conversation, and summarized key themes into English by the researcher. The researcher clearly understood that the background, perceptions, position and knowledge of his/her individual on general scope of the project could

have had the effects on the information and the possible result of the interview, as suggested by Malterud and colleagues (33).

The researcher used the phenomenological approach for analyzing the qualitative data. The phenomena used to explore the knowledge, experiences, ability and usefulness of referral system and networking of TBA, VHSG and health personnel at rural setting. The data from the individual interviews were to identify the key concepts of meaning and identification of key concepts of meaning were unclear we conducted supplementary interviews with the informants. The three study sites were compared with regards to the key concepts of meaning: differences and similarities were described and discussed. In the discussion the strength of the study was evaluated using the standard indicators of qualitative studies: validity and generalisability of the findings.

## 3.3 The Ethical Issue

The existing data, the project has been approved by the Cambodian National Ethic Committee for Health Research at the beginning of the project. For the ethical issues, all data with names and other personal identification will be made anonymous, using identification number instead, before analyzing. Data collected has been kept in safe place under the supervision of main researcher and the organization where the researcher is working with. The access to the information was limited to those who are in the research team in the organization.

The collection of the primary data collected after the proposal approved by Ethical Review Committee for Human Research of the Faculty of Public Health, Mahidol University certificate of approval number COA.No. MUPH 2013-025.

Confidentiality was very important in research related to human, therefore no identification of the informant exist on the data collection form. The identification number will be used in the data collection form. All data collection forms were kept in locked cabinet at the researcher’s workplace. The data will be destroyed three after the project completed.

# CHAPTER IV
# RESULTS

The existing data for the study included 10,416 mothers and 10,518 babies cases collected between 2005 through 2009 from the three catchment areas. The primary data collected from the study sites included 274 respondents, 129 of the respondents were village women who has at least one baby born during the project period, 116 of them were village health support group and the traditional birth attendants and 29 of them were medics and midwives at the health centre.

The structure of the results is presented in two different parts, Part one covered the results from the quantitative data and part two covered the result from the qualitative interviews.

In part one the presentation comprised of:

1) The trend of maternal mortality in the project catchment areas
2) The trend of perinatal and neonatal mortality in the project areas
3) The result from midwives and medics
4) The result from TBA and VHSG
5) The result from the village women

Part two presentation comprised of major themes from the qualitative interview which were:

6) The role of TBA and VHSG at the village setting
7) The Importance of the referral system from village
8) The changes of practice among pregnant women at village on maternal care.

## 4.1 Maternal, perinatal and early neonatal mortality

### 4.1.1 Maternal mortality in the project area

#### 1) The general characteristics of women from existing data

Total of 10,416 village women registered during the study period of 2005 through 2009, among those 4449 were from Sampov Luon operational district, and 3385 were from Pailin Province, 2419 were from Samlot. There were 163 cases recorded as unknown district due to the missing information. There were around 63.6% of the women registered during the study period were in the age of 20 to 34 years old. The women age lower than 20 years accounted for 19.5% and those who were older than 35 years of age accounted for about 23.4% (Table 4.1).

Table 4.1: The general characteristic of 10, 416 women presented with mean age and its 95% CI

| Characteristic | Deliveries | | Age | | 95% CI | |
|---|---|---|---|---|---|---|
| | Number | Percent | Mean | SD | LL | UL |
| Study sites | | | | | | |
| Unknown District | 163 | 1.6 | 25.7 | 6.4 | 24.7 | 26.6 |
| Sampov Luon | 4449 | 42.7 | 26.5 | 6.7 | 26.3 | 26.7 |
| Pailin | 3385 | 32.5 | 26.8 | 6.9 | 26.6 | 27.1 |
| Samlot | 2419 | 23.2 | 26.7 | 7.2 | 26.5 | 27.0 |
| Year | | | | | | |
| 2005 | 1191 | 11.4 | 27.0 | 7.1 | 26.6 | 27.5 |
| 2006 | 1912 | 18.4 | 27.1 | 7.2 | 26.8 | 27.4 |
| 2007 | 3211 | 30.8 | 26.7 | 6.9 | 26.5 | 27.0 |
| 2008 | 1661 | 15.9 | 26.4 | 6.7 | 26.1 | 26.8 |
| 2009 | 2441 | 23.4 | 26.2 | 6.5 | 26.0 | 26.5 |
| Age groups | | | | | | |
| < 20 | 2034 | 19.5 | | | | |
| 20-34 | 6620 | 63.6 | | | | |
| >35 | 1762 | 16.9 | | | | |

SD: Standard Deviation, LL: Lower Limit, UL: Upper Limit

Number of women registered in the study period by year indicated that about one-third of them (30.8%) were registered in 2007 and minimum number women registered were in 2005, which accounted for about 11.4% of the women in the study (Table 4.1).

### 2) Maternal mortality ratio (MMR)

The maternal mortality ratio (MMR) is defined as number of maternal deaths per 100,000 live-births. However, the population in the study was small therefore; the MMR here is reported per 1000 deliveries.

The repeated registration of maternal deliveries and registration babies born were recorded from 2005 through 2009, after implementation of a pre-hospital obstetric emergency and trauma training program among traditional birth attendants and professional health personnel. Maternal mortality was reduced from 5.74 per 1000 women in 2005 to 1.22 per 1000 deliveries in 2009.

The majority of deliveries took place at health facility and assisted by health personnel, accounted for more than 6401 deliveries. The reduction in maternal mortality was highest among the women delivered at home with TBA, from 20.06 to 1.63 per 1000 deliveries during the same period (Table 4.2 and Figure 4.1).

Table 4.2: MMR per 1000 deliveries from 2005 to 2009 of the project by type of attendants and study sites

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Attendants | | | | | |
| TBA | 20.06 | 13.45 | 4.69 | 5.07 | 1.63 |
| Midwives | 0.00 | 3.74 | 1.31 | 0.92 | 1.08 |
| Study Sites | | | | | |
| Sampov Luon | 4.76 | 11.82 | 2.73 | 1.34 | 2.34 |
| Pailin | 9.88 | 8.81 | 5.32 | 4.83 | 0.00 |
| Samlot | 0.00 | 3.13 | 1.45 | 0.00 | 0.00 |
| Total | 5.74 | 7.73 | 3.10 | 2.38 | 1.22 |

In Figure 4.1 below showed the comparison of the trend of MMR by types of attendant and the total of MMR during the project period.

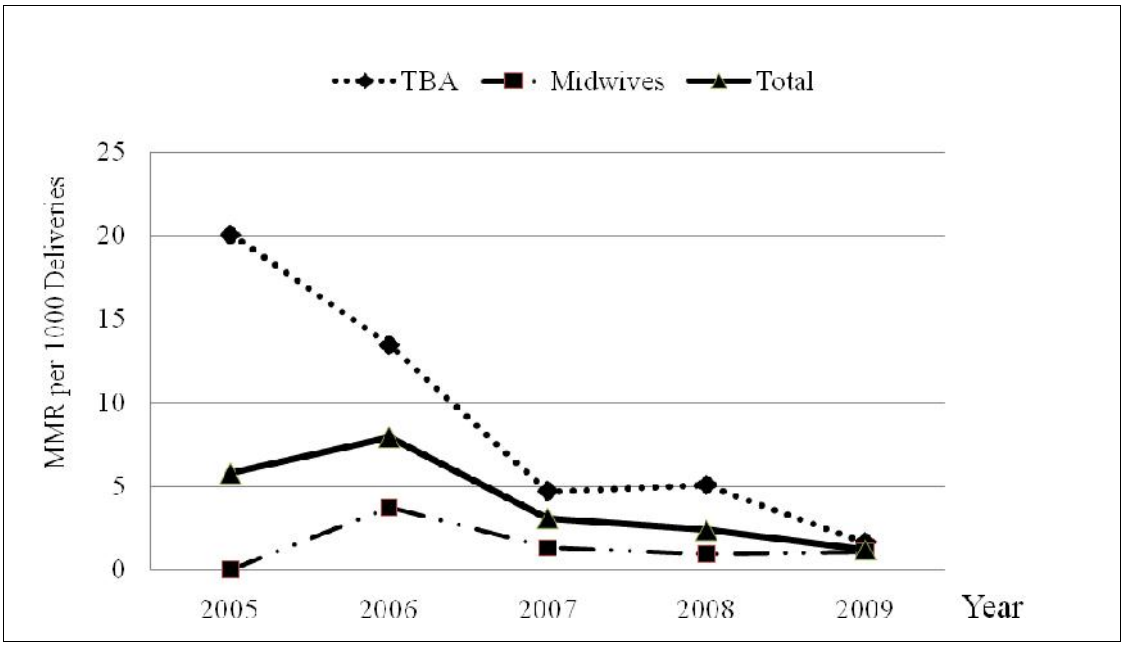


Figure 4.1: MMR per 1000 deliveries from 2005 to 2009 of the project by type of attendants

During the project period, Sampov Luon district has had more deliveries recorded, about 43.5% of all records, followed by 33.0% in Pailin and about 23.5% in Samlot district. The comparison of the MMR among the three study sites indicated that it is significant difference at the 95% confidence level (p-value = 0.029).

The majority of the deliveries were under the care of health personnel, which was accounted for 60.9% of all deliveries during the project period. But, the majority of the maternal death cases occurred with the deliveries at home assisted by the TBA, accounted for 76.9% (n=39). It was found that the MMR is significantly higher among the cases delivered with TBA than the cases with the health personnel, (p-value <0.001). The risk of dying when delivered with TBA at the village was about five times higher than delivered with the health personnel (OR= 5.3, 95% CI: 2.6 to 11.7)

Table 4.3: Comparison of MMR per 1000 deliveries from 2005 to 2009 by study sites and by type of attendants

| | Total deliveries | Maternal deaths | | p-value |
|---|---|---|---|---|
| | | Number | MMR | |
| Total | 10538 | 39 | 3.70 | |
| Study Sites | | | | |
| Sampov Luon | 4507 | 17 | 3.77 | 0.029 |
| Pailin | 3419 | 19 | 5.56 | |
| Samlot | 2439 | 3 | 1.23 | |
| Unknown | 173 | 0 | 0.00 | |
| Birth attendants | | | | |
| TBA | 3997 | 30 | 7.51 | <0.001 |
| Health Personnel | 6308 | 9 | 1.43 | (OR:5.3) |
| Unknown | 233 | 0 | 0.00 | |
| Age groups (years) | | | | |
| < 20 | 1212 | 1 | 0.83 | <0.001 |
| 20-34 | 7442 | 17 | 2.28 | |
| > 35 | 1762 | 21 | 11.92 | |
| Unknown | 122 | 0 | 0.00 | |
| Year | | | | |
| 2005 | 1220 | 7 | 5.74 | 0.004 |
| 2006 | 1940 | 15 | 7.73 | |
| 2007 | 3231 | 10 | 3.10 | |
| 2008 | 1682 | 4 | 2.38 | |
| 2009 | 2465 | 3 | 1.22 | |

There was a reduction in MMR in all study sites of the project catchment areas. In Sampov Luon district the MMR was reduced from 4.76 in 2005 to 1.34 per 1000 deliveries in 2009. However, there was a sharp increased of MMR in Sampov Luon district in 2006 which was around 11.82 per 1000 deliveries.

In Pailin the MMR was high at the beginning of the project in 2005 which was around 9.88 per 1000 deliveries. The MMR was reduced to zero in 2009. In Samlot district, at the start of the project there was no maternal death case recorded. However, in 2006 the MMR was reported to be around 3.13 per 1000 deliveries and was reduced to zero in 2009 (Figure 4.2).

The MMR was highest in the age group of higher than 35 years of age. The age was classified into three groups, lower than 20 years, 20 to 34 and above 35.

It was found that the MMR was a significant difference among the three age groups at the confidence level of 95%, (p-value < 0.001). The higher the age of the pregnant women were, the higher the MMR.

Figure 4.2 showed the comparison of the MMR by study sites during the project period. The MMR of each year of the project period was significantly reduced from 5.75 in 2005 to 1.22 per 1000 deliveries in 2009 (p-value=0.004).

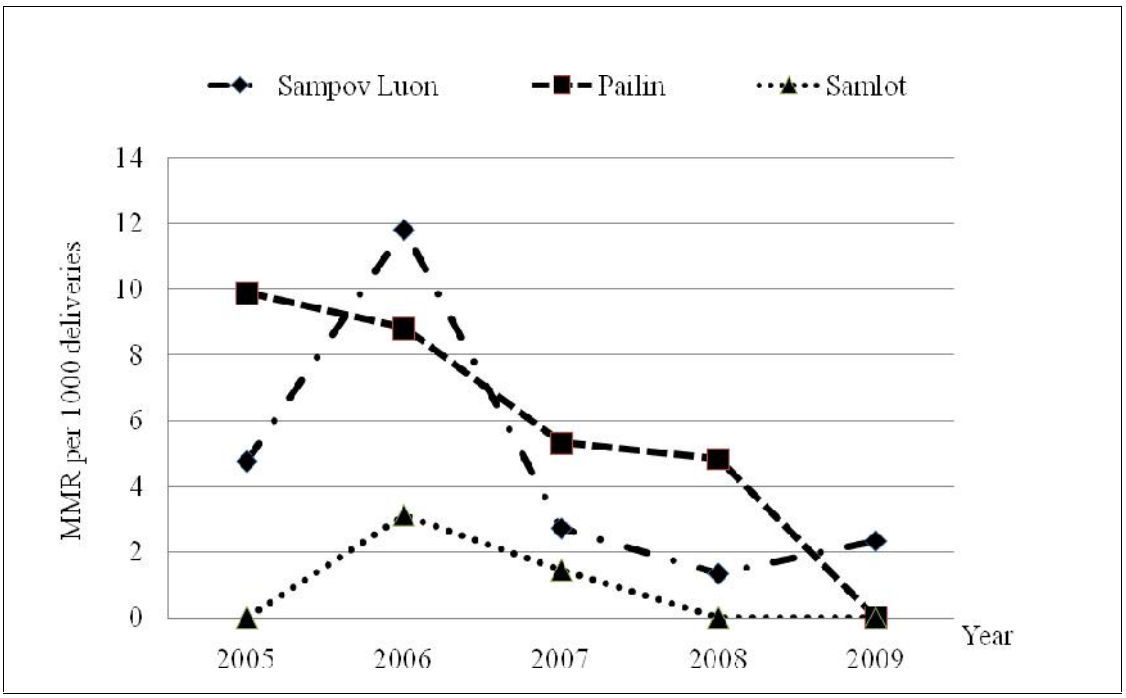


Figure 4.2: MMR per 1000 deliveries from 2005 to 2009 in each project catchment area

### 4.1.2 Perinatal and early neonatal mortality

#### 1) Characteristic of babies

From the existing data, among all the babies born more than half (57.9%) were delivered by skilled birth attendants at the health facilities, and about 42.1% were delivered at home in the village assisted by the traditional birth attendants. Among the number of babies born in the project period, at the year 2007 accounted for the highest amount, about one-third of the total babies born (Table 4.4).

In the same year, 2007, the number of baby born with the TBA was as higher as 55.3% of the total babies where the babies born with the health personnel was about 44.7%.

Table 4.4: The distribution of 10, 518 babies by year and places of delivery

| Year | Total babies | Place of delivery | | | |
|---|---|---|---|---|---|
| | | Home | | Health facility | |
| | | Number | Percent | Number | Percent |
| 2005 | 1262 | 426 | 33.8 | 836 | 66.2 |
| 2006 | 1947 | 926 | 47.6 | 1021 | 52.4 |
| 2007 | 3438 | 1902 | 55.3 | 1536 | 44.7 |
| 2008 | 1966 | 695 | 35.4 | 1271 | 64.6 |
| 2009 | 1905 | 474 | 24.9 | 1431 | 75.1 |
| Total | 10518 | 4423 | 42.1 | 6095 | 57.9 |

**2) Perinatal mortality ratio (PMR)**

The perinatal mortality ratio was defined as the total number of deaths of stillbirths and the deaths of newly born baby in the first week of life per 1000 live births in that period. There was a reduction in the PMR in the project areas from 43.13 in 2005 to 8.04 per 1000 live births in 2009. The majority of the reduction was occurred with those who delivered with TBA at home. It was from 41.99 in 2005 to 4.29 per 1000 live births in 2009. For those women who delivered with the health personnel, the reduction was from 43.72 in 2005 to 9.29 per 1000 live births in 2009 (Figure 4.3).

Table 4.5: Perinatal mortality ratio (PMR) per 1000 live births by place of delivery and by year of delivery

| Place of delivery | Year | | | | |
|---|---|---|---|---|---|
| | 2005 | 2006 | 2007 | 2008 | 2009 |
| Home | 41.99 | 29.78 | 17.69 | 20.68 | 4.29 |
| Health Facility | 43.72 | 38.82 | 22.68 | 21.76 | 9.29 |
| Total | 43.13 | 34.5 | 19.92 | 21.38 | 8.04 |

The graph below indicated the pattern of the PMR by place of the delivery, hone and health facility and the total by year.

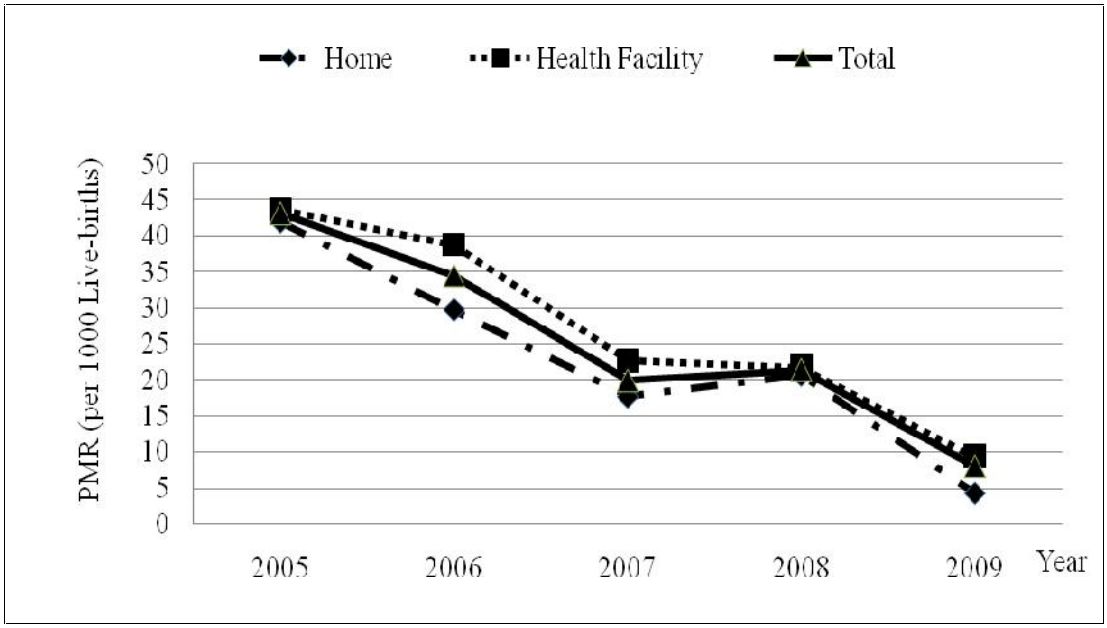


Figure 4.3: PMR per 1000 live from 2005 to 2009 by place of delivery

Table 4.6: Comparison of PMR per 1000 live-births by place of delivery and by year of delivery

| | Total babies | Perinatal deaths | | p-value |
|---|---|---|---|---|
| | | Number | PMR | |
| Place of delivery | | | | |
| Home | 4423 | 91 | 20.57 | 0.102 |
| Health facility | 6095 | 143 | 23.46 | |
| Year | | | | |
| 2005 | 1113 | 48 | 43.13 | < 0.001 |
| 2006 | 1826 | 63 | 34.50 | |
| 2007 | 3364 | 67 | 19.92 | |
| 2008 | 1918 | 41 | 21.38 | |
| 2009 | 1866 | 15 | 8.04 | |

Comparison of the PMR among those babies who delivered at home and those who delivered at the health facilities indicated that the PMR was not significant difference at the 95% confidence level, (p-value=0.102) as indicated in Table 4.6. However, comparison of the PMR by year of the project indicated a significant reduction from 43.13 in 2005 to 8.04 per 1000 in 2009, (p-value < 0.001).

**3) Early neonatal mortality ratio (Early NMR)**

The early neonatal deaths referred to a death of a live-born baby within the first seven days of life. In this study, the records provided only the death within the first week of life only. Excluding the stillbirth, the total number of babies registered during the project period was 10,232. The lowest numbers registered were in 2005 which accounted for 11.3% of the total. The highest numbers registered were in 2007 which were around 33.1%. In 2006, 2008 and 2009 were not much different which were around 18.5%, 18.9% and 18.2% respectively. Among the newly born babies, there were around 57.8% delivered at the health facilities and 42.2% delivered with the TBA at home in the village.

Table 4.7 showed the comparison of the NMR among the babies delivered at home and those who delivered at the health facility during the project period. There was no significant difference at the significance level of 95%, (p-value = 0.289).

Table 4.7: Comparison of NMR per 1000 live-births by place of delivery

| | Total babies | Neonatal death | | p-value |
|---|---|---|---|---|
| | | Number | NMR | |
| Place of delivery | | | | |
| Home | 4317 | 90 | 20.85 | 0.289 |
| Health facility | 5915 | 142 | 24.01 | |
| Year | | | | |
| 2005 | 1112 | 48 | 43.17 | <0.001 |
| 2006 | 1825 | 63 | 34.52 | |
| 2007 | 3321 | 65 | 19.57 | |
| 2008 | 1892 | 41 | 21.67 | |
| 2009 | 1850 | 15 | 8.11 | |

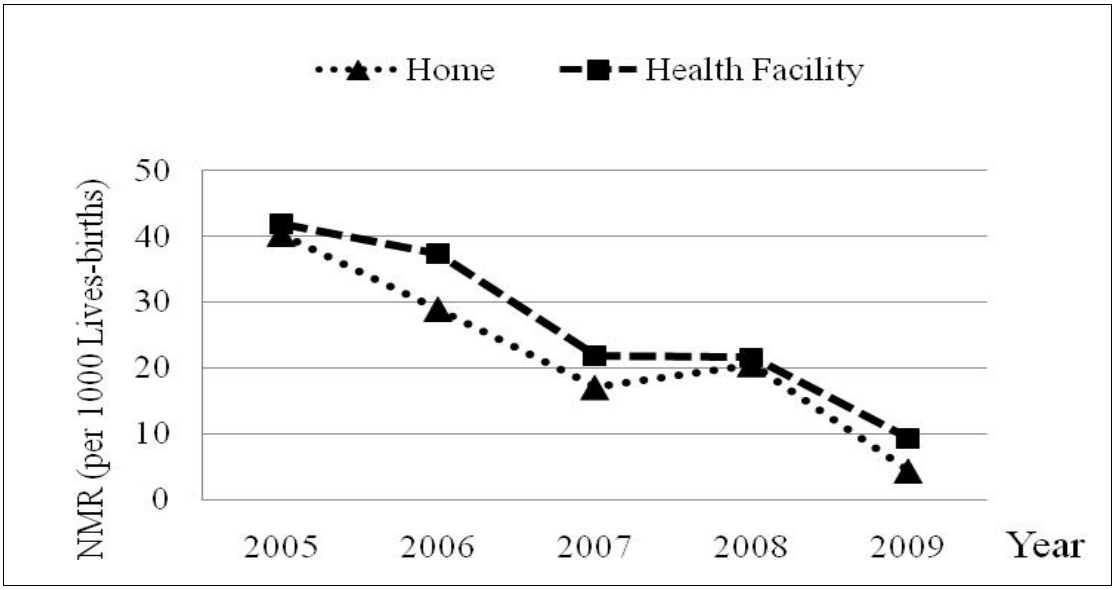


Figure 4.4: NMR per 1000 live-births from 2005 to 2009 by place of delivery

The comparison of the NMR in each year of the project period indicated that there was reduction from 43.17 in 2005 to about 8.11 per 1000 live births in 2009. At the significance level of 95%, the reduction indicated a significant difference from year to year (p-value < 0.001).

## 4.2 The knowledge among the stakeholders

### 4.2.1 The medics and midwives

#### 1) General characteristics of medics and midwives

There were 29 of them recruited into the study from total of 14 health centres in the three catchment areas of the project, 15 of them were medics and 14 of them were midwives. The age of the midwives was slightly lower than their medic's colleagues, with the mean age of 44.6 years (SD: 9.2) compared to only 47.7 years (SD: 9.4). The youngest was 24 and the oldest among the recruited was 58 years old. More than half of the samples recruited for the study in this group were from Sampov Luon district. The medics and midwives from Samlot district were slightly older compared to the medics and midwives from other districts (Table 4.8).

Table 4.8: General characteristic of 29 medics and midwives

| | Number | Percent | Age (year) | | |
|---|---|---|---|---|---|
| | | | Min | Max | Mean (SD) |
| Gender | 29 | 100.0 | 24 | 58 | 46.2 (9.3) |
| Male | 14 | 48.3 | 24 | 58 | 47.0 (9.2) |
| Female | 15 | 51.7 | 24 | 57 | 45.5 (9.6) |
| Type of health personnel | | | | | |
| Midwife | 15 | 48.3 | 24 | 57 | 45.5 (9.6) |
| Medics | 14 | 51.7 | 24 | 58 | 47.0 (9.2) |
| Study Sites | | | | | |
| Sampov Luon | 15 | 51.7 | 24 | 57 | 44.1 (8.4) |
| Pailin | 6 | 20.7 | 30 | 57 | 47.3 (9.4) |
| Samlot | 8 | 27.6 | 24 | 58 | 49.4 (10.7) |

**2) Knowledge of medics and midwives on emergency obstetric care**

Table 4.9 presented the overall correct answers to each item of the knowledge among the midwives and medics. Regarding the general knowledge of seeking for advices when facing any problems of complicated deliveries case at the health, the majority of them, 58.6%, chose to discuss with the colleagues at the health centre and followed by the seeking advices from the technical office at the health operational district. The result indicated that there was tendency of not seeking advice from the private clinic at all when they faced complicated delivery cases.

Almost all of them had scored high on the knowledge of the signs and symptoms of the pre-eclampsia and eclampsia. Regarding the knowledge of control bleeding after the delivery, most of them scored high on all the items in this question, about 89.7 % chose to use the aorta compression for reducing and controlling the bleeding after delivery. Following the aorta compression was that to use Oxytocine was about 79.3% (Table 4.9)

The possible total score of the knowledge of all items in this group is 0 to 23. The overall mean of the total score is 16.0 (SD: 2.8) and the minimum of 10 and maximum 20. The result indicated the levels of knowledge of the majority of them needs to be refreshed. The overall level of the knowledge on the items of signs and symptoms of eclampsia, the majority of them were at good level, 93.5% for the midwives and 92.9% among the medics. However, for the treatment of the disease, all of them need refreshment. The knowledge on using Cytotec for

treatment of bleeding, 66.7% of midwives had good level of knowledge on the item, where medics were at 78.6%. The overall knowledge about control bleeding and airway control, all of them need further refreshment on the topics (Table 4.10).

Table 4.9: Number and percentage of correct answers on knowledge of 14 medics and 15 midwives

| Statement | Answer correctly | |
|---|---|---|
| | Number | Percent |
| Knowledge about seeking help when faced problem | | |
| Operational District Authority | 10 | 34.5 |
| Technical Office at province | 9 | 31.0 |
| Technical Office at district | 11 | 37.9 |
| Health Centre staff | 17 | 58.6 |
| Not going to private clinic | 28 | 96.6 |
| Knowledge of Eclampsia | | |
| High BP | 28 | 96.6 |
| Convulsion | 28 | 96.6 |
| Severe headache | 28 | 96.6 |
| High Protein in urine | 28 | 96.6 |
| Blur vision | 28 | 96.6 |
| Treatment of eclampsia at the health centre | | |
| Diazepam, Magnesium and Recovery position | 12 | 41.4 |
| Hydralazine | 7 | 24.1 |
| Diazepam | 1 | 3.4 |
| Knowledge of Control Bleeding | | |
| Aorta Compression | 26 | 89.7 |
| Oxytocine | 23 | 79.3 |
| Use medicine Cytotec | 14 | 48.3 |
| Knowledge of Cytotec Dose | | |
| Not orally use | 29 | 100.0 |
| Not 3 tablets for minimum Dose | 29 | 100.0 |
| Not 9 tablets for maximum Dose 9 | 29 | 100.0 |
| Rectal | 27 | 93.1 |
| Minimum Dose 3 | 21 | 72.4 |
| Maximum Dose 9 | 22 | 75.9 |
| Knowledge about RPC | | |
| Give CPR by 2 Blows : 30 Chest compression | 10 | 34.5 |
| Not give CPR by 2 Blows : 15 Chest compression | 29 | 100.0 |
| Not give CPR by 1 Blow : 15 Chest compression | 29 | 100.0 |

Table 4.10: The comparison of level of knowledge by study sites and type of skills of 29 medics and midwives

| Level of knowledge | Total (29) | | study sites | | | | | | Type of skills | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sampov Luon | | Pailin (6) | | Samlot (8) | | Midwives(15) | | Medics (14) | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Knowledge about seeking help | | | | | | | | | | | | |
| Good | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Need Refreshment | 29 | 100.0 | 15 | 100.0 | 6 | 100 | 8 | 100.0 | 15 | 100.0 | 14 | 100.0 |
| Knowledge on Eclampsia | | | | 0.0 | | 0 | | 0.0 | | 0.0 | | 0.0 |
| Good | 28 | 96.6 | 14 | 93.3 | 6 | 100 | 8 | 100.0 | 14 | 93.3 | 14 | 100.0 |
| Need Refreshment | 1 | 3.4 | 1 | 6.7 | 0 | 0 | 0 | 0.0 | 1 | 6.7 | 0 | 0.0 |
| Knowledge on treat Eclampsia | | | | | | | | | | | | |
| Good | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Need Refreshment | 29 | 100.0 | 15 | 100.0 | 6 | 100 | 8 | 100.0 | 15 | 100.0 | 14 | 100.0 |
| Knowledge on Bleeding Control | | | | | | | | | | | | |
| Good | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Need Refreshment | 29 | 100.0 | 15 | 100.0 | 6 | 100 | 8 | 100.0 | 15 | 100.0 | 14 | 100.0 |
| Knowledge on Cytotec use | | | | | | | | | | | | |
| Good | 21 | 72.4 | 9 | 60.0 | 6 | 100 | 6 | 75.0 | 10 | 66.7 | 11 | 78.6 |
| Need Refreshment | 8 | 27.6 | 6 | 40.0 | 0 | 0 | 2 | 25.0 | 5 | 33.3 | 3 | 21.4 |
| Knowledge on CPR | | | | | | | | | | | | |
| Good | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Need Refreshment | 29 | 100.0 | 15 | 100.0 | 6 | 100 | 8 | 100.0 | 15 | 100.0 | 14 | 100.0 |

### 3) Practice for medics and midwives

In general, the most common mean of transport from the village to the health centre, identified by medics and midwives, was the motorbike; it represented about 75.9% of the respondents in the study. Where the most common mean of transport to the referral hospital was ambulance, 51.7% followed by the taxi or paid vehicle, accounted for 48.3%.

All of the midwives and medics indicated that the meeting with TBA and VHSG was very important. Among the 29 participants in the study indicated that had the experience of having problem delivery at the health centre. Among those who had the experience of having problems during delivery at the health centre, all of them have seek for advice from their health centre colleagues, followed by seeking for advice from the technical office at the operational district office (Table 4.11).

All participants in the study experienced the running out of emergency stock for delivery at health centre. To solve the problem and resupplying all of them requested to the TCFC and to the other partner organizations, 91.7%, and then buy at the market, 41.4%. Among 29 medics and midwives, 27 of them experienced the running out emergency materials and stock at health centre. To solve this problem all of them who had the experience, opted to request to TCFC, followed by requesting to other partner organization, 81.5%, then buying at the market, 70.4% (Table 4.11).

More than half, 55.2%, of the respondents experienced the complicated delivery cases at the health centre. The majority of the complicated cases were bleeding after delivery, 87.5%, followed by the placenta previa and retention. Among the 29 respondents, 13 of them had the experiences of pre-eclampsia and eclampsia cases in the previous year. The majority of them, 92.3%, chose to treatment by using proper treatment protocol, i.e. use Diazepam, Magnesium and put the woman in recovery position. The second option used was to use Hydralazine for treatment of pre-eclampsia and eclampsia cases (Table 4.11).

The majority of the respondents had the experience of bleeding cases after delivery within the previous year. All of them used aorta compression to help reduce the bleeding, and then followed by using the Oxytocine, 88.5% and the

Cytotec accounted only 53.8%. When the women have no breathing during delivery of complicated case, the health centre midwives and medics used the proper protocol of cardio-pulmonary resuscitation (CPR) with the rate of 2 air ventilations to 30 chest compressions (Table 4.11).

Table 4.11: Accessibility to health facility, experiences of complicated deliveries, treatment of complicated deliveries and materials supplies of 29 medics and midwives

| Experiences and practices | Number | Percent |
|---|---|---|
| Common transport to HC | | |
| Taxi or paid vehicle | 7 | 24.1 |
| Motorbike | 22 | 75.9 |
| Common transport RH | | |
| Taxi or paid vehicle | 14 | 48.3 |
| Ambulance | 15 | 51.7 |
| Importance of quarterly meeting | 29 | 100.0 |
| Faced complicated delivery at HC last year | | |
| No | 12 | 41.4 |
| Yes | 17 | 58.6 |
| *Type of complication* | | |
| *Bleeding* | *14* | *82.4* |
| *Placenta previa* | *10* | *58.8* |
| *Placenta Retention* | *10* | *58.8* |
| *Obstructed Labor* | *7* | *41.2* |
| *Breech delivery* | *7* | *41.2* |
| *Twins* | *6* | *35.3* |
| *Disproportion of baby and pelvic cavity* | *1* | *5.9* |
| Seeking for advise when faced complicated delivery (n=17) | | |
| Operational District authority | 10 | 58.8 |
| Technical Office at Province | 9 | 52.9 |
| Technical office at OD | 11 | 64.7 |
| Discuss with HC staff | 17 | 100.0 |
| Experience on run out of delivery stock at HC and solution | 29 | 100.0 |
| Request TCFC | 29 | 100.0 |
| Request to other NGO partner | 11 | 91.7 |
| Buy from market | 12 | 41.4 |

Table 4.11 Accessibility to health facility, experiences of complicated deliveries, treatment of complicated deliveries and materials supplies 0f 29 medics and midwives (cont.)

| Experiences and practices | Number | Percent |
|---|---|---|
| Emergency kits running out of stock at HC | | |
| No | 2 | 6.9 |
| Yes | 27 | 93.1 |
| *Resupplying from* | | |
| *Request to TCFC* | *27* | *100.0* |
| *Buy from market* | *19* | *70.4* |
| *Request to other NGO partner* | *22* | *81.5* |
| Experience on eclampsia treatment | | |
| No | 16 | 55.2 |
| Yes | 13 | 44.8 |
| *Diazepam, Magnesium and Recovery position* | *12* | *92.3* |
| *Hydralazine* | *7* | *53.8* |
| *Diazepam* | *1* | *7.7* |
| Experience on treatment of bleeding | | |
| No | 3 | 10.3 |
| Yes | 26 | 89.7 |
| *Aorta Compression* | *26* | *89.7* |
| *Oxytocine* | *23* | *79.3* |
| *Use Cytotec* | *14* | *48.3* |
| Experience of meeting women with no breathing | | |
| No | 18 | 62.1 |
| CPR with rate of 2:30 | 11 | 37.9 |

**4) General perception of medics and midwives**

The maternal care at the health centre has been involved with the TBA and VHSG from the beginning of the project. Therefore the involvement from them was important for the midwives and medics at the health centre. There were around 41.4% of the medics and midwives were very satisfied and about 58.6 % of them said that they satisfied on the supports given by the TBA at the village on the maternal care. For the support of VHSG provided to health centre on the maternal care, about 37.9% of the medics and midwives were very satisfied and 62.1% of them satisfied on those support from the VHSG. In addition to that the majority of them were satisfied on this referral system approaches. Regarding the supplying of the

emergency materials for delivery kits at the health were satisfied with the way the organization is running at the moment.

Table 4.12: Satisfaction of 29 medics and midwives on service of TBA and VHSG at the village

| | Number | Percent |
|---|---|---|
| Satisfaction to TBA service | | |
| Very satisfied | 12 | 41.4 |
| Satisfied | 17 | 58.6 |
| Satisfaction to VHSG service | | |
| Very satisfied | 11 | 37.9 |
| Satisfied | 18 | 62.1 |
| Satisfied to referral systems | 21 | 72.4 |
| Satisfy to the supplying of TCFC | 26 | 89.7 |

From the formal discussion with the medics and midwives in some of the health centres in the study sites indicated that there were changes with the roles and responsibilities of the TBAs and VHSGs at the village level regarding the referral of pregnant women to use the delivery services at health facility. TBAs were taking the role of referring the pregnant women and other people in the village to health centre, which was similar to what the VHSGs. There were some establishment at the village level on the referral system by the international organizations operating in the area. The TBAs and VHSGs have been given some referral paper so that they can issue the paper to the pregnant women to go for the ANC check up at the health centre. Those women who had the referral card and had completed the ANC check up as per required on the referral, they will be free of charge for delivery service at the health centre. This is encouraged the village women to take the ANC check up more seriously. There were an increased numbers of women come for ANC check at the health centre as midwife, and therefore increased the delivery service at health centre, ID03 had said...

*".. the women know a lot more. It can be reflect in turning up for ANC check up at our heath centre. Not same as before, now it is about 80 to 90% come to health centre. They know and understand more and more through the promotion*

*program. They know about the danger signs we show them. They understand how many times they should do the ANC check up"...*

However, there was some negative perception on the support of the TBAs and VHSG by the health personnel. The TBAs were still provide the delivery service at home for some benefits but claiming that they did so because the labour pain was so fast that they were not able to refer the women to the health centre on time.

As stated by medic ID 02*: "....there is an increase in the number of deliveries at the health facility, but to say that it completely clear from delivery at the village, we cannot. There are still cases delivered at the village. We can see through the vaccination campaign that in some village, the TBAs are still providing the delivery service. When asked what reasons for providing the service at home were; they (the TBA) argued that due to the rapidness of the labour pain of the woman..."*

### 4.2.2 The TBA and VHSG

#### 1) General characteristics of TBA and VHSG

The traditional birth attendants (the TBA) and village health support group (VHSG) were the two important stakeholders in the project. In this study, the total of 116 of them was able to recruit. Among those, 62 were VHSG and 54 were TBA. The majority of this group were women, accounted for 87.9%. More than half of the samples of this group were from Sampov Luon district. The females were slightly older than males, with the mean age of 47.1 (SD: 12.6) years where the males only at 44 (SD: 11.3) years. The TBAs were older than the VHSG, the mean age of 54.2 (SD:8.0) compared to 40.3 (SD:12.0) years. The TBA and VHSG from Sampov Luon district were slightly older than those from the other two districts (Table 4.13).

Table 4.13: General characteristics of 116 TBA and VHSG

| | Number | Percent | Age (year) | | |
|---|---|---|---|---|---|
| | | | Min | Max | Mean (SD) |
| Gender | 116 | 100 | 21 | 73 | 46.8 (12.4) |
| Male | 14 | 12.1 | 21 | 58 | 44.0 (11.3) |
| Female | 102 | 87.9 | 21 | 73 | 47.1 (12.6) |
| Type of volunteer | | | | | |
| TBA | 54 | 46.6 | 33 | 73 | 54. 2 (8.0) |
| VHSG | 62 | 53.4 | 21 | 63 | 40.3 (12.0) |
| Study sites | | | | | |
| Sampov Luon | 64 | 55.2 | 21 | 73 | 47.5 (12.7) |
| Pailin | 29 | 25.0 | 21 | 66 | 47.4 (10.7) |
| Samlot | 23 | 19.8 | 23 | 65 | 43. 9 (14.0) |

**2) The general knowledge of TBAs and VHSGs on danger signs during pregnancy**

The overall correct answers to the knowledge around birth among 116 TBAs and VHSGs were presented in Table 4.14. Regarding the general knowledge of recognizing the danger signs of the pregnant women, the signs of bleeding during pregnancy, swelling during the pregnancy and women with anaemia were the three items of the knowledge that almost all of them, 90.5%, gave correct answers. About 82.8% of the people participated in the study indicated that fat was not the danger signs for pregnant women and about 78.4% of them indicated that leaking of amniotic fluid before the labour pain due was dangerous for pregnant women. The rest of the items only less than half of the participants gave the correct answers. There were about 82.8 % of answer on the fat is not a danger signs for the pregnant women, which was right answer. The project did not indicated that fat was a factors of danger during delivery. Knowledge on food and drinks, most of them were able to give correct answers. The negative item of the foods and drinks with alcoholic concentration was also able to obtain high percent of answering correctly.

General knowledge on the some do and don't during pregnancy, most of the items obtain high scores except the two items, exposed to insecticide and taking medicine without prescription from health personnel, obtain very low correct answers. Among the TBAs and VHSGs, general knowledge about the

airway block and management, the correct answers were low compared to the other items of knowledge (Table 4.14)

Table 4.14: The correct answers of the 116 TBA and VHSG on the knowledge items

| Statements | Answer Correctly | |
|---|---|---|
| | Number | Percent |
| Knowledge on danger signs | | |
| Pregnant at old age | 60 | 51.7 |
| Pregnant at young age | 59 | 50.9 |
| The pregnant woman is too tall | 41 | 35.3 |
| Fat not danger sign for pregnant women | 96 | 82.8 |
| Pregnant woman is too short | 56 | 48.3 |
| Already has many children | 59 | 50.9 |
| Bleeding during the pregnancy | 113 | 97.4 |
| Swelling during the pregnancy | 113 | 97.4 |
| Convulsion during the pregnancy | 42 | 36.2 |
| High fever and chills when pregnant | 41 | 35.3 |
| Amniotic broke before labor pain | 91 | 78.4 |
| Pregnant woman has Anemia | 105 | 90.5 |
| Severe headache | 32 | 27.6 |
| Vomit too many times during pregnant | 14 | 12.1 |
| Pregnant woman has history of caesarean section | 24 | 20.7 |
| Knowledge on food and drinks | | |
| All kinds of food and drinks with high protein | 114 | 98.3 |
| All kind of food and drinks with provide energy | 110 | 94.8 |
| Not consume food and drink with alcohol concentration | 115 | 99.1 |
| All kind of food with high iron and Vitamin | 116 | 100.0 |
| Knowledge on some do’s and don’t | | |
| Lift heavy things | 95 | 81.9 |
| Working too hard | 111 | 95.7 |
| Smoking | 116 | 100.0 |
| Expose pesticide/insecticide | 15 | 12.9 |
| Not drinking alcohol | 116 | 100.0 |
| Take medicines without doctor's prescription | 30 | 25.9 |
| Knowledge on eclampsia and pre-eclampsia | | |
| Severe headache | 66 | 56.9 |
| Convulsion | 103 | 88.8 |
| Blur vision | 103 | 88.8 |
| High Blood Pressure | 93 | 80.2 |
| Swelling on the legs | 38 | 32.8 |
| Not vaginal bleeding | 107 | 92.2 |

Table 4.14: The correct answers of the 116 TBAs and VHSGs on the knowledge items (cont.)

| Statements | Answer Correctly | |
|---|---|---|
| | Number | Percent |
| Knowledge of airway block | | |
| Not give chest compression | 93 | 80.2 |
| Give mouth-to-mouth ventilation | 16 | 13.8 |
| Give bag-to-mouth ventilation | 15 | 12.9 |
| Not hit baby's buttock gently | 110 | 94.8 |
| Knowledge about CPR | | |
| Not do chest compression | 86 | 74.1 |
| Provide Oxygen by giving air ventilation | 24 | 20.7 |
| Give CPR | 42 | 36.2 |
| Not hit the baby so that he/she cry | 112 | 96.6 |
| Knowledge about airway management | | |
| Not do chest compression | 98 | 84.5 |
| Provide Oxygen by giving air ventilation | 14 | 12.1 |
| Give CPR | 17 | 14.7 |
| Not hit the baby so that he/she cry | 110 | 94.8 |

However, the classification into level of knowledge, the TBA, majority of them were in the fair level, 51.9%, and about 44.4% of them had good level of knowledge on the overall items asked. Where the majority of the VHSG, 67.7%, had good level of knowledge about the overall items and only 32.3% of them had fairs level of knowledge.

The majority of the TBA and VHSG from Sampov Luon district had higher level of knowledge compared to other district. However, the majority of the group from Pailin had fair level of knowledge, 79.3% compared to Samlot and Sampov Luon which had about 47.8% and 21.9% respectively (Table 4.15).

Table 4.15: Level of knowledge of 54 Traditional birth attendants (TBA) and 62 Village health support group (VHSG)

| | Total sample | Level of knowledge | | | | | |
|---|---|---|---|---|---|---|---|
| | | Poor | | Fair | | Good | |
| | | Number | Percent | Number | Percent | Number | Percent |
| Type of volunteer | | | | | | | |
| TBA | 54 | 2 | 3.7 | 28 | 51.9 | 24 | 44.4 |
| VHSG | 62 | 0 | 0.0 | 20 | 32.3 | 42 | 67.7 |
| Genders | | | | | | | |
| Male | 14 | 0 | 0.0 | 4 | 28.6 | 10 | 71.4 |
| Female | 102 | 2 | 2.0 | 44 | 43.1 | 56 | 54.9 |
| Study Sites | | | | | | | |
| Sampov luon | 64 | 1 | 1.6 | 14 | 21.9 | 49 | 76.6 |
| Pailin | 29 | 0 | 0.0 | 23 | 79.3 | 6 | 20.7 |
| Samlot | 23 | 1 | 4.3 | 11 | 47.8 | 11 | 47.8 |

The classification into two categories, total scores lower than 80%, need refreshment, and above 80% as good level of knowledge, the result indicated that the majority of the participants from Pailin had good level of knowledge, followed by participants from Samlot indicated that about 56.5% of them has had good level of knowledge, where Sampov Luon score lowest accounted for about 35.9% of the total participants from that district. However, the result indicated that there was significant difference of the level of the knowledge among the participants from three study sites, (p-value < 0.001) (Table 4.16).

Table 4.16: The distribution of level of knowledge of TBA and VHSG by district

| Study site | Total sample | Level of knowledge | | | | p-value |
|---|---|---|---|---|---|---|
| | | Good | | Need improvement | | |
| | | Number | Percent | Number | Percent | |
| Sampov Luon | 64 | 23 | 35.9 | 41 | 64.1 | <0.001 |
| Pailin | 29 | 26 | 89.7 | 3 | 10.3 | |
| Samlot | 23 | 13 | 56.5 | 10 | 43.5 | |

### 3) The practice of TBAs and VHSGs

Referring the pregnant women to health facility was made into two different ways. One was to accompany the women from home to the health facility and two was to encourage the family and women to go to health facility with referral paper from TBA or VHSGs in each village. Majority of the TBA and VHSG, 86.8%, had referred the pregnant woman to the health facility. The average number of women they referred by TBAs was found to be higher than by VHSGs, around 10.0 (SD: 7.4) women for TBAs and 9.0 (SD: 7.0) women for the VHSG in the previous year.

From the discussion with the village it was found out that the TBAs and VHSGs were not only assuming the referral role they were also involving in educating the women in the village. There were many education programs in the village, which the volunteers can do. It started from the education around reproductive issues, the malaria, and so on. There were many VHSG involved in the treatment of malaria. They were given rapid test for malaria detection and anti-malarial drugs for those who tested positive. A side from the treatment and the role of educators, the TBA and VHSG had been involving with assisting the community and health centre on the vaccination of the children in the village in terms of helping the health centre staff arranging the facility and children in the village for the team.

Table 4.17: Number of pregnant women referred to HC/RH by TBAs and VHSGs in previous year

| Referral Experience | TBA | | VHSG | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Never refers | 0 | 0 | 4 | 6.5 |
| Ever refers | 54 | 100.0 | 58 | 93.5 |
| Number of women referred | | | | |
| Lower than 10 | 35 | 64.8 | 40 | 69.0 |
| Between 11-20 | 13 | 24.1 | 12 | 20.7 |
| More than 20-40 | 3 | 5.6 | 3 | 5.2 |
| Mean (SD) | 10.0 (7.4) | | 9.0 (7.0) | |

Among those who had referred the pregnant women in the previous year, they opted to refer to health facilities, majority of the cases referred to

health facility were for normal delivery cases, 75.0%. Regarding the transferring of the complicated cases, the prolonged labour was highest among all referred case, 9.8%. The majority of the cases were referred to the health centres, 94.6% (Table 4.18).

Regarding the practice of providing the delivery service at home, only 12% of them (n=116) still performing the delivery at home. The majority of them said that the reasons for doing so due to the baby come too early to refer the women to the health facility, 92.9% and then the women did not want to go health centre was around 57.1%. Among those who provided the delivery service at home, only two of them had the experiences of having complicated cases and they have opted to try to solve the problem by themselves and to discuss with the woman family to seek solution (Table 4.18).

Among all the TBAs and VHSGs, about 82.8% of them had meeting at the health centre regularly. About 44.8% of them participated regularly at every quarter of the year as set by the project time frame, where about 30.2% of them participated at least 3 times a year. There were also the TBAs and VHSGs that participated the meeting at the health centre monthly.

Regarding the materials supplied to the TBAs and VHSGs at the quarterly meeting, the majority of them had not received the emergency supplies anymore; about 10 out of 116 had received some material from the meeting the previous year.

The experience and practice of rescuing the baby without breathing during birth, only about 25.9% of them (n=116) had the experienced. The majority of them had practice correctly by giving chest compression, 76.7% and 53.3% used the mouth-to-mouth ventilation. To deal with the baby born with airway problem and became blue colour, they had use correct method to rescue the baby, 63.0% used CPR (Table 4.18).

Table 4.18: General practice of 116 TBAs and VHSGs regarding referral and rescuing complicated deliveries

| | Number | Percent |
|---|---|---|
| Ever refer woman to deliver at health facility | 112 | 96.6 |
| Reasons of referral | | |
| Bleeding | 7 | 6.3 |
| Swelling | 6 | 5.4 |
| High Fever | 4 | 3.6 |
| Anemia | 3 | 2.7 |
| Prolonged Labor pain | 12 | 10.7 |
| Normal Delivery | 102 | 91.1 |
| Place of referral | | |
| Health centre | 106 | 94.6 |
| Hospital | 5 | 4.5 |
| Thailand | 1 | 0.9 |
| Delivery service at home | | |
| No | 102 | 87.9 |
| Yes | 14 | 12.1 |
| *Baby came too early* | *13* | *92.9* |
| *Difficult for transport* | *3* | *21.4* |
| *Baby due when raining* | *1* | *7.1* |
| Participating in quarterly meeting | | |
| No | 20 | 17.2 |
| Yes | 96 | 82.8 |
| *Once a year* | *9* | *9.4* |
| *Twice a year* | *11* | *11.5* |
| *Three times a year* | *29* | *30.2* |
| *Quarterly* | *43* | *44.8* |
| *6 times a year* | *1* | *1.0* |
| *12 times  year* | *3* | *3.1* |

Table 4.18: General practice of 116 TBAs and VHSGs regarding referral and rescuing complicated deliveries (cont)

| | Number | Percent |
|---|---|---|
| Ever received emergency kits from TCFC | | |
| Never | 106 | 91.4 |
| Ever | 10 | 8.6 |
| Experience on rescue breathing of baby | | |
| No | 86 | 74.1 |
| Yes | 30 | 25.9 |
| Rescue (n=30) multiple responses | | |
| *Give chest compression* | *23* | *76.7* |
| *Give mouth-to-mouth ventilation* | *16* | *53.3* |
| *Give bag-to-mouth ventilation* | *15* | *50.0* |
| *Hit the baby gently* | *6* | *20.0* |
| Experience on rescue baby with blue color | | |
| No | 89 | 76.7 |
| Yes | 27 | 23.3 |
| Rescue when experienced (n=27) multiple responses | | |
| *Chest compression* | *18* | *66.7* |
| *Provide Oxygen by giving air ventilation* | *14* | *51.9* |
| *Give CPR* | *17* | *63.0* |
| *Hit baby gently* | *6* | *22.2* |

**4) Perception of TBA and VHSG on banning delivery service at home**

Regarding the regulation of banning the TBA delivery service at the village, majority of them (95.7%) had aware of the regulation from the health centre and all of those who aware of that had agreed with the decision by the public health. The majority of reasons for agreeing that they should stop from the service were that it was not safe for the women to deliver at the village, 78.9%; followed by TBA is not skilled attendants and lack of materials for delivery. In that sense, there were the changes at village level regarding the works of TBAs and VHSGs which has brought about changes in the behaviour and practices of women. From the formal discussion with the midwife at the health centre, in project areas in which village education session has been implemented, women demonstrate a higher level of

knowledge of birth preparedness. And, as a result of concerted efforts by the volunteers to promote delivery in health centres, women are less likely to deliver at home. As evidences, there were changes in number of the women seeking for ANC check up at the health centre as indicated by the midwife ID 03 that at the health centre, number of women came for ANC increased from time to time.

*"... There are many changes, why I say that because according to the number of pregnant women came for ANC check it increased every month. Before it was about 50-60 a month, now more than that. TBA and VHSG they clearly understood the procedure, when they see danger then they refer to us. Now they have paper to refer the pregnant women to health centre..."*

Table 4.19: The perception of 116 TBAs and VHSGs regarding delivery service at the village

| Heard of stopping TBA from service | Number | Percent |
|---|---|---|
| Have ever heard of stop TBA delivery service at home | 111 | 95.7 |
| Agreement on stop TBA delivery service at home | 111 | 95.7 |
| Reasons for having agreed on | | |
| Not safe to deliver at village with TBA | 21 | 18.9 |
| TBA no skill and no material for at village | 38 | 34.2 |
| Safe for woman to deliver at HC | 44 | 39.6 |
| Reduce maternal death at village | 8 | 7.2 |

Regarding the referral system from the village to the health facility, majority of the TBAs and VHSGs had agreed that the system was good, where the referral system from the health centre to referral hospital, about 55.2% of them said it was good. The majority of the TBAs and VHSGs who had experience of contacting the health centre regularly, 87.1%, indicated that the delivery service at the health centre were good (Table 4.20)

Table 4.20: Perception on health facilities by TBA and VHSG

| Heard of ban TBA service | Good | | Not good | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Perception on referral system to HC | 114 | 98.3 | 2 | 1.7 |
| Perception on Referral system to RH | 64 | 55.2 | 52 | 44.8 |
| Delivery service at HC | 101 | 87.1 | 15 | 12.9 |

### 4.2.3. The village women

#### 1) General characteristics of village women

Among 129 samples for village women, 63 were recruited from Sampov Luon district. The majority of the women participated in this study were farmers, accounted for 83.7% of them. The majority of the women, 73.6%, recruited into the study were in the age of 21-34 years old. The overall mean age of the whole group of village women was found to be around 27.4 (SD: 6.6) years.

Among the 129 women, about 60.5% of them have had the annual income that can be “enough for sometime” and about 26% had the income which is not enough for the support the family for the year.

Among all women recruited into the study, about 84.5% of them lived in the village estimated to be 15 Km and lower to the health centre and about 10.9% of them lived with 16 km to 25 km from the health centre only 4.7% lived above 25 Km away from the health centre. The average distance from village to health centre was found to be around 11.5 Km (SD: 8.4) away from reaching the health centre. Among them all, about 41.9% of them can reach health centre by vehicle with the estimated time of 15 minutes and lower and about 37.2% could reach health within 16-35 minutes and 20.9% of them had to spend time more 35 minutes to reach health centre. The average estimated time was 25.0 minutes (SD: 15.1) (Table 4.21).

Table 4.21: General characteristics of 129 village women participated in the study by districts

| | Total (129) | | Study Site | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sampov Luon (63) | | Pailin (40) | | Samlot (26) | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Total | 129 | 100.0 | 63 | 48.8 | 40 | 31.0 | 26 | 20.2 |
| Age (year) | | | | | | | | |
| <21 | 16 | 12.4 | 4 | 6.3 | 9 | 22.5 | 3 | 11.5 |
| 21-34 | 95 | 73.6 | 54 | 85.7 | 22 | 55.0 | 19 | 73.1 |
| >34 | 18 | 14.0 | 5 | 7.9 | 9 | 22.5 | 4 | 15.4 |
| Mean (SD) | 27.4 (6.6) | | 20.9 (15.5) | | 28.5(12.1) | | 29.8 (15.8) | |
| Occupation | | | | | | | | |
| Housewife | 6 | 4.7 | 2 | 3.2 | 4 | 10.0 | 0 | 0.0 |
| Farmer | 108 | 83.7 | 51 | 81.0 | 31 | 77.5 | 26 | 100.0 |
| Vendor | 5 | 3.9 | 4 | 6.3 | 1 | 2.5 | 0 | 0.0 |
| Labor worker | 10 | 7.8 | 6 | 9.5 | 4 | 10.0 | 0 | 0.0 |
| Income for the family | | | | | | | | |
| Not enough | 34 | 26.4 | 12 | 19.0 | 22 | 55.0 | 21 | 80.8 |
| Sometime enough | 78 | 60.5 | 40 | 63.5 | 17 | 42.5 | 5 | 19.2 |
| Always enough | 17 | 13.2 | 11 | 17.5 | 1 | 2.5 | 0 | 0.0 |
| Distance from village to health facility | | | | | | | | |
| < 16 Km | 109 | 84.5 | 59 | 54.1 | 34 | 31.2 | 16 | 61.5 |
| 16- 25 Km | 14 | 10.9 | 4 | 28.6 | 6 | 42.9 | 4 | 15.4 |
| >25 Km | 6 | 4.7 | 0 | 0.0 | 0 | 0.0 | 6 | 23.1 |
| Mean (SD) | 11.5 (8.4) | | 8.3 (5.7) | | 12.4 (6.3) | | 18 (12.1) | |
| Estimate time travel to HC | | | | | | | | |
| <15 minutes | 54 | 41.9 | 39 | 72.2 | 9 | 16.7 | 6 | 23.1 |
| 16-35 Minutes | 48 | 37.2 | 14 | 29.2 | 21 | 43.8 | 13 | 50.0 |
| > 35 minutes | 27 | 20.9 | 10 | 37.0 | 10 | 37.0 | 7 | 26.9 |
| Mean (SD) | 25 (15.1) | | 20.9 (15.5) | | 28.5 (12.1) | | 29.8 (15.8) | |

Among all women participated in the interview, majority of them (76.7%) had pregnancy of between one to three times before interview took place. Among the participants, lowest number of pregnancy was one and highest number of pregnancy was 12 times. Among the all women participated in the study about 24.8% of them reported of have had at last one time abortion previously. Only about 6.2% had more than one time of abortion previously. The minimum number of abortion was reported to be one and maximum of 3 times before in the interview. There were about 82.2% had given live-births and about 15.5% had more than 7 time of deliveries with live-births. Among the 129 women participated in the study, only one had baby died previously (Table 4.22).

Table 4.22: The distribution of pregnancy history of 129 women in the project areas

| Pregnancy history | Number | Percent |
|---|---|---|
| Total | 129 | 100 |
| Pregnancy | | |
| Below 4 | 99 | 76.7 |
| 4-7 times | 25 | 19.4 |
| Above 7 | 5 | 3.9 |
| Mean (SD) | 2.6 (2.1) | |
| Abortion | | |
| Never | 89 | 69.0 |
| 1 time | 32 | 24.8 |
| More than 1 time | 8 | 6.2 |
| Mean (SD) | 0.4 (0.7) | |
| Delivery | | |
| Less than 4 | 106 | 82.2 |
| 4 to 7 | 20 | 15.5 |
| Above 7 | 3 | 2.3 |
| Mean (SD) | 2.2 (1.7) | |
| Live birth | | |
| None | 1 | 0.8 |
| less than 4 | 106 | 82.2 |
| Between 4-7 | 20 | 15.5 |
| Above 7 | 2 | 1.6 |
| Mean (SD) | 2.2 (1.7) | |
| Baby died | 1 | (only one case) |

**2) The general knowledge of village women**

For village women there were 28 knowledge statements asked. Regarding the general knowledge of what preparation for safe delivery, most of them gave high percentage of correct answers. The lowest was around 73.6% of them gave the correct answers related to the items related.

The knowledge related to the danger signs during pregnancy, majority of them gave that swelling during pregnancy as danger sign, 91.5%, followed by bleeding during pregnancy, 89.1%. There were about 74.4% of the women indicated that the anaemia is danger sign and about 62.8% of them gave that break the amniotic fluid before the labour pain due was also dangerous for the pregnant women. However, about 92.9% of the women indicated that fat is not a danger sign for pregnant women. Pregnancy at older age, pregnancy at too young age and pregnant women are too short were also indicated as danger signs, accounted for about 57.4%, 56.6% and 41.9% respectively. The rest of the items were scored less than 50% (table 4.23).

Table 4.23: The correct answers of 129 village women on each items of knowledge by catchment areas

| Statements of knowledge | Total (129) | | Sampov Luon (63) | | Pailin (40) | | Samlot (26) | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Delivery Preparation | | | | | | | | |
| Saving money for delivery | 95 | 73.6 | 53 | 84.1 | 20 | 50.0 | 22 | 84.6 |
| ANC check up | 128 | 99.2 | 63 | 100 | 39 | 97.5 | 26 | 100.0 |
| Discuss about place for delivery | 124 | 96.1 | 60 | 95.2 | 39 | 97.5 | 25 | 96.2 |
| Knowledge about danger signs | | | | | | | | |
| Pregnant at old age: | 74 | 57.4 | 36 | 57.1 | 21 | 52.5 | 17 | 65.4 |
| Pregnant at young age | 73 | 56.6 | 32 | 50.8 | 22 | 55.0 | 19 | 73.1 |
| The pregnant woman is too tall | 32 | 24.8 | 12 | 19 | 9 | 22.5 | 11 | 42.3 |
| Pregnant woman who is fat | 94 | 72.9 | 55 | 87.3 | 29 | 72.5 | 10 | 38.5 |
| Pregnant woman is too short | 54 | 41.9 | 24 | 38.1 | 18 | 45.0 | 12 | 46.2 |
| Already has many children | 49 | 38.0 | 9 | 14.3 | 31 | 77.5 | 9 | 34.6 |
| Bleeding during the pregnancy | 115 | 89.1 | 59 | 93.7 | 37 | 92.5 | 19 | 73.1 |
| Swelling during the pregnancy | 118 | 91.5 | 60 | 95.2 | 36 | 90.0 | 22 | 84.6 |
| Convulsion during the pregnancy | 36 | 27.9 | 13 | 20.6 | 18 | 45.0 | 5 | 19.2 |
| High fever and chills when pregnant | 42 | 32.6 | 2 | 3.2 | 21 | 52.5 | 19 | 73.1 |
| Amniotic broke before labor pain | 81 | 62.8 | 26 | 41.3 | 34 | 85.0 | 21 | 80.8 |
| Pregnant woman has Anemia | 96 | 74.4 | 54 | 85.7 | 23 | 57.5 | 19 | 73.1 |
| Vomit too many much during pregnant | 26 | 20.2 | 4 | 6.3 | 13 | 32.5 | 9 | 34.6 |
| Severe headache | 38 | 29.5 | 9 | 14.3 | 18 | 45.0 | 11 | 42.3 |
| Pregnant woman has history of CS | 24 | 18.6 | 0 | 0 | 9 | 22.5 | 15 | 57.7 |

Table 4.23: The correct answers of 129 village women on each items of knowledge by catchment areas (cont.)

| Statements of knowledge | Total | | Sampov Luon (63) | | Pailin (40) | | Samlot (26) | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Numbe r | Percent | Number | Percent |
| Knowledge about food | | | | | | | | |
| All kind of food and drink with high protein | 124 | 96.1 | 59 | 93.7 | 40 | 100.0 | 25 | 96.2 |
| All kind of food and drinks which provide energy | 122 | 94.6 | 57 | 90.5 | 39 | 97.5 | 26 | 100.0 |
| Not consume food and drinks contain alcohol | 129 | 100.0 | 63 | 100.0 | 40 | 100.0 | 26 | 100.0 |
| All kind of food and drinks with iron and vitamin | 129 | 100.0 | 63 | 100.0 | 40 | 100.0 | 26 | 100.0 |
| Knowledge about some dos and don'ts | | | | | | | | |
| Lift heavy weight | 106 | 82.2 | 44 | 69.8 | 36 | 90.0 | 26 | 100.0 |
| Working too hard | 123 | 95.3 | 57 | 90.5 | 40 | 100.0 | 26 | 100.0 |
| Exposed to pesticide | 84 | 65.1 | 60 | 95.2 | 13 | 32.5 | 11 | 42.3 |
| Smoking | 125 | 96.9 | 61 | 96.8 | 38 | 95.0 | 26 | 100.0 |
| Not drinking alcohol | 128 | 99.2 | 62 | 98.4 | 40 | 100.0 | 26 | 100.0 |
| Taking medicine without prescription | 55 | 42.6 | 14 | 22.2 | 29 | 72.5 | 12 | 46.2 |

Comparing the level of knowledge among women who had met with TBA, VHSG and experience of participating in the pregnancy class at the village indicated that, more health promoters they have met the higher level of good knowledge they had. Reclassifying into two level of knowledge, it was found that majority of them in all three study sites need refreshment (Table 4.24).

Table 4.24: Level of knowledge of 129 village women by study sites and experience of meeting with TBA, VHSG and participation in pregnancy class

| | Total samples | Level of knowledge | | | |
|---|---|---|---|---|---|
| | | Good | | Need improvement | |
| | | Number | Percent | Number | Percent |
| Total | 129 | 30 | 23.3 | 99 | 76.7 |
| Having met with TBA, VHSG and participated in pregnancy class | | | | | |
| Never | 14 | 4 | 28.6 | 10 | 71.4 |
| Met either one | 36 | 6 | 16.7 | 30 | 83.3 |
| Met at least 2 | 51 | 10 | 19.6 | 41 | 80.4 |
| Met all | 28 | 10 | 35.7 | 18 | 64.3 |
| Study Site | | | | | |
| Sampov Luon | 63 | 11 | 17.5 | 52 | 82.5 |
| Pailin | 40 | 13 | 32.5 | 27 | 67.5 |
| Samlot | 26 | 6 | 23.1 | 20 | 76.9 |

**3) The practice of village women**

The majority of the women under studied had the ante-natal care check up during their last pregnancy with the average of 5.4 times before the delivery due. Among the 129 women in the study had their last deliveries between 2012 and early of 2013. The majority of them delivered at the health centre, 58.9% followed by at hospital around 21.7%.

About half of the women in the study had met the TBA during their last pregnancy at the average of 5 (SD: 3.5) times before their delivery due. The majority of the women who met with the TBA, 95.4%, indicated that the TBA informed them to go for ANC check up at the health facility and follow by preparation for deliver at the health centre or hospital at about 66.2% of them, which were the correct practice for safe motherhood. The result also indicated that those who had met with the VHSG, 63.6% and majority of the women who had met with VHSG had said

that the VHSG informed them to go for ANC check, delivery at health facility and saving money for delivery at 96.3%, 70.7% and 53.7% respectively.

In all the women participated in this study, about 61.2% of them had never directly been referred to the health facility by either TBA or VHSG and about 38.8% of them had been referred to health facility. However, among those who had been referred majority of them, 64.0%, (n=50) satisfied with the referral system from village to health facility. More than half of the women participated in the study had participated in the pregnancy class at the village and 77.3% (n=75) of them had participated from 2010 to 2012.

Regarding the practice of seeking help, the majority of them in the study, 96.1%, indicated that they would consult with midwives at the health facility when they had any danger signs (Table 4.25).

From qualitative data showed that the VHSGs and TBAs at the village level were key stakeholders of the delivery life support project in building up the links between the health facility and the villagers. Both TBA and VHSG, with minimal the necessary knowledge and skills to counsel women during pregnancy and in the postnatal period, volunteers from these groups provide an invaluable bridge between the community and the health system. There have been changes in practices of the village women now a day. They would seek for help both at the public health facility and at the village with TBA and VHSG. When they feel that they were pregnant they would try seeking for help, as ID 05 had said:

*"...Yes, every time when they feel something (related to pregnancy) they would come and talk to me, because the health centre informed them that if they want to know and discuss something should come to me. I either gave them a paper to go to the health centre or I go with the woman and come back with them..."*

Table 4.25: The general safe practice of 129 village women around birth preparation

| Safe practice | Number | Percent |
|---|---|---|
| ANC check up during last pregnancy | | |
| No | 9 | 7.0 |
| Yes | 120 | 93.0 |
| Number of ANC check up | | |
| 1 time | 2 | 1.6 |
| 2 times | 7 | 5.4 |
| 3 times | 16 | 12.4 |
| 4 times | 19 | 14.7 |
| 5 and above | 76 | 58.9 |
| Last delivery | | |
| 2005-2007 | 6 | 4.7 |
| 2008-2010 | 35 | 27.1 |
| 2011-2013 | 88 | 68.2 |
| Place of last delivery | | |
| At home | 22 | 17.1 |
| At TBA home | 3 | 2.3 |
| At Health Centre | 76 | 58.9 |
| At Hospital | 28 | 21.7 |
| Having met with TBA during your last pregnancy | | |
| No | 64 | 49.6 |
| Yes | 65 | 50.4 |
| *1 time* | *10* | *15.4* |
| *2 times* | *7* | *10.8* |
| *3 times* | *13* | *20.0* |
| *4 times* | *4* | *6.2* |
| *5 and above* | *30* | *46.2* |
| Suggest by the TBA (n=65) | | |
| To prepare for deliver in the village | 1 | 1.5 |
| Should go for ANC check | 62 | 95.4 |
| Prepare for deliver at HC/RH | 43 | 66.2 |
| Prepare to save money for deliver | 36 | 55.4 |

Table 4.25: The general safe practice of 129 village women (cont.)

| Safe practice | Number | Percent |
|---|---|---|
| Having met with VHSG during your last pregnancy (82) | | |
| No | 47 | 36.4 |
| Yes | 82 | 63.6 |
| *1 time* | *10* | *12.2* |
| *2 times* | *8* | *9.8* |
| *3 times* | *21* | *25.6* |
| *4 times* | *7* | *8.5* |
| *5 and above* | *36* | *43.9* |
| Suggested by VHSG | | |
| Should go for ANC check ups | 79 | 96.3 |
| Prepare to delivery at HC/RH | 58 | 70.7 |
| Prepare to save money | 44 | 53.7 |
| Experience of being referred to HC/RH | | |
| Never been referred | 79 | 61.2 |
| Had been referred | 50 | 38.8 |
| Level of satisfaction on this referral system | | |
| Very satisfied | 18 | 36.0 |
| Satisfied | 32 | 64.0 |
| Time of referral | | |
| 2007-2010 | 20 | 40.0 |
| 2011-2013 | 30 | 60.0 |
| Participating in Pregnancy Class | | |
| Never participated | 54 | 41.9 |
| Participated | 75 | 58.1 |
| Time participated in pregnancy class | | |
| 2004-2009 | 17 | 22.7 |
| 2010-2012 | 58 | 77.3 |
| Help seeking when have a danger sign | | |
| Rest at home | 1 | 0.8 |
| Immediately consult with midwife | 124 | 96.1 |
| Consult with TBA or VHSG | 4 | 3.1 |

**4) Perception of village women on referral system**

Among 129 village women involved in this study, about 53.5% of them indicated that they knew about the referral system that involved the TBA and VHSG in the system. Among those about 65.4% of the women in Samlot aware of this system, where in Sampov Luon, most of the sample recruited, only 46.0% of them

aware of the system and in Pailin, about 57.5% of the women from the district were aware of the system (Table 4.26).

Table 4.26: Knowing about the involvement of TBA and VHSG in the referral system by study sites

| Study site | Total samples | Known about referral | |
|---|---|---|---|
| | | Number | Percent |
| Total | 129 | 69 | 53.5 |
| Sampov Luon | 63 | 29 | 46.0 |
| Pailin | 40 | 23 | 57.5 |
| Samlot | 26 | 17 | 65.4 |

Regarding the referral system, about 53.5% of the total women participated in the study had aware of the system established by the organization that involved the TBA and VHSG in the system. There were about 32.0% (n=50) of those who had been referred by the system indicated they were very satisfied and about 64.0% of them were satisfied with the system (Table 4.27).

Table 4.27: The experience and level of satisfaction of women being referred to deliver at the health facility by study site

| Sites | Total samples | Experience on being referred | | Level of satisfaction | | | |
|---|---|---|---|---|---|---|---|
| | | | | Very satisfied | | Satisfied | |
| | | Number | Percent | Number | Percent | Number | Percent |
| Total | 129 | 50 | 38.8 | 18 | 36.0 | 32 | 64.0 |
| Sampov Luon | 63 | 28 | 44.4 | 5 | 17.9 | 23 | 82.1 |
| Pailin | 40 | 4 | 10.0 | 3 | 75.0 | 1 | 25.0 |
| Samlot | 26 | 18 | 69.2 | 10 | 55.6 | 8 | 44.4 |

# CHAPTER V
# DISCUSSION

Building up on the experiences of the “Chain of Survival” for landmine victims in low-resource setting, where lay persons were trained to rescue the trauma victims at the site of accidents then transferring to next health facility for further treatment, where the pre-hospital trauma mortality rate can be reduced from around 40% to around 10% in the period of about 6 year (35); the delivery life support project was launched. The initial intervention was to train the medical staff and midwives at the rural health centre to manage the complicated delivery cases referred from the villages. At the same time build up the “referral network” from village to referral hospitals in the three study sites. This was to be a pilot project so that similar project can be built elsewhere, considering that building capacity staff at the hospital only will not be able to reduce the maternal deaths, because maternal deaths occurred at the village level. Training conducted, after two year period, an evaluation was made on the level of skills and confidence. It was reported the training increase the capacity to cope with the complicated delivery cases (36). The project has continued to date.

This study was aiming at evaluating the outcomes of the project from 2005 to 2009.

## 5.1 Discussion

### 5.1.1 Maternal, perinatal and early neonatal mortality

Trauma Care Foundation Cambodia (TCFC) has been running the delivery life support project more than six years now. The overall aim of the project at the time was to assess if the model of rural obstetric emergency training program can be built and be adopted to other similar situation and at the same time to observe the trends of the maternal, perinatal and neonatal death in the project areas. In addition to that this research is trying to evaluate the knowledge of the village women at reproductive

ages, the TBA, VHSG and the health centre medics and midwives on emergency obstetric measures and danger signs around birth generated from the training program provided by the projects and to inspect the practises they had after launching the training program.

The research comprised of five different data sets, two of which were from the existing data and three were primary data recently collected by the researcher and his assistants. The data sets from the secondary one were for the analysis of the trends of MMR, PMR and the NMR. After the validation of the excel spreadsheets used for recording the original data, the total 10 538 maternal cases were available for analysis. The second dataset was the data on babies born in the catchment areas during the project period with the total of 10518 cases, with the exclusion of all the abortion cases.

In Cambodia, the MMR has been reported reduction during the period of 2005 to 2010, from around 472 per 100, 000 live births to around 206 in 2010 (37). During the project period in the TCFC project catchment areas result indicated that there was a significant reduction of the MMR from 578 when the project started in 2005 to around 122 per 100, 000 live births in 2009. Both results from the study in the project catchment areas and result from estimation by the National Institute of Statistics (NIS) indicated the reduction. However, it should be noted that the report from the NIS there were cautious that even though there was a decline has taken place, the upper limit of the 95 % confidence interval in 2010 was 288; closing in on the lower limit of the 95% confidence interval in 2005 which was 388; this indicated that the reduction in MMR may thus be less steep than reported (37).

The result showed that number of deliveries by health personnel were higher than number of deliveries with the TBA at village where the risk of dying is higher than delivery with the health personnel at health facility. However, in the project areas indicated the reduction in MMR as well as PMR and NMR. Two years into the project, in early 2007, the Provincial Health Department (PHD), which was an important partner in the implementing the project, announced the prohibition of the TBA delivery service at the village, therefore one of the reasons of the reduction may be resulted from this prohibition as well as the increase of role and responsibilities of VHSG.

The political focus both at national and global on maternal health has probably contributed to the reduction in maternal mortality. In the same period Cambodia's economic growth has increased, and in central parts of the country people's financial situation has improved. When the families' income increased, health services will be more accessible provided they live relatively close to a health centre or hospital. However, the health seeking behaviour of the women based on the perceptions of the severity of the diseases or conditions each of them faced as well as the perception on the quality of the public service (38).

In project catchment areas, however, there was little improvement of infrastructures during the study period. In the most remote areas many villages still totally isolated during the rainy season due to flooded, muddy roads and broken bridges. The number of families registered as poor may have not changed either, and there was still a deficit of professional health personnel in rural health centres. Therefore it is believed that there was no major socio-economic improvements in the three districts can fully lead to the explanation of the reduction in MMR after implementation of the project in the areas.

The referral network from village to the health facility played important role in the reduction of the maternal death in the rural areas. Due to the fact that about 75% of maternal death occurred due to the three delays models, (1) delay in deciding to seek appropriate medical help for an obstetric emergency; (2) delay in reaching an appropriate obstetric facility; and (3) delay in receiving adequate care when a facility is reached(39). Having the referral network, similar setting the one used in the TCFC project areas may help reducing any one among the delays. The TBA and VHSG are crucial in the giving advices and encouragement on the first delay. In addition to that many supports from the NGOs and health centre on the referral of the women to health facility, the second and third delays are solved.

At the national level the number of the women seeking for ante-natal care with health personnel is increasing from 38% in 2000 to 69% in 2010(37). This is corresponding to the information given by the medics and midwives at the health centre. The increase may due to the fact that the socio-economic improvement in the rural areas and as well as the improvement of public infrastructures and access to healthcare. It may also due to the increase in the media and local education program.

In Sampov Luon district, the largest catchment areas in the project, the MMR was fluctuating during the project period. This may due to the fact that during the project period, people took opportunity to open new pieces of land for living in very remote areas where access to health facility was impossible. Poverty forced poor family into working in the farm distanced from accessibility to health facility when delivery due. Sampov Luon is located along Cambodian-Thai borders, work opportunity was higher than in the other districts, and the migrant workers moved from the other part of the countries and settled in the area. Being new comers to the area would find access to health care service difficult, including the maternal care.

When designing the project, the baseline survey in 2004 indicated that the perintatal mortality was around 5% as at the time the majority of deliveries took place at the village level with the unskilled birth attendants and most of the perinatal deaths occurred at village level, the actual PMR in the study area may well be higher (21). The result from this study indicated that the number of babies delivered at home were 42.1%; lower than those who delivered at the health facility which were at 57.9%. During the project period, the records indicated a reduction in the PMR from 43.13 per 1000 live-births in 2005 to only 8.04 in 2009. The result from the first year of the project did not indicated much different from the baseline information.

During the project period, the PMR and NMR declined substantially; from 41.13 in 2005 to 8.04 per 1000 live-births in 2009 for PMR and 41.17 in 2005 to 8.11 per 1000 live-births in 2009 for the NMR. Though, the PMR of the delivery at the health facility was higher than the delivery at village, 23.46 versus 20.57 per 1000 live-births; there was no reason to claim that in the project areas, the care of new born babies by the TBA at the village level reduced the PMR as claimed by Garces and colleagues in a study in 2012 (24). The reasons may also because of the easy to deal with or non-complicated cases were delivered at home and those cases the like obstructed and prolonged labour were referred to the health centre. The baby became weak due to the transportation time and road condition, babies died after deliveries at the health centre.

The reduction of the PMR and NMR may be resulted from the seeking of the ante and post-natal care by the local women during their pregnancy period. As indicated by the various report the increase number of the ANC check-ups and the

increase of awareness among the women at the reproductive age, as resulted from this study the level of knowledge on the ANC check up was high where the overall knowledge relating to the danger signs around were in the category of fair level among the study samples. As stated by midwife from a health centre during the formal discussion.

*"…. Since the launch of the education project at village by TCFC, we see that it is good effect. The women know a lot more. It can be reflect in turning up for ANC check up at our heath centre. Not same as before, now it is about 80 to 90% come to health centre. They know and understand more and more through the promotion program. They know about the danger signs we show them. They understand how many times they should do the ANC check up….* (ID03)

At the national level, there was an indication of reduction of PMR and NMR to be seen and there was also an indication of the differences between the rural and urban areas, hence the socio-economic condition may play important role in the reduction of the PMR and NMR, the ratio in the urban is consistently lower than in rural area (37).

However, it should not be ignoring the efforts of the referral system, educational and health promotion works through the local people channel and mass media. This work may have had important stimulant that encouraged the women to be more concern on the pre and post natal care. Elsewhere, reducing the gap and remove some of the economical, geographical and operation barriers to the women helped reducing the MMR, PMR and NMR (40). Improving maternal health indicators and health accessibility are more likely contributed to the reduction in maternal mortality. Cambodian Demographic Health Survey (CDHS) in 2010 reported that, 89% of women with a live birth received antenatal care from skilled attendants, and skilled attendants assisted 71% of births. This marked a substantial increase from 2005 when only 69% of women received skilled antenatal care and skilled birth attendants assisted only 44% of births (35). Improving the health status of the mother will increase the health of the newborn babies as the MMR and PMR are closely related; PMR is 8 to 10 times higher than MMR(20).

### 5.1.2 General knowledge and practice

The primary data were collected from three different catchment areas, Sampov Luon, Pailin and Samlot. The data comprised of three different sets. The first set for the village women with the total sample of 129, among theses, 63 from Sampov Luon, and 40 from Painlin and 26 from Samlot. The second set was for the village health support group (VHSG) and traditional birth attendants (TBA). There were 116 altogether, 54 were TBA and 62 were TBA. The third set of data was for the medics and midwives as health care providers, which were important stakeholders in the project.

Initially at the planning stage of the data collection, the number of TBA and VHSG altogether was 129 to be recruited. The prohibition of the TBA service at the village forced some of the TBA to move away from the village where project was running to seek other work opportunity in the other areas. In some of the target villages for the study, the TBA was not available. In addition to that TBA became older and older by now, some of them were moving away from the village to live with the relatives or children in other place make the research team impossible to trace them for interviewing.

The overall knowledge of the medics and midwives on the signs and symptoms of pre-eclampsia and eclampsia were good. This is important, fail to identify the sign and symptom of the disease end up in complicated scenario, as eclampsia was one of the leading causes of maternal deaths in the world (15). Among the 29 respondents, 13 of them had the experiences of facing with the pre-eclampsia and eclampsia cases in the previous year. Not all the medics and midwives from all health centres under this study experienced on treating the diseases may be because treating the disease required time to monitor and follow up. At the health centre setting place for mother to stay longer after delivery was difficult therefore, most of the medics and midwives preferred to refer to referral hospital where monitor the cases could be done and safer.

Though they may have experienced the case but the midwife and medic preferred to refer to further health facility, like midwife ID 02 stated:

*"... Here (at health centre) we have experience on treatment of that case (eclampsia). (When have), case related to this we must refer to next help. However,*

*this case we have not met many before. The Referral is depending on the other factors involved. The ambulance has to come from Trang health centre (take about 45 minutes to come). In a very urgent case we call for paid vehicle is faster..."* (ID02)

Regarding the emergency treatment of bleeding after delivery by using the condom temponade, techniques which were taught in every refreshment courses conducted by TCFC had not been practiced by the group. Though proving effective for emergency treating post-partum haemorrhage of any level within about 15 minutes(41, 42), it was not a choice for them at the health centre setting. This may also due to the fact that at district or provincial referral hospital there are blood products available for transfusion, the choice of referring to referral hospital was the best.

Cytotec or Misoprostol, which was one of the drugs introduced to be used at the health centre level by the TCFC in the project areas. Prior to the implementing the project Misoprostol was also not the drug of choice for the health centre setting. The result indicated that the choices to stop post-partum bleeding were the combination of aorta compression and use of Oxytocine, 88.5% and Misoprostol accounted only 53.8%. The reason not using Misoprostol because the drug was aimed for treating other disease, including the use for induced abortion(43). The health authorities were concern about using the drug for induced abortion among the unwanted teenage pregnancy. Supplies of the drug were strictly monitored at the health centre; therefore the use was less seen.

It found that about 89.7% of the medics and midwives were satisfied with the way the organization supplies the emergency kits for delivery life support. The result on this may bias, due to the fact that the researcher is the organization staff, has involved in the project since the beginning of the project. If the researcher has no any link with the project, result may indicate otherwise.

As part of the project, TBA and VHSG were use as re-enforcement team to initiate the movement of village women to become more concern and aware of the importance of the antenatal care. Regular meetings were set up in collaboration with the NGO and the health centres to support and encourage TBA and VHSG in village education process. Education material such as leaflets and posters were produced and distributed at the quarterly meeting aiming at disseminating information to the villagers, especially women. The overall level of knowledge among the TBA, more

than half of them (51.9%) had fair level knowledge, and about 44.4% of them had good level knowledge about the overall items. Where the majority of the VHSG, 67.7%, had good knowledge about the overall items and only 32.3% of them had fairs level of knowledge.

There were three items of the knowledge about the danger signs, anaemia, bleeding and swelling during pregnancy; about 90.5% of them had known that they were danger signs. This may indicated that most common dangers among the women at the villages. The high level of knowledge among the items related to foods and drinks. They were clearly able to identify which type of food they recommended the pregnant women to eat and drinks. The knowledge related to the some do's and don'ts when the women are pregnant, were also high on four items, lifting heavy thing, working too hard, smoking and drinking alcohol. The other two items related to insecticide and use of un-prescribed medicine had low knowledge on these, only 12.9% and 29.9%, respectively, knew that the two items were dangerous for the foetus of the pregnant women. But, the knowledge about the eclampsia, only three positive statements, convulsion, blur vision and high blood pressure during pregnancy and one negative statement, vaginal bleeding during pregnancy were high among all respondents. This may indicate that they had high level of knowledge on the most common signs occurred to the women at their setting.

Most of them had poor level of knowledge on the items related to the management of airway. This is may be because of most of the respondents were not able to see the importance of the topic and how they can actually apply the knowledge in real situation as most of the VHSG do not involve in the delivery. The level of knowledge and understanding might have been improved through the mass media education program as well as the outreach education program from the collaboration with the health centre, TBA, VHSG and the NGO as well as most of them participated regularly in the meeting at the health centre, the place where they can share knowledge and experience. There were about 82.8% of them had meeting at the health centre regularly. But only 44.8% of them participated regularly at every quarter of the year as set by the project, and about 30.2% of them participated at least 3 times a year. The reasons for which not all participated in every quarter, may be because the work is voluntary the meeting schedule may come up on the date of which the volunteers need

to perform other work for the family business. It may due to the seasonal condition, meeting date may set on the rainy day; those who were living far remote village may not able to participate.

TBA home delivery service had been reduced, it was found that only 12% of them (n=116) still provided the delivery service at home in the previous year. All of them who performed home delivery claimed that it was an emergency case, not able to refer the women to health centre on time, due to baby come too early. This was a positive indicator of the efforts of the organization and the public health on prohibition of the TBA from delivery at home. The regulation of the banning the TBA from providing the delivery at the village was very appreciated by the TBA and VHSG themselves very much. About 95.7% of them agreed that this good to stop and recognised that TBA were not skilled attendants and lack of materials to use for delivery at home for emergency rescue. At the same, the TBA still has the involvement in the health system by taking new role of referral focal person and health promoter in the village.

The referral network from the village to health centre had changed from the time the project started in 2005. At start, the project proposed the TBA and VHSG to educate and encourage the pregnant women to go for ANC check up when they knew they were pregnant. At current situation, TBA and VHSG have had referral cards and paper, which was recognised by the health centre, and compensate the efforts and works supported by them. The result indicated that the all TBA (n=54) had involved in the referring the pregnant women to health facility, where VHSG (n=62), only 86.8% of them had involved in the transferring the pregnant woman to the health facility. The average number of women they transferred was around 9 (SD: 7.3) women in the previous year.

In this research we randomly selected 129 women who had at least one child born during the project period. That meant that any women recruited into the study were at least had a child age at least five years old. Among all women participated in the interview, majority of them (76.7%) had pregnancy of between one to three times before interview took place, others have more than three times and up to 12 times of pregnancies. The project had started the village pregnancy class aiming the improved knowledge around births.

The topics on preparation around birth, saving money, ANC check up and discussion on place of delivery, the majority of them from all three study site had high knowledge. The topic on the danger signs, the majority the women had high knowledge on three signs, which were bleeding and swelling and anaemia during pregnancy, for the positive statements. This may reflect that the most common danger signs occurred to the women at the community now are those three.

Majority of the women knew that fat was not the dangerous sign for pregnant women, as in the village pregnancy class, fat women was not considered as danger in pregnancy. There was similarity between the village women and the TBA and VHSG on these items.

The topic on foods, drinks, some dos and don'ts during pregnancy, the majority of them had high level of knowledge. Generally on these items it was found that there was similarity to the TBA and VHSG. It was found that among women in the study, exposure to the insecticide and use of un-prescribed medicine had low knowledge on this topic. There were about 65.1% of them knew that exposed to the insecticide or pesticide and about 42.6% of them knew that using un-prescribed medicine, were dangerous for foetus. However, there were differences within the study sites. It was found in Sampov Luon, there were about 95.2%, Samlot about 42.3% where in Pailin only 32.5% known that exposure to the insecticide, was dangerous. This may due to the lack of understanding of clear effects of the insecticide on the foetus. It can be seen similarly the item about the taking un-prescribed medicine. The result indicated variation between three study sites. Topic of using un-prescribed medicine, majority of respondents (72.5%) from Pailin had known that it was dangerous, where Samlot about 46.2% and Sampov Luon about 22.2% knew that un-prescribed medicine was dangerous for them. Overall there were about 42.6% of the respondent knew that using un-prescribed medicine was dangerous. The possible reason may be from the lack of clear understanding the complication from the drugs. The majority of rural people buy the medicine from drug store or even from grocery shop. They may not clearly understand the possible effect on the foetus.

Classification into levels of knowledge, good, fair and poor, it was found that the majority of them in all three catchment areas have had fair level of knowledge on all topics. It was found that the more community health promoters they have met,

the higher level of good knowledge obtained. The reasons may due to the facts that the education program from the local person-to-person education program, TBA, VHSG and health centre staff at the village and the mass media campaigns. It may also be due the fact that the majority of them had participated in the pregnancy class recently, (2010-2012). In addition, the access to television and radios is high at the village setting now a day.

Among those women who had met the TBA or VHSG, the majority of them said that they were told by those volunteers to go for ANC check up and preparation to deliver at the health facility. This indicated that the volunteers were working well at the village level. More than half of the women (61.2%) in the study had never experienced of being referred directly to the health facility, however, those who have been directly referred (n=50) to the health facility by the volunteers were very satisfied with the support from the volunteers. The appreciation and the satisfaction may be due the personal support, comfort and encouragement from the volunteers and well as good works they have done.

## 5.2 Limitation of the research

The data collection for this research started early February 2013. In rural areas where majority of the people are farmers, make the data collection almost impossible. Many of the targeted individual for the interview were not available at their residence. They were busy with the harvesting crops in their farms. To obtain better access to the individual for interview arranging for meeting of each individual through the village or health authority in advance may help. The other possibility is that the researcher to study overnight at the village proximity to reduce time spent on travelling.

The researcher and his assistants were staff members of the organization which the project is being evaluated. To obtain better and un-bias results, external data collector and evaluator should be involved.

The comparison of the data on the maternal and perinatal death in each project areas was not possible. The data was for the comparison was not able to gather in the short period of time. The data was available at health centre level; however, for

the period of five years, time is needed to consolidate the data from the weekly and monthly reports.

The existing data, information related to the baby's data set was very limited, only a few variables were collected.

# CHAPTER VI
# CONCLUSION AND RECOMMENDATIONS

## 6.1 Conclusion

The objectives of this research were to evaluate the project works carried out by the organization, whether the project objectives were achieved. Therefore the objectives would to reflect upon the building of a rural referral network to manage delivery complications from all level of the stakeholders of the project. The specific objectives of the this research was to assess the trends of maternal and perinatal mortality in the project catchment areas in the project period 2005 to 2009 and the same time evaluate the knowledge of the village women reproductive age years, the TBA/VHSG and the health centre medics and midwives regarding the emergency obstetric care measures, complicated cases management and danger around birth. The research project was also aiming at inspecting general practises of the village women at reproductive age, the TBA/VHSG and the health centre medics and midwives after receiving the training.

Overall, the trends of MMR, PMR and NMR were reduced significantly during the project period. The reduction resulted from the improvement of the accessibility to health care and health facility. Where, in this project, the organization has inputs on knowledge, materials and equipment. As the organization saw that, what is lacking in many areas of the project coverage as well in the whole provinces and countrywide is the ability to bring the necessary technical skills – economic, geographical, and operational to the women in need of help. Access to a continuum of care, including appropriate management of pregnancy, delivery, post-partum care and access to life-saving obstetric care when complications arise are crucial to safe motherhood. It should be concluded that what the organization has conducted in the project was to improve access to obstetrical services when complications arise:

1) The project has brought the medical services to women in need by improving the service provider's skills and equipment needed at the rural health centres.

2) The project approaches of bringing women who need them to medical services by training village TBA and VHSG and involved them the referral system has been fruitful. As seen in the current project of building the waiting houses for the remote mothers can come and stay in the house in the health centre waiting for the delivery. There was reduction of MMR, PMR and NMR in the project areas.

3) The project has achieved the decentralization of care so that women have easy access to skilled obstetric care. As evidences improvement of the rural blood banking system where district referral hospital has depot of blood products so that post partum haemorrhage cases not need to be referred to the provincial referral hospital as time is crucial for bleeding case.

The overall level of knowledge of all stakeholders, to some extent, is acceptable. The items of which they practices and used more often indicated high level. Those which not been used often the level was lower. Therefore, there is need for refreshment among the stakeholders of the project in terms of the level of emergency rescue of the obstetric are at the rural level. Some contents of the training should be looking at and searching deep into the issue why the knowledge level were low and why the content has not been used. The condom temponade techniques, the use of Misoprostol have been major topic in the training session. The result from this research indicated that were not being used.

In the larger district like Sampov Luon, there is a need to look at the coverage area of the health centre. The MMR remain fluctuated during the project area. There is a need to review the training program as well as rebuilding the network among health centres. There were some new health centres established and new medics and midwives stationed.

Role of TBA and VHSG has proved important and effective. The project, more or less, has achieved to some extent of the objective in getting the movement of the TBA and VHSG to move the pregnant women to use the health facility. Keeping this network alive at the village level would help increasing the level of knowledge

among village women and increase the number of women seeking for health at public health facility.

The referral system proved working effectively. More regular meeting the follow up should be in place to achieve what is aimed for in the building the rural referral system.

## 6.2 Recommendations

### 6.2.1 The project

The project has implemented for more than seven years, now there were different setting, context infrastructures in all the study sites. To be more effective, the project should:

1) The organization should look at the coverage areas again for the education program at the village. Remote villages where cannot be access by younger midwives (female health promoters), highly educated VHSG should be selected and trained on the purpose of educating the women at reproductive age.

2) The organization should review the training content for medics, midwives, VHSG as well as TBA in new roles and responsibilities as health promoter and referral focal person at the village.

3) To be more effective, the referral system from the village should include more stakeholders, such as village leaders and village development committee. The village leader and the development committee are member of health centre supporting committees and are well known and respectful in the community; this will help on the moral support to the women.

4) The organization should support the rural health facility to build up better information systems, records keeping and data storing

### 6.2.2 The respondents

Refreshment courses should be conducted in regular intervals with more relevant topics to each group of care providers and volunteers:

**1) Midwives and medics**

The following topic should be refresh and practice

- Treatment of pre-eclampsia and eclampsia
- Bleeding control measures
- The resuscitation procedures

**2) TBAs and VHSG**

Training should be focussed on

- identifying danger signs related to pregnancy more clearly
- Some Dos and don'ts when women are pregnant
- person to person education approaches

**3) Village women**

Variation of in the awareness and training session should be available at the community. Distribution of learning and education materials at village level should be focussed on. This may include the displaying of various education billboards and posters at the health facility as well as at the public place such as at market and pagodas, etc.

### 6.2.3 Further research

1) What were the possible reasons that make the number of deliveries during the project period differed from year to year

2) In depth qualitative study the new role of the TBA and VHSG at the community from the health system and villagers perspectives.

3) Why simple and effective method of post-partum bleeding control was not used at the health centre level?

4) What were perceptions of medics and midwives on the treatment of pre-eclampsia and eclampsia at health centre?

5) What are the possible factors involving the changes of health seeking behaviour among the mothers in the study areas?

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# APPENDICES

# APPENDIX A
# ETHICAL APPROVALS

## Certificate of Approval
## Ethical Review Committee for Human Research
## Faculty of Public Health, Mahidol University

COA. No. MUPH 2013-025

| | |
|---|---|
| Protocol Title : | EVALUATION OF DELIVERY LIFE SUPPORT IN RURAL AREAS OF BATTAMBANG AND PAILIN PROVINCES, CAMBODIA |
| Protocol No. : | 247/2555 |
| Principal Investigator : | Mr. Ha Sam Ol |
| Affiliation : | Master of Public Health (International Program)<br>Faculty of Public Health, Mahidol University |
| Approval Includes : | 1. Project proposal<br>2. Information sheet<br>3. Informed consent form<br>4. Data collection form/Program or Activity plan |
| Date of Approval : | 21 January 2013 |
| Date of Expiration : | 20 January 2014 |

The aforementioned project have been reviewed and approved according to the Declaration of Helsinki by Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University.

S. Nanthamongkolchai

(Assoc. Prof. Sutham Nanthamongkolchai)
Chairman of Ethical Review Committee for Human Research

(Assoc. Prof. Phitaya Charupoonphol)
Dean of Faculty of Public Health

420/1 Rajvithi Road, Bangkok, Thailand 10400
Tel. (662) 3548543-9 ext. 1127, 7404 Fax. (662) 6409854

ព្រះរាជាណាចក្រកម្ពុជា
KINGDOM OF CAMBODIA
ជាតិ សាសនា ព្រះមហាក្សត្រ
NATION RELIGION KING

ក្រសួងសុខាភិបាល
MINISTRY OF HEALTH
គណៈកម្មាធិការជាតិក្រមសីលធម៌
សំរាប់ការស្រាវជ្រាវសុខភាពលើមនុស្ស
National Ethics Committee for Health Research

លេខ....045.NEC.HR

រាជធានីភ្នំពេញ, ថ្ងៃទី 19 ខែ 05 ឆ្នាំ 2006

Prof. Koum Kanal
Principal Investigator,

**Project**: Delivery Life Support : a study of maternal and perinatal mortality in Cambodia.

**Reference:** May 11th, 2006 NEC meeting minute

Dear Prof. Koum Kanal

I am please to notify you that your project entitled " Delivery Life Support : a study of maternal and perinatal mortality in Cambodia "has been approved by the National Ethics Committee for Health Research in the meeting on May 11th, 2006.

The principal investigator of the project shall also submit a copy of the progress and final report to the committee's secretariat at the National Institute of Public Health at #2 Kim Il Sung Blvd., Khan Tuol Kok, Phnom Penh, Cambodia (Tel: 855-880-345 , Fax: 855-880-346).

Regards,

Chairman

H.E. Prof. ENG HUOT

# APPENDIX B
# INFORMATION SHEETS AND CONSENT FORM

## Information Sheet

**EC-3 Form**

**1. Title of project:**

Evaluation of Delivery Life Support in rural areas of Battambang and Pailin provinces, Cambodia

**2. Study site:**

Samlot district and Sampov Luon district of Battambang and Pailin province, Cambodia

**3. This project is conducted by:**

(*Student)* Mr. Ha Sam Ol

under supervision of Major Advisor as follows

Assoc. Prof. Chaweewon Boonshuyar

**4. Brief Background, Rationale: (use simple word, understandable by volunteer participant)**

Trauma Care Foundation Cambodia (TCFC) has implemented the delivery life support project in this area more than 7 years now. We have been doing the training of pregnant women at the village to know about the danger around birth. We have training the traditional birth attendants and village health support groups (the health volunteers). We have regular meeting with them about the problems the pregnant women meet in each village.

We have trained the midwives and medics at the health center regarding the emergency care when pregnant women have any complicated case arriving at health centre. Now it is time to evaluate the project to see if the objective set has achieve or not so that changes can made to improve for future activities

**5. Objectives:**

The objectives of the research are to study the impacts of the project on the target population under the project areas.

**6. You are invited to be a volunteer/subject to participate in the project:**

You are invited to participate in this study because you are one of the stakeholders that may have participated in the project from the beginning. Participating in this Evaluation of Delivery Life Support in rural areas of Battambang and Pailin provinces, Cambodia is voluntary. You will not get any financial benefit from participating in this research project.

**7. Research activities which involving you when you volunteer to participate in this research project will be as following: (focus on the parts that involve volunteers/subjects)**

- Answer to some personal information
- Answering to questions related to the knowledge and practices you have related to pregnancy
- Answer to some information regarding general information related to pregnancy in this village

**8. Period of time that you will be involved in this research activities (Treatment/data collection):**

The interview for will need to spend about 15 to 20 minutes with us for answering questionnaires, which asked or discuss by our research assistant.

**9. Expected benefits of the project to you and to others:**

From this research project will be no direct benefit to you and the villagers here but it will help us to use the result for improving the quality of the training program here and other places in the country.

**10. Risks or any undesirable that may occur to you caused by this research and measure or prevention and risk reclusion method which will be provided during participation in the project.**

There is no harmful possibly made to you from participating in this research, however if you feel not safe from participating in this project please inform the contact person with detail below.

**11. How can you securely store the data and keep them confidential? (such as how to take care data, where are data storage who will access, and how to destroy data and when)**

In order make the participant feel secure with the information we collect, data collected will have less identification formation so that people cannot trace you. If the information is including the personal identity and sensitive issues we will make the data anonymous by using ID number. All the data collected from here will be kept secret and locked. Only the researcher and the advisors may have the access to the data. We will destroy the data after 5 years. The soft copy will be deleted, hard copy will be physically destroyed so that information will not be able to obtain.

**12. The right of the subject (he/she) to withdraw from the project.**

The participation is voluntarily; therefore you have your rights to withdraw from the study at anytime without any reason. If you wish to do so please inform to the contact person with the detail below.

**13. Contact address of authorized persons in case of emergency.**

Mr. Ha Sam Ol
Trauma Care Foundation Cambodia
House No. 189 Group 2, Phum Romchek 4, Khum Ratanak
Battambang, Cambodia
Mobile (Cambodia): 855-12 853 373
Thailand: +66 83-618-2027

This research project be approved by the Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University. Office address at Building 1, 4th Floor, 420/1 Rajvithi Road, Rajthevi, Bangkok 10400, Telephone: 0-2354-8543-9 Ext. 1127, 7404 Fax: 0-2640-9854

# សន្លឹកពត៌មាន

**EC-3 Form**

**1. ឈ្មោះគម្រោង៖**

*ការវាយតម្លៃ នៃកម្មវិធីការទ្រទ្រង់ជីវិតពេលសម្រាល នៅតាមតំបន់ជនបទនៃខេត្តបាត់ដំបង និង ប៉ៃលិន នៃព្រះរាជាណាចក្រកម្ពុជា*

**2. បំបន់សិក្សា៖**

*ស្រុកសំឡូត និង ស្រុកសំពៅលូន ខេត្ត បាត់ដំបង គ្រប់ស្រុកក្នុងខេត្តប៉ៃលិន*

**3. គំរោងsសិក្សានេះប្រតិបត្តិដោយ៖**

*លោក* **ហា សំអុល**

*ក្រោមការគ្រប់គ្រងដោយ សាស្ត្រាចារ្យរង* **ឆវឆណ្ណ ប៊ូនសុយ៉ា៖**

**4. សេចក្តីសង្ខេប និង បុព្វហេតុ៖**

*មូលនិធិសង្គ្រោះជនរងគ្រោះដោយសារមីន កម្ពុជា (TCFC) has បានអនុវត្តន៍គម្រោង កម្មវិធី ការទ្រទ្រង់ជីវិតពេលសម្រាល ក្នុងតំបន់នេះអស់រយៈពេលជា៧ ឆ្នាំមកហើយ ។ ក្នុងគម្រោងនេះ យើងបាន បង្រៀនស្ត្រីមានផ្ទៃពោះនៅតាមភូមិស្តីពីសញ្ញានិងសកម្មភាពគ្រោះថ្នាក់ទាំងឡាយ និង ការត្រៀមជុំវិញការផលដល់កំណើត ។*

*យើងបានបង្រៀនធ្មបតាមភូមិ និង អ្នកស្មគ្រចិត្តសុខភាពភូមិ ពីសញ្ញានិងសកម្មភាពគ្រោះថ្នាក់ទាំងឡាយ និង ការត្រៀមជុំវិញការផលដល់កំណើត និង បណ្តាញបញ្ជូន ផងដែរ ។ ក្រៅពីនេះ យើងក៏មានការប្រជុំប្រចាំត្រីមាសជាមួយក្រុមខាងក្រោយនេះដែរ ។ យើងបានហ្វឹកហ្វឺន ធ្មប និង គ្រូពេទ្យ នៅមណ្ឌលសុខភាព ពិការជួយសង្គ្រោះបន្ទាន់ចំពោះស្ត្រីមានគភ៌ពេលមាន បញ្ហាបន្ទាន់ ពេលសំរាល ព្រមទាំងផ្តល់សំភារសំខាន់ៗសម្រាប់ការសង្គ្រោះ បន្ទាន់ នៅមណ្ឌលសុខភាព ។ យើងគិតថាឥឡូវនេះល្មមដល់ពេល ធ្វើការវាយតម្លៃកម្មវិធីនេះហើយដើម្បី ពិនិត្យមើលថាតើ គម្រោងនេះបានសម្រេចគោលបំណងដែលមបានគ្រោងហើយ ឬ នៅ ដើម្បីជាការប្រមាណ សម្រាប់ធ្វើផែនការទៅអនាគត ។*

**5. គោលបំណង**

*គោលបំណងនៃការសិក្សានេះសិក្សារកមើលនូវឥទ្ធិពលនៃកម្មវិធីលើប្រជាជនគោលដៅក្នុង តំបន់សិក្សាទាំងមូល ។*

**6. ការចូលរួមក្នុងគម្រោងសិក្សានេះជាការស្មគ្រចិត្ត**

*ការដែលអញ្ជើញលោកអ្នកឲ្យចូលក្នុងការសិក្សានេះក៏ដោយសារតែលោកអ្នកបានចូលរួមក្នុងកម្ម វិធីយើងតាំងតែពីដំបូងមកម្ល៉ះ ។ ម្យ៉ាងទៀតការចូលរួមក្នុងគម្រោងសិក្សាដែលមាន ឈ្មោះថា*

*«ការវាយតម្លៃ នៃកម្មវិធីការទ្រទ្រង់ជីវិតពេលសម្រាល នៅតាមតំបន់ជនបទនៃខេត្តបាត់ដំបង និង ប៉ៃលិន នៃព្រះរាជាណាចក្រកម្ពុជា» ជាការរួមដោយស្មគ្រចិត្ត លោកអ្នកនឹងមិនមានទទួលបាន នូវកម្រៃជាថវិកាពីការចូលរួមនេះទេ ។*

**7. សកម្មភាពនៃការស្រាវជ្រាវដែលលោកអ្នកចូលរួមដោយស្មគ្រចិត្ត ដែលត្រូវប្រតិបត្តិដូចជា៖**

- *ឆ្លើយនូវសំណួរផ្ទាល់ខ្លួនខ្លះៗ*
- *ឆ្លើយនូវសំណួរទាក់ទងនឹង ចំណេះដឹង និងការអនុវត្តន៍ពេលមានផ្ទៃពោះ*
- *ឆ្លើយនូវសំណួរខ្លះៗ ទាក់ទងនឹងពត៌មានទូទៅទាក់ទងនឹងគម្រោង និង ស្ត្រីមានគភ៌តាមភូមិ ។*

**8. រយៈពេលដែលលោកអ្នកត្រូវចូលរួមក្នុងការសិក្សានេះ**

*ក្នុងការសិក្សានេះលោកអ្នកនឹងត្រូវចំណាយពេល 15 ទៅ 20 នាទីតែប៉ុណ្ណោះដើម្បីឆ្លើយសំណួរ ដែលក្រុមស្រាវជ្រាវយើងសួរ ផ្ទាល់ ។*

**9. សេចក្តីរំពឹងនៃប្រយោជន៍ដែលលោកអ្នកនឹង បានទទួលពីគ្រោងនេះ**

*គម្រងនេះនឹងមិនមានផ្តល់ជាប្រយោជន៍ផ្ទាល់ភ្លាមៗដល់លោក អ្នក និង អ្នកភូមិទេ ។ តែការ សិក្សានេះនឹងអាចជួយឲ្យយើងអាចរៀបចំគុណភាពគម្រោងកម្មវិធីនេះឲ្យបានប្រសើរឡើង ។ ការសិក្សានេះអាចប្រើជាកម្មវិធីបង្រៀននៅក្នុងប្រទេសដទៃដែលមានបរិបទស្រដៀងគ្នា ។*

**10. ហានីយភ័យ និង ហេតុដែលមិនគាប់ចិត្ត ដែលអាចកើតមានពីគម្រោង សិក្សានេះ និង ការពារ ក្នុងពេលចូលរួមសិក្សានេះ ។**

*ក្នុងការសិក្សានេះមិនមានផលប៉ះពាល់អ្វីទេ ។ តែទោះជាយ៉ាងណាក្តី បើលោក អ្នកមាន អារម្មណ៍ថាគ្មានសុវត្តិភាព ក្នុងការចូលរួមជាមួយគម្រោងនេះ លោក អ្នកអាចដកខ្លួនចេញ នៅ ពេលណាមួយក៏បាន ដោយមិនចាំបាច់មានហេតុលអ្វីឡើយ ។ បើលោកអ្នកមានចេតនា ដូចនេះ សូមទាក់ទងនិង បុគ្គលខាងក្រោម ។*

**11. ការរក្សាជាសម្ងាត់ និង ការរក្សាទុកនូវពត៌មាន និង ការបំផ្លាញចោល ។**

*រាល់ពត៌មានផ្ទាល់ខ្លួន និង ពត៌មានដែលមានអត្តសញ្ញាណផ្ទាល់ខ្លួន នឹងត្រូវកាត់បន្តយឲ្យ នៅតិច បំផុតដើម្បីមិនឲ្យអ្នកដទៃតាមរកឃើញ ។ បើពត៌មានមានអត្តសញ្ញាណ និង ពត៌មាន ដែលរសើប យើងនឹងបំផ្លែងឲ្យទៅជាអនាមឹក ដោយប្រើលេខសំគាល់ ជំនួស ។ រាល់ទិន្នន័យប្រមូលបាននឹង ត្រូវរក្សាទុកជាសំងាត់ហើយចាក់សោរ ទុកនៅទដែលមានសុវត្តភាព ។ មានតែអ្នកស្រាវជ្រាវ នឹង ទីប្រឹក្សានៃការសិក្សានេះប៉ុណ្ណោះដែលអាចប្រើទិន្នន័យនេះបាន ។ យើងនឹងបំផ្លាញទិន្នន័យនេះ ចោលក្នុងរយៈពេល ៥ ឆ្នាំ បន្ទាប់ពីការសិក្សា ។ ឯកសាដែលជាបែបអេឡិត្រូនិក និង ត្រូវលុប បំបាត់ចោល ឯកសារជាក្រដាសនឹងត្រូវបំផ្លាញចោល ទាំងស្រុង ។*

## 12. សិទ្ធិក្នុងការដកខ្លួនចេញពីការសិក្សា

*ការចូលរួមក្នុងការសិក្សាជាការស្មគ្រចិត្ត ហេតុនេះលោកអ្នកមានសិទ្ធិក្នុងការដកខ្លួនចេញពីការសិក្សានេះ នៅពេលណាក៏បានដោយមិនចាំបាច់ផ្តល់ហេតុផលអ្វីឡើយ។ បើលោក អ្នកមានចេតនា ដូចនេះសូមទាក់ទងនិង បុគ្គលខាងក្រោម។*

## 13. បុគ្គលត្រូវទាក់ទងពេលមានការបន្ទាន់

*លោក ហា សំអុល*

*អង្គការ មូលនិធិសង្គ្រោះជនរងគ្រោះដោយសារមីន កម្ពុជា*

*អាស័យដ្ឋាន៖ ផ្ទះលេខ ១៨៩ ក្រុមទី ២ ភូមិរំចេក ៤ ឃុំរតនៈ ក្រុងបាត់ដំបង ខេត្ត បាត់ដំបង*

*ទូរស័ព្ទចល័ត(ខ្មែរ)៖ 855-12 853 373 ទូរស័ព្ទចល័ត(ថៃ)៖+ 66 83-618-2027*

*ការសិក្សានេះបានអនុម័តគណៈកម្មាធិការត្រួតពិនិត្យក្រមសីលធម៌ការសិក្សាស្រាវជ្រាវទាក់ទងនឹង មនុស្ស នៃ មហាវិទ្យាល័យសាធារណសុខសាស្ត្រ នៃសកលវិទ្យាល័យ មហិដុល។*

*អាស័យដ្ឋាន៖ អាគារលេខ* 1 *ជាន់ទី* 4 *លេខ* 420/1 *ផ្លូវពាជវិធី តំបន់ពាជទេវី ក្រុងបាងកក* 10400, *ទូរស័ព្ទលេខ៖* 0-2354-8543-9 *ត* 1127, 7404 Fax: 0-2640-9854 *។*

**EC-4 Form**

# Informed Consent Form

**Project Title:**
Evaluation of Delivery Life Support in rural areas of Battambang and Pailin provinces, Cambodia

**Responsible person(s) and institute:**

Name (*research Assistant)*_____
Institute: Trauma Care Foundation Cambodia
Date ……...…… (day/month/year)

I (Mr./Mrs./Ms.)…….……..…..……...……
Home address……..…… Street…….…… Village:.....
number……..……
Sub district……. District…...…….. Province…….. Postal code…….……..

I have read and understood all statements in the information sheet. I have also been explained the objectives and methods of the study, as well as possible risks and benefits that may happen to myself upon the participation in the study. I understand that the information will be kept confidential and my name will not be declared in any case. I shall be given a copy of the signed informed consent form.
I have the right to withdraw from the project at any time without any adverse effects upon myself.

Signature…..……..… (Respondent/informant)
(…….……..)
Signature…… (Researcher)
(……...……....)

I cannot read but before having finger print on this informed consent form, the investigator/interviewer has read and explained to me in detail about the study, the information sheet and the informed consent form until I completely understood.

Thumb Print ……..…(Respondent/informant)
(…….)
Signature ……..… (Researcher)
(...……..)

# បែបបទនៃការយល់ព្រម

**ឈ្មោះគម្រោង៖**

*ការវាយតម្លៃ នៃកម្មវិធីការទ្រទ្រង់ជីវិតពេលសម្រាល នៅតាមតំបន់ជនបទនៃខេត្តបាត់ដំបង និង ប៉ៃលិន នៃព្រះរាជាណាចក្រកម្ពុជា ។*

**អ្នកទទួលខុសត្រូវ និង ស្ថាប័ន៖**

*ឈ្មោះអ្នកស្រាវជ្រាវ៖ លោក ហាសំអុល*

*ស្ថាប័ន៖ អង្គការមូលនិធិសង្គ្រោះជនរងគ្រោះដោយសារមីន កម្ពុជា*

*កាលបរិច្ឆេទ៖ ថ្ងៃទី.....ខែ.....ឆ្នាំ 2013*

*ឈ្មោះ.....កេទ.....រស់នៅ*

*ក្រុមទី.....ភូមិ.....ឃុំ.....ស្រុក.....ខេត្ត.....*

*ខ្ញុំបានអាន/ស្តាប់ និង យល់រាល់សេចក្តីក្នុងសន្ធឹកពត៌មានរួចរាល់ហើយ ។ ហើយការពន្យល ពីមូលហេតុ និង បំណង និង វិធីសាស្ត្រ នៃការសិក្សា ព្រមទាំងហានីយភ័យ និង ផលប្រយោជន៍ទាំងឡាយដែលអាចកើតមានចំពោះរូបខ្ញុំក្នុងការចូលរួមក្នុងការសិក្សានេះ ។ ខ្ញុំយល់ថាពត៌មានទាក់ទងនឹងរូបខ្ញុំ នឹងត្រូវរក្សាទុកជាសម្ងាត់ ហើយឈ្មោះរបស់ខ្ញុំនឹងមិនត្រូវបង្ហាញប្រាប់អ្នកដទៃឬដឹងឡើយ ។ ខ្ញុំនឹងបានទទួលបែបបទនេះមួយច្បាប់ ផងដែរ ។ ខ្ញុំមានសិទ្ធិក្នុងការដកខ្លួនចេញពីគម្រោងសិក្សានេះ នៅពេលណាក៏បានដោយមិនចាំបាច់មាន លទ្ធផលអាក្រក់ប៉ះពាល់ដល់ខ្ញុំឡើយ ។*

*ហត្ថលេខា(អ្នកផ្តល់ពត៌មាន).....*

*ហត្ថលេខា(អ្នកស្រាវជ្រាវ).....*

*ខ្ញុំមិនចេះអាន តែមុននឹងខ្ញុំផ្តិតស្នាមមេដៃនេះ អ្នកស្រាវជ្រាវបាន អាន និង ពន្យល់ពីពត៌ទាក់ទងនឹងការសិក្សា និង ពត៌មានទាំងអស់ច្បាស់លាស់ ហើយក៏មានយល់ពីពត៌មានទាំងស្រុង ។*

*ស្នាមមេដៃ(អ្នកផ្តល់ពត៌មាន).....*

*ហត្ថលេខា(អ្នកស្រាវជ្រាវ).....*

# APPENDIX C

# QUESTIONNAIRES

## FORM 1: FOR VILLAGE WOMAN

**Part One: Administrative Information**

1.1 Identify number:__ ___ ___ Interview Date_____/_____/ 2013

1.2 Interview by _____

1.3 District (Project catchment Area): [1] Sampov Luon [2] Pailin [3] Samlot
Village _____

1.4 General characteristics of informant
Age. _____Years Occupation [1] Housewife [2] Farmer
[3] Vendor [4] Labour worker

1.5 Do you earn enough for living?
[1] Not enough [2] Sometime enough [3] Always enough

1.6 Total pregnancy: _____ Total abortion: _____
Total delivery:_____ Total live birth: _____
Number of baby died: _____

**Part Two: Knowledge, Satisfaction and Practices**

2.1 Did you go for ANC during your last pregnancy?
[0] No [1] Yes ➲ How many times did you go for ANC?_____visits
2.2 When was your last delivery? Year: _____
2.3 Where was your last delivery location?
[1] At home [2] TBA houses
[3] Health centre ➲ How did you go to HC?[1] Ambulance [2] Taxi
[3] Motorbike [4] Personal car [5] Other (specify)_____

[4] Hospital ➲ How did you go to RH?[1] Ambulance [2] Taxi [3] Motorbike
[4] Personal car [5] Other (specify)_____
For those who deliver at HC/RH go to Q2.5
2.4 Why did you decide to deliver at home/TBA house? (Multiple responses)
❍ Labour comes too early ❍ No transport ❍ No money ❍ Safe for delivery
❍ Other:(specify)_____
2.5 Did you any problem with transportation to HC/RH?
[0] No
[1] Yes ➲ What were the problems? ❍ Too costly ❍ Not available in village

❍ Other (specify)_____

2.6 What is the SAFEST place to deliver?
[1] TBA house with TBA [2] VHSG house [3] Health Centre [4] Hospital/Clinic

2.7 Have you ever met with TBA during your last pregnancy?
[0] No
[1] Yes ➲ 1) How many times _____
2) What did she tell you?
❍ To prepare for deliver in the village ❍ Should go for ANC check
❍ Prepare for deliver at HC/RH ❍ Prepare to save money for deliver
❍ Other (specify)_____

2.8 Have you met with VHSG during your last pregnancy?
[0] No
[1] Yes ➲ 1) How many times _____
2) What did she tell you?
❍ To prepare for deliver in the village ❍ Should go for ANC check
❍ Prepare for deliver at HC/RH ❍ Prepare to save money for deliver
❍ Other (specify)_____

2.9 What do you think about the TBA and VHSG service in the village?
[1] Very good [2] Good [3] Rather good [4] Not good

2.10 Have you ever been referred to deliver at health centre?
[0] No
[1] Yes ➲ When was that? _____
➲ What was the level of your satisfaction on this referral system?
[1] Very satisfied [2] Satisfied [3] No idea
[4] Unsatisfied [5] Very unsatisfied

2.11 Have you heard that 5-6 years ago we (NGO) have involved TBA and VHSG in the referral system of pregnant woman to HC/Hospital? Do you know this?
[0] No
[1] Yes ➲ What do you think about this referral system (established by the NGO)?
[1] Very good [2] Good [3] Rather good [4] Not good

2.12 Have you ever been participating in the pregnancy class in the village?
[0] No
[1] Yes ➲ When was that class? _____(Year)

2.13 When you know you are pregnant what should you do?

❍ Start saving money for delivery
❍ Discuss with the following persons about delivery place
❍ Mother /mother in-law ❍ husband ❍ neighbours ❍ close friends

2.14 How many times should pregnant woman go for ANC?
[1] One time only before delivery [2] Two times before delivery
[3] At least 3 times before delivery

2.15 What are the danger signs for pregnant woman?
❍ Pregnant at old age ❍ Pregnant at young age
❍ The pregnant woman is too tall ❍ Pregnant woman who is fat
❍ Pregnant woman is too short ❍ Already has many children
❍ Bleeding during the pregnancy ❍ Swelling during the pregnancy
❍ Convulsion during the pregnancy ❍ High fever and chills when pregnant
❍ Amniotic broke before labour pain ❍ Pregnant woman has Anaemia
❍ Vomit too many much during pregnant ❍ Severe headache
❍ Pregnant woman has history of Caesarean Section

2.16 When pregnant woman have one of above signs (Q2.15), what should she do?
[1] Rest at home [2] immediately consult with midwife [3] Consult TBA/VHSG
[4] Consult with other specify)_____

2.17 During pregnancy women should eat and drink the following food
❍ All kinds of food and drinks with high protein
❍ All kind of food and drinks with provide energy
❍ All kind of food and drink with high alcohol concentration
❍ All kind of food with high iron and Vitamin

2.18 During her pregnancy woman should avoid
❍ Lift heavy ❍ Working too hard ❍ Expose pesticide/insecticide
❍ Smoking ❍ Drinking alcohol ❍ Take Medicines without doctor's prescription

# FORM 2: FOR TBA AND VHSG

## Part One. Administrative Information

1.1 Identify number: __ ___ ___ Interview Date _____/_____/ 2012
1.2 Interview by _____
1.3 Informant: Age _____year Sex [1] Male [2] Female
1.4 Occupation: [1] TBA [2] VHSG
1.5 District (Project catchment Area): [1] Sampov Luon [2] Pailin [3] Samlot
1.6 Health Centre: _____

## Part Two: Knowledge and Practices

2.1 Last year have you ever transferred women to health centre or hospital?
[0] No (Please go to question Q: 2.6)
[1] Yes ➲ how many in the last year: _____women

2.2 What were the problems with the women you transferred from village to health centre and how many last year?

- ❍ Bleeding..... Cases
- ❍ Convulsion…….....Cases
- ❍ Swelling..... Cases
- ❍ High Fever.....Cases
- ❍ Anaemia..... Cases
- ❍ Prolonged labor .....Cases
- ❍ Others (specify)
  1)…….Cases
  2)…….Cases
  3)…….Cases

2.3 Last year, did you transferred the women to the following places and how many?

Referral Hospital [0] No [1] Yes ➲ how many ..... cases
Health Centre [0] No [1] Yes ➲ how many ..... cases
Thailand [0] No [1] Yes ➲ how many ..... cases
Private Clinic [0] No [1] Yes ➲ how many ..... cases

2.4 What do you think about the referral system from village to health centre?

[1] Good ➲ Why_____
[2] Not Good ➲ Why_____

2.5 What do you think about the referral system from village to referral hospital?
[1] Good ➲ Why_____
[2] Not Good ➲ What should be improved?

2.6 Do you still provide deliver service at home?
[0] No
[1] Yes ➲ How many last year: _____

2.7 Have you ever encounter any problem when providing delivery service at home?
[0] No
[1] Yes➲ What was the problems and how many last year?
Mother died [0] No [1] Yes ➲ how many ..... cases
Bleeding [0] No [1] Yes ➲ how many ..... cases
Placenta Previa [0] No [1] Yes ➲ how many ..... cases
Placenta Retention [0] No [1] Yes ➲ how many ..... cases Obstructed Labour [0] No [1] Yes ➲ how many ..... cases
Breech delivery [0] No [1] Yes ➲ how many ..... cases
Twins [0] No [1] Yes ➲ how many ..... cases
Other (specify)
1)..... [0] No [1] Yes ➲ how many ..... cases
2)..... [0] No [1] Yes ➲ how many ..... cases
3)..... [0] No [1] Yes ➲ how many ..... cases

➲ When you had such problem, whom did you ask for help?
❍ Midwife at health centre❍ Midwife at Hospital
❍ Private Clinic ❍ Try to solve by myself
❍ Other (specify) _____

2.8 Why do you decide to provide delivery service at home?
❍ Woman did not want to go health centre ❍ Want the money
❍ Baby came too early ❍ There is no transport to go
❍ Delivery due at night ❍ Other (specify):_____

2.9 What do you think about the delivery service at the health centre?
[1] Good, why?_____
[2] Not good, what should be improved?_____

**2.11 Have you ever heard that some year ago the government not allow TBA to** provide deliver service at home?
[0] No
[1] Yes ➲ Do you agree with them?
[0] No ➲ What are the reasons?_____
[1] Yes ➲ What are the reasons?_____

2.12 Have you ever participated in TBA/VHSG quarterly meeting at HC last year?
[0] No
[1] Yes ➲ how many times _____
➲ In the quarterly meeting, did TCF give you any material for emergency delivery kit? [0] No [1] Yes
➲ Are you happy with this quarterly meeting?
[1] Very Happy [2] Happy [3] Rather happy
[4] Not Happy, What should be improved_____?

2.13 What are the danger signs for pregnant woman?
❍ Pregnant at old age ❍ Pregnant at young age
❍ The pregnant woman is too tall ❍ Pregnant woman who is fat
❍ Pregnant woman is too short ❍ Already has many children
❍ Bleeding during the pregnancy ❍ Swelling during the pregnancy
❍ Convulsion during the pregnancy ❍ High fever and chills when pregnant
❍ Amniotic broke before labour pain ❍ Pregnant woman has Anaemia
❍ Severe headache ❍ Vomit too many times during pregnant
❍ Pregnant woman has history of Caesarean Section

2.14 During pregnancy women should eat and drink the following food
❍ All kinds of food and drinks with high protein
❍ All kind of food and drinks with provide energy
❍ All kind of food and drink with high alcohol concentration
❍ All kind of food with high iron and Vitamin

2.15 During her pregnancy woman should avoid
❍ Lift heavy things ❍ Working too hard ❍ Smoking
❍ Expose pesticide/insecticide ❍ Drinking alcohol
❍ Take medicines without doctor's prescription

2.16 How many women did see with danger signs last year?_____

2.17 What are the signs of pre-eclampsia (eclampsia) in pregnant women?
❍ Severe headache ❍ Convulsion ❍ Blur vision
❍ High Blood Pressure ❍ Swelling on the legs ❍ Vaginal bleeding

2.18 How many women have you seen with sign of pre-eclampsia/eclampsia last year_____

2.19 What did you do when you see pregnant women with sign of pre-eclampsia/eclampsia?
❍ Transferred them to go to HC immediately

❍ Transferred them to go to RH immediately
❍ Give them some traditional medicine
❍ Other _____

2.20 Do you know what to do with newly born baby without breathing?
[0] No
[1] Yes ➲ What will you do?
❍ Give chest compression ❍ Give mouth-to-mouth ventilation
❍ Give bag-to-mouth ventilation ❍ Hit baby's buttock gently

2.21 Have you ever seen newly born baby without breathing?
[0] No
[1] Yes ➲ What did you do?
❍ Give chest compression ❍ Give mouth-to-mouth ventilation
❍ Give bag-to-mouth ventilation ❍ Hit baby's buttock gently

2.22 What should you do if you found a newly born baby with blue colour?
❍ Do chest compression ❍ Provide Oxygen by giving air ventilation
❍ Give CPR ❍ Hit the baby so that he/she cry

2.23 Have you ever seen newly born baby with blue colour?
[0] No
[1] Yes ➲ What did you do?
❍Do chest compression❍ Provide Oxygen by giving air ventilation
❍ Give CPR ❍ Hit the baby so that he/she cry

# FORM 3: FOR MIDWIVES AND MEDICS

## Part One. Administrative Information

1.1 Identify number: __ ___ ___ Interview Date: _____/_____/ 2012

1.2 Interview by: _____

1.3 Informant: Age_____Year Sex [2] Female [1] Male

1.4 Occupation: [1] Midwife [2] Medic

1.5 District (Project catchment Area): [1] Sampov Luon [2] Pailin [3] Samlot

1.6 Health Centre: _____

## Part Two: Knowledge and Practices

2.1 How many women have been transferred from village to health centre last year?
By TBA: _____ Cases Village Leader: _____Case VHSG: _____Case

2.2 What were most commons means of transport of pregnant women from village to health centre?
[1] Taxi (paid vehicle) [2] Motorbike [3] Ambulance from hospital
[4] Other (specify)_____

2.3 How many women delivered at your health centre in the following year?
2005_____ 2006 _____2007 _____
2008_____ 2009_____

2.4 Do you think quarterly meeting with TBA/VSHG is important?
[1] Yes, why _____
[0] No, why _____

2.5 What is the level of satisfaction of the service provided by TBA to **support your work?**
[1] Very satisfied [2] Satisfied [3] No idea
[4] Unsatisfied [5] Very unsatisfied

2.6 What is the level of satisfaction of the service provided by VHSG to support your work?
[1] Very satisfied [2] Satisfied [3] No idea
[4] Unsatisfied [5] Very unsatisfied

2.7 What are most common means of transports of pregnant women from HC to RH?
[1] Taxi (paid vehicle) [2] Motorbike [3] Ambulance from RH

[4] Other (specify)_____

2.8 Are you satisfied with the referral system from HC to RH?

[0] No. Why_____

[1] Yes. Why _____

2.9 Have you ever had any problem during delivery at HC?

[0] No

[1] Yes ➲ who did you ask for help? (Multiple responses)

❍ Operational District authority ❍ Technical office at province

❍ Technical office at OD ❍ Discuss with staff at health centre

❍ Doctor at private clinic

2.10 Last year have you had material for delivery running out of stock?

[0] No,

[1] Yes, ➲ What did you do? (Multiple responses)

❍ Request to TCFC ❍ Request to rich (villager)

❍ Buy from market ❍ Request to other NGO partner

❍ Other (specify):_____

2.11 Do you satisfy with the supplying system delivered by TCFC?

[0] No➲ what should be improved? _____

[1] Yes sometime ➲ What should be improved? _____

2.12 Last year have you ever had emergency kits running out of stock?

[0] No

[1] Yes ➲ What did you do? (Multiple responses)

❍ Request to TCFC ❍ Request to rich (villager)

❍ Buy from market ❍ Request to other NGO partner

❍ Other (specify):_____

2.13 Last year, have you met any delivery complicated cases?

[0] No [1] Yes ➲ what are the problems and how many?

- Mother died [0] No [1] Yes ➲ how many ..... cases
- Bleeding [0] No [1] Yes ➲ how many ..... cases
- Placenta Previa [0] No [1] Yes ➲ how many ..... cases
- Placenta Retention [0] No [1] Yes ➲ how many ..... cases
- Obstructed Labour [0] No [1] Yes ➲ how many ..... cases
- Breech delivery [0] No [1] Yes ➲ how many ..... cases
- Twins [0] No [1] Yes ➲ how many ..... cases

- Other (specify)

  1)..... [0] No [1] Yes ➲ how many ..... cases

  2).....[0] No [1] Yes ➲ how many ..... cases

  3).....[0] No [1] Yes ➲ how many ..... cases

2.14 What are the signs and symptoms of pre-eclampsia/eclampsia? (Multiple responses)

❍ High BP ❍ Convulsion ❍ Some vaginal bleeding

❍ Severe headache ❍ High Protein in urine ❍ Blur vision

2.15 Have you ever treat eclampsia at the health centre? (Multiple responses)

[0] No

[1] Yes ➲ How did you treat for Eclampsia?

❍ Diazepam, Magnesium and Recovery position

❍ Diazepam, Magnesium ❍ Diazepam ❍ Hydralazine

❍ Other (specify): _____

2.16 Have ever experienced severe bleeding case during delivery last year?

[0] No

[1] Yes ➲ How did you handle the bleeding problem? (Multiple responses)

❍ Condom Temponade ❍ Aorta Compression

❍ Use medicine Cytotec

❍ Other (specifiy)_____

2.17 Cytotec (Mysoprostol) is recommended to use

Orally [0] No [1] Yes ➲ Start dose _____tablets

Maximum dose_____tablets

Rectally [0] No [1] Yes ➲ Start dose _____tablets

Maximum dose_____tablets

2.18 Have you experienced pregnant women come without pulse and breathing last year?

[0] No

[1] Yes ➲ how did you handle that? (Multiple responses)

❍ Give CPR by 2 Blows : 30 Chest compression

❍ Give CPR by 2 Blows : 15 Chest compression

❍ Give CPR by 1 Blow : 15 Chest compression

# បែបបទទី 1៖ សំណួរសម្រាប់ស្ត្រីតាមភូមិ

## ភាគទី១៖ ពត៌មានទូទៅ

1.1 លេខសំគាល់៖__ ___ ___ កាលបរិច្ឆេទសំភាស៖_____/_____/ 2013

1.2 សំភាសដោយ៖_____

1.3 ស្រុក (ក្នុងគម្រោង)៖ [1] សំពៅលូន [2] ប៉ៃលិន [3] សំឡូត

ភូមិ៖ _____

## លក្ខណៈទូទៅនៃអ្នកផ្តល់ពត៌មាន

1.4 អាយុ៖_____ឆ្នាំ មុខរបរ៖ [1] មេផ្ទះ [2] កសិករ [3] លក់ដូរ [4] កម្មករ

1.5 តើប្រាក់ចំណូលរាល់ថ្ងៃគ្រប់គ្រាន់សម្រាប់ការរស់នៅដែរឬទេ?

[1] មិនគ្រប់ទេ [2] ជួនកាលក៏គ្រប់ [3] គ្រប់គ្រាន់ជានិច្ច

1.6 មានផ្ទៃពោះប៉ុន្មានដង៖_____ រលូតអស់៖_____

ចំនួនសំរាលកូន៖ _____ ចំនួនកូនរស់៖ _____

ចំនួនកូនស្លាប់៖ _____

## ភាគទី ២ ៖ ចំណេះដឹង និង ការអនុវត្តន៍

**2.1 កាលពីមានផ្ទៃពោះលើកចុងក្រោយនេះមានបានទៅពិនិត្យពោះឬទេ?**

[0] ទេ [1] ចាំសបាន ➲ បានទៅពិនិត្យប៉ុន្មានដង? _____ដង។

**2.2 តើសំរាលកូនចុងក្រោយបំផុតពីឆ្នាំណា? ឆ្នាំ _____**

**2.3 តើ សម្រាលលើកក្រោយម្រាលនៅឯណា?**

[1] នៅផ្ទះ [2] នៅផ្ទះឆ្មបបុរាណ

[3] នៅមណ្ឌលសុខភាព **➲ តើទៅមណ្ឌលដោយសារអ្វី**

[1] រថយន្តសង្គ្រោះ [2] ឡានតាក់ស៊ី [3] រ៉ឺម៉កម៉ូតូ [4] ឡានផ្ទាល់ខ្លួន

[5] ផ្សេងទៀត(សូមបញ្ជាក់)_____

[4] នៅមន្ទីរពេទ្យ **➲ ទៅពេទ្យដោយសារអ្វី?**

[1] រថយន្តសង្គ្រោះ [2] ឡានតាក់ស៊ី [3] រ៉ឺម៉កម៉ូតូ [4] ឡានផ្ទាល់ខ្លួន

[5] ផ្សេងទៀត(សូមបញ្ជាក់)_____

**ចំពោះអ្នកដែលឆ្លើយថាសាំរាលនៅ មណ្ឌលសូមតទៅសំណួរ Q2.5**

**2.4 តើហេតុអ្វីបានជាសម្រេចចិត្តសាំរាលជាមួយឆ្មបបុរាណនៅផ្ទះ/ផ្ទះឆ្មប?**
**(មានចម្លើយច្រើន)**

❍ ឈឺពោះឆាប់ពេក ❍ គ្មានមធ្យោបាយដឹកជញ្ជូនទៅ ❍ គ្មានលុយកាក់

❍ គិតថាសំរាលគ្មានបញ្ហាអ្វី ❍ ផ្សេងទៀត(សូមបញ្ជាក់)_____

**ចំណាំ៖ ចំពោះអ្នកដែលឆ្លើយថាសាំរាលនៅ ផ្ទះ ឬ នៅផ្ទះឆ្មបបុរាណសូមតទៅសំណួរ Q2.6**

**2.5 តើ មានបញ្ហាលើមធ្យោបាយដឹកជញ្ជូនទៅ មណ្ឌលសុខភាព/មន្ទីរពេទ្យទេ?**

[0] ទេ

[1] ចាំសមាន ➲ **តើបញ្ហាអ្វីខ្លះទៅ?** ❍ សោហ៊ុយថ្លៃពេក ❍ គ្មានរថយន្តក្នុងភូមិ

❍ ផ្សេងទៀត(សូមបញ្ជាក់)_____

**2.6 តើកន្លែងណាដែលគិតថាមានសុវត្ថភាពបំផុតក្នុងការសម្រាលកូន? (រើសយកណាមួយ)**

[1] ផ្ទះឆ្មបបុរាណ [2] ផ្ទះស្មគ្រចិត្តភូមិ [3] មណ្ឌលសុខភាព [4] មន្ទីរពេទ្យ

**2.7 តើមានធ្លាប់ជួបឆ្មបបុរាណដែរឬទេកាលពីមានផ្ទៃពោះក្រោយបំផុត?**

[0] ទេ

[1] ចាំស ➲ 1) **ប៉ុន្មានដង?**_____

**2) តើគាត់បានប្រាប់ពីអ្វីខ្លះ? (អាចមានចម្លើយច្រើន)**

❍ រៀបចំសំរាលក្នុងភូមិ ❍ ត្រូវទៅពិនិត្យផ្ទៃពោះនៅមណ្ឌល

❍ រៀបចំសំរាលនៅមណ្ឌល/ពេទ្យ ❍ រៀបចំសន្សុំប្រាក់ទុកសំរាល

❍ ផ្សេងទៀត(សូមបញ្ជាក់)_____

**2.8 តើ មានធ្លាប់ជួបអ្នកស្មគ្រចិត្តភូមិដែរឬទេកាលពីមានផ្ទៃពោះក្រោយបំផុត?**

[0] ទេ

[1] ចាស ➲ 1) **ប៉ុន្មានដង?**_____

**2) តើគាត់បានប្រាប់ពីអ្វីខ្លះ? (អាចមានចម្លើយច្រើន)**

❍ រៀបចំសំរាលក្នុងភូមិ ❍ ត្រូវទៅពិនិត្យផ្ទៃពោះនៅមណ្ឌល

❍ រៀបចំសំរាលនៅមណ្ឌល/ពេទ្យ ❍ រៀបចំសន្សុំប្រាក់ទុកសំរាល

❍ ផ្សេងទៀត(សូមបញ្ជាក់)_____

**2.9 តើ គិតដូចម្តេចចំពោះការងាររបស់ឆ្មបបុរាណ និង អ្នកស្មគ្រចិត្តភូមិនៅក្នុងភូមិ**

[1] ល្អណាស់ [2] ល្អ [3] ល្អដែរ [4] មិនល្អទេ

**2.10 តើគេមានធ្លាប់បញ្ជូនទៅសំរាលនៅមណ្ឌលសុខភាពដែរឬទេ?**

[0] ទេ

[1] ចាស ➲ **ពីពេលណា (ឆ្នាំណា)**? _____

**➲ តើ (បងស្រី/មីង/អ៊ុំស្រី....) ពេញចិត្តនឹងសេវាបញ្ជូននេះដល់កម្រិតណាដែរ?**

[1] ពេញចិត្តខ្លាំង [2] ពេញចិត្ត [3] មិនដឹងដែរ

[4] មិនពេញចិត្ត [5] មិនពេញចិត្តខ្លាំង

**2.11 កាលពី 5-6 ឆ្នាំមុនអង្គការមូលនិធិសង្គ្រោះជនរងគ្រោះដោយសារមីន (TCFC) បានបញ្ចូលឆ្មបបុរាណ និង អ្នកស្មគ្រចិត្តភូមិ ក្នុងបណ្តាញបញ្ជូនស្ត្រីមាន ផ្ទៃពោះទៅមណ្ឌល តើមានជ្រាបដែរឬទេ?**

[0] ទេ

[1] ចាស ➲ **តើគិតយ៉ាងណាដែរពីបណ្តាញបញ្ជូនស្ត្រីមានផ្ទៃពោះនេះ?**

[1] ល្អណាស់ [2] ល្អ [3] ល្អដែរ [4] មិនល្អទេ

**2.12 តើធ្លាប់បានចូលរៀនពីរឿងចំណេះដឹងជុំវិញការសម្រាលនៅក្នុងភូមិដែរឬទេ?**

[0] ទេ

[1] ចាស ➲ **បានរៀនពីពេលណា**? _____(ឆ្នាំ)

**2.13 នៅពេលដែលដឹងថាមានផ្ទៃពោះភ្លាមតើ. ចាប់ផ្តើមធ្វើអ្វីខ្លះ? (អាចមានចម្លើយច្រើន)**

❍ ចាប់ផ្តើមសន្សុំលុយទុកសំរាល

❍ **ពិគ្រោះជាមួយអ្នកខាងក្រោមពីកន្លែងត្រូវសំរាល**

❍ ម្តាយ/ម្តាយក្មេក ❍ ប្តី ❍ អ្នកជិតខាង ❍ មិត្តជិតស្និត

**2.14 តើស្ត្រីមានផ្ទៃពោះគួរទៅពិនិត្យពោះប៉ុន្មានដង ?**

[1] ម្តងគត់មុនសំរាល [2] ២ ដងមុនសំរាល

[3] យ៉ាងហោចណាស់បាន ៣ ដងមុនសំរាល

**2.15 តើអ្វីខ្លះជាសញ្ញាគ្រោះថ្នាក់នៃស្ត្រីមានផ្ទៃពោះ ? (អាចមានចម្លើយច្រើន)**

❍ មានផ្ទៃពេលចាស់ពេក ❍ មានផ្ទៃនៅក្មេងពេក

❍ ស្ត្រីខ្ពស់ខុសប្រក្រតី ❍ ស្ត្រីធាត់ពេក

❍ មានផ្ទៃនោះទាបពេក ❍ ស្ត្រីមានកូនច្រើនដងមកហើយ

❍ មានធ្លាក់ឈាមពេលមានផ្ទៃ ❍ មានហើមដៃជើងពេលមានផ្ទៃ

❍ ប្រកាច់ពេលមានផ្ទៃ ❍ មានគ្រុនក្តៅខ្លាំងពេលមានផ្ទៃ

❍ បែកទឹកភ្លោះមុនឈឺពោះ ❍ ស្ត្រីស្លេកស្លាំងខ្លាំង

❍ មានក្អួតច្រើនខុសប្រក្រតី ❍ មានឈឺក្បាលខ្លាំងពេលមានផ្ទៃ

❍ ធ្លាប់មានវះយកកូនពីមុនមកហើយ

**2.16 ពេលស្ត្រីមានសញ្ញាណាមួយខាងលើ (សំណួរ Q2.15)តើគាត់គួរអ្វីអ្វីខ្លះ?**

[1] សំរាកនៅផ្ទះ [2] ទៅពិគ្រោះជាមួយឆ្មបមណ្ឌល

[3] ពិគ្រោះជាមួយឆ្មបបុរាណ [4] ពិគ្រោះជាមួយអ្នកដទៃ(សូមបញ្ជាក់)_____

**2.17 ពេលមានផ្ទៃពោះស្ត្រីគួរបរិភោគ អាហារ និង ភេសជ្ជៈដូចខាងក្រោម៖**
**(អាចមានចម្លើយច្រើន)**

❍ អាហារ និង ភេសជ្ជៈមានប្រូតេអ៊ីនខ្ពស់

❍ អាហារ និង ភេសជ្ជៈដែលផ្តល់ថាមពល

❍ អាហារ និង ភេសជ្ជៈមានជាតិស្ករច្រើន

❍ អាហារ និង ភេសជ្ជៈមានសារជាតិដែក និង វីតាមីនច្រើន

**2.18 ពេលមានផ្ទៃពោះស្ត្រីគួរជៀសវាង (អាចមានចម្លើយច្រើន)**

❍ លើកឬយូររបស់ធ្ងន់ៗ ❍ ធ្វើការងារធ្ងន់ ❍ នៅជិតថ្នាំពុលសម្លាប់សត្វល្អិត

❍ ជក់បារី ❍ ផឹកស្រា ❍ ប្រើថ្នាគ្មានបញ្ជាពីពេទ្យ

# បែបបទទី 2 ៖ សម្រាប់ឆ្មបបុរាណ និង អ្នកស្មគ្រចិត្តភូមិ

## ផ្នែកទី ១៖ ពត៌មានទូទៅ

1.1 លេខសំគាល់៖ __ ___ ___ ថ្ងៃធ្វើសំភាស៖ _____/_____/ 2012

1.2 សំភាសដោយ៖ _____

### អ្នកផ្តល់ពត៌មាន

1.3 អាយុ_____ឆ្នាំ ភេទ៖ [1] ប [2] ស

1.4 ជា៖ [1] ឆ្មបបុរាណ [2] អ្នកស្មគ្រចិត្តភូមិ

1.5 ស្រុក(ក្នុងគំរោងកម្មវិធី): [1] សំពៅលូន [2] ប៉ៃលិន [3] សំឡូត

1.6 នៅក្រោមមណ្ឌលសុខភាព៖_____

## ផ្នែកទី ២៖ ពត៌មានទាក់ទងចំណេះដឹង និង ការអនុវត្តន៍

**2.1 តើធ្លាប់បានបញ្ជូនស្ត្រីមានផ្ទៃពោះទៅមណ្ឌលសុខភាព ឬ មន្ទីរពេទ្យឬទេ?**

[0] ទេ (សូមបន្តទៅសំណួរទី 2.6)

[1] ចាំស ➲ បានប៉ុន្មាននាក់ក្នុឆ្នាំទៅ?៖ _____

**2.2 តើស្ត្រីទាំងអស់នោះមានបញ្ហាអ្វីដែរបានជាត្រូវបញ្ជូនទៅមណ្ឌលសុខភាព ឬ មន្ទីរពេទ្យហើយមានចំនួនប៉ុន្មាននាក់ក្នុងឆ្នាំកន្លងទៅ ?**

❍ ធ្លាក់ឈាមមាន.....នាក់ ❍ ប្រកាច់មាន.....នាក់

❍ ហើមដៃហើមជើងមាន.....នាក់ ❍ គ្រុនក្តៅខ្លាំងមាន.....នាក់

❍ ស្លេកស្លាំងខ្លាំងមាន.....នាក់ ❍ ឈឺពោះយូរ មាន.....នាក់

❍ ផ្សេងទៀត(សូមបញ្ជាក់)៖

១).....នាក់

២).....នាក់

**2.3 ក្នុងឆ្នាំកន្លងទៅ តើមានបានបញ្ជូនស្ត្រីទៅកន្លែងដូចមានខាងក្រោមនេះឬទេ? បើមានតើបានប៉ុន្មាននាក់?**

- មន្ទីរពេទ្យបង្អែក [0] ទេ [1] បាទ/ចាំស ➲ចំនួន.....នាក់
- មណ្ឌលសុខភាព [0] ទេ [1] បាទ/ចាំស ➲ចំនួន.....នាក់
- ប្រទេសថៃ [0] ទេ [1] បាទ/ចាំស ➲ចំនួន.....នាក់
- ពេទ្យឯកជន [0] ទេ [1] បាទ/ចាំស ➲ចំនួន.....នាក់

**2.4 តើមានគំនិតយ៉ាងណាដែរចំពោះបណ្តាញបញ្ជូនពីភូមិទៅ មណ្ឌលសុខភាពសព្វថ្ងៃនេះ?**

[1] គិតថាល្អ៖➲ **ហេតុអ្វី**?_____

[2] គិតថាមិនល្អ៖➲ **ហេតុអ្វី**?_____

**2.5 តើមានគំនិតយ៉ាងណាដែរចំពោះបណ្តាញបញ្ជូនពីភូមិទៅមន្ទីរពេទ្យ?**

[1] គិតថាល្អ៖➲ **ហេតុអ្វី**?_____

[2] គិតថាមិនល្អ៖➲ **តើគួរកែត្រង់ណាខ្លះ**?_____

**2.6 តើនៅតែផ្តល់សេវាសំរាលនៅផ្ទះដែរឬទេសព្វថ្ងៃនេះ?**

[0] ទេ [1] ចាស/បាទ ➲ **ប៉ុន្មាននាក់ឆ្នាំទៅ**?_____

**2.7 តើមានធ្លាប់ជួនប្រទះបញ្ហាអ្វីដែរឬទេពេលសំរាលឲ្យគេនៅផ្ទះ?**

[0] ទេ [1] ចាស/បាទ ➲ **តើបញ្ហាទាំងនោះមានអ្វីខ្លះទៅ?មានចំនួនប៉ុន្មាននាក់ក្នុងឆ្នាំកន្លងទៅ?**

- ម្តាយស្លាប់ [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- ធ្លាក់ឈាមច្រើន [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- សុកពាំង [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- ជាប់សុក [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- សំរាលពិបាក [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- កូនបង្ក្រាស [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- កូនស្លោះ [0] ទេ [1] ចាស ➲ ចំនួន.....នាក់
- ផ្សេងទៀត(បញ្ជាក់)

  1). ..... ➲ ចំនួន.....នាក់

  2)..... ➲ ចំនួន.....នាក់

**➲ នៅពេល ជួបបញ្ហា តើសំយោបល់ជំនួយពីនរណា ?(មានចម្លើយច្រើន)**

❍ ឆ្មបនៅមណ្ឌល ❍ ឆ្មបនៅមន្ទីរពេទ្យ

❍ សូរពេទ្យឯកជន ❍ ព្យាយាមដោះស្រាយដោយខ្លួនឯង

❍ ផ្សេងទៀត(បញ្ជាក់)៖.....

**2.8 តើហេតុអ្វីបានជានៅតែសំរេចចិត្តសំរាលឲ្យគេនៅផ្ទះ? (អាចមានចម្លើយច្រើន)**

❍ ស្ត្រីមិនចង់ទៅមណ្ឌល ❍ ចង់បានកំរៃខ្លះៗ

❍ កូនសំរាលលឿនពេក ❍ គ្មានមធ្យោបាយបញ្ជូន

❍ សំរាលពេលយប់ ❍ មូលហេតុផ្សេងទៀត (សូមបញ្ជាក់)៖.....

**2.9 តើ គិតយ៉ាងណាដែរចំពោះការសំរាលនៅមណ្ឌលសុខភាពសព្វថ្ងៃ?**

[1] ល្អ,ហេតុអ្វី?_____

[2] មិនល្អ, តើគួរកែប្រែអ្វីខ្លះ?_____

**2.10 តើ ធ្លាប់បានលឺដែរទេប៉ុន្មានឆ្នាំមុនក្រសួងឈប់ឲ្យផ្តល់សេវាសំរាលនៅតាមផ្ទះ?**

[0] **ទេ** [1] **ចាំស/បាទ ➲ តើ.(បងប្រុស/បងស្រី..)យល់ស្របដែរឬទេរឿងនេះ?**

[1] **ចាំស/បាទ (ហេតុអ្វី)?**_____

[0] ទេ **(ហេតុអ្វី)?**_____

**2.11 តើធ្លាប់បានចូលរួមប្រជុំប្រចាំត្រីមាសនៅមណ្ឌលឬទេក្នុងឆ្នាំកន្លងទៅនេះ?**

[0] **ទេ**

[1] **ចាំស/បាទ ➲ ចូលបានប៉ុន្មានដងៈ**_____

**➲ ក្នុងពេលប្រជុំម្តងៗតើអង្គការ** TCFC**មានបានផ្តល់សម្ភារៈសម្រាប់សំរាលបន្ទាន់ឬទេ?**

[0] ទេ [1] ចាំស/បាទ

➲ តើ សប្បាយចិត្តនឹងចូលប្រជុំនេះទេ?

[1] សប្បាយណាស់ [2] សប្បាយ [3] សប្បាយដែរ

[4] មិនសប្បាយ, តើគួរកែប្រែអ្វីខ្លះ_____

**2.12. តើអ្វីខ្លះជាសញ្ញាគ្រោះថ្នាក់របស់ស្ត្រីពេលមានផ្ទៃពោះ? (មានចម្លើយច្រើន)**

❍ មានផ្ទៃពេលចាស់ពេក ❍ មានផ្ទៃនៅក្មេងពេក

❍ ស្ត្រីខ្ពស់ខុសប្រក្រតី ❍ ស្ត្រីធាត់ពេក

❍ មានផ្ទៃនោះទាបពេក ❍ ស្ត្រីមានកូនច្រើនដងមកហើយ

❍ មានធ្លាក់ឈាមពេលមានផ្ទៃ ❍ មានហើមដៃជើងពេលមានផ្ទៃ

❍ ប្រកាច់ពេលមានផ្ទៃ ❍ មានគ្រុនក្តៅខ្លាំងពេលមានផ្ទៃ

❍ បែកទឹកភ្លោះមុនឈឺពោះ ❍ ស្ត្រីស្លេកស្លាំងខ្លាំង

❍ មានក្អួតច្រើនខុសប្រក្រតី ❍ មានឈឺក្បាលខ្លាំងពេលមានផ្ទៃ

❍ ធ្លាប់មានវះយកកូនពីមុនមកហើយ

**2.13 ពេលមានផ្ទៃពោះស្ត្រីគួរបរិភោគ អាហារ និង ភេសជ្ជៈដូចខាងក្រោមៈ (មានចម្លើយច្រើន)**

❍ អាហារ និង ភេសជ្ជៈមានប្រូតេអ៊ីនខ្ពស់

❍ អាហារ និង ភេសជ្ជៈដែលផ្តល់ថាមពល

❍ អាហារ និង ភេសជ្ជៈមានជាតិស្ករច្រើន

❍ អាហារ និង ភេសជ្ជៈមានសារជាតិដែក និង វីតាមីនច្រើន

**2.14 ពេលមានផ្ទៃពោះស្ត្រីគួរជៀសវាង លើអ្វីខ្លះ? (មានចម្លើយច្រើន)**

❍ លើកឬយូររបស់ធ្ងន់ៗ ❍ ធ្វើការងារធ្ងន់ ❍ នៅជិតថ្នាំពុលសម្លាប់សត្វល្អិត
❍ ជក់បារី ❍ ផឹកស្រា ❍ ប្រើថ្នាគ្មានបញ្ជាពីពេទ្យ

**2.15 តើបានជួបស្ត្រីមានសញ្ញាខាងលើនេះប៉ុន្មាននាក់ក្នុងឆ្នាំកន្លងទៅ?** _____

**2.16 តើអ្វីខ្លះជាសញ្ញារបស់ បំរុង និង ក្រឡាស្លឹងចំពោះស្ត្រីមានផ្ទៃ? (មានចម្លើយច្រើន)**

❍ ឈឺក្បាលខ្លាំង ❍ ប្រកាច់ ❍ ស្រវាំងភ្នែកខ្លាំង
❍ សម្ពាធឈាមឡើង ❍ ហើមដៃ ហើមជើង
❍ មានធ្លាក់ឈាមតាមធ្មារមាស

**2. 17 តើបានឃើញស្ត្រីមាសញ្ញាបំរុង និង ក្រឡាស្លឹងប៉ុន្មាននាក់នៅក្នុងឆ្នាំកន្លងទៅ?**_____

**2.18 ពេលឃើញស្ត្រីមាសញ្ញា បំរុង និង សញ្ញាក្រឡាស្លឹងតើ គួរធ្វើយ៉ាងណា? (មានចម្លើយច្រើន)**

❍ បញ្ជូនទៅមណ្ឌលសុខភាពភ្លាម ❍ បញ្ជូនទៅមន្ទីរពេទ្យភ្លាម
❍ ឲ្យថ្នាំខ្សែរផឹក
❍ ផ្សេងទៀត_____

**2.19 តើ.(បងស្រី/បងប្រុស) ធ្លាប់ឃើញទារកទើបកើត គ្មានដង្ហើមដែរឬទេ?**

[0] ទេ

[1] ចាំស/បាទ **➲ តើ.(បងប្រុស/បងស្រី..)ត្រូវធ្វើបែបណា? (មានចម្លើយច្រើន)**

❍ ច្របាច់ទ្រូងវា ❍ ជួយផ្តល់ខ្យល់អុកស៊ីសែនដោយផ្លុំមាត់ទល់មាត់
❍ ផ្តល់ការសង្គ្រោះបេះដូង និង ដង្ហើម ❍ ទះទារកឲ្យវាយំ

**2.20 តើធ្វើយ៉ាងណាពេលឃើញទារកទើបកើតមានពណ៌ខៀវ? (មានចម្លើយច្រើន)**

❍ ច្របាច់ទ្រូងវា ❍ ជួយផ្តល់ខ្យល់អុកស៊ីសែនដោយផ្លុំ
❍ ផ្តល់ការសង្គ្រោះបេះដូង និង ដង្ហើម ❍ ទះទារកឲ្យវាយំ

**2.21 តើ.(បងស្រី/បងប្រុស) ធ្លាប់ឃើញទារកទើបកើតមានពណ៌ខៀវដែរឬទេ? (មានចម្លើយច្រើន)**

[0] ទេ [1] បាទ/ចាំស **➲ តើ.(បងប្រុស/បងស្រី..)ត្រូវធ្វើបែបណា?**

❍ ច្របាច់ទ្រូងវា ❍ ជួយផ្តល់ខ្យល់អុកស៊ីសែនដោយផ្លុំ
❍ ផ្តល់ការសង្គ្រោះបេះដូង និង ដង្ហើម ❍ ទះទារកឲ្យវាយំ

# បែបបទទី 3 ៖ សម្រាប់ឆ្មប និង ពេទ្យមណ្ឌល

## ផ្នែកទី ១៖ ពត៌មានទូទៅ

1.1 លេខសំគាល់៖ __ ___ ___ ថ្ងៃធ្វើសំភាស៖ _____/_____/ 2013

1.2 សំភាសដោយ៖ _____

### អ្នកផ្តល់ពត៌មាន

1.3 អាយុ_____ឆ្នាំ ភេទ៖ [1] ប [2] ស

1.4 ជា៖ [1] ពេទ្យឆ្មប [2] ជាគ្រូពេទ្យមណ្ឌល

1.5 ស្រុក(ក្នុងគំរោងកម្មវិធី): [1] សំពៅលូន [2] ប៉ៃលិន [3] សំឡូត

1.6 នៅក្រោមមណ្ឌលសុខភាព៖_____

## ផ្នែកទីទី ២៖ ចំណេះដឹង និង ការអនុវត្តន៍

**2.1 តើមានស្ត្រីប៉ុន្មាននាក់ដែលបានបញ្ជូនពីភូមិមកមណ្ឌល ក្នុងឆ្នាំកន្លងទៅ?**

បញ្ជូនដោយឆ្មបបុរាណ៖.....នាក់ ដោយមេភូមិ៖.....នាក់

ដោយអ្នកស្មគ្រចិត្តភូមិ៖.....នាក់

**2.2 តើមធ្យោបាយបញ្ជូនណាមួយដែលគេប្រើញឹកញាប់ជាងគេ?**

[1] ឡានឈ្នួល [2] រឺមកម៉ូតូ [3] រថយន្តសង្គ្រោះរបស់ពេទ្យ

[4] ផ្សេងទៀត(បញ្ជាក់)_____

**2.3 តើ...លោក/លោកស្រី .អាចរាប់បានទេចំនួនស្ត្រីសំរាលក្នុងមណ្ឌលក្នុងឆ្នាំខាងក្រោម?**

2005_____ 2006 _____

2007 _____ 2008_____

2009_____

**2.4 យើងមានការប្រជុំត្រីមាសជាមួយឆ្មបបុរាណ និង អ្នកស្មគ្រចិត្តភូមិតើលោក/លោកស្រីគិតថាសំខាន់ដែរឬទេ?**

[1] បាទ/ចាស, ហេតុអ្វី_____

[0] ទេហេតុអ្វី_____

**2.5 តើលោកពេញចិត្តលើឆ្មបបុរាណក្នុងការជួយការងាររបស់មណ្ឌលដល់កម្រិតណា?**

[1] ពេញចិត្តណាស់ [2] ពេញចិត្ត [3] មិនដឹងដែរ

[4] មិនពេញចិត្ត [5] មិនពេញចិត្តខ្លាំង

**2.6 តើពេញចិត្តលើអ្នកស្មគ្រចិត្តភូមិក្នុងការជួយការងាររបស់មណ្ឌលដល់កម្រិតណា?**

[1] ពេញចិត្តណាស់ [2] ពេញចិត្ត [3] មិនដឹងដែរ

[4] មិនពេញចិត្ត [5] មិនពេញចិត្តខ្លាំង

**2.7 តើមានមធ្យោបាយណាខ្លះស្រាម៉បញ្ជូនស្ត្រីពីមណ្ឌលនេះមន្ទីរពេទ្យ?**

[1] ឡានឈ្នួល [2] រឺម៉កម៉ូតូ [3] រថយន្តសង្គ្រោះរបស់ពេទ្យ

[4] ផ្សេងទៀត (បញ្ជាក់)_____

**2.8 តើលោក/លោកស្រី ពេញចិត្តនឹងបណ្តាញបញ្ជូនស្ត្រីពីទីនេះទៅមន្ទីរពេទ្យដែរឬទេ?**

[0] ទេ ហេតុអ្វី?_____

[1] ពេញចិត្ត ៖ ហេតុអ្វី?_____

**2.9 តើលោក/លោកស្រី ធ្លាប់ជួបប្រទះបញ្ហាអ្វីដែរឬទេពេលសម្រាលនៅក្នុងមណ្ឌលនេះ?**

[0] ទេ

[1] ធ្លាប់ ➲ **ពេលជួបបញ្ហាទាក់ទងនឹងការសម្រាល តើសុំយោបល់ពីនរណា? (អាចមានចម្លើយច្រើន)**

❍ ក្រុមនៅ OD ❍ ក្រុមបច្ចេកទេសខេត្ត

❍ ក្រុមបច្ចេកទេស OD ❍ ពិគ្រោះជាមួយបុគ្គលិកមណ្ឌល

❍ សួរពេទ្យនៅពេទ្យឯកជន

**2.10 ក្នុងឆ្នាំកន្លងទៅតើលោក/ស្រី មានដាច់ស្តុកសំភារសំរាលដែរឬទេ?**

[0] ទេ

[1] តើសុំជំនួយពីខាងណា?

❍ សុំអង្គការ TCFC ❍ សុំអ្នកមានក្នុងភូមិ

❍ ទិញពីផ្សារ ❍ សុំពីអង្គការដៃគូ

❍ ពីប្រភពដទៃទៀត

**2.11 តើ.លោក/លោកស្រី.ពេញចិត្តនឹងរបៀបផ្តត់ផ្តង់ដែលធ្វើឡើងដោយ TCFCនេះដែរឬទេ**

[0] ទេតើគួរកែប្រែអ្វីខ្លះ? _____

[1] បាទ/ចាស ម្តងម្កាលដែរ ។ តើគួរកែប្រែអ្វីខ្លះ? _____

**2.12 ក្នុងឆ្នាំកន្លងទៅ តើលោកមានធ្លាប់ដាច់ស្តុកសំភារសម្រាប់ការងារសង្គ្រោះបន្ទាន់ដែរឬទេ?**

[0] ទេ [1] ចាស/បាទ ➲ **តើធ្វើដូចម្តេចទៅ ?(អាចមានចម្លើយច្រើន)**

❍ សុំអង្គការ TCFC ❍ សុំអ្នកមានក្នុងភូមិ

❍ ទិញពីផ្សារ ❍ សុំពីអង្គការដៃគូ

❍ ផ្សេងទៀត៖.....

**2.13 ក្នុងឆ្នាំកន្លងទៅ តើមានជួបប្រទះករណីពិបាកដែរឬទេ ពេលសំរាលនៅទីនេះ?**

[0] ទេ [1] ចាំស/បាទ ➲ តើមានបញ្ហាអ្វីខ្លះទៅ ហើយមានចំនួនប៉ុន្មាននាក់?

- ម្តាយស្លាប់ [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- ធ្លាក់ឈាមច្រើន [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- សុកពាំង [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- ជាប់សុក [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- ពិការសំរាល [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- កូនបង្ក្រាស [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- កូនស្លោះ [0] ទេ [1] ចាំស ➲ ចំនួន.....នាក់
- ផ្សេងទៀត(បញ្ជាក់)

1). ..... ➲ ចំនួន.....នាក់

2)..... ➲ ចំនួន.....នាក់

3)..... ➲ ចំនួន.....នាក់

**2.14 តើសញ្ញា និង អាការនៃរោគក្រឡាភ្លើងមានអ្វីខ្លះ? (អាចមានចម្លើយច្រើន)**

❍ សំពាធឈាមខ្ពស់ ❍ ប្រកាច់ ❍ មានឈាមធ្លាក់ខ្លះៗ

❍ ឈឺក្បាលខ្លាំង ❍ មានប្រូតេអ៊ីនក្នុងទឹកនោម ❍ ស្រវាំងភ្នែកខ្លាំង

**2.15 តើលោកលោកស្រីធ្លាប់ព្យាបាលក្រឡាភ្លើងនៅក្នុងមណ្ឌលនេះដែរឬទេ?**

[0] ទេ

[1] ចាំស/បាទ➲ **តើព្យាបាលដោយរបៀបណា? (អាចមានចម្លើយច្រើន)**

❍ ឲ្យ Diazepam និង Magnesium ហើយដាក់ដំណេកសុវត្ថភាព

❍ ឲ្យ Diazepam និង Magnesium ❍ ឲ្យ Diazepam

❍ ឲ្យ Hydralazine

❍ ផ្សេងទៀត(សូមបញ្ជាក់)_____

**2.16 តើលោក/លោកស្រី ធ្លាប់មានបទពិសោធន៍ជាមួយការណីធ្លាក់ឈាមច្រើនដែរឬទេ ក្នុងពេលសំរាល?**

[0] ទេ

[1] ចាំស/បាទ➲ **តើ...ដោះស្រាយដោយវិធីណា? (អាចមានចម្លើយច្រើន)**

❍ ប្រើ Condom Temponade ❍ សង្កត់សរសៃ Aorta

❍ ប្រើថ្នាំ Cytotec ❍ ផ្សេងទៀត_____

**2.17 នៅក្នុងករណីបន្ទាន់ ដើម្បីព្យាបាលស្ត្រីធ្លាក់ឈាមខ្លាំង ថ្នាំ Cytotec (Mysoprostol) ត្រូវបានណែនាំឲ្យប្រើ**

[1] តាមមាត់, ដូសដំបូង_____គ្រាប់និងច្រើនបំផុត_____គ្រាប់

[2] សុល ដូសដំបូង_____គ្រាប់និងច្រើនបំផុត_____គ្រាប់

**2.18 តើលោក/លោកស្រីធ្លាប់មានបទពិសោធន៍ពេលស្ត្រីសំរាលបាត់ដង្ហើម និងជីពចរដែរឬទេ?**

[0] ទេ

[1] ចាំស/បាទ ➲ **តើដោះស្រាយបែបណា? (អាចមានចម្លើយច្រើន)**

❍ ធ្វើ CPR ដោយផ្លុំ ២ : សង្កត់ទ្រូង ៣០ ដង

❍ ធ្វើ CPR ដោយផ្លុំ ២ : សង្កត់ទ្រូង ១៥ ដង

❍ ធ្វើ CPR ដោយផ្លុំ ១ : សង្កត់ទ្រូង ១៥ ដង

# GUIDELINE FOR FORMAL DISCUSSION

**For the medics and midwives**

- Means of transport from village to HC and HC to referral hospital?
- How do you think about the TBA and VHSG roles and responsibility?
- Problem around delivery at the health centre?
- Complicated case at the health centre?
- What were measures taken for those problems
- Treatment of most common problem in pregnancy?
- Materials and equipment?
- Some experiences management of complicated cases

**For TBA and VHSG**

- Experiences of referral pregnant women to health facility
- Perception on the referral system in the village
- Home delivery service
- Knowing about the ban of TBA home delivery, agree?
- General opinion regarding the service at the health centre
- General opinion regarding the changes of women on choosing the delivery service
- How was their involvement in supporting the referral system?

**For village women**

- What was their opinion on the TBA and VHSG service at the village?
- General opinion regarding the antenatal care
- Transportation from village to HC and HC to referral hospital
- Ideas about safety for pregnant women
- Opinion about service of TBA and VHSG at the village
- Ideas about the general knowledge of the dangers around birth

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# BIOGRAPHY

| | |
|---|---|
| Name | Ha Sam Ol |
| Date of Birth | 3-Oct-66 |
| Place of Birth | Battambang, Cambodia |

**Educational Background**

| | |
|---|---|
| 1993 | Bachelor of Nursing Science, Cambodia |
| 2003 | Bachelor of Business Administration, Human Resource Management.<br>University of Management and Economics; Cambodia |
| 2005 | 190 hours postgraduate course in Medical Research Methodology, Battambang, Cabmbodia<br>Theory of Science and Research Ethics<br>Statistics, Study Designs and Scientific Writing<br>Qualitative Methods in Medical Research |
| 2008 | Medical Research Methodology<br>Scientific Writing<br>Oslo, Norway |

**Experiences**

| | |
|---|---|
| June 2000 to present | Trauma Care Foundation Cambodia;<br>Deputy Director<br>Basic Life Support Training to health staff at health centre<br>Statistics and Data Entry and analyzing<br>Report and Web design<br>Finance and Administration works<br>Training and data collection |
| 1994 to 2000 | Mines Advisory Group (MAG)<br>Operation Manager |

| | |
|---|---|
| | Senior Manager, Mine Clearance organization |
| | Mine Awareness Manager |
| | Interpreter and administration |

**On-going Scientific Research**

| | |
|---|---|
| 2012 | Maternal mortality in rural Cambodia |
| | Intermediate Temporary Prosthesis (ITP) |
| | Prevalence of anaemia and risk factors in pregnant women in rural Cambodia |
| | Low birth weight and the its associated factors in rural area of Cambodia |
| | Post-operative wound infections and its factors |

**Scientific Publication**

| | |
|---|---|
| Sep-09 | Prevalence of Hepatitis B and Hepatitis C Virus infections in potential blood donors in rural Cambodia.<br>Published in: Southeast Asian Journal of Tropical Medicine for Public Health; Sep 2009;40; 963-971 |
| 2008 | Comparing two survey methods for estimating maternal and perinantal mortality in rural Cambodia<br>Published in: Women and Birth (2008) 21;9-12 |
| 2009-2010 | Screening test accuracy among potential blood donors of HBsAg, anti-HBc and anti-HCV to detect hepatitis B and C virus infection in rural Cambodia and Vietnam.<br>Southeast Asian J Trop Med Public Health. 2010 Sep;41(5):1127-35 |
| 2010-2011 | Risk factors for HBV and HCV infections in potential blood donors in rural Vietnam and Cambodia, submitted |