REPORT

ASSESSMENT TO ESTABLISH BASELINE INDICATORS AND IDENTIFY NEEDS FOR MATERNAL HEALTH INTERVENTIONS FOR WOMEN OF ETHNIC MINORITY GROUPS LIVING IN 6 NORTHERN MOUNTAINS AND CENTRAL HIGHLAND PROVINCES

Ha Noi - 2022

ACKNOWLEDGEMENTS

Although Viet Nam has made significant progress in improving sexual and reproductive health of the general population, disparities and inequalities remain in access to and utilization of maternal health and family planning services among different ethnicities and regions. To help further reduce maternal mortality in mountainous provinces, taking into account women's special needs and unique culture and tradition of ethnic minorities, with financial support from MSD for Mothers, UNFPA, in collaboration with the Ministry of Health, is implementing a project entitled *"Leave no one behind: Innovative interventions to reduce maternal mortality in ethnic minority regions of Viet Nam"* in 60 of the most disadvantaged communes in Lai Chau, Son La, Bac Kan, Kon Tum, Gia Lai and Dak Nong provinces.

This report presents key findings of a survey conducted by Hanoi University of Public Health to establish baseline indicators and identify specific needs for interventions to improve maternal health status of women in the target locations. Findings and recommendations of the survey will be used to adjust the design and implementation strategies as well as to monitor the progress of the interventions.

We would like to thank, first and foremost, ethnic minority women who participated in the research and shared their experience in sexual and reproductive health. Our appreciation also goes to the research team of Hanoi University of Public Health for their commitment and keenness to complete the study despite travel restrictions and social distancing barriers amid the COVID-19 pandemic. The research was not possible without generous financial contributions made by MSD for Mothers and MSD Viet Nam. Such investment inspired technical teams of the Ministry of Health and UNFPA Viet Nam, so as not to leave anyone behind in Vietnam's process of achieving SDGs.

We hope that the findings of this assessment will prove useful and provide a signal for policy makers, health professionals, civil society organizations, researchers, and donors to strengthen joint efforts to bridge the gap in maternal mortality among ethnic minority communities in Viet Nam. We are all fully committed to achieve zero preventable maternal deaths and zero unmet need for family planning in Viet Nam!

Ms. Naomi Kitahara

Representative
UNFPA in Viet Nam

Dr. Dinh Anh Tuan

Director, Maternal and Child Health Department
Ministry of Health

CONTENTS

TABLES

ABBREVIATIONS

ANC	Antenatal care
BCC	Behavior change communication
CDC	Center for disease control
CHC	Commune health center
EENC	Early essential newborn care
EmOC	Emergency obstetric care
FGD	Focus group discussion
FP	Family planning
HUPH	Hanoi University of Public Health
IDI	In-depth interview
IEC	Information, education and communication
MCH	Maternal and child health
MICS	Multiple Indicator Cluster Survey
MMR	Maternal mortality ratio
MOH	Ministry of Health
SDGCW	SDG indicators on women and children survey
SRH	Sexual and reproductive health
UNFPA	United Nations Population Fund
UNICEF	The United Nations Children's Fund
VBA	Village-based birth attendant
VHW	Village health worker
WHO	World Health Organization

EXECUTIVE SUMMARY

From 2021 to 2024, UNFPA in collaboration with the Ministry of Health (MOH) is implementing a project entitled "*Leave no one behind: Innovative interventions to reduce maternal mortality in ethnic minority regions of Viet Nam*" in 60 of the most disadvantaged communes of six poor ethnic minority provinces, namely Lai Chau, Son La, Bac Kan (Northern Midlands and Mountains region) and Kon Tum, Gia Lai and Dak Nong (Central Highlands region). The project aims to reduce maternal mortality in selected ethnic minority provinces, paying close attention to the special needs of the target population groups and taking into consideration the unique culture and traditions of ethnic minorities in Viet Nam. The objectives of this report are to rapidly establish baseline indicators and specify detailed needs for interventions to improve maternal health in project areas.

To reach these objectives, we use a mixed-methods design. This included:

1. a descriptive analysis of secondary data gathered from 60 selected communes in 2020 to look at commune-level characteristics and maternal healthcare services;
2. a cross-sectional survey that collected maternal health indicators from twelve selected communes with the participation of 718 ethnic minority women aged 15–49 years who had given birth in the past two years; and
3. 22 in-depth interviews (IDIs) and six focus group discussions (FGDs) to identify training needs for health providers and needs for behavior change communication (BCC) and encouragement within the community toward safe pregnancy and childbirth practices that take into account local culture and traditions. Training needs for health providers were also assessed through questionnaires filled in by maternal healthcare service providers from the 60 selected communes.

Results

Sub-study 1: Descriptive study of secondary data

- Results show the poor socio-economic conditions of all 60 studied communes. Among these, 50 communes (83.3%) were classified as extremely disadvantaged communes (zone III) and 10 communes (16.7%) as disadvantaged communes (zone II). The average total population of the 60 communes was 4,572 people (973 households) with 56.2% of households living at (or near) the poverty line. Regarding sanitation and hygiene conditions, three-quarters of households (75.9%) had an improved water source but less than half of households (44.9%) had improved sanitation facilities. The average distance from the furthest village to the commune health center (CHC) was 20.5 km, and the average travel time was more than 60 minutes. Findings indicate the disadvantaged situation of the 60 communes, which are much worse off than the average commune nationwide.

- All CHCs had obstetric-pediatric assistant doctors or midwives with secondary or higher education, however 35% of CHCs did not have a doctor and 16.7% of CHCs did not have any village health workers (VHWs). Additionally, 44 communes (73.3%) did not have active village-based birth attendants (VBAs). Among these, 37 communes had no trained VBAs and seven communes had trained VBAs, but they were inactive at the time of data collection.
- Basic maternal care services and testing were poorly provided in the three months prior to data collection, with proteinuria testing offered in only 25% and HIV testing only at 38.3% of CHCs.
- A number of CHCs reported that they had no patients seeking basic obstetric services in the three months prior to data collection. Seven CHCs (11.7%) reported no cases of assisting normal delivery and 18.3% reported no provision of basic drying and warming of newborns after birth (components of essential newborn care), while 48.3% of CHCs reported no provision of newborn resuscitation.
- The majority (>70%) of CHCs use the same room to provide both obstetric and family planning (FP) services. The percentage of CHCs that had separate rooms for antenatal care (ANC) or delivery was below 30%. Only 10% of CHCs had separate rooms for providing FP services and 10 CHCs had no separate space to provide FP services.
- In terms of equipment: Many CHCs lacked basic essential ANC equipment. Some 21.7% of CHCs reported having insufficient height measuring scales for adult; 13.3% of CHCs did not have enough sphygmomanometers and cardiopulmonary stethoscopes. Only 23.3% of CHCs had materials for proteinuria testing and only 10% had testing equipment for blood glucose. About 10–20% of CHCs did not have enough delivery kits and 26.7% of CHCs did not have enough equipment for episiotomy.
- Many CHCs have faced stockouts of obstetric emergency medicines over the last twelve months. The medicine with the highest rate of stockout was magnesium sulfate (58.3% reported being out of stock in the last year of which 45.7% (16 CHCs) reported this item as currently not available). The second most frequently reported item experiencing stockouts was intravenous antibiotics (30.0% of CHC reported this item was usually out of stock in the last year). Notably, 20% of CHCs reported that they were usually out of stock of oxytocin in the last year.

Sub-study 2: Quantitative assessment of maternal health and FP indicators

In twelve of the 60 communes, women were interviewed about their utilization of maternal care services. Results indicate that:

- The percentage of mothers who had at least one ANC checkup was 72%, while the percentage having four checkups was only 11.3%.

- The percentage of births assisted by a trained birth attendant was only 34.7%.
- The percentage of mothers who gave birth in health facilities was low, at only 29.9%.
- The percentage of mothers having postnatal care within seven days after delivery was only 42.9%.
- The contraceptive prevalence rate among mothers was 52.7% and the modern contraceptive prevalence rate was slightly lower at 50.7%.
- The percentage of mothers with unmet need for FP was 17.7%.
- The percentage of women reporting autonomy in using health services reached 86.3%, in having sexual intercourse 69.9% and in using contraceptive methods 86.0%. The overall percentage of women reporting bodily autonomy in all three above-mentioned aspects reached 61.3%.

Sub-study 3: Qualitative study on need for technical capacity building and communication activities

- The most needed professional training for health workers at district and commune levels is on skills for assessment, detection of risk, initial management and emergency care during pregnancy (particularly for pre-eclampsia and eclampsia) and essential neonatal care.
- Study results found a need for training in skills to lead small group communication and implement information, education and communication (IEC) campaigns on maternal and child health (MCH) care for commune staff. The preferred method for training courses for health workers is in-person training, including practice, of short duration (less than one week) and culminating in course certification.
- For ethnic minorities, face-to-face group counseling and face-to-face individual counseling were assessed as the two most appropriate channels of communication. Maternal health and FP communication could be integrated into the available information and communication campaigns on population, expanded program on immunization, nutrition and routine gynecological examinations. In the commune, it is necessary to ensure equipment such as loudspeakers and amplifiers, leaflets and videos to support communication.

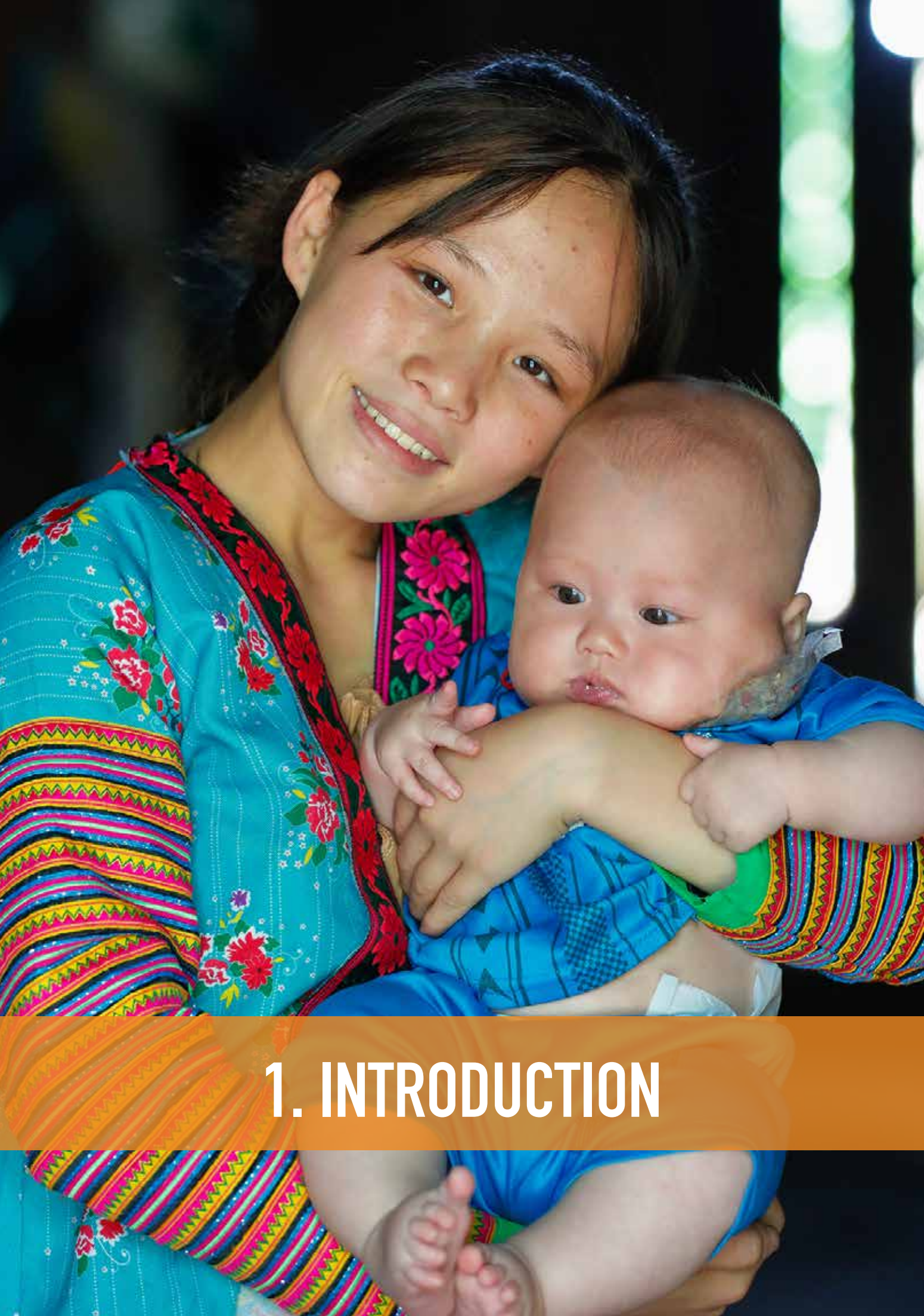
Recommendations

Baseline indicators showing low access and utilization in twelve communes will serve as the basis for developing intervention activities to improve the situation over the next two years. However, intervention activities will need to pay attention to regional features, such as ethnic, cultural, socio-economic and health characteristics of the localities in order

to provide specific intervention solutions in line with the local context of each region. The findings about human resources, facilities, equipment and essential health services in the analysis of secondary data in 60 communes indicate that to improve quality of maternal and child health it will be necessary to strengthen and supplement special human resources in communes currently lacking VHWS or VBAs through training, increasing provision of basic healthcare services and needed equipment and pharmaceuticals, particularly those needed for emergency management of obstetric complications (EmOC).

Detailed suggestions are as follows:

1. Strengthen the quality of healthcare service delivery, with special attention to the quality of ANC, and midwifery staff including VBAs for disadvantaged areas. Restore and maintain the activities of VHWs and VBAs in areas facing extremely difficult circumstances.
2. Meet the demand for health worker training by supplying practical training models to strengthen professional skills and videos for training in both professional skills and communication.
3. Strengthen the management, supervision, and timely replenishment of equipment (weighing scales and measuring tapes, sphygmomanometer, cardiopulmonary stethoscopes, proteinuria testing materials, blood glucose testing equipment and materials, delivery kits, and episiotomy instruments) and essential reproductive health medicines such as magnesium sulfate (injection), intravenous antibiotics and oxytocin.
4. Continue to organize specialized training courses in emergency obstetrics and gynecology for district health workers. For CHC staff, organize training courses on clinical skills and face-to-face communication skills for small groups, including through development of practical training models and videos.
5. Continue to communicate to women and their families, especially ethnic minority mothers and their family members in all provinces about safe motherhood, especially ANC and institutional delivery. Expand provision of communication activities by private clinics and hospitals in these areas.
6. Strengthen communication for postpartum women on use of contraception. The media should focus on groups with the highest rates of unmet need for FP, such as Son La and Lai Chau provinces, Thai and Hmong ethnic groups, women aged 19–24 years or over 35 years of age, and women who already have two or more children.
7. Face-to-face and small group communication are more effective than other channels. However, it is possible to use communication through social networks such as Facebook and Zalo for areas with good internet coverage and for young mothers in remote or difficult-to-reach areas.



1. INTRODUCTION

Although Viet Nam has made significant progress in improving the sexual and reproductive health (SRH) of the general population, disparities and inequalities in access to maternal health services among different ethnicities and regions persist. While the maternal mortality ratio (MMR) per 100,000 live births has declined from 68 in 2000 to 43 in 2017 [1], it remains as high as 100–150 among women from ethnic minority groups [2]. The MMR among the Hmong and Thai ethnic groups is four to five times higher than that of the majority ethnic group [3]. Seven out of the ten provinces with the highest MMRs in the period 2016–2018 were in the northern mountainous provinces [4].

At the national level, 95 percent of mothers received antenatal care (ANC) services and were supported by trained birth attendants during delivery [5]. However, home-based delivery rates are high among ethnic minority groups living in mountainous provinces, ranging from 20 to 90% [6]. A study conducted in 60 of the most disadvantaged communes in the Northern Midlands and Mountains and Central Highlands regions revealed large disparities across all ethnic minority groups in terms of utilization of various maternal healthcare services compared with national figures, with the rate of using ANC services (at least four ANC visits) at just 16% compared to the national figure of 74% and births attended by a skilled health worker at just 49% compared to the national figure of 94% [7]. Another study found that 34.1% of women from ethnic minority backgrounds had four or more ANC checkups during pregnancy, ranging from 8.3% in the Hmong community to 80.2% in the Cham community in An Giang province [8].

The low uptake of maternal healthcare services among ethnic minority groups is often explained by cultural and societal values in favor of early marriage. However, the interaction of ethnicity with socio-economic determinants of health is also important, since ethnicity is highly correlated with residence in remote areas, low level of education, high poverty rates, high unemployment, a high number of births, religious affiliation, and long distance to reach a health facility [7, 9, 10]. These factors not only create a gap between ethnic majority and minority groups but also among different ethnic minority groups [8].

Maternal healthcare services provided to ethnic minority groups tend to have shortcomings in availability, affordability, accessibility, and acceptability. The shortage of health providers and equipment in mountainous areas contributes to inadequate and ineffective health services due to low availability [9]. In Dien Bien, for example, only 24% of CHCs are staffed by at least one fully qualified doctor, and only 76% had a source of clean water [9]. Both healthcare providers and ethnic minority women perceived primary healthcare services to be of low quality [11]. About one quarter of ethnic minority people had to borrow money, sell household assets, or forego using healthcare services because they lacked funds [12]. Distance to the nearest health facility was consistently reported as a barrier to the use of

maternal health services in mountainous areas [13-15]. Travel times were substantially lower for Kinh and Hoa people compared to ethnic minorities (21 versus 36 minutes to the nearest district hospital, respectively) [9]. Unfriendly attitudes, discrimination, and bad treatment from health providers toward minority people have been reported [13]. Supply-driven services are also criticized for the lack of respect for "traditional customs", gender sensitivity, limited efforts at "cultural" adaptation to local contexts, and low responsiveness to the specific needs of local people [15]. The health information ethnic minority women receive (both verbal and written) was often non-specific, and not adjusted to their circumstances [16].

During the period 2021 to 2024, UNFPA in collaboration with MSD for Mothers and the Ministry of Health (MOH) is implementing a project entitled "*Leave no one behind: Innovative interventions to reduce maternal mortality in ethnic minority regions of Viet Nam*". The project is being implemented in 60 of the most disadvantaged communes in six poor ethnic minority provinces, namely Lai Chau, Son La, Bac Kan (Northern Midlands and Mountains region) and Kon Tum, Gia Lai and Dak Nong (Central Highlands region). The project aims to reduce maternal mortality in selected ethnic minority provinces, paying close attention to the special needs of the target population groups and the unique culture and traditions of ethnic minority people in Viet Nam. Six specific objectives are: (1) to increase access to and utilization of integrated, quality, and voluntary family planning (FP) services among ethnic minorities, (2) to improve capacity for emergency obstetric care (EmOC) management in remote mountainous localities, (3) to build a village birth attendant (VBA) network in remote ethnic minority localities, (4) to integrate COVID-19 prevention and control into the existing maternal health and FP program, (5) to develop and operate internet-based smart phone apps to improve the delivery of maternal health and FP services in ethnic minority localities, (6) to deliver innovative health education and encouragement within ethnic minority communities towards safe maternal care and birthing practices.

To build up a database for interventions, Hanoi University of Public Heath (HUPH)[1] conducted an assessment to establish ***baseline indicators and identify detailed needs for interventions*** in target localities (under a contract with UNFPA, Reference No: RFQ#UNFPA/VNM/21/03). Findings of this assessment will be used to support the MOH and sub-national partners to design and monitor progress of interventions in target localities.

[1] Information of the research team is presented in Annex 1.

2. OBJECTIVES OF THE STUDY

The overall objective of this assignment was to establish a set of baseline indicators and specify detailed needs for interventions in the six target provinces.

The specific objectives include the following:

1. To describe geographic, demographic, socio-economic, health facility, and maternal health information available at 60 selected communes using a semi-structured questionnaire;
2. To conduct an assessment of the maternal health situation in twelve selected communes of six target provinces to establish required baseline indicators;
3. To identify needs for improving technical capacities of health providers at district and commune levels and for BCC and community encouragement toward safe pregnancy and childbirth practices appropriate with local culture and traditions; and
4. To provide recommendations for the design and delivery of interventions and activities in target areas.

Key study questions

1. What are the ecological characteristics of the 60 selected communes (geographic, demographic, socio-economic, health facility, and maternal health information)?
2. What is the situation of key maternal health and FP indicators of ethnic minority women in the subsample of twelve communes in the 60 selected communes?
3. What are the technical capacities needed for health providers and community workers?
4. What are the needs for BCC and community encouragement toward safe pregnancy and childbirth practices suitable to local culture and traditions?
5. What are the challenges in designing and delivering interventions and activities in target areas?

3. DESIGN AND METHODOLOGY

3.1 STUDY DESIGN

We used a mixed-methods design which included: analysis of secondary data and quantitative and qualitative methods to meet the objectives. Research designs and objectives are presented in Table 3.1. Data from the three components were collected at the same time during the study and then integrated through analysis and interpretation during report synthesis.

Table 3.1. Research design and objectives

Objectives	Design
1. To document geographic, demographic, socio-economic, health facility, and maternal health information available at 60 selected communes using a semi-structured questionnaire	Sub-study 1: Descriptive analysis
2. To conduct a rapid assessment of the maternal health situation in twelve selected communes of six target provinces to establish required baseline indicators	Sub-study 2: Quantitative assessment of maternal health and FP indicators
3. To identify needs for improving technical capacities of health providers at district and commune levels and for BCC and community encouragement toward safe pregnancy and childbirth practices suitable with local culture and traditions	Sub-study 3: Qualitative assessment of training needs for health providers and community-based activities
4. To provide recommendations on the design and delivery of interventions and activities in target areas	All the sub-studies above

The following sections and annexes provide details on scope and focus, study sites, sampling and sample size, and techniques and instruments for data collection and data analysis.

3.2 SUB-STUDY 1: DESCRIPTIVE ANALYSIS OF SECONDARY DATA

3.2.1 Scope and focus

The descriptive analysis was chosen to look at commune-level characteristics and availability of maternal healthcare services. Relevant pre-intervention geographic, demographic, socioeconomic, health facility, and maternal health information indicators in 2020 in each commune were documented as below:

- *Geographic characteristics*: Distance from CHC to the main road, distance from the most remote village to the CHC, distance from the CHC to the nearest district hospital, travel time from villages to the CHC, and from the CHC to the nearest district hospital.
- *Demographic characteristics*: Total population, age and gender structure, structure of ethnicity and religion in the community.
- *Socioeconomic characteristics*: Average household income, highest level of school attended and occupational structure, percentage of households living in poverty, illiteracy rate, main means of transport, access to information technologies (including internet, smartphone, etc.)
- *Maternal health indicators*: Percentage of married couples currently using a modern FP method, percentage of deliveries at health facilities, percentage of women receiving ANC (at least four visits) and postnatal care services, number of cases of obstetric complication detected early and referred to provincial or central hospitals.
- *Primary healthcare facilities, human resources, and infrastructure*: Number of doctors, midwives, assistant doctors, population and FP workers, village-based birth attendants (VBAs), any SRH in-service training attended by health staff in the past five years, any FP and maternal care services provided at the CHC, and the average number of clients per month.

3.2.2 Study sites

We collected data in the project sites which included 60 of the most remote ethnic minority communes of the six most disadvantaged provinces located in the Northern Midlands and Mountains and Central Highlands regions. These are Bac Kan, Lai Chau, Son La, Dak Nong, Kon Tum, and Gia Lai provinces. Most of the selected communes are categorized by the government of Viet Nam as zone III – the areas with the most disadvantaged geographic and socio-economic conditions where ethnic minorities reside.

The list of the **60 selected communes** suggested by the MOH is provided in Table 3.2.

Table 3.2. List of 60 selected communes in Sub-study 1

No	Province/ District	Commune	No. of communes
I	**Son La**		**12**
1	Bac Yen	Hang Chu, Xim Vang, Hang Dong	3
2	Phu Yen	Kim Bon; Suoi Bau	2
3	Moc Chau	Chieng Khua; Tan Hop	2
4	Song Ma	Muong Cai; Chieng En; Dua Mon	3

No	Province/ District	Commune	No. of communes
5	Van Ho	Suoi Bang; Chieng Xuan	2
II	**Lai Chau**		**19**
1	Phong Tho	Si Lo Lau; Vang Ma Chai; Mu Sang; Tong Qua Lin	4
2	Sin Ho	Tua Sin Chai; Pu Sam Cap; Hong Thu; Lang Mo; Ta Ngao	5
3	Muong Te	Ta Tong; Ta Ba; Pa U; Pa Ve Su	4
4	Nam Nhun	Nam Manh; Pu Dao; Nam Pi; Nam Cha; Trung Chai; Nam Ban	6
III	**Gia Lai**		**14**
1	Mang Yang	Kon Chieng; Dak Troi; De Ar; Hra; Ayun	5
2	Chu Se	A Yun; Bo Ngoong; Ia Ko; H Bong; Al Ba; Kong HTok	6
3	Kong Chro	Chu Krey; Dak Po Pho	2
4	Chu Pah	Dak To Ver	1
IV	**Kon Tum**		**6**
1	Dak Glei	Muong Hoong; Ngoc Linh	2
2	Kon Plong	Mang Buk; Dak Ring; Dak Nen; Po E	4
V	**Dak Nong**		**4**
1	Tuy Duc	Dak Ngo; Đak R'Tih	2
2	Dak Glong	Quang Sơn; Quang Hòa	2
VI	**Bac Kan**		**5**
1	Pac Nam	An Thang; Co Linh	2
2	Cho Don	Binh Trung; Tan Lap; Xuan Lac	3
Total	**6 provinces**	**19 districts**	**60 communes**

3.2.3 Methodology and instruments for data collection

A semi-structured questionnaire was developed on REDCap software and sent to the heads of the selected CHCs via email. Heads of the selected CHCs completed the questionnaires under the review of an appointed researcher.

Available information and data were collected from selected communes in 2020. The research instrument and data analysis method were adapted from a previous study conducted by UNFPA in these provinces in 2016 [7]. See detailed information of the questionnaire in Annex 2.

3.2.4 Data analysis

The descriptive analysis was performed using Excel for the final report to indicate the current socio-economic situation of the 60 selected communes.

3.3 SUB-STUDY 2: ASSESSMENT OF MATERNAL HEALTH AND FP INDICATORS

3.3.1 Scope and focus

The assessment was a cross-sectional study conducted to establish required baseline indicators on the maternal health situation in twelve selected communes of six target provinces.

Key indicators for which information was collected are:

- Percentage of women having at least one and at least four ANC visits
- Percentage of women receiving blood pressure, urine, and blood testing during ANC
- Percentage of births attended by trained birth attendants or at a health facility
- Percentage of women having postpartum care visits
- Modern contraceptive prevalence rate
- Unmet need for modern contraceptives

Key variables were analyzed by:

- Demographic characteristics (age, highest level of schooling attended, occupation, ethnicity, religion, number of children)
- Socio-economic variables (commune, province, household's economic situation)

3.3.2 Study sites

A sample of twelve communes was randomly selected from the list of 60 selected communes by the responsible staff of the MCH department of the MOH and UNFPA using the Excel sampling function. The twelve selected communes of six target provinces can be found in Table 3.3.[2]

Table 3.3. List of twelve selected communes for the assessment of maternal health and FP indicators

Districts	Communes	Distance from center of commune to district hospital (km)	Ethnic minorities as a share of population (%)	Home deliveries as a share of all deliveries (%)	No. of households
Son La province					
Bac Yen	Hang Dong	36	100.0	90.0	473
Moc Chau	Chieng Khua	30	95.0	94.0	802
Song Ma	Muong Cai	30	90.0	97.0	1,151
Lai Chau province					
Phong Tho	Mu Sang	38	99.7	84.0	556
Sin Ho	Ta Ngao	18	94.5	78.0	875
Muong Te	Ta Tong	47	96.8	89.8	1,193
Gia Lai province					
Mang Yang	Dak Troi	45	95.0	83.3	641
Mang Yang	De Ar	38	91.7	86.3	920
Chu Se	A Yun	21	98.0	60.0	866
Kon Tum province					
Kon Plong	Dak Nen	64	99.0	72.0	550
Dak Nong province					
Dak Glong	Quang Hoa	120	90.0	35.0	1,416
Bac Kan province					
Cho Don	Xuan Lac	37	65.0	38.0	859

[2] Ministry of Health and UNFPA randomly selected these 12 communes during preparation of the Terms of Reference of this study

3.3.3 Sampling and sample size

In each selected commune, commune health staff collected a list of eligible women aged 15–49 years who had had a live birth in the last two years. The collected data includes: mother's name; mother's year of birth; ethnicity, child's name, child's date of birth; address of residence (province, district, commune, village/hamlet); mother's phone number – if available. The list was checked by the head of the commune health center (CHC) before sampling. We used Excel to generate a simple random sample of households of 60 women aged 15–49 years who had given birth in the past two years from the list in each commune. A total of 718 ethnic minority women participated. Respondents who were incapable of responding to the interviews for reasons of physical or mental health were excluded.

3.3.4 Methodologies and instruments for data collection

Training for data collectors: Interviewers, selected among female health workers in the CHCs, were given a two-day training course in questionnaire structure, data collection and data recording. Due to the COVID-19 pandemic, lack of resources and scattered study sites (the twelve communes were located in eleven different districts of the 6 target provinces), one virtual training course was organized for seven communes located in the Northern Highland and Mountains provinces (14 data collectors) and another training course for five communes was located in the Central Highland provinces (10 data collectors).

Procedures: Data collectors worked closely with village health workers (VHWs) to locate households with eligible women. Interviews were conducted one-on-one at the respondent's home. If the mother was not at home, she was invited to an interview at the CHC or at a location in the commune, and if the mother did not want to participate, another mother was selected from the list to ensure efficiency during the data collection phase.

Research instruments: the research team used research instruments and the data collection protocols that had been developed and used in recent studies [7, 19]. Questionnaires were tested with 15 mothers in Chieng Khua commune (Moc Chau District) and Hang Dong commune (Bac Yen District) in Son La province and Mu Sang (Phong Tho District) in Lai Chau province by researchers prior to implementing the full survey in twelve communes. The detailed questionnaire can be seen in Annex 3.

3.3.5 Data analysis

Data were de-identified, then stored digitally with Epidata 3.0 and analyzed with IBM SPSS 23.0. Quantitative data were first analyzed descriptively to measure key indicators of maternal healthcare utilization and FP indicators of ethnic minority women from six provinces, and then compared to national estimates for these indicators.

Significance of differences in the use of maternal healthcare and FP services by sub-groups was assessed using the Chi-squared test. Differences were significant at a cut–off point less than or equal to 0.05. Sub-groups included: province, level of schooling attended, maternal age at delivery, socioeconomic status, ethnicity, and health insurance coverage.

3.4 SUB-STUDY 3: IDENTIFYING TRAINING NEEDS FOR HEALTH PROVIDERS AND COMMUNITY-BASED ACTIVITIES

3.4.1 Scope and focus

Sub-study 3 aimed to identify:

- District and commune level health provider technical capacities requiring improvement.
- Skills for BCC and community encouragement toward safe pregnancy and childbirth suitable with local culture and traditions.
- Major barriers and facilitators of maternal health and FP services utilization.

Examples of technical capacities included in the assessment are presented in Table 3.4.

Table 3.4. Examples of district and commune level health provider technical capacities for needs assessment

Content	District level	CHC
Basic emergency obstetric care (EmOC)	X	X
Comprehensive EmOC training for doctors focused on management of obstetric complications	X	X
Training district hospital obstetric surgical teams on obstetric surgery	X	X
Reporting maternal deaths	X	X
Basic maternal health and FP knowledge and skills	X	X
Supportive supervision and technical backstopping to improve and maintain the quality of VBA performance	X	
Integrating COVID-19 prevention and control into the existing maternal health and FP program	X	X
Communication skills (individual counseling, group counseling) appropriate with local culture and traditions	X	X

3.4.2 Study sites

Six provinces, six district hospitals and six communes selected for the study are listed in Table 3.5.

Table 3.5. List of six selected communes and districts for assessment of training needs for health providers and community-based activities

Province	District	Commune
Son La	Moc Chau	Chieng Khua
Lai Chau	Phong Tho	Mu Sang
Gia Lai	Mang Yang	Dak Troi
Kon Tum	Kon Plong	Dak Nen
Dak Nong	Dak Glong	Quang Hoa
Bac Kan	Cho Don	Xuan Lac

3.4.3 Sampling and sample size

A total of 22 IDIs and six FGDs were conducted in the study sites to reach data/content saturation. The details of informants and themes for interviews in each province are provided in Table 3.6.

In addition, a questionnaire on training needs and adjusting health communication was also sent to maternal healthcare providers at district level and 60 communes in Sub-study 1. A total of 93 providers completed the questionnaire, of which 27 were from district and 66 from commune levels.

Table 3.6. Qualitative informants and the main themes in a province

Study participants	IDIs	FGDs	Main theme
Provincial-level 1 SRH services trainer at the provincial level 1 person in charge of BCC on maternal healthcare services	2		• The need to strengthen technical capacity of district and commune health workers. • The need to adjust the BCC program and methods to encourage the community to ensure safe pregnancy and childbirth appropriate with local culture and traditions. • Facilitators and barriers faced by women from ethnic minorities to access and use maternal healthcare and FP services.
District level: 1 SRH services trainer at the district hospital 1 person in charge of communication on maternal health services at the district hospital	2		• Training needs for capacity strengthening and supportive supervision (essential, comprehensive, EmOC and provincial supervision, referral system, etc.) • Need for adjusting the BCC program, developing communications materials, training and implementing communication activities. • Facilitators and barriers faced by women from ethnic minorities to access and use maternal healthcare and FP services.
Commune level A health worker in charge of maternal health at the CHC	1		• Training needs for capacity strengthening and supportive supervision (essential and supportive supervision from the district level, referral system, etc.) • Need for adjusting the BCC program, developing communications materials, training and implementing communication activities. • Facilitators and barriers faced by women from ethnic minorities to access and use maternal healthcare and FP services.

Study participants	IDIs	FGDs	Main theme
VBA or VHW (5–6 persons)		1	• Training needs for capacity strengthening and supportive supervision (basic knowledge and skills on maternal health care, FP, supportive supervision from commune, district, referral system. • Need for adjusting the BCC program, develop communications materials, train and implement communication activities. • Facilitators and barriers faced by women from ethnic minorities to access and use maternal healthcare and FP services.
Mothers with children under 2 years of age at CHCs: 5–6 persons)		1	• Facilitators and barriers faced by women from ethnic minorities to access and use maternal healthcare and FP services. • Appropriateness of current maternal healthcare and FP services and communication activities with the local situation
Total	**5**	**2**	

3.4.4 Methods and instruments for data collection

All IDIs and FGDs were conducted by research team members from the HUPH. We used the World Health Organization (WHO) Framework for the quality of maternal and newborn care to guide the development of IDIs and FGDs [17]. The detailed guide for IDI and FGD is presented in Annex 4.

3.4.5 Data analysis

The IDIs/FGDs were tape-recorded and transcribed. The transcribed information was entered into NVIVO version 7.0, a qualitative analysis software, for analysis. Content analysis was applied to explore the training needs of health providers, VHWs and VBAs.

3.5 ETHICAL ISSUES

Before key informants participated in the study, the interviewer explained the purpose and the nature of the study. Only participants who freely gave written informed consent were

included in the study. All potential participants had to affirm that they understood the nature of the study and that they retained their right to refuse to participate in the study. Participants also understood that they had the right not to answer individual questions and that they could end the interview at any time.

The data were de-identified by removing all personal-identifying information from forms and data entered into the computer. We protected the anonymity and confidentiality of all participants to the fullest extent possible. The final electronic datasets, final reports, or other publications did not include any participant names or residence information.

The research proposal was submitted to the Institutional Review Board of HUPH and granted ethical approval before implementing data collection (Decision No 378/2021/YTCC-HD3 dated 18 October 2021).

3.6 LIMITATION AND CHALLENGES

This cross-sectional descriptive study on mothers aged 15–49 years who had had a live birth in the past two years asked about the use of ANC, delivery and postpartum services during their last birth. This could result in recall errors. We trained enumerators in the needed skills to ask additional information-checking questions to minimize recall errors.

Due to resource limitations as well as the outbreak of the COVID-19 pandemic during the period of this study, in this survey, training needs could only be assessed through IDIs and FGDs with health workers. Direct observation assessment of actual practices of healthcare providers could not be implemented. Therefore, the information obtained reflects the perception of healthcare providers, expressing their wishes rather than assessment of real gaps in their knowledge and skills in obstetric service provision. Care should be taken when interpreting the results to ensure appropriate recommendations for training programs and content.

Descriptive analysis of secondary data covered the socio-economic-demographic characteristic of 60 CHCs and quantitative interviews with 718 ethnic minority mothers in twelve randomly selected communes chosen using sampling criteria of the MOH. These are extremely poor and disadvantaged communes for which indicators show low access and utilization of maternal healthcare services, so these characteristics may not represent the general community of other areas with ethnic minority groups, especially communities with better health status, favorable living conditions and more accessible locations.

4. RESULTS

4.1 SUB-STUDY 1: DESCRIPTIVE ANALYSIS OF SECONDARY DATA

4.1.1 Socio-economic and demographic characteristics of selected communes

Following the socio-economic classification of the Vietnamese government, 50 (83.3%) communes in the sample (Table 4.1) are classified as having extremely difficult circumstances (zone III) and ten communes (16.7%) are classified as having difficult circumstances (zone II). The average commune size is 4,572 people (973 households). Of which the commune with the lowest population is Pu Dao commune (Nam Nhun, Lai Chau) with 1355 people. The two largest communes (in terms of population) were Dak Ngo communes (Tuy Duc district, Dak Nong) and Quang Son (Dak Glong, Dak Nong). On average, each commune had 973 women in reproductive ages and the mean number of children per mother was 2.7 (with a range from two to five children).

Table 4.1. Socio-economic and demographic characteristics of the 60 selected communes in 2020

Socio-economic and demographic characteristics	Average number (min–max)
Number and percentage of communes in extremely difficult circumstances (zone III)	50 (83.3%)
Commune size (population)	4572 (1355–19876)
Commune size (households)	973 (237–5741)
Women of reproductive age (15–49 years)	1172 (314–4559)
Average number of children per woman	2.7 (2–5)
Share of households with an improved water source	75.9% (0–100%)
Share of households with improved sanitation facilities	44.9% (0–90.2%)
Household economic status	
Poor (%)	41.7% (1.7–94.2%)
Near poor (%)	14.5% (12.7–42.3%)
Not poor or near poor (%)	43.8% (0–95.1%)
Health insurance coverage (%)	95.6% (52.3%–100%)

Socio-economic and demographic characteristics	Average number (min–max)
Distance and time from the furthest village to the CHC	
Distance	20.5 km (5–80)
Time	63.7 minutes (10–240)
Distance and time from the local CHC to the district hospital	
Distance	37.3 km (2–100)
Time	77.1 minutes (5–100)

Three-quarters of households (75.9%) had improved water sources. However, in four communes in Lai Chau province, 100% of households lacked access to improved water sources – Pa Ve Su and Ta Tong communes (Muong Te district), Nam Cha commune (Nam Nhun district), and Tua Sin Chai commune (Sin Ho district). Additionally, in three communes in Gia Lai province less than one third of households had access to improved water sources, namely, Al Ba and H Bong (Chu Se district) and Dak Po Pho (Kong Chro district). The share of households with access to clean water in the study is much lower than the national figure (97.4%) [18].

On average, less than half of households in the study (44.9%) had access to improved sanitation facilities. Among these, in twelve communes less than 20% of households had improved sanitation facilities (Annex 5). The share of households with improved sanitation facilities in the 60 selected communes is also much lower than the national share in 2020 (94.0%) [18].

Regarding household economic status in selected communes, 41.7% of households are poor and 14.5% of households are near poor. The poverty rate in these 60 communes is about ten times higher than the national poverty rate of 4.8% in 2020 [18]. In short, 56.2% of households in this study are living at (or near) the poverty line. Four communes in the study had a poverty rate of over 80%, namely Tong Qua Lin (Phong Tho district, Lai Chau), Ngoc Linh (Dak Glei district, Kon Tum), Dak Ngo (Tuy Duc district, Dak Nong) and Pa Ve Su (Muong Te district, Lai Chau). More than 95.6% of the residents in the 60 selected communes in this study had health insurance coverage. However, in eight communes, health insurance coverage was 90% or less (Bo Ngoong, Suoi Bau, Al Ba, Tua Sin Chai, Kon Chieng, Ta Tong, Hra, and Ayun), and among these, three communes were in zone III: Suoi Bau, Tua Sin Chai and Kon Chieng.

The distance and time from the furthest village to the CHC averaged 20.5 km with over one hour of travel time. In 16 of the communes selected for the study travel time from the furthest village to the CHC exceeded 90 minutes and in another eleven communes, travel time was

between 60 and 90 minutes. In total, 27 communes (45%) had villages where residents had to travel 60 or more minutes to get to the CHC, constituting a substantial geographic barrier to accessing health services. Similarly, the results also showed that the average distance from the CHC to the nearest hospital among the 60 studied communes is 37.3 km with an average travel time of 77.1 minutes by motorbike. There are 35 communes where travel from the CHC to the district hospital exceeded 60 minutes. These findings indicate difficulties that women in these 60 communes face in accessing comprehensive health services, including EmOC services when needed.

4.1.2 Maternal health and FP services in the 60 communes selected for the study

In the 60 communes selected for this study, the average number of pregnant women per commune in 2020 was 109 ranging from the lowest at 22 to the highest at 378 (Table 4.2). The share of women who gave birth in 2020 who had at least one ANC visit (≥1 ANC) was 65.1% and at least three visits (≥3 ANC) was 56.4%. However, the share having four or more ANC visits was very low at just 17.9%. In nine communes one third or fewer women had one or more ANC visits, namely Dak Troi, Chieng En, Bo E, Pu Dao, Ta Ngao, Ta Ba, Hra, Xim Vang and Nam Cha. Similarly, in 13 communes (21.7% of communes in the study) less than one third of women giving birth in 2020 had three or more ANC visits during their pregnancy. The share of women having four or more ANC visits in the 60 selected communes in this study is much lower than the national share (88.2%) found in the SDG Indicators on Children and Women Survey (SDGCW) 2020–2021 [19] but similar to the share found in UNFPA's 2016 study on access to maternal health services and FP among ethnic minority women (16%) [7]. Compared to other studies of ethnic minority women, this study found that the share of women having three or more ANC visits is lower or the same. In other studies in the Central Highlands, a high share of ethnic minority mothers had three or more ANC visits (70%) [20-22] while in the Northern Mountains, the share of ethnic minority mothers having three or more visits was just 30–40% [15]. The share of ethnic minority women having four or more ANC checkups in this study (17.1%) is much lower than the share found among women from the Tay, Thai, Muong, Nung ethnic groups (74.1%) or the Hmong group (54%) in the SDGCW 2020–2021 [19].

Table 4.2. Maternal healthcare indicators in 2020

Indicator	Result (min-max)
Maternal health care in 2020	
Average number of pregnant women per commune (n)	109 (22–378)
ANC (% of mothers giving birth in the past 2 years)	

Indicator	Result (min-max)
- having ≥1 ANC checkups	65.1% (17.3–100)
- having ≥3 ANC checkups	56.4% (0–100)
- having ≥4 ANC checkups	17.9% (0–100)
- fully immunized against tetanus	70.1% (0–100)
Average number of births per commune	99.7 (22–369)
Delivery place (% of births)	
- district hospital	37.5% (0–100)
- CHC	9.7% (0–50)
- at home (or while out in the fields), in which:	52.8% (0–100)
○ % of home births with assistance from a trained birth attendant	31.2% (0–57)
○ % of home births without assistance from a trained birth attendant[3]	21.6% (0–43)
- births with assistance from a trained birth attendant	78.4% (0–100)
Presence of birth complications	
- % normal	91.4% (7–100)
- % complicated	8.6% (0–35.6)
- % complicated cases referred to higher-level facilities	4.4% (0–35.6)
Number of obstetric complications	9 cases
- Hemorrhage	2
- Eclampsia	3
- Infection	2
- Complications due to abortion	2
Number of maternal deaths[4]	18 cases (~105.2/100,000 live births)
- 2019	5
- 2020	5
- 2021	8

[3] In this study, the term trained birth attendants includes trained doctor, assistant doctor, nurse, midwife and village-based birth attendants (VBA). Village health workers (VHW) are not included as they are not trained in midwifery skills.

[4] Total maternal deaths and total live births were collected from reports of the 60 CHCs over the past 3 years. Because the sample size is small, estimation of average MMR in a year has a very large confidence interval, which may be inadequate to reflect the maternal mortality situation.

Indicator	Result (min-max)
Neonatal health	
- Average number of newborns per commune	95.1 (22–402)
- Number of newborns with perinatal asphyxia per commune	0.2 (0–3)
- Share low birthweight or pre-term among all children born (%)	1.12%
- Share of newborns with birth defects (%)	0.11%

Some recent studies have found that one important reason ethnic minority women tend to have only one ANC checkup during their pregnancy is due to the overemphasis on ultrasounds [23]. Many ethnic minority women believe that they only need to have one ANC checkup at a private clinic or district health center with ultrasound in order to know the health and sex of the fetus. Many doctors also consider ultrasound as the most essential service for ANC. Consequently, women who have an ultrasound at a private clinic report that they rarely receive comprehensive ANC checkups there [24].

The share of all births taking place at home (or while out in the field) remains high at 52.8% in the 60 selected communes in this study. Among these, in 20 communes (33.3%) home births accounted for more than 80% of all births (Pa Ve Su, Nam Manh, Tua Sin Chai, Lang Mo, Pu Dao, Ta Tong, Mu Sang, Ta Ba and Ta Ngao, Tong Qua Lin, Nam Pi, Nam Cha (twelve communes in Lai Chau), Xim Vang, Hang Dong, Kim Bon, Hang Chu (four communes in Son La), Dak Troi, De Ar, Kon Chieng (three communes in Gia Lai) and Dak Nen (one commune in Kon Tum). In this study, the share of women giving birth with assistance from a trained birth attendant (doctor, assistant doctor, nurse, midwife or village-based birth attendant) was 78.4%, which is higher than the 68% reported among ethnic minority women in the Multiple-Indicator Cluster Survey (MICS) 2014 but lower than that found among ethnic minority women in the SDGCW 2020–2021 at 82.0% [19]. Results from 60 studied communes in 2020 indicate that among all births taking place at home, only 31.2% were attended by a trained birth attendant. Although progress has been made, results continue to show that maternal care during childbirth is still more limited for mothers from ethnic minority groups.

Some 8.6% of deliveries at the CHC involved obstetric complications, of which about half required referral to a hospital in 2020, equivalent to 4.4% of all births. The annual number of complications in 60 communes in 2020 was only nine cases, ranging from eclampsia (three cases), hemorrhage (two cases), infection (two cases) and abortion complications (two cases).[5] This number is relatively low compared with the 15% of pregnant women at risk of a serious

[5] In the current reporting system of the MOH, abortion is counted together with maternal complications

complication worldwide [25]. These results for Viet Nam may be an undercount due to a high rate of home births for which complications may not have been reported. The routine data collected by the CHC on obstetric-related deaths and complications is still not close to reality as highlighted in many studies [4, 27].

Data was collected on maternal mortality for the three-year period from 2019 to 2021. Results indicate five deaths in each year 2019 and 2020 and eight deaths in 2021 for an average of 6 deaths per year, or an estimated MMR of ~105.2/100,000 live births. A detailed accounting indicates that maternal deaths occurred in ten communes over these three years including Muong Cai (six cases), Hang Dong (two cases), and one case each in Phu Yen commune in Son La, De Ar, Bo Ngoong, and Dak Po Pho communes in Gia Lai, Ta Tong, Ta Ba, Nam Pi, and Suoi Bau communes of Lai Chau and Muong Hoong commune in Kon Tum. The main cause of maternal death was hemorrhage.

The average number of live births per commune in the three-year period was 95.1, varying from 22 to 402 across the 60 studied communes. The most common postpartum complication was perinatal asphyxia, affecting ten babies in five communes in 2020: Chieng En (Song Ma, Son La), Dak Ngo (Tuy Duc, Dak Nong), Quang Hoa (Dak Glong, Dak Nong), Bo E (Kon Plong, Kon Tum) and De Ar (Mang Yang, Gia Lai).

4.1.3 Human resources

Clinical staff and obstetric training activities vary across the 60 studied communes (Table 4.3). On average, each CHC has about 8.7 trained health workers, with the commune having the least staff with only three health workers, and the commune with the most having ten health workers. Some 35% of communes did not have a general doctor. In ten communes (16.7%) none of the health workers had midwifery training. It is noteworthy that 22 communes (36.7%) had no village-based health workers (the detailed list of these communes can be found in Annex 6).

There is a need for a policy intervention to overcome the current limited stipend and limited number of village-based personnel supporting the work of the commune who are eligible to receive the stipend according to Decree 34/2019/ND-CP. Currently, this policy stipulates that the state budget can pay stipends to only three persons working at the village level in support of the commune. These include the village Party secretary, a village leader (or urban block captain) and the person responsible for the Fatherland Front (and other mass organizations). Other village-based personnel are not eligible to receive monthly stipends; however, they can be paid out of funds available to mass organizations through fee collection or local budget for mass organizations. This policy has impeded the ability to mobilize village-based health workers who can receive remuneration for their work in the village. The results of our analysis indicate a shortage of VHWs and VBAs, which is an important workforce to help implement healthcare related activities of the CHC within villages in remote areas.

Table 4.3. Human resources for maternal health services in 2020

Type of health worker	Mean number (min–max)	Share of communes lacking this type of health worker n (%)	Communes where health workers received no obstetric training in the period 2019–2021 n (%)
Total	4.9 (3–9)		
General doctor	0.7 (0–2)	21 (35%)	25 (41.7%)
Assistant doctor (other than obstetric/ pediatric)	1.8 (0–4)	3 (5%)	31 (51.7%)
General doctor with obstetric training	0.2 (0–1)	59 (98.3%)	43 (71.7%)
General doctor with pediatric training	0.2 (0–1)	59 (98.3%)	60 (100%)

Type of health worker	Mean number (min–max)	Share of communes lacking this type of health worker n (%)	Communes where health workers received no obstetric training in the period 2019–2021 n (%)
Obstetric/pediatric assistant doctor	0.3 (0–2)	10 (16.7%)*	19 (31.7%)*
Junior college or higher level midwife	0.2 (0–1)		
Secondary midwife	0.5 (0–2)		
Elementary midwife	0.2 (0–1)		
Nurse	1.2 (0–3)	15 (25%)	39 (65.0%)
Other (not counted as staff of the CHC)			
VHWs	3.7 (0–15)	22 (36.7%)	33 (55.0%)
VBAs	0.8 (0–4)	37 (61.7%)	44 (73.3%)
Other health worker	0.7 (0–3)	32 (53.3%)	60 (100%)

** None of existing staff was trained in midwifery skills at these health settings*

Results show that 40–50% of CHC personnel, including 31.7% of obstetric-pediatric assistant doctors and midwives and 71.7% of the doctors with obstetric training have not received any retraining in obstetrics during the past three years (2019–2021). This highlights the need for training and capacity building for grassroots level health workers.

VBAs are health personnel who have participated in training courses lasting at least six months. Some 44 communes (73.3%) do not have any active VBAs, of which 37 communes do not have any trained VBAs and seven communes have VBAs that are not currently active (Table 4.4). Routine meetings between VBAs and the CHC are organized on average about 3.5 times per year (or about one per quarter on average).

Table 4.4. Basic information on VBAs

Indicator	VBAs per commune mean (min–max)	Communes without VBA n (%)
Number of VBAs	0.6 (0–4)	43 (71.7%)
Number of currently active VBAs	0.6 (0–4)	44 (73.3%)
Number of VBAs paid a monthly allowance	0.4 (0–4)	46 (76.7%)
Annual number of routine meetings between VBAs and the CHC in 2020	3.5 (0–12)	38 (63.3%)

4.1.4 Maternal healthcare service provision

Among the 60 CHCs, four (Muong Cai, H Bong, Ia Ko and Chieng En communes) reported that they could not ensure basic healthcare service availability on call 24 hours per day, seven days per week throughout the year 2020 (Table 4.5). Most of the communes (90%) had not organized a community-based referral team while only 56.7% (34 CHCs) reported that women could access medical transport for EmOC referrals. Nine CHCs (15%) reported that they could not provide delivery assistance for home births, specifically Muong Cai, Ia Ko, Xuan Lac, Nam Cha, Quang Hoa, Binh Trung, Suoi Bau, Hang Chu and Ayun communes.

Table 4.5. CHC service availability

Service	Number of CHCs providing the service n (%)
Basic health service availability (24 hours, 7 days per week)	56 (93.3%)
Health worker contactable by phone (24 hours, 7 days per week)	59 (98.3%)
Community-based referral team	6 (10.0%)
Delivery assistance for home births	51 (85.0%)
Access to medical transport	34 (56.7%)
COVID-19 effects on service delivery in 2020	4 (6.7%)

Provision of obstetric services in the three months prior to data collection was inadequate. Proteinuria testing services were provided by only 25% of CHCs and HIV testing for pregnant women by only 38.3% of CHCs (Table 4.6). In addition, many basic obstetric services were not provided to any clients in the last three months, with seven CHCs (11.7%) reporting that they have not assisted at any normal deliveries (Ia Ko, Binh Trung, Tan Lap, Kong HTok, Nam Pi, Dak Troi, and Suoi Bang), eleven CHCs (18.3%) reporting that they had not provided essential maternal and neonatal care, and 29 CHCs reporting that they had not provided neonatal resuscitation services (48.3%). The main reasons some CHCs did not provide basic obstetric and neonatal services in the three-month period were because no patients sought such services or because the CHC lacked skilled staff with midwifery competencies. These results suggest that policy is needed to strengthen implementation of easy-to-provide services, such as proteinuria testing.

Table 4.6. Obstetric and reproductive health services provided by the CHC in the last three months

Service	Number of CHCs providing the service n (%)
1. ANC	
Integrated management of pregnancy and childbirth	59 (98.3%)
ANC checkups	60 (100%)
Proteinuria testing	15 (25.0%)
Hemoglobin (Hb) blood testing	20 (33%)
Dispensed or prescribed vitamin or mineral supplements to pregnant women	53 (88.3%)
Tetanus vaccination	59 (98.3%)
HIV testing	23 (38.3%)
Syphilis testing	5 (8.3%)
Hepatitis B testing	6 (10.0%)
2. Delivery assistance	
Assistance at normal delivery	53 (88.3%)
Manual removal of retained placenta	12 (20.0%)
Manual exploration of the uterine cavity	22 (36.7%)
Use partograph to monitor labor	37 (45.0%)

Service	Number of CHCs providing the service n (%)
3. Emergency services	
Antibiotic injection/infusion	13 (21.7%)
Oxytocin injection/infusion	32 (53.3%)
Anticonvulsant injection/infusion (Magnesium sulfate)	5 (8.3%)
Initial emergency management of obstetric hemorrhage	30 (50.0%)
Initial emergency management of pre-eclampsia/eclampsia	20 (33.3%)
Referral services (maternal health)	50 (83.3%)
4. Postnatal care	
Early essential newborn care (EENC) during and immediately after birth, including:	43 (71.7%)
• Dry off and warm up the newborn	49 (81.7%)
• Skin-to-skin care	48 (80.0%)
• Early breastfeeding and exclusive breastfeeding in the first hour after birth	53 (88.3%)
• Umbilical cord care	53 (88.3%)
• Breastfeeding	53 (88.3%)
• Eye care	50 (83.3%)
• Vitamin K_1 injection	26 (43.3%)
• HBV vaccination	32 (53.3%)
• BCG vaccination	52 (86.7%)
• Newborn resuscitation	31 (51.7%)
• Examination and monitoring of the mother and newborn in the first week after birth	55 (91.7%)
5. FP services	
All FP services, including:	60 (100.0%)
Three or more birth control methods available	53 (88.3%)
• Condoms	54 (90.0%)
• Contraceptive pill	60 (100.0%)
• Contraceptive injection	55 (91.7%)
• IUD	37 (61.7%)

Service	Number of CHCs providing the service n (%)
6. Other services	
Services for adolescents and youth	44 (73.3%)
Examination for and treatment of reproductive tract infection	49 (81.7%)
HIV/AIDS counselling and testing	41 (68.3%)

About 20–30% of the 60 CHCs in the study reported not providing other SRH services for adolescents and youth. FP services were also not available in all CHCs. Some 53 CHCs (88.3%) had three or more different contraceptive methods available, with IUDs being the most common (38.3% of CHCs). However, 10% of CHCs did not have male condoms and about 8.3% CHCs did not have injectable contraceptives (8.3%).

4.1.5 Infrastructure, equipment and consumable materials for maternal and reproductive health services

A majority of CHCs used the same room for obstetric and FP services (Table 4.7). Four CHCs (Tan Hop and Kim Bon of Son La province and Nam Cha and Tua Sin Chai of Lai Chau province) did not have a dedicated room or area to provide ANC. The percentage of CHCs with a separate room for ANC is low at 6.7%. In addition, 7 (11.7%) CHCs did not have an area dedicated to IEC services.

Table 4.7. Rooms for specific maternal health and FP services following the National Reproductive Healthcare Standard in 60 CHCs in 2020

Rooms for specific maternal health and FP services	Not available n (%)	Available but shared n (%)	Separate room n (%)
Room/area for ANC	4 (6.7%)	45 (75.0%)	11 (18.3%)
Corner for newborn care	6 (10.0%)	44 (73.3%)	10 (16.7%)
Gynecological examination room	3 (5.0%)	41 (68.3%)	16 (26.7%)
FP services room	10 (16.7%)	44 (73.3%)	6 (10.0%)
Delivery room	2 (3.3%)	41 (68.3%)	17 (28.3%)
Postpartum recovery room (could be the room with observation beds at the CHC)	1 (1.7%)	47 (78.3%)	12 (20.0%)
Corner/room for IEC (could be used also for ANC)	7 (11.7%)	40 (66.7%)	13 (21.7%)

CHCs are poorly equipped with obstetric instruments and equipment. For ANC checkups, 21.7% of CHC did not have sufficient adult height measuring scales and 13.3% of CHCs did not have enough sphygmomanometer and cardiopulmonary stethoscopes. The share of CHCs lacking testing materials or equipment was also high. For example, only 23.3% of CHCs had test strips for proteinuria testing and only 10% of CHCs had blood glucose testing materials and devices (Table 4.8).

Table 4.8. Materials and equipment for obstetric services

No	Item	Available n (%)	Usable n (%)	Available but not sufficient n (%)
1	***ANC care kit***	58 (96.7)	58 (96.7)	9 (15.0)
	- Watch with a second hand	24 (40.0)	24 (40.0)	40 (66.7)
	- Adult height measuring scale	49 (81.7)	49 (81.7)	13 (21.7)
	- Infant scale	56 (93.3)	56 (93.3)	12 (20.0)
	- Sphygmomanometer, cardiopulmonary stethoscope	57 (95.0)	57 (95.0)	8 (13.3)
	- Fetal stethoscope	59 (98.3)	58 (96.7)	6 (10.0)
	- Pregnancy test	20 (60.0)	20 (60.0)	43 (71.7)
	- Materials for proteinuria test	14 (23.3)	13 (21.7)	49 (81.7)
	- Equipment for Hb blood test	2 (3.3)	2 (3.3)	58 (96.7)
	- Materials and device for blood glucose testing	8 (13.3)	8 (13.3)	54 (90.0)
	- Measuring tape (to measure fundus, waist circumference)	60 (100.0)	59 (98.3)	5 (8.3)
2	***Delivery kit***	59 (98.3)	57 (95.0)	9 (15.0)
	- Straight clamp (serrated jaws)	57 (95.0)	54 (90.0)	11 (18.3)
	- Straight scissors	57 (95.0)	56 (93.3)	6 (10.0)
	- Metal container with lid	58 (96.7)	56 (93.3)	6 (10.0)
	- Sterilized long clamp	57 (95.0)	55 (91.7)	7 (11.7)
3	***Episiotomy kit***	54 (90.0)	51 (85.0)	16 (26.7)
	- Episiotomy scissors	53 (88.3)	50 (83.3)	12 (20.0)
	- Scissors to cut sutures	53 (88.3)	51 (85.0)	11 (18.3)

No	Item	Available n (%)	Usable n (%)	Available but not sufficient n (%)
	- Vaginal valve	50 (83.3)	49 (81.7)	12 (20.0)
	- Dissection clamp (serrated jaws)	50 (83.3)	49 (81.7)	12 (20.0)
	- Needle clamp	50 (83.3)	47(78.3)	13 (21.7)
	- Round needles (to suture muscle and mucous membrane)	36 (60.0)	33 (55.0)	30 (50.0)
	- Three-sided needle (to suture skin)	39 (65.0)	35 (58.3)	26 (43.3)
	- Metal container with lid	48 (80.0)	47 (78.3)	14 (23.3)
4	***Cervical exam kit***	54 (90.0)	52 (86.7)	9 (15.0)
	- Sterilized long clamp	57 (95.0)	53 (88.3)	8 (13.3)
	- Vaginal valve	54 (90.0)	52 (86.7)	12 (20.0)
	- Heart-shaped forceps (28 cm)	43 (71.7)	40 (66.7)	23 (38.3)
	- Dissection clamp	51 (85.0)	46 (76.7)	13 (21.7)
	- Needle clamp	44 (73.3)	43 (71.7)	18 (30.0)
	- Round needles (to suture muscle and mucous membrane)	32 (53.3)	30 (50.0)	31 (51.7)
	- Metal container with lid	48 (80.0)	46 (76.7)	16 (26.7)
	- Sutures (catgut)	43 (71.7)	43 (71.7)	23 (38.3)
5	***IUD insertion and removal kit***	56 (93.3)	52 (86.7)	9 (15.0)
	- Sterilized long clamp	54 (90.0)	53 (88.3)	10 (16.7)
	- Vaginal valve (or speculum)	55 (91.7)	53 (88.3)	7 (11.7)
	- Cervical clamp	52 (86.7)	50 (83.3)	11 (18.3)
	- Straight clamp (to remove IUD)	56 (93.3)	55 (91.7)	9 (15.0)
	- Uterine sound (to measure size of uterus)	45 (75.0)	43 (71.7)	21 (35.0)
	- Scissors	51 (85.0)	50 (83.3)	14 (23.3)
	- Metal container with lid	50 (83.3)	48 (80.0)	13 (21.7)
6	***Gynecological examination kit***	59 (98.3)	56 (93.3)	6 (10.0)
	- Speculum	58 (96.7)	56 (93.3)	7 (11.7)
	- Sterilized long clamp	56 (93.3)	54 (90.0)	9 (15.0)
	- Metal container with lid	54 (90.0)	54 (90.0)	11 (18.3)

No	Item	Available n (%)	Usable n (%)	Available but not sufficient n (%)
	- VIA test (test to detect suspected lesions of the uterus using Lugol's iodine or acetic acid)	12 (20.0)	12 (20.0)	50 (83.3)
7	***Consumable materials***	48 (80.0)	48 (80.0)	20 (33.3)
	- Medical cotton	55 (91.7)	55 (91.7)	13 (21.7)
	- Rubber gloves	53 (88.3)	53 (88.3)	15 (25.0)
	- Disposable gloves	53 (88.3)	53 (88.3)	16 (26.7)
	- Cloth sheets or lining paper	32 (53.3)	32 (53.3)	34 (56.7)
	- Sterile syringe	51 (85.0)	54 (90.0)	11 (18.3)
	- Nylon sheet	25 (41.7)	26 (43.3)	40 (66.7)
8	***Testing equipment***	3 (5.0)	3 (5.0)	56 (93.3)
	- Biochemistry testing equipment (basic)	3 (5.0)	3 (5.0)	59 (98.3)
	- Hematology testing equipment (basic)	3 (5.0)	3 (5.0)	58 (96.7)
	- Urine testing equipment (basic)	2 (3.3)	2 (3.3)	59 (98.3)
9	***Instrument sterilization equipment***	57 (95.0)	52 (86.7)	15 (25.0)
	- Pressure steam sterilizer 18 liters (electric or coal)	35 (58.3)	30 (50.0)	31 (51.7)
	- Electric boiling sterilizer	41 (68.3)	39 (65.0)	23 (38.3)
	- Pot for boiling instruments	22 (36.7)	22 (36.7)	40 (66.7)
	- Pot for boiling instruments using kerosene	6 (10.0)	6 (10.0)	56 (93.3)
	- Small electric drying cabinet	51 (85.0)	50 (83.3)	14 (23.3)
10	***Other equipment***	27 (45.0)	27 (45.0)	36 (60.0)
	- Generator 1500VA/220V /50Hz	12 (20.0)	8 (13.3)	53 (88.3)
	- Refrigerator	55 (91.7)	54 (90.0)	13 (21.7)
	- Sterilized delivery kit for CHC	44 (73.3)	46 (76.7)	26 (43.3)

Some CHCs reported that they do not have sufficient instruments for normal delivery. For example, 18.3% of CHCs did not have enough straight clamps (with serrated jaw) and 11.7% did not have enough sterilized long clamps. Some 26.7% of CHCs reported not having sufficient episiotomy instruments. Specifically, the items that were insufficient in the largest number of CHCs were round needles (50%), three-sided needles (43.3%) and metal containers with lids

(23.3%). Equipment for post-delivery cervical examination was also insufficient in a large share of CHCs. Items that were lacking included heart-shaped forceps (38.3% of CHCs) and needles (51.7% of CHCs reported insufficient round needles) and sutures (catgut) (38.3% of CHCs). Regarding instruments for IUD insertion and removal, the uterine sound for measuring the size of the uterine cavity is the instrument found to be insufficient in the largest number of CHCs (35%), followed by scissors (23.3%) and metal container with lid (21.7%). For gynecological examinations, only 20% of CHCs had materials to provide VIA screening. In addition, 10–20% said that they had insufficient gynecological examination instruments, for example, 15% did not have long clamps and 11.7% did not have a vaginal speculum.

Consumable materials are also insufficient in many CHCs, particularly cloth sheets or lining paper (56.7%) and disposable gloves (26.7%). The majority of CHCs reported that they do not have testing equipment with only three CHCs reporting having simple biochemical or hematological testing devices. Equipment for sterilizing medical instruments is not available in many CHCs, for example, only 58.3% of CHCs had electric steam pressure sterilizers and 68.3% had electric boiling sterilizers for medical equipment.

4.1.6 Essential medicines for obstetric services

CHCs also faced limited availability of essential obstetric medicines (Table 4.9). Some 54 CHCs (90%) reported having three or more types of essential antibiotics. However, many CHCs reported that some essential antibiotics were not available following MOH requirements. The antibiotics that were not available in the largest number of CHCs were benzylpenicillin (90%), chloramphenicol (88.3%), tetracycline (85%), erythromycin (66.7%), gentamicin (66.7%) and ampicillin (50%).

Table 4.9. Essential medicines available in the CHC of 60 selected communes

Medicine	Yes n (%)	No n (%)
1. Antibiotics		
Three or more types of essential antibiotics	**54 (90%)**	
• Amoxicillin (250mg; 500mg), oral	58 (75.0)	2 (3.3)
• Ampicillin (250mg; 500mg), oral	30 (50.0)	30 (50.0)
• Erythromycin (250mg), oral	20 (33.3)	40 (66.7)
• Doxycycline (100mg), oral	24 (40.0)	36 (60.0)
• Tetracycline (250mg), oral	9 (15.0)	51 (85.0)

Medicine	Yes n (%)	No n (%)
• Co-trimoxazole (480mg), oral	42 (70.0)	18 (30.0)
• Metronidazole (250mg; 500mg), oral or vaginal suppository	44 (73.3)	16 (26.7)
• Clotrimazole (500mg), vaginal suppository	14 (23.3)	46 (76.7)
• Nystatin (100,000 IU), vaginal suppository	21 (35.0)	39 (65.0)
• Benzylpenicillin: (1,200,000 IU; 2,400,000 IU), injection	6 (10.0)	54 (90.0)
• Procaine benzylpenicillin: (1,000,000 IU; 3,000,000 IU), injection	7 (11.7)	53 (88.3)
• Chloramphenicol (1g), injection	7 (11.7)	53 (88.3)
• Gentamicin (80mg/ml), injection	20 (33.3)	40 (66.7)
2. Antihypertensives		
• Methyldopa (250mg), oral	23 (38.3)	37 (61.7)
• Nifedipine (10mg), extended-release tablet	31 (51.7)	29 (48.3)
3. Antispasmodics		
• Atropine (0.25mg), oral	18 (30.0)	42 (70.0)
• Atropine (0.25mg/ml), injection [provided in CHC staffed by a doctor]	16 (26.7)	44 (73.3)
• Papaverine (40mg), oral	46 (76.7)	14 (23.3)
• Papaverine (40mg/ml), injection [provided in CHC staffed by a doctor]	12 (20.0)	48 (80.0)
4. Uterotonics		
• Ergometrine (0.2mg/ml), injection	4 (6.7)	56 (93.3)
• Oxytocin (5 IU/ml), injection	54 (90.0)	6 (10.0)
• Misoprostol	9 (15.0)	51 (85.0)
5. Sedatives		
• Diazepam (5mg tablet), oral • Diazepam (5mg/ml), injection [provided in CHC staffed by a doctor]	19 (31.7)	41 (68.3)
At least one item in each of the four types of essential medicines (Antihypertensives, antispasmodics, uterotonics and sedatives)	**17 (28.3%)**	
6. Vitamins and minerals		
• Vitamin K1 (20mg/ml), injection [with 1ml syringe]	37 (61.7)	23 (38.3)
• Iron tablet (60mg) and folic acid (0.5mg), oral	49 (81.7)	11 (18.3)

Medicine	Yes n (%)	No n (%)
7. Contraceptive methods		
• Combined contraceptive pill (with 2 or more types such as Rigevidon, Ideal)	52 (86.7)	8 (13.3)
• Progestogen-only pill: Exluton	36 (60.0)	24 (40.0)
• Contraceptive injection: DMPA 150mg	47 (78.3)	13 (21.7)
• Emergency contraceptive pill	6 (10.0)	54 (90.0)
• IUD	34 (56.7)	26 (43.3)
• Male condom	51 (85.0)	9 (15.0)
8. Infusion		
• Glucose 5% solution for infusion/injection	49 (81.7)	11 (18.3)
• Sodium chloride 0.9% solution for infusion/injection	52 (86.7)	8 (13.3)
• Ringer Lactate solution for infusion/injection	53 (88.3)	7 (11.7)
9. Malaria medicines (areas with malaria)		
• Artemisinin (250mg), oral	26 (43.3)	34 (56.7)
• Chloroquine (150mg), oral	37 (61.7)	23 (38.3)
• Mefloquine (250mg), oral	10 (16.7)	50 (83.3)
10. Other medicines		
• Magnesium sulfate (15%, 10ml) ampoule for injection	11 (18.3)	49 (81.7)
• Calcium gluconate (100mg/10ml), ampoule for injection	11 (18.3)	49 (81.7)
• BCG vaccine (tuberculosis)	57 (95.0)	3 (5.0)
• HBV vaccine	36 (60.0)	24 (40.0)

Half of CHCs reported lack of drugs to treat hypertension during pregnancy, with 48.3% of CHCs not having nifedipine and 61.7% not having methyldopa. Similarly, in the antispasmodic drug category, the majority (70%) of CHCs did not have atropine. Uterotonics were also missing from CHC pharmacies, with more than 85% reporting not having misoprostol or ergometrine and even 10% of CHCs lacked the most basic one, oxytocin. More than two-thirds of CHCs did not have sedatives (68.3%) and from 20–40% did not have vitamins and iron tablets. Only 17 CHCs (28.3%) had at least one medicine in each of the four types of essential obstetric medicines (antihypertensives, antispasmodics, uterotonics and sedatives).

Availability of contraceptive methods was also uneven. The most available birth control methods were contraceptive pills (86.7%) and contraceptive injections (78.3%). Certain contraceptives were not available in a large share of CHCs, like emergency contraceptive pills (not available in 90%), the IUD (43.3%), and the progestin-only pill (40%).

Solutions for infusion were not available in about 10–20% of CHCs, with glucose unavailable in 18.3% of CHCs and sodium chloride not available in 13.3%. Other obstetric medicines such as magnesium sulfate and calcium gluconate were only available in 18.3% of CHCs. HBV vaccines were only available in 60% of CHCs.

Most CHCs reported following proper storage rules for ampoules in their original boxes or containers with labels indicating the required information following MOH regulations (Table 4.10). CHCs indicated that they recorded the number of new drugs added to inventory and the number dispensed on a daily basis. However, 20% of CHCs reported that they did not have separate locked cabinets for storing toxic or dangerous pharmaceuticals or refrigerators to maintain cold chain (18.3%).

Table 4.10. Pharmaceutical storage

Equipment for pharmaceutical storage	Yes n (%)	No n (%)
Specialized cabinet:		
Locked drug cabinet for toxic and dangerous pharmaceuticals (classes A and B)	48 (80.0)	12 (20.0)
Cabinets to maintain cold chain, to prevent exposure to light	49 (81.7)	11 (18.3)
Medicines list for checking inventory	56 (93.3)	4 (6.7)
For each pharmaceutical:		
Ampoule in box with information label	56 (93.3)	4 (6.7)
Tablet in bottle with information label	59 (98.3)	1 (1.7)
Pharmaceuticals stored in required place	59 (98.3)	1 (1.7)
Daily checking on the number of used and remaining items in relation to items dispensed	57 (95.0)	3 (5.0)

Many CHCs reported that they had experienced stockouts of emergency obstetric medicines in the last twelve months. About 58.3% of CHC experienced a stockout of magnesium sulfate in the last year, of which 45.7% reported not currently having this item available at the time of data collection (16 CHCs). Some 30% of CHCs reported stockouts of intravenous antibiotics and 20% reported stockouts of oxytocin during the past twelve months.

Table 4.11. Stockouts of obstetric emergency medicines and contraceptives

Medicine	Stockouts at some time during the last 12 months n (%)	Not currently available (among CHCs having stockouts in the last 12 months) n (%)
Magnesium sulfate for injection	35 (58.3%)	16 (45.7%)
Oxytocin	11 (18.3%)	7 (63.6%)
Infusion solutions	9 (15.0%)	4 (44.4%)
Intravenous antibiotics	18 (30.0%)	7 (38.9%)
Contraceptive pill	40 (66.7%)	10 (25.0%)
Male condoms	7 (11.7%)	2 (28.6%)
Contraceptive injection	13 (21.7%)	5 (38.5%)
Contraceptive implant	31 (51.7%)	14 (45.2%)

Stockouts of contraceptives are very common, with 66.7% of CHCs reporting stockouts of contraceptive pills at some point during the past twelve months of which 25% reporting current stockouts at the time of data collection (10 CHCs). Some 51.7% of CHCs were out of stock of contraceptive implants during the past twelve months.

4.1.7 Reference materials, recording/reporting register and IEC materials on reproductive health

Some 40–50% of CHCs reported not having adequate IEC materials for reproductive health care (Table 4.12). IEC materials on contraception and FP were the most widely available (63.3% of CHCs), but only about half of CHCs had IEC materials on maternal and newborn care. Also, only about half of CHCs had clinical reference materials for their staff (national reproductive health guidelines and EENC guidelines).

Table 4.12. Reproductive health IEC and clinical reference materials available at CHCs

Type of document	Yes n (%)
MNRCH reference/IEC materials	
IEC on maternal and newborn care	32 (53.3%)
IEC on FP and contraceptive methods	38 (63.3%)
National EENC guidelines	28 (46.7%)
National reproductive health guidelines	29 (48.3%)

Type of document	Yes n (%)
Patient registers and logbooks	
Medical examination and treatment register	54 (90.0%)
ANC register	59 (98.3%)
Delivery register	60 (100%)
Integrated pregnancy and childbirth management chart	56 (93.3%)
Maternal health monitoring booklet	48 (80.0%)
Contraceptive provision register	52 (86.7%)
Partograph	30 (50.0%)
Gynecological examination register	48 (80.0%)
Obstetric medical record	36 (60.0%)
Maternal and neonatal referral form	16 (26.7%)
Death register	54 (90.0%)
Referral register	28 (46.7%)
Home birth monitoring register	28 (46.7%)
Postpartum care monitoring register (home-based)	27 (45.0%)
Pregnancy checkup record (home-based)	9 (15.0%)

For recordkeeping and statistics, most CHCs had enough registers on obstetric care and FP. However, some CHCs did not have some of the key documents for maternal health and FP, with four CHCs lacking a pregnancy management register, eight CHCs lacking a contraception provision register, twelve CHCs lacking a gynecological exam register, half of communes lacking partographs and 60 percent lacking obstetric medical records.

4.2 SUB-STUDY 2: BASELINE ASSESSMENT OF MATERNAL HEALTH AND FP INDICATORS

In this section, we present the results of the indicators on maternal healthcare and FP service utilization among ethnic minority mothers. A total of 718 mothers who had children under two years of age were selected in twelve communes in six provinces to participate in this cross-sectional assessment.

4.2.1 Characteristics of ethnic minority mothers who participated in the study

Of 718 mothers in the sample, 418 (58%) lived in the Northern Midlands and Mountains region (Bac Kan, Lai Chau, Son La) and 300 (42%) lived in the Central Highlands region (Kon Tum, Gia Lai, Dak Nong) (Table 4.13).

Table 4.13. Characteristics of ethnic minority mothers who participated in the study (n=718)

Characteristics	n	%	Characteristics	n	%
Province			**Maternal age group**		
Bac Kan	60	8.4	15–19 years	89	12.4
Lai Chau	179	24.9	20–24 years	337	46.9
Son La	179	24.9	25–29 years	132	18.4
Kon Tum	60	8.4	30–34 years	78	10.9
Gia Lai	180	25.0	35–49 years	82	11.4
Dak Nong	60	8.4			
Ethnicity			**Household size**		
Hmong	423	58.9	3–4 people	179	24.9
Ba Na	150	20.9	5–6 people	279	38.9
Xo Dang	57	7.9	7–9 people	185	25.8
Thai	35	4.9	10–22 people	75	10.4
Gia Rai	27	3.8			
Other	26	3.6			
Religious affiliation			**Household economic status**		
No religion	528	73.5	Poor	296	41.2
Protestant	148	20.7	Near poor	141	19.6
Buddhist	11	1.5	Not poor or near poor	261	36.4
Catholic	31	4.3	Don't know	20	2.8
Highest level of school attended			**Source of water**		
Never attended school	206	28.7	Piped water	39	5.4
Primary school (grades 1–5)	162	22.6	Tube well	20	2.8
Lower secondary school (grades 6–9)	289	40.3	Dug well	142	19.8
Upper secondary school (grades 10–12)	47	6.5	Mountain spring water	323	45.0
Post-secondary	14	2.0	Surface water (river, pond)	194	27.0

Characteristics	n	%	Characteristics	n	%
Occupation			**Age of the youngest child**		
Agriculture/Forestry	696	96.9	0–6 months	152	21.2
Other	22	3.1	7–12 months	209	29.1
Marital status			13–18 months	205	28.6
Never married	10	1.4	19–less than 24 months	152	21.2
Married	700	97.5	**Birth order**		
Separated/divorced/widowed	8	1.1	1st child	214	29.8
Migrant			2nd child	240	33.4
Yes	244	34.0	3rd child	130	18.1
No	474	66.0	4th or higher order birth	134	18.7
Health insurance					
Yes	671	93.5			
No	47	6.5			

Among the sample of mothers, Hmong, Ba Na, and Xo Dang were the three most common ethnic minority groups with 59%, 21%, and 8%, respectively. Among these women, 20.7% reported being Protestant, 4.3% Catholic, 1.5% Buddhist, and the rest had no religious affiliation (73.5%).

The highest level of school attended by women from ethnic minorities reported in the survey was low: half of the women participating in the study had never attended school (28.7%) or only attended primary school (22.6%). Among women with these low levels of education, only 23% could read a whole sentence, 17% could only read part of a sentence, and up to 60% could not read at all.

Some 97% of women participating in the study engaged in agriculture or forestry. The vast majority of women in the sample were married (97.5%), but a small percentage was not married (1.4%) but living in a marital union. Some 34% of mothers were in-migrants from other communes and 93.5% reported having health insurance.

Ethnic minority mothers in our sample lived in quite large households, where household membership is defined as people taking their meals together and residing in the same residential structure. About 36% lived in households with seven or more members; only 25% belonged to the smallest group with three to four household members. The main water sources used for drinking and cooking were piped water (45%); surface water (27%) and dug well water (19%). The majority of mothers were from poor and near poor households (41.2% and 19.6%, respectively).

Nearly half of the mothers were in the 20–24 year age group (46.9%), 12.4% of them were in the 15–19 year age group. Women in the study sample include 29.8% giving birth for the first time; 33.4% having a second birth and 36.8% having a third or higher order birth.

Three "traditional" communication channels, including newspapers/magazines, radio, or television were used infrequently by ethnic minority mothers in the last three months (11%; 24%, and 29%, respectively) (Table 4.14). New communication channels such as the internet, mobile phones, and Facebook were more popular (49%, 42%, and 45%, respectively).

Table 4.14. Ethnic minority mother access to media channels (n=718)

Content	n	%
Read newspapers/magazines in the past 3 months		
Not at all	640	89.1
Less than 1 time per week	11	1.5
At least 1 time per week	47	6.5
Almost every day	20	2.8
Listened to the radio in the last 3 months		
Not at all	546	76.0
Less than 1 time per week	17	2.4
At least 1 time per week	69	9.6
Almost every day	86	12.0
Watched TV in the last 3 months		
Not at all	511	71.2
Less than 1 time per week	15	2.1
At least 1 time per week	89	12.4
Almost every day	103	14.3
Used a computer in the last 3 months		
Not at all	706	98.3
At least 1 time per week	3	0.4
Almost every day	9	1.3
Accessed internet in the last 3 months		
Not at all	368	51.3
Less than 1 time per week	24	3.3
At least 1 time per week	113	15.7
Almost every day	213	29.7

Content	n	%
Own a smartphone		
No	320	44.6
Yes, and have an internet connection	300	41.8
Yes, but do not have an internet connection	7	1.0
Have a mobile phone but not a smart phone	91	12.6
Used mobile phone in the last 3 months		
Not at all	221	30.8
Less than 1 time per week	48	6.7
At least 1 time per week	100	13.9
Almost every day	349	48.6
Used Facebook in the last 3 months		
Not at all	398	55.4
Less than 1 time per week	20	2.8
At least 1 time per week	94	13.1
Almost every day	206	28.7
Used Zalo in the last 3 months		
Not at all	560	78.0
Less than 1 time per week	8	1.2
At least 1 time per week	42	5.8
Almost every day	108	15.0

4.2.2 Indicators of maternal health care among ethnic minority women

4.2.2.1 ANC

Number of ANC checkups

The Vietnamese MOH recommends that all pregnant women have at least four ANC checkups before delivery, with the first checkup occurring during the first three months of pregnancy. ANC checkups aim to detect risks that would allow for timely management and planning for delivery. Ethnic minority women who had ANC checkups are more likely to give birth at health facilities. During ANC checkups, health workers can encourage and support pregnant women to use maternal health services including giving birth at a health facility, having postnatal checkups, receiving vaccinations, breastfeeding, and using postpartum FP methods [17].

The proportion of ethnic minority mothers who had ANC checkups in the twelve selected communes is much lower than the national level. Overall, the survey found that the proportion of ethnic minority women who received at least one ANC checkup during pregnancy was 72%, compared to 97% nationally in 2021 (SDGCW 2020-2021), constituting a difference of 25 percentage points [19]. However, our survey results of twelve communes is similar to results of a 2016 UNFPA survey of ethnic minority women, which found that 73% had received ANC checkups [7]. When examining the proportion of ethnic minority women who have received the recommended number of ANC checkups, we find that only 11.3% have received four or more ANC checkups, compared with 88% nationally, a large differential of 77 percentage points [19]. This low share of women receiving four or more ANC visits is also lower than the result from the UNFPA survey of ethnic minority women in 2016, which found 16% of women receiving this level of ANC care [7].

Table 4.15. Percentage of mothers having at least one ANC checkup and at least four ANC checkups by characteristics

Characteristics	ANC 1+			ANC 4+			No. of women
	n	%	p-value	n	%	p-value	
Province			<0.001			0.074	
Bac Kan	52	86.7		10	16.7		60
Lai Chau	95	53.1		14	7.8		179
Son La	146	81.6		25	14.0		179
Kon Tum	42	70.0		4	6.7		60
Gia Lai	133	73.9		17	9.4		180
Dak Nong	49	81.7		11	18.3		60
Age group			<0.001			0.012	
15–19 years	75	84.3		7	7.9		89
20–24 years	226	67.1		43	12.8		337
25–29 years	96	72.7		21	15.9		132
30–34 years	47	60.3		9	11.5		78
35–49 years	33	40.2		1	1.2		82
Highest level of school attended			<0.001			<0.001	
Never attended school	110	53.4		6	2.9		206
Primary school	108	66.7		14	8.6		162

Characteristics	ANC 1+			ANC 4+			No. of women
	n	%	p-value	n	%	p-value	
Lower secondary school	245	84.8		38	13.1		289
Upper secondary school and above	54	88.5		23	37.7		61
Ethnicity			0.004			<0.001	
Hmong	292	69.0		42	9.9		423
Ba Na	111	74.0		16	10.7		150
Xo Dang	39	68.4		3	5.3		57
Thai	35	100.0		15	42.9		35
Gia Rai	19	70.4		0	0.0		27
Other	21	80.8		5	19.2		26
Religious affiliation			<0.001			0.015	
No religion	369	70.0		54	10.2		527
Protestant	122	82.4		26	17.6		148
Buddhist	11	91.7		1	8.3		12
Catholic	15	48.4		0	0.0		31
Birth order			<0.001			0.008	
1st child	180	84.1		34	15.9		214
2nd child	184	76.7		30	12.5		240
3rd and higher birth order	153	58.0		17	6.4		264
Household economic status			0.195			0.002	
Poor	209	70.6		19	6.4		296
Near poor	95	67.4		16	11.3		141
Not poor or near poor	196	75.1		44	16.9		261
Don't know	17	85.0		2	10.0		20
Total	**517**	**72.0**		**81**	**11.3**		**718**

The percentage of mothers having an ANC checkup in the first trimester was the lowest compared to the later trimesters of pregnancy: 39% of ethnic minority women had at least one ANC checkup in the first trimester compared with 54% in the second, and 48% in the last.

Table 4.16. Percentage of mothers having ANC checkups by trimester and province

Percentage of mothers having ANC checkups in:	Total (n =718)	Bac Kan (n = 60)	Lai Chau (n =179)	Son La (n =179)	Kon Tum (n =60)	Gia Lai (n = 180)	Dak Nong (n=60)
The first trimester (285/718)	**39.7**	25.0	30.7	57.5	65.0	27.2	40.0
The second trimester (391/718)	**54.5**	61.7	34.1	58.7	66.7	60.0	66.7
The last trimester (349/718)	**48.6**	70.0	34.6	53.6	68.3	43.3	50.0

Private clinics, CHCs, and district hospitals were the three most common facilities providing ANC checkups for ethnic minority women in the study. Some 57.1% of mothers said that their ANC visits were at a private clinic/private hospital, 26.9% at a CHC, and 16.1% at district/provincial/or central hospitals.

Table 4.17. ANC facility and provider by province

Content	Total (n =517)	Bac Kan (n = 52)	Lai Chau (n =95)	Son La (n =146)	Kon Tum (n =42)	Gia Lai (n= 133)	Dak Nong (n=49)
ANC facility							
Private health facility	57.1	26.9	32.6	56.2	28.6	85.0	87.8
CHC	26.9	46.2	27.4	32.2	64.3	9.8	4.2
Hospital	16.1	26.9	40.0	11.6	7.1	5.3	8.2
ANC provider							
Doctor	74.9	84.6	64.2	80.8	11.9	85.7	91.8
Assistant doctor/midwife	25.1	15.4	35.8	19.2	88.1	143.3	8.2

ANC was mostly provided by a doctor (74.9%), with another 25.1% receiving ANC from an assistant doctor or midwife. The percentage of women receiving ANC provided by a doctor in the study was much lower than the overall figure in the SDGCW 2020–2021 survey (74.9% vs 95%), while the proportion of women receiving ANC from an assistant doctor or midwife was higher than in the SDGCW 2020–2021 survey (25.1% versus 2%).

Among the 201 mothers who did not receive ANC checkups prior to their most recent birth, the most common reason given was "lack funds for transport" (26.4%), the second most common reason was "no need to get ANC" (18.4%), followed by "being shy" (13.9%).

Table 4.18. Reason for not having ANC checkups by province

Reasons	Total (n=201)	Bac Kan (n=8)	Lai Chau (n=84)	Son La (n=33)	Kon Tum (n=18)	Gia Lai (n=47)	Dak Nong (n=11)
Lack funds for transport (n=53)	**26.4**	12.5	14.3	42.4	5.6	48.9	18.2
No need (n=37)	**18.4**	0.0	21.4	36.4	5.6	8.5	9.1
Shy (n=28)	**13.9**	0.0	26.2	3.0	0.0	6.4	18.2
Too busy (n=20)	**10.0**	62.5	7.1	6.1	27.8	2.1	9.1
Cultural reasons (n=19)	**9.5**	0.0	13.1	6.1	0.0	4.3	36.4
Health facility too far (n=18)	**9.0**	0.0	11.9	3.0	33.3	8.4	0.0
Husband/partner prohibited going (n=9)	**4.5**	0.0	4.8	0.0	5.6	6.4	9.1
No mean of transport (n=9)	**4.5**	25.00	1.2	3.0	22.2	2.1	0.0
Unaware of need, no information (n=5)	**2.5**	0.0	0.0	0.0	0.0	10.6	0.0

The reasons for not going to ANC were different by province: the two most common reasons for not having ANC in Bac Kan province were "too busy/don't have time" (62.5%) and "have no means of transport" (25%). In Lai Chau province, the most common reasons were "being shy" (26.2%) and "no need" (21.4%). In Son La province, 42.4% of mothers did not seek ANC because the "lacked funds for transport " and 36.4% reported that there was "no need". In Kon Tum province, geographical distance to the health facility was the most common reason (33.3%) and 27.8% stated that they were "too busy/no time to go". In Gia Lai province, 48.9% and 10.6% said that "lack of funds for transport" and "unaware of the need", respectively. In Dak Nong province, the three most common reasons were "cultural reasons" (36.4%), "being shy" (18.2%), and " lack of funds for transport" (18.2%).

About 60% of mothers in the study were from poor or near poor households and 93% had health insurance coverage. Although ANC was covered by health insurance, up to 26.4% of mothers reported not receiving ANC because of the lack of funds for transport. Another 18.4% of mothers thought they had no need for ANC, while 13.9% of them reported being too shy to contact health facilities, and 9.5% reported cultural reasons for not seeking ANC. Although the mothers interviewed resided in the twelve most remote communes, only about 9% of them reported not receiving ANC because of geographical distance.

Quality of ANC care

During each ANC checkup, a pregnant woman needs to be fully examined to detect possible risks during pregnancy and labor so they could receive timely treatment or a referral to another facility if necessary. According to WHO recommendations, three important contents are indispensable: blood pressure measurement, proteinuria testing, and blood testing.

A comparison of study results with national estimates (SDGCW 2020–2021) revealed a large gap between ethnic minority women and Kinh majority in terms of the quality of ANC services [17]. Overall in the survey of twelve communes, 41.6% of the women had their blood pressure measured, only 11.2% had their urine tested, and 8.9% had a blood sample taken at least once during ANC checkups. The proportion receiving all three services was only 2.9% (compared to the national average of 74% – a difference of 71 percentage points) [7]. Thus, the quality of ANC checkups for ethnic minority women was low and needs to be improved in the future, particularly in private clinics as nearly half of ethnic minority mothers chose these types of facilities for ANC checkups.

Table 4.19. Proportion of pregnant women who received blood pressure measurement, proteinuria testing, and blood testing during ANC checkups by province

Percentage of mothers receiving:	Total (n=517)	Bac Kan (n=52)	Lai Chau (n=95)	Son La (n =146)	Kon Tum (n=42)	Gia Lai (n=133)	Dak Nong (n=49)
at least one blood pressure measurement during ANC	**41.6**	67.3	37.9	45.2	92.9	29.3	0.0
at least one proteinuria test during ANC	**11.2**	1.9	32.6	10.3	2.4	7.5	0.0
at least one blood test during ANC	**8.9**	0.0	7.4	24.0	0.0	3.0	0.0
all three services during ANC checkups	**2.9**	**0.0**	**5.3**	**4.8**	**0.0**	**2.3**	**0.0**

4.2.2.2 Place of delivery and type of birth attendant

The risk of maternal mortality is highest during birth and in the first 48 hours after birth. Therefore, assistance from a SBA during birth is an important intervention to prevent maternal death. Safe delivery requires adequately trained birth attendants (adequately trained midwife, doctor, or nurse), an enabling environment (adequate drugs, equipment, referral system, and policies), and community acceptance of maternity care services.

Up to 70.1% of mothers in the twelve communes gave birth at home, while only 29.9% delivered at a health facility (compared to 96.3% of all mothers giving birth at a health facility nationwide). The proportion of deliveries assisted by a trained birth attendant was only 34.7% which is 61.6 percentage points lower than the national estimate of the SDGCW 2020–2021 [19].

Table 4.20. Percentage of mothers being assisted by a trained health worker or giving birth in a health facility by mothers' characteristics

Characteristics	Assisted by a trained health worker			Delivered in a health facility			No of women
	n	%	p-value	n	%	p-value	
Province			<0.001			<0.001	
Bac Kan	37	61.7		37	61.7		60
Lai Chau	43	24.0		35	19.6		179
Son La	88	49.2		80	44.7		179
Kon Tum	18	30.0		16	26.7		60
Gia Lai	37	20.6		22	12.2		180
Dak Nong	26	43.3		25	41.7		60
Age group			<0.001			<0.001	
15–19 years	42	47.2		36	40.4		89
20–24 years	114	33.8		96	28.5		337
25–29 years	45	34.1		44	33.3		132
30–34 years	35	44.9		29	37.2		78
35–49 years	13	15.9		10	12.2		82
Highest level of school attended			<0.001			<0.001	
Never attended school	50	24.3		45	21.8		206
Primary school	38	23.5		30	18.5		162

Characteristics	Assisted by a trained health worker			Delivered in a health facility			No of women
	n	%	p-value	n	%	p-value	
Lower secondary school	118	40.8		101	34.9		289
Upper secondary school and above	43	70.5		39	63.9		61
Ethnicity			<0.001			<0.001	
Hmong	147	34.8		130	30.7		423
Ba Na	33	22.0		19	12.7		150
Xo Dang	16	28.1		14	24.6		57
Thai	35	100.0		35	100.0		35
Gia Rai	2	7.4		2	7.4		27
Other	16	61.5		15	57.7		26
Religious affiliation			<0.001			<0.001	
No religion	166	31.5		143	27.1		527
Protestant	73	49.3		63	42.6		148
Buddhist	6	50.0		6	50.0		12
Catholic	4	12.9		3	9.7		31
Birth order			<0.001			<0.001	
1st child	97	45.3		86	40.2		214
2nd child	82	34.2		69	28.8		240
3rd and higher birth order	70	26.5		60	22.7		264
Household economic status			0.176	215		<0.001	
Poor	104	34.1		91	30.7		296
Near poor	40	28.4		35	24.8		141
Not poor or near poor	102	39.1		84	32.2		261
Don't know	6	30.0		5	25.0		20
Total	**249**	**34.7**		**215**	**29.9**		**718**

The groups with the lowest share receiving assistance from a trained health worker during delivery were in Gia Lai (20.6%), Lai Chau (24.0%), women in the age group 35–49 years (15.9%), with education level at primary school or below (23%–24%), among the Gia Rai ethnic group (7.4%), Catholic (12.9%), and women having three or more children (26.5%).

The groups with the lowest share delivering in a health facility were in Gia Lai (12.2%), Lai Chau (19.6%), women in the age group 35–49 years (12.2%), with an education level of primary school or below (18.5%–21.8%), belonging to the Gia Rai ethnic group (7.4%), Catholic (9.7%), and having three or more children (22.7%).

Of 503 mothers who did not give birth at the health facility, up to 29.6% considered home birth as the norm; 19.3% expected a normal and easy delivery so they felt there was no need to go to a health facility; and 11.5% responded that the birth occurred too quickly to be able to get to a healthcare facility in time. Thus, communication should address those issues to increase the share of deliveries at health facilities.

Table 4.21. Reasons for not giving birth in a health facility

Reasons	Total (n=503)	Bac Kan (n=23)	Lai Chau (n=144)	Son La (n=99)	Kon Tum (n=44)	Gia Lai (n=158)	Dak Nong (n=35)
Customary practice of home birth (n=149)	**29.6**	17.4	32.6	19.2	75.0	27.2	8.6
Normal birth/ easy birth, no need to go (n=97)	**19.3**	13.0	23.6	46.5	2.3	5.7	11.4
Quick labor, no time to get to facility (n=58)	**11.5**	26.1	4.2	8.1	0.0	16.5	34.3
Lack funds for transport (n=49)	**9.7**	13.0	2.1	9.1	6.8	17.7	8.6
Prefer home birth (n=43)	**8.5**	8.7	13.2	1.0	0.0	12.7	2.9
Cultural reasons (n=28)	**5.6**	8.7	1.4	1.0	0.0	12.6	8.6
Health facility too far (n=24)	**4.8**	4.3	8.3	4.0	13.6	0.6	0.0

Reasons	Total (n=503)	Bac Kan (n=23)	Lai Chau (n=144)	Son La (n=99)	Kon Tum (n=44)	Gia Lai (n=158)	Dak Nong (n=35)
Birth occurred at night (n=18)	**3.6**	4.3	4.2	3.0	0.0	2.5	11.4
Family member prohibited going to facility (n=14)	**2.8**	4.3	3.5	2.0	2.3	0.6	11.5
Shy (n=14)	**2.8**	0.0	6.9	1.0	0.0	1.3	2.9
No means of transport (n=6)	**1.2**	0.0	0.0	2.0	0.0	2.5	0.0
Trained birth attendant* assisted at home (n=3)	**0.6**	0.0	0.0	3.0	0.0	0.0	0.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

** Trained birth attendant in this table includes trained commune health workers and VBAs*

After home birth (70% of deliveries), public hospitals were the most common place for women to give birth (23.5%), with only 5.2% giving birth at the CHC. Although a relatively high share of women had ANC checkups at private health facilities, no mothers delivered in private facilities. The proportion of women receiving ANC care at CHCs was much higher than the proportion giving birth in the CHC (29.4% versus 5.2%, respectively).

Table 4.22. Place of delivery and birth attendant at the last birth

Place of delivery/birth attendant	Total (n =718)	Bac Kan (n = 60)	Lai Chau (n =179)	Son La (n =179)	Kon Tum (n =60)	Gia Lai (n= 180)	Dak Nong (n=60)
Place of delivery							
At home	**70.1**	38.3	80.4	55.3	73.3	87.8	58.0
Specifically:							
At home	**69.2**	38.3	79.3	54.7	73.3	86.1	*58.3*
In the field/ forest/shack	**0.6**	0.0	1.1	0.0	0.0	1.1	0.0
On the way to a health facility	**0.3**	0.0	0.0	0.6	0.0	0.6	0.0

Place of delivery/birth attendant	Total (n =718)	Bac Kan (n = 60)	Lai Chau (n =179)	Son La (n =179)	Kon Tum (n =60)	Gia Lai (n= 180)	Dak Nong (n=60)
At a health facility	**29.9**	61.7	19.6	44.7	26.7	12.3	41.6
Specifically:							
Public hospital	**23.5**	56.7	12.3	40.2	0.0	11.7	33.3
Regional polyclinic	**1.2**	0.0	0.0	0.0	15.0	0.0	0.0
CHC	**5.2**	5.0	7.3	4.5	11.7	0.6	8.3
Private clinic/ hospital	**0**	0	0	0	0	0	0
Birth attendant[6]							
Doctor	**18.8**	58.3	9.5	29.6	6.7	9.4	15.0
Assistant doctor, midwife or nurse	**12.7**	3.3	10.1	18.4	23.3	4.4	26.7
VHW	**1.5**	0.0	1.1	1.7	5.0	1.7	0.0
VBA	**3.2**	0.0	4.5	1.1	0.0	6.7	1.7
Traditional birth attendant	**7.2**	1.7	3.9	0.6	30.0	13.9	0.0
Relative or friend without midwifery training	**51.7**	36.7	70.9	40.8	33.3	53.3	55.0
No one	**4.9**	0.0	0.0	7.8	1.7	10.6	1.7

Comparing the study results with national estimates reveals a large differential in the share of births assisted by trained birth attendants. Only 43% (31.5%) of mothers from ethnic minorities in this survey were assisted by a trained health worker (doctor, assistant doctor, midwife, nurse, and VBAs[7]) compared to the national average of 96.1% [19].

[6] In case more than one attendant assisted at delivery, the most highly qualified birth attendant was recorded.

[7] MOH considers medically trained VBAs with midwifery skills as trained birth attendants

4.2.2.3 Postpartum care

Postpartum care facilitates early detection of complications after birth, contributing to reducing maternal mortality. About 42.9% of ethnic minority mothers received postpartum care within the first seven days after delivery. The percentage of mothers who received a health checkup within the first seven days after giving birth was lowest in Gia Lai (28.9%), Lai Chau (31.8%), in the age group 35–49 years (28.0%), among mothers who attended only primary school or below (32%), mothers from the Gia Rai ethnic group (7.4%), with Catholic religious affiliation (22.6%), and mothers having three or more children (36.0%).

Table 4.23. Proportion of mothers having postnatal care within the first seven days after delivery by characteristics

Characteristics	n	%	p-value	No. of women
Province			<0.001	
Bac Kan	50	83.3		60
Lai Chau	57	31.8		179
Son La	93	52.0		179
Kon Tum	25	41.7		60
Gia Lai	52	28.9		180
Dak Nong	25	41.7		60
Age group			0.009	
15–19 years	49	55.1		89
20–24 years	141	41.8		337
25–29 years	61	46.2		132

Characteristics	n	%	p-value	No. of women
30–34 years	34	43.6		78
35–49 years	23	28.0		82
Highest level of school attended			<0.001	
Never attended school	67	32.5		206
Primary school	52	32.1		162
Lower secondary school	145	50.2		289
Upper secondary school and above	44	72.1		61
Ethnicity			<0.001	
Hmong	176	41.6		423
Ba Na	54	36.0		150
Xo Dang	23	40.4		57
Thai	35	100.0		35
Gia Rai	2	7.4		27
Other	18	69.2		26
Religious affiliation			<0.001	
No religion	203	38.5		527
Protestant	92	62.2		148
Buddhist	6	50.0		12
Catholic	7	22.6		31
Birth order			0.031	
1st child	105	49.1		214
2nd child	107	44.6		240
3rd and higher birth order	95	36.0		264
Household economic status			0.030	
Poor	137	46.3		296
Near poor	45	31.9		141
Not poor or near poor	118	45.2		261
Don't know	8	40.0		20
Total	**308**	**42.9**		**718**

4.2.2.4 Contraceptive use

In this section, we analyze the use of contraceptive methods for 700 women aged 15–49 years who were currently married or living in a marital union at the time of data collection. We exclude 18 mothers who were not married/living in a union or who had been separated, divorced or widowed.

Contraceptive prevalence rates among married ethnic minority mothers who gave birth within the last two years covered in the survey was lower than national rates. The overall contraceptive prevalence rate was 52.7% among mothers from ethnic minorities compared to the national rate of 72.8% [19]. The modern contraceptive prevalence rate among ethnic minority mothers was 50.7%, which was also lower than the national average of 59.8% [19].

Table 4.24. Contraceptive prevalence rates by province

Characteristics	Total (n=700)	Bac Kan (n=60)	Lai Chau (n=176)	Son La (n=168)	Kon Tum (n=59)	Gia Lai (n=177)	Dak Nong (n=60)
Contraceptive prevalence rate	**52.7**	68.3	51.7	22.0	88.1	71.1	36.7
Modern contraceptive prevalence rate	**50.7**	68.3	50.6	22.0	88.1	64.4	36.7
Traditional contraceptive prevalence rate	**2.0**	0.0	1.1	0.0	0.0	6.7	0.0
Type of contraception (% of mothers)							
Female sterilization	**0.3**	0	0	0	0	0.9	1.7
IUD	**8.7**	20.0	14.3	4.0	0	1.9	21.3
Injection	**7.9**	1.7	2.9	4.6	10.1	17.8	6.3
Implants	**0.2**	0	0.7	0	0	0	0
Pill	**29.6**	40.0	24.1	9.9	78.0	42.9	4.6
Male condom	**4.0**	6.6	8.6	3.5	0	0.9	3.1
Periodic abstinence/rhythm	**1.0**	0	1.1	0	0	2.7	0
Withdrawal	**1.0**	0	0	0	0	4.0	0

The modern contraceptive prevalence rate varied greatly between provinces, which was similar to the findings from the UNFPA survey implemented in 2017. The modern contraceptive

prevalence rate in Kon Tum was 88.1% compared with 71.1% in Gia Lai, higher than the rates found in the 2017 UNFPA survey, for Kon Tum (75%) and Gia Lai (45%). The modern contraceptive prevalence rate was lowest in Son La province (22.0%) [7].

Contraceptive pills, IUDs, and injectables were the three most common modern contraceptive methods used by ethnic minority mothers in the study. Contraceptive pills were the most commonly used method in all provinces except Dak Nong. IUD was the most commonly used method in Dak Nong, but also prevalent in Bac Kan and Lai Chau provinces. Contraceptive injections were most commonly used in Kon Tum and Gia Lai.

The Hmong and Thai ethnic minority mothers had a lower modern contraceptive prevalence rate compared to other ethnic groups (40.8% and 36.4%, respectively). This is consistent with the finding that Son La province had the lowest contraceptive prevalence rate (22.0%), because this province has large Thai and Hmong populations.

Table 4.25. Contraceptive prevalence by ethnicity

Characteristics	Total (n=700)	Hmong (n=414)	Ba Na (n=148)	Xo Dang (n=56)	Thai (n=33)	Gia Rai (n=26)	Other (n=23)
Contraceptive prevalence rate	**52.7**	41.3	70.3	87.5	39.4	76.9	52.2
Modern contraceptive prevalence rate	**50.7**	40.8	64.9	87.5	36.4	65.4	52.2
Traditional contraceptive prevalence rate	**2.0**	0.5	5.4	0.0	3.0	11.5	0.0
Type of contraception							
Female sterilization	**0.3**	0.3	0.9	0.0	0.0	0.0	0.0
IUD	**8.7**	13.0	2.2	0.0	6.1	0.0	4.3
Injection	**7.9**	4.3	14.5	10.7	0.0	38.5	0.0
Implants	**0.2**	0.3	0.0	0.0	0.0	0.0	0.0
Pill	**29.6**	16.9	46.4	76.8	27.3	23.1	47.8
Male condoms	**4.0**	6.0	0.9	0.0	3.0	3.8	0.0
Periodic abstinence/ rhythm	**1.0**	0.5	2.0	0.0	3.0	3.8	0.0
Withdrawal	**1.0**	0.0	3.4	0.0	0.0	7.7	0.0

Mothers from the Ba Na and Xo Dang ethnic groups had a greater tendency to use the contraceptive pill (46.4% and 76.8%, respectively), Gia Rai women (mostly concentrated in Gia

Lai province) used contraceptive injections or pills (38.5% and 23.1%, respectively). However, some women in Gia Lai noted difficulty remembering to take contraceptive pills every day, which explained their preference for contraceptive injections. Male sterilization was not used and condom use was low in most provinces and ethnic minority groups (Table 4.25).

Table 4.26. Contraceptive prevalence rate by maternal characteristics

Characteristics	N	%	p-value	No. of women
Province			<0.001	
Bac Kan	41	68.3		60
Lai Chau	91	51.7		176
Son La	37	22.0		168
Kon Tum	52	88.1		59
Gia Lai	126	71.2		177
Dak Nong	22	36.7		60
Age group			0.019	700
15–19 years	33	39.3		84
20–24 years	175	52.9		331
25–29 years	72	55.8		129
30–34 years	49	65.3		75
35–49 years	40	49.4		81
Highest level of school attended			0.031	
Never attended school	89	44.1		202
Primary school	88	55.3		159
Secondary school	161	57.3		281
Upper secondary school and above	31	53.4		58
Ethnicity			<0.001	
Hmong	171	41.3		243
Ba Na	104	70.3		148
Xo Dang	49	87.5		56
Thai	13	39.4		33
Gia Rai	20	76.9		26
Other	12	52.2		23

Characteristics	N	%	p-value	No. of women
Religion			0.515	
No religion	260	51.1		509
Protestant	83	56.1		148
Buddhist	7	58.3		12
Catholic	19	61.3		31
Birth order			0.008	
1st child	91	45.3		201
2nd child	122	51.3		238
3rd and higher birth order	156	59.1		264
Household economic status			0.011	
Poor	135	47.2		286
Near poor	78	56.1		139
Not poor or near poor	150	58.6		256
Don't know	6	31.6		19
Total	**369**	**52.7**		**700**

4.2.2.5 Unmet need for FP

We analyzed unmet need for FP among currently married women in the study (n=700/718 mothers, following the methodology outlined in the SDGCW 2020–2021). Women with unmet need for FP are women who are married or in a marital union who are fecund but are not using any method of contraception, and report not wanting any more children (limiting) or wanting to delay the next child (spacing). All women using contraception are considered to have met need. The table is based on all women who are married or in a marital union; infecund women are included in the denominator but are not considered in the met or unmet need categories.

Contraceptive users (women with met need) are further divided into the following two categories: (1) Met need for limiting includes women who are using a contraceptive method and who want no more children, have undergone female sterilization or their husband/partner has undergone male sterilization, or declare themselves as infecund, (2) Met need for spacing includes women who are using a contraceptive method and who want to have another child or are undecided whether to have another child.

Unmet need for spacing is defined as the percentage of women who are not using a method of contraception and (a) are pregnant and say that the pregnancy was mistimed and

they would have wanted to wait longer; (b) are postpartum amenorrheic and not currently pregnant, and whose menstrual period has not returned since the birth of the last child but say that the recent birth was mistimed and they would have wanted to wait, or (c) are not pregnant and not postpartum amenorrheic and are fecund and say they want to wait two or more years for their next birth, or (d) are not pregnant and not postpartum amenorrheic and are fecund and unsure whether they want another child.

Unmet need for limiting is defined as the percentage of women who are not using a method of contraception, don't want any more children and (a) are not pregnant and not postpartum amenorrheic and are fecund, (b) are pregnant and say they didn't want this pregnancy, or (c) are postpartum amenorrheic and say that they don't want any more children.

The rate of met need for FP is defined as the proportion of women currently married or in a marital union who are currently using contraception divided by total demand for FP (total unmet need plus total met need).

The rates of met and unmet needs for FP are presented in Table 4.27. Some 70.4% of women had demand for FP, 31.6% for spacing births and 38.9% for limiting births. The rate of unmet need for contraception was 17.7%, among which 9.6% was unmet need for spacing births and 8.1% for limiting births.

Rates of unmet need for FP differed statistically across provinces, ethnicity, age group, and religious affiliation. The rate of unmet need for FP was highest in Son La (34.5%) and Lai Chau (19.9%) provinces, among the Thai (48.5%) and Hmong ethnic groups (20, 5%), among women aged over 35 years (23.5%), those who already had two children (22.7%), and women who reported no religious affiliation (20.8%).

The low unmet need for FP may be because the study subjects are mothers with children under two years of age, many of whom are currently breastfeeding and amenorrheic after giving birth. Additionally, ethnic minority mothers reported a low demand for use of contraception. Ethnic minority mothers had low levels of knowledge about the risk of becoming pregnant during the postpartum period. Among mothers who did not use contraception, only 19.9% were aware that they could get pregnant during this time, 32.1% thought they could not, and the rest (48.1%) did not know whether they could get pregnant or not.

Table 4.27. Need and unmet need for FP among married women (n=700)

	Unmet need for FP			Met need for FP (currently using contraception)			Total demand for FP			Number women married/ in union	Percentage of demand for FP satisfied with		Number women with the need for FP
	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total		Any method	Modern method	
Total	**9.6**	**8.1**	**17.7**	**22.0**	**30.7**	**52.7**	**31.6**	**38.9**	**70.4**	**700**	**74.0**	**71.2**	**493**
Province	p <0.001	p <0.001	p <0.001	p <0.001	p <0.001	p <0.001	p <0.001	p <0.001	p <0.001		p<0.001	p<0.001	
Bac Kan	6.7	5.0	11.7	13.3	55.0	68.3	20.0	60.0	80.0	60	85.4	85.4	48
Lai Chau	12.5	7.4	19.9	15.9	34.8	51.7	28.4	42.0	70.5	176	71.8	70.2	124
Son La	17.9	16.7	34.5	11.3	10.7	22.0	29.2	27.4	56.5	168	38.5	38.5	96
Kon Tum	3.4	6.8	10.2	39.0	49.2	88.1	42.4	55.9	98.3	59	89.7	89.7	58
Gia Lai	4.0	4.5	8.5	40.1	31.0	71.2	44.1	36.2	80.2	177	87.3	78.9	142
Dak Nong	3.3	1.7	5.0	8.3	28.3	36.7	11.7	30.0	41.7	60	88.0	88.0	25
Age group	p=0.012	p=0.001	p=0.049	p <0.001	p <0.001	p =0.076	p <0.001	p <0.001	p =0.020		p=0.052	p=0.058	
15–19 years	9.5	3.6	13.1	33.3	5.9	39.3	42.9	9.5	52.4	84	69.6	65.2	46
20–24 years	12.7	7.6	20.2	26.9	26.0	52.9	39.6	33.5	73.1	331	71.6	68.3	243
25–29 years	10.1	6.2	16.3	17.8	37.9	55.8	27.9	43.1	72.0	129	78.0	76.9	91
30–34 years	1.3	6.7	8.0	12.0	53.3	65.3	13.3	60.0	73.3	75	88.9	85.2	54
35–49 years	3.7	19.8	23.5	6.2	43.2	49.4	9.9	63.0	72.8	81	67.8	66.1	59

	Unmet need for FP			Met need for FP (currently using contraception)			Total demand for FP			Number women married/ in union	Percentage of demand for FP satisfied with		Number women with the need for FP
	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total		Any method	Modern method	
Highest level of school attended	p=0.046	p=0.190	p=0.259	p <0.001	p =0.01	p =0.032	p <0.001	p <0.001	p =0.152		p=0.130	p=0.284	
Never attended school	9.9	10.9	20.8	6.9	37.1	44.1	16.8	48.0	64.9	202	67.2	66.4	131
Primary school	4.4	9.4	13.8	17.6	37.7	55.3	22.0	46.1	68.1	159	79.3	77.5	111
Lower secondary school	11.0	5.7	16.7	33.8	23.5	57.3	44.8	29.3	74.7	281	76.3	71.5	207
Upper secondary school and above	15.5	6.9	22.4	29.3	24.1	53.4	44.8	31.0	75.9	58	70.5	68.2	44

	Unmet need for FP			Met need for FP (currently using contraception)			Total demand for FP			Number women married/ in union	Percentage of demand for FP satisfied with		Number women with the need for FP
	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total		Any method	Modern method	
Ethnicity	p=0.006	p<0.001	p<0.001	p <0.001	p =0.050	p <0.001	p <0.001	p =0.293	p <0.001		p<0.001	p<0.001	
Hmong	11.8	8.7	20.5	11.6	29.7	41.3	23.4	38.4	61.9	414	66.5	65.7	254
Ba Na	4.1	5.4	9.5	39.2	31.1	70.3	43.2	36.5	79.7	148	86.4	79.7	118
Xo Dang	3.6	7.1	10.7	41.1	46.4	87.5	44.6	53.6	98.2	56	89.1	89.1	55
Thai	21.2	27.3	48.5	27.3	12.4	39.4	48.5	39.6	88.1	33	43.3	40.0	30
Gia Rai	3.8	0.0	3.8	46.2	30.5	76.9	50.0	30.5	80.5	26	90.9	77.3	22
Other	8.7	0.0	8.7	17.4	34.8	52.2	26.1	34.8	60.9	23	85.7	85.7	14
Religious affiliation	p=0.137	p=0.03	p=0.03	p=0.531	p=0.022	p=0.419	p <0.088	p =0.541	p <0.250		p=0.01	p=0.03	
No religion	10.8	10.0	20.8	23.4	27.7	51.1	34.2	37.7	71.9	509	70.2	67.8	366
Protestant	0.0	0.0	0.0	16.7	39.4	56.1	16.7	39.4	56.1	12	87.5	75.0	8
Buddhist	12.9	3.2	16.1	16.1	42.2	58.3	29.0	45.4	74.4	31	79.2	75.0	24
Catholic	5.4	3.4	8.8	18.9	42.4	61.3	24.3	45.8	70.1	148	86.3	83.2	95

	Unmet need for FP			Met need for FP (currently using contraception)			Total demand for FP			Number women married/ in union	Percentage of demand for FP satisfied with		Number women with the need for FP
	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total	For spacing births	For limiting births	Total		Any method	Modern method	
Birth order	p=0.01	p=0.01	p=0.044	p <0.001	p <0.001	p=0.030	p <0.001	p <0.001	p =0.005		p=0.065	p=0.024	
1st child	12.4	2.0	14.4	44.3	5.0	45.3	56.7	7.0	63.7	201	72.6	68.5	124
2nd child	13.0	9.7	22.7	17.6	33.7	51.3	30.7	43.3	74.0	238	69.0	65.5	174
3rd and higher birth order	4.2	11.5	15.7	8.8	50.3	59.1	13.0	61.8	74.8	261	79.5	77.9	195
Household economic status	p=0.512	p=0.638	p=0.255	p <0.001	p =0.238	p =0.009	p <0.033	p =0.561	p =0.174		p=0.107	p=0.186	
Poor	10.8	8.4	19.2	15.0	32.2	47.2	25.9	40.6	66.4	286	71.1	68.9	190
Near poor	9.4	7.9	17.3	22.3	33.8	56.1	31.7	41.7	73.3	139	75.0	70.0	100
Not poor or near poor	7.8	7.4	15.2	29.7	28.9	58.6	37.5	36.3	73.8	256	78.0	75.4	191
Don't know	15.8	18.8	31.6	21.1	10.5	31.6	36.8	26.3	63.2	19	50.0	50.0	12

4.2.3 Women's bodily autonomy in healthcare service use, contraceptive use and sexual intercourse

Table 4.28 presents findings on women's bodily autonomy in the use of health services, sexual intercourse and contraceptive use. The share of women making autonomous decision on using health services reached 86.3%, on having sexual intercourse reached 69.9% and on using contraceptive methods reached 86.0%. Overall, 61.3% of women had autonomy in the use of health services, contraceptive use and sexual intercourse. Women in Dak Nong, Lai Chau and Son La had a lower autonomy level than those residing in other provinces (31.8%, 56.7% and 56.8% respectively). Similarly, Ba Na and Hmong women had a lower autonomy level than women in other ethnic groups (55.4% and 57.8% respectively).

Table 4.28. Women's bodily autonomy in use of health services, contraceptive use and sexual intercourse

Contents	Autonomy in using health services (n=700)		Autonomy in having sex (n=700)		Autonomy in using contraception (n=364)		Autonomy in all three aspects (n=364)	
	n	%	n	%	n	%	n	%
Total	**604**	**86.3**	**489**	**69.9**	**313**	**86.0**	**223**	**61.3**
Province								
Bac Kan (n=60)	52	86.7	60	100.0	36	87.8	32	78.0
Lai Chau (n=176)	129	73.3	156	88.6	56	62.2	51	56.7
Sơn La (n=168)	145	86.3	96	57.1	35	94.6	21	56.8
Kon Tum (n=59)	58	98.3	40	67.8	52	100.0	37	71.2
Gia Lai (n=177)	163	92.1	114	64.4	114	93.4	75	61.5
Đak Nong (n=60)	57	95.0	23	38.3	20	90.9	7	31.8
Ethnic group								
H'mong (n=414)	337	81.1	293	70.8	130	76.5	98	57.8
Ba Na (n=148)	135	91.2	88	59.5	94	93.1	56	55.4
Xo Dang (n=56)	55	98.2	39	69.6	49	100.0	36	73.5
Thai (n=33)	32	97.0	27	81.8	13	100.0	10	76.9
Gia Rai (n=26)	26	100.0	23	88.5	18	94.7	17	89.5
Others (n=23)	19	82.6	19	82.6	9	75.0	6	50.0
Age group								
15–19 (n=84)	75	89.3	57	67.9	28	87.5	21	65.6
20–24 (n=331)	267	80.7	245	74.0	139	80.3	99	57.2

Contents	Autonomy in using health services (n=700)		Autonomy in having sex (n=700)		Autonomy in using contraception (n=364)		Autonomy in all three aspects (n=364)	
	n	%	n	%	n	%	n	%
25–29 (n=129)	118	91.5	91	70.5	69	97.2	49	69.0
30–34 (n=75)	68	90.7	49	65.3	41	83.7	31	63.3
35–49 (n=81)	76	93.8	47	58.0	36	92.3	23	59.0

Summary of main results

- The percentage of mothers who had at least one ANC checkup was 70% but the percentage having four ANC checkups was only 11.3%
- The percentage of births assisted by a trained birth attendant (doctor, assistant doctor, midwife, VBA) was 34.7%
- The percentage of mothers who gave birth in a health facility was low, at only 29.9%
- The percentage of mothers having postnatal care within 7 days after delivery was 42.9%
- The contraceptive prevalence rate was 52.7%, with the modern contraceptive prevalence rate reaching 50.7%
- The percentage of mothers with unmet needs for FP was 17.7%
- The overall rate of women's bodily autonomy was 61.3%.

4.3 SUB-STUDY 3: TRAINING NEEDS ASSESSMENT AMONG HEALTH WORKERS AND COMMUNITY WORKERS

4.3.1 Participant characteristics

A total of 93 people participated in the quantitative study, including midwife health program managers at the district level (29%), commune-level midwives (34.4%), and obstetric-pediatric assistant doctors at the commune (10.8%). Other general practitioners, doctors, nurses, and bachelors of public health account for 25.8% of the total participants. In addition, the research team also conducted 22 IDIs and six FGDs with provincial, district, and commune officials and with mothers in order to assess their training needs and community communication need in the near future.

4.3.2 Recent training of district and commune-level healthcare workers

The training status of commune and district health workers providing reproductive healthcare services in the two years 2020–2021 is presented in Table 4.31. Staff members who had received training in the period 2020–2021 accounted for only about a quarter (26.9%) of the commune and district health workers providing reproductive healthcare services. The results show that 85.2% of district staff and 68.2% of maternal health workers in the CHC have not attended any training in the past two years. The limitation of training for health workers is due to the COVID-19 pandemic, low funding and the continuous rotation of staff. Therefore, the number of trained staff is relatively low. One of the CDC staff members shared:

"*The training for district and commune health workers is relatively limited. The number of trained health workers at the district level was low and many staff members were unavailable for training due to the staff rotation policy. Some trained health workers no longer perform the maternal and child health jobs because they were assigned other jobs*" (Interview 9).

Table 4.29. Reproductive health training of health care workers at district and commune levels in 2020–2021

Characteristic	Total, N=93		District, N=27		Commune, N=66	
	n	%	n	%	n	%
The number of health workers who received training within the last two years						
- Yes	25	26.9	4	14.8	21	31.8
- No	68	73.1	23	85.2	45	68.2
Training content						
Continuous medical education certified program	7	28.0	2	50,0	5	23,8
Short and long-term professional training courses from 1 month or longer	13	52.0	1	25,0	12	57,1
Other training courses (politics, management, promotion, foreign languages, skills)	8	32.0	1	25.0	7	33.3
Training types						
- Online training	4	16.0	0	0.0	4	19.0
- In-person training	21	84.0	4	100.0	17	81.0
Training needs						
- Compulsory course	20	80.0	3	75.0	17	81.0
- According to demand of health workers	5	20.0	1	25.0	4	19.0
Certification of training courses						
- Yes	18	72.0	4	100.0	14	66.7
- No	7	28.0	0	0.0	3	14.3

Some 40% of training participants (10/25) attended short-term and long-term training courses which lasted from one month to a more extended period, with 24% (6/25) consisting of continuing medical education for certification. Health workers also attended some other training, such as policy dissemination, management, and career advancement courses.

The main form of training was face-to-face courses within the last two years, accounting for 85%, and only 15% were online courses. Some 80% (20/25) of health workers attended the training, and 72% (18/25) of health workers obtained certificates. All district staff got certificates, while only 67% of commune healthcare staff received certificates. A smaller share of district healthcare staff received training (14.8%) compared to the commune level (31.8%).

4.3.3 Future training needs

Training needs of district and commune-level healthcare workers providing reproductive healthcare services for the near future are presented in Table 4.30. It is necessary to equip healthcare workers at the commune and district levels with the knowledge and skills to perform pregnancy risk assessment during ANC, ANC clinical checkups, detection of preeclampsia risk in pregnant women and initial emergency management of eclampsia (30.1–33%).

Table 4.30. Training needs of commune and district health workers providing reproductive healthcare services in the short to medium term

Characteristics	Total N=93		District N=27		Commune, N=66	
	n	%	n	%	n	%
Training content needs						
Integrated management of pregnancy and childbirth	27	29.0	6	22.2	21	31.8
Clinical ANC checkup	25	26.9	7	25.9	18	27.3
Pregnancy risk assessment	31	33.3	10	37.0	21	31.8
Pregnancy anemia screening and detection	22	23.7	8	29.6	14	21.2
HIV, syphilis and hepatitis B counseling and testing	19	20.4	7	25.9	12	18.2
Detection of gestational diabetes risk	23	24.7	8	29.6	15	22.7
Preeclampsia risk detection	28	30.1	9	33.3	19	28.8
Initial management of severe preeclampsia	26	28.0	8	29.6	18	27.3
Initial management of eclampsia	28	30.1	8	29.6	20	30.3
Chronic disease detection in pregnant women	23	24.7	9	33.3	14	21.2
Diagnosis of labor	20	21.5	6	22.2	14	21.2
Monitoring normal labor and delivery	20	21.5	4	14.8	16	24.2
Practice monitoring delivery using partograph	18	19.4	2	7.4	16	24.2
Detecting danger signs during labor	23	24.7	5	18.5	18	27.3
Assisting delivery with cephalic presentation	18	19.4	1	3.7	17	25.8
Early essential newborn care (EENC)	16	17.2	5	18.5	11	16.7
Maternal and newborn care (first week)	14	15.1	3	11.1	11	16.7
Quantifying blood loss after delivery	17	18.3	3	11.1	14	21.2
Detecting postpartum hemorrhage	15	16.1	3	11.1	12	18.2
Temporary hemostasis techniques	18	19.4	3	11.1	15	22.7

Characteristics	Total N=93		District N=27		Commune, N=66	
	n	%	n	%	n	%
Manual removal of retained placenta	19	20.4	5	18.5	14	21.2
Manual exploration of uterine cavity	17	18.3	5	18.5	12	18.2
Detecting severe postpartum infection	15	16.1	4	14.8	11	16.7
Initial management of severe postpartum infections	13	14.0	4	14.8	9	13.6
Knowledge of contraceptive methods	12	12.9	3	11.1	9	13.6
Knowledge COVID-19 prevention	22	23.7	6	22.2	16	24.2
Personal protective equipment use to prevent COVID-19	15	16.1	5	18.5	10	15.2
Personal communication skills	14	15.1	4	14.8	10	15.2
Group communication skills	16	17.2	3	11.1	13	19.7
How to organize a group communication session	13	14.0	4	14.8	9	13.6
Comprehensive essential obstetric care	10	10.8	5	18.5	5	7.6
Maternal healthcare program management	15	16.1	4	14.8	11	16.7
Communication on maternal health care	17	18.3	3	11.1	14	21.2
Preparing statistical report	16	17.2	3	11.1	13	19.7
Types/Forms of training						
Online	17	18.3	3	11.1	14	21.2
In-person courses	50	53.8	19	70.4	31	47.0
With certification	60	64.5	24	88.9	36	54.5
Without certification	0	0.0	0	0.0	0	0.0
With practice (clinical, communication)	53	57.0	19	70.4	34	51.5
Without practice	2	2.2	1	3.7	1	1.5

Topics for which 20% to 30% of respondents expressed training needs include integrated management of pregnancy and childbirth (28%), initial management of severe preeclampsia (28%), detection of gestational diabetes risk (24.7%), detection of chronic diseases in pregnant women (24.7%), detection of danger signs during labor (24.7%), detection of anemia in pregnant women (23.7%), knowledge on COVID-19 and maternal health care (23.7%), diagnosis of labor (21.5%), normal labor monitoring (21.5%), HIV, syphilis, and hepatitis B counselling and testing (20.4%), and skills for manual removal of retained placenta (20.4%). Only 10–20% of respondents expressed need for training on the other suggested contents.

District-level staff expressed the need for training in risk assessment during ANC checkups (37%), detecting chronic diseases in pregnant women (33.3%), detecting anemia and diabetes (29.6%), diagnosing pre-eclampsia (22%) and emergency management of complications such as pre-eclampsia (29.6%), HIV/AIDS, hepatitis B and syphilis counselling and testing (25.9%) and new content about COVID-19 in relation to maternal health care (22.2%).

Results of qualitative interviews with district officials were consistent with these quantitative results. However, the number of health workers sent to attend short-course training was small, and many could not attend because they were performing rotations in other facilities. Therefore, regular on-the-job training classes should be regularly organized, so health workers can attend classes, update their knowledge, and maintain their work during the training course.

The training needs specific to commune-level health workers consist of integrated management of pregnancy and childbirth (31.8%), maternal risk assessment during ANC (31.8%) and detecting risks during labor (27.3%). Other high-demand topics for training needs include detection and management of pre-eclampsia (30.3%), detection and initial management of obstetric hemorrhage (22.7%), and the process to assist a normal delivery (25.8%). Similar to the district level, maternal health care during the COVID-19 period is also a concern for CHC workers. This result is also consistent with qualitative interview results. Many participants agreed that COVID-19 in maternal health care is still a very new topic, and not much technical information has been provided on the specific maternal care case.

One health worker shared:

"I think that integration of COVID-19 prevention into training on essential obstetric care would be helpful. There is also a need for training to integrate COVID-19 indicators into monitoring reports. If we organized separate training for each individual topic, it would waste a lot of time and not many participants could attend" (IDI 2).

In addition, in the qualitative FGDs, both district and commune health workers mentioned the need for training on essential neonatal care. The staff want clinical training with practice on models, to improve practical skills and illustrate how theory works in practice.

"*If health workers practice on the model, they will remember the lesson longer, and they will be more interested in learning it than simply theoretical explanations*" *(IDI 9).*

Provincial officials also expressed their need for practical models and training equipment, such as the model of expected normal delivery, newborn model, and placenta ..., in order to teach more effectively by providing guidance and assessment in actual practice. In addition, provincial officials would like a set of visual instructional videos to illustrate lectures, especially for organizing online sessions.

Due to the large number of online training contents held during the COVID-19 pandemic in 2021, many people have the opinion that online learning is ineffective due to the weak internet network, knowledge not being well absorbed and, importantly, lack of actual practice. For example, a CDC trainer stated:

"*Online training is challenging. Online training at the commune or district level is still helpful, but online training for VBAs is challenging. For example, when I trained village health workers on assessing gestational age, I had to talk directly for almost one hour with a tutorial video. However, I felt the students still did not understand well. If I spoke online, I doubt that student could understand it*" *(IDI 5)*.

Regarding counselling and communication skill needs, the demand mainly comes from the staff in charge of maternal health care at the commune level. Commune staff need more training on group counselling skills and organizing and implementing a communication program on maternal health care. This finding is also quite close to the quantitative research results showing that commune health workers need communication skills. Because they work directly with thecommunity, commune health workers, VBAs and VHWs need training in these skills.

"[They need] communication skills on maternal care after childbirth, plus updating group communication skills. Their skills are currently mainly based on individual experience, and updated knowledge are limited; also they forget a lot. For trainees who are ethnic minorities, their learning capacity would be limited [due to language barriers]. I held two classes last week, and I think this update is essential" (IDI 3).

Regarding the form of training needs, health workers at both district and commune levels want to receive in-person training (53.8%) because it is "easy to understand, easy to remember and helps in development of real practical skills." The quantitative survey indicated that 57% of health workers expressed a need for practice as part of the training. Compared with the content of clinical training, face-to-face training in communication skills may not be needed as much (depending on the content, the share of respondents desiring in-person training in communication skills fluctuated around 20%). Before running an online training course, it is important to assess conditions for training, such as phone, internet connection, training time, to ensure that things run smoothly and students can fully participate without being distracted by clinical tasks. On other communication topics (e.g., counselling skills and organizing communication sessions) health workers expressed a desire for face-to-face training rather than online. The reason they gave is that online forms of training that were organized in the year 2021 were not effective. Students faced challenges to interact with each other and with instructors, and they had difficulty practicing, even though teachers had tried their best to use video tutorials.

Health workers at both district and commune levels expressed the desire to receive certification after training (64.5%). All health workers who participated in the qualitative interviews also expressed the desire to receive a certificate after training courses. The reasons include the requirement of certification to be allowed to provide specific clinical services and receive health insurance reimbursement and to meet requirements for continuing medical education. Participants in qualitative interviews at both district and commune levels would like courses to be held at the district level for periods of from two to five days. This duration is suitable for clinical training and should not be longer because of the shortage of health workers at the primary health care level, since longer term training would take health workers away from the patients for too long.

4.3.4 Behavior change communication (BCC)

Among the forms of BCC the most appropriate form is considered to be face-to-face group counselling (66.7%), followed by face-to-face individual counselling (48.4%) and personal advice from VBAs, VHWs and health workers (44.4%). Communication through loudspeakers, radio and flyers were considered suitable for 39.8% and 35.5% of respondents. Other forms of communication such as the internet and television were recommended by about 20%, while websites and mobile apps were considered less suitable, with only about 5%–10% of respondents choosing this option.

Qualitative research findings are consistent with the quantitative survey. Since most of the localities in the study are mainly populated by ethnic minorities, face-to-face group and individual communication forms were confirmed as the most effective by both health workers and mothers, in which face-to-face group communication is preferred. Because group communication involves group interaction and ethnic language interpretation in the mother group and the mother's family members, members who do not know Kinh language, can exchange/translate back and forth with people who know the Kinh language. One medical officer stated:

"Small group communication is more effective. For example, if one person does not understand, the other person will explain and interpret into the local language for them" (IDI 4).

Table 4.31. Need for appropriate BCC in the next three years

Characteristics	Total N=93		District level N=27		Commune level N=66	
	N	%	n	%	n	%
The appropriate form of BCC in the next three years						
- Face- to-face individual counseling	45	48.4	14	51.9	31	47.0
- Face-to-face group counselling	62	66.7	21	77.8	41	62.1
- Advice from VBAs, VHWs	41	44.1	10	37.0	31	47.0
- Television	21	22.6	6	22.2	15	22.7
- Radio/loudspeaker	37	39.8	7	25.9	30	45.5
- Leaflets	33	35.5	11	40.7	22	33.3
- Websites	5	5.4	1	3.7	4	6.1
- Mobile apps	12	12.9	3	11.1	9	13.6
- Internet (social media such as Zalo)	21	22.6	5	18.5	16	24.2
- Commune/district website	10	10.8	2	7.4	8	12.1
BCC content needed over the next three years						
- Basic knowledge of pregnancy and postpartum care	51	54.8	17	63.0	34	51.5
- Planning to give birth at a medical facility	21	22.6	4	14.8	17	25.8
- Examination and detection of risks of pregnancy and childbirth	45	48.4	13	48.1	32	48.5
- Nutrition for pregnant women	31	33.3	5	18.5	26	39.4
- Basic knowledge of FP	33	35.5	10	37.0	23	34.8
- Integrating COVID-19 prevention in maternal health care	47	50.5	11	40.7	36	54.5
Integrated communication activities						
- Population communication program	55	59.1	17	63.0	38	57.6
- Nutrition care	36	38.7	9	33.3	27	40.9
- FP Program	39	41.9	12	44.4	27	40.9
- Immunization for mothers	46	49.5	16	59.3	30	45.5
- Periodic gynecological examination program for women	33	35.5	13	48.1	20	30.3

Characteristics	Total N=93		District level N=27		Commune level N=66	
	N	%	n	%	n	%
- Program of examination and counselling for adolescents	21	22.6	4	14.8	17	25.8
- Non-communicable disease prevention program	6	6.5	2	7.4	4	6.1
- COVID-19 prevention program	26	28.0	4	14.8	22	33.3
Demand for communication equipment and channels						
- Radio or loudspeaker with amplifier system	73	78.5	18	66.7	55	83.3
- Computer	27	29.0	7	25.9	20	30.3
- Internet	28	30.1	5	18.5	23	34.8
- Leaflets	50	53.8	18	66.7	32	48.5
- Posters	13	14.0	2	7.4	11	16.7
- Booklets	18	19.4	8	29.6	10	15.2
- Flip chart/book	25	26.9	9	33.3	16	24.2
- Video	39	41.9	15	55.6	24	36.4
- Other such as TV	1	1.1	2	7.4	0	0.0

Communication through loudspeakers is still effective in the markets and village centers. It can also be used in the regular village meetings, population communication programs, vaccinations, and COVID-19 communication campaigns. Currently, online forms such as web and mobile apps are not suitable because mothers rarely use smartphones and the internet is not stable. However, in the coming years, if phone and internet coverage is improved, the intervention program can consider communication channels via social media such as Facebook and Zalo combined with face-to-face channels and local loudspeakers because:

"Nowadays, young people are familiar with modern communication technology, I think it is still possible to communicate through modern channels such as Facebook and Zalo, especially in the near future, as the internet coverage improves. Currently, for communication at the village level, the loudspeaker still works well. More or less, they can listen in the morning or evening" (IDI 6).

The necessary content for communication in the next three years includes basic knowledge of pregnancy and postpartum care (54.8%), integration of COVID-19 prevention with maternal health care (50.5%), risk detection during pregnancy and childbirth (48.4%), basic knowledge of FP (35.5%), and nutrition for pregnant women (33.3%).

Although the quantitative research results show that the need for communication about childbirth planning in health facilities is not high (25%), the qualitative research results show that this work still needs to be promoted because the rate of home deliveries among ethnic minority mothers is still high. It is recommended to continuously advise pregnant women and the mother's family members such as husbands and parents-in-law of pregnant women on the importance of accessing services for safe deliveries. The family members are the main decision-makers in taking the mother to the health facility. A village health officer shared:

"We should communicate to influence the family members as well. For example, the Hmong husbands mainly decide everything, which is challenging for us. I often advise the women, but when I go home, their husbands decide their wives stay at home for delivery" (IDI 11).

Another reason for improving communication with the family members of the pregnant women is many women do not know the Kinh language (especially Hmong women in Viet Nam in some northern mountainous provinces), and the role of these members is significant in decision making.

"They (women) give birth at home. Family members don't take them to the health facility unless it's a difficult delivery. For example, when the baby is out, and the placenta hasn't come out yet, they accept (to bring the woman to the hospital). In general, they do not know how to care for their health. It is necessary to communicate with the family members because they are the main decision-makers to bring the mother to the health facility" (IDI 8).

Communication and advocacy for women giving birth at health facilities should be carried out continuously for pregnant women during ANC checkups. Communication can be organized at the district, commune or village level, and at private health clinics. Screening of risks among expectant mothers is essential to promptly advise them on planning to give birth at the health facilities to ensure their safety. In addition, it is necessary to strengthen the knowledge of the risks of complications during delivery and in the postpartum period. These risks can occur for any woman, even those who did not have any symptoms during pregnancy. Once the community understands these risks, the home birth practices among ethnic minorities can be changed.

Communication can be integrated with other health activities. The results show the domains most suitable for integration include the population communication program (59.1%), maternal immunization (49.5%), nutritional care (38.7%) and periodic gynecological examination for women (35.5%). Qualitative research also shows that communication can be integrated with other activities conducted by VHWs, women's unions, youth unions, and village elders or leaders. If reputable people lead a focus group, the communication is more effective.

"Coordinating with the Women's Union and Youth Union in organizing communication campaigns leads to greater trust among community members and greater attention " (IDI 5).

The most important communication equipment and materials needs at commune and district levels are radio and commune loudspeakers with amplifier (78.5%), followed by leaflets (53.8%), and videos (41.9%). Leaflets/flipcharts should be designed with pictures for easy understanding and can be distributed to the community to integrate with the vaccination programs or population communication activities. In particular, leaflets and flip-charts need to be maintained and distributed continuously to ensure more effective communication.

The communication program needs to be translated into the ethnic language in some communes and villages where people cannot communicate in Kinh language, which is often an issue for the Hmong minority. For localities with other ethnic groups, the percentage of ethnic women who know the Kinh language is higher and IEC materials do not need to be translated. Communicators can incorporate examples of cases of mothers who have given birth in safe medical facilities or cases of mothers whose lives were saved through peer-to-peer communication to ensure diverse and practical information.

In addition, to strengthen and improve communication on maternal health care, it is necessary to train commune health workers and VHWs in communication skills, mainly in small group communication. The IEC campaign can be integrated with regular programs such as immunization, population or FP. According to commune health workers and VHWs who participated in qualitative discussions, the skills of organizing effective group communication programs are not done very professionally, because staff simply use their personal experience, rather than any professionally trained skills. Staff training should be continuous and routine to overcome the situation of health workers forgetting the knowledge they have learned and a high turnover rate of human resources.

Communication materials such as leaflets, flip charts with many illustrations, drawings, and videos that are made suitable to the culture and customs of the ethnic people locally are preferred. The distribution of leaflets and flip charts should be incorporated with face to face consultation to ensure that mothers and the community understand the content rather than simply handing out leaflets.

Communication/consultation via text message, such as Zalo can be considered in those areas with good internet networks. However, face-to-face communication through groups/ individuals still needs to be maintained continuously as the primary option.

Main results

- The professional training most needed by health workers at district and commune levels is on assessment, risk detection, and initial and emergency management during pregnancy, especially on care and management of pre-eclampsia before and during childbirth, eclampsia, and essential neonatal care.
- The CHC staff also need more training on small group communication, implementation of a communication program on maternal health care. The desired form of training is in-person training, with certification, and training with clinical practice for two–five days.
- More professional practice models and some illustrative videos are needed to conduct effective training courses.
- The most desired contents in communication are pregnancy and newborn care, mobilizing mothers to give birth at medical facilities, and integrating COVID-19 prevention in care maternal health.
- For ethnic minorities, face-to-face group counselling and individual counselling are the two most suitable forms. Communication on maternal care and FP can be integrated into the population communication program, vaccination, nutritional care and routine gynecological examination. In the commune, it is necessary to ensure a system of loudspeakers, leaflets and videos to support communication.

5. CONCLUSION

PART 1: DESCRIPTIVE ANALYSIS OF SECONDARY DATA

- Results shows the poor socio-economic conditions of all 60 target communes, among which, 50 communes (83.3%) were classified as extremely disadvantaged (zone III) and 10 communes (16.7%) as disadvantaged communes (zone II). The average total population of the 60 target communes was 4,572 people (973 households) with 56.2% of households living at (or near) the poverty line. Regarding sanitation and hygiene conditions, three-quarters of households (75.9%) had an improved water source but less than half of households (44.9%) had improved sanitation facilities. The average distance from the furthest village to the CHC was 20.5 km and the average travel time was more than 60 minutes. Findings indicate the disadvantaged situation of the 60 communes, which are much worse off than the average commune nationwide.
- All CHCs had obstetric-pediatric assistant doctors or midwives with secondary or higher education, however 35% of CHCs did not have a doctor and 16.7% of CHCs did not have any VHWs. Additionally, 44 communes (73.3%) did not have active VBAs. Among these, 37 communes had no trained VBAs and seven communes had trained VBAs, but they were inactive at the time of data collection.
- Basic maternal care services and testing were poorly provided in the three months prior to data collection, with proteinuria testing offered in only 25% and HIV testing only at 38.3% of CHCs.
- A number of CHCs reported that they had not provided some basic obstetric services in the three months prior to data collection. Seven CHCs (11.7%) reported no cases of assisting normal delivery and eleven CHCs (18.3%) reported that they had not provided essential maternal and neonatal care, while 29 (48.3%) of CHCs had not provided neonatal resuscitation services.
- The majority (>70%) of CHCs use the same room to provide both obstetric and FP services. The percentage of CHCs that had separate rooms for ANC or delivery was below 30%. Only 10% of CHCs had separate rooms for providing FP services and ten CHCs had no separate space to provide FP services.
- Many CHCs lacked basic essential ANC equipment. Some 21.7% of CHCs reported having insufficient height measuring scales for adult; 13.3% of CHCs did not have enough sphygmomanometers and cardiopulmonary stethoscopes. Only 23.3% of CHCs had materials for proteinuria testing and only 10% of CHCs had testing equipment for blood glucose. About 10–20% of CHCs did not have enough delivery kits, 26.7% of CHCs did not have enough equipment for episiotomy.
- Many CHCs faced stockouts of obstetric emergency medicines in the last twelve months. The medicine with the highest rate of stockout was magnesium sulfate (58.3% of CHC reported stockouts in the last year of which 27% currently had none available). The second most frequently reported item experiencing stockouts during the last year was intravenous antibiotics (30.0% of CHCs). Notably, 20% of CHCs reported that oxytocin was usually out of stock during the last year.

PART 2: QUANTITATIVE ASSESSMENT OF MATERNAL HEALTH AND FP INDICATORS

- The percentage of mothers who had at least one ANC checkup was 74%, while the percentage having four checkups was only 11.3%.
- The percentage of births assisted by a trained health worker was only 34.7%.
- The percentage of mothers who gave birth in health facilities was low, at only 29.9%.
- The percentage of mothers having postnatal care within seven days after delivery was 42.9%.
- The contraceptive prevalence rate among mothers was 52.7% and the modern contraceptive prevalence rate was slightly lower at 50.7%.
- The percentage of mothers with unmet need for FP was 17.7%.
- The percentage of women reporting autonomy in using health services reached 86.3%; in having sexual intercourse 69.9% and in using contraceptive methods 86.0%. The overall percentage of women reporting bodily autonomy in all three above-mentioned aspects reached 61.3%.

PART 3: QUALITATIVE STUDY ON NEED FOR TECHNICAL CAPACITY BUILDING AND COMMUNICATION ACTIVITIES

- The most needed professional training for health workers at district and commune levels is on skills for assessment, detection of risk, initial management and emergency care during pregnancy (particularly for pre-eclampsia and eclampsia) and essential neonatal care.
- Study results found a need for training in skills to lead small group communication (IEC) campaigns on maternal care for commune staff.
- The preferred method for training courses for health workers is in-person training, including practice, of short duration (less than one week) and culminating in course certification.
- For ethnic minorities, face-to-face group counseling and face-to-face individual counseling were assessed as the two most appropriate channels of communication. Maternal health and FP communication could be integrated into the available information and communication campaigns on population, expanded program on immunization, nutrition and routine gynecological examinations. In the commune, it is necessary to ensure availability of equipment such as loudspeakers and amplifiers, leaflets and videos to support communication.

6. RECOMMENDATIONS FOR INTERVENTION DEVELOPMENT

HEALTH POLICY

Advise the Government of the need to maintain a team of VHWs/VBAs in extremely disadvantaged communes. Consider policy changes to improve the quality of grassroots health care, including increasing both infrastructure and equipment support, ensuring remuneration mechanisms to maintain and mobilize VHWs and VBAs with improved monthly stipends for VHWs (especially in mountainous communes and disadvantaged areas with home birth rates over 50%). Put in place policies/regulations on routine training for VHWs and VBAs in disadvantaged areas to improve service delivery, and set out regulations to encourage women to use services offered to people with limited health facility access.

DESIGNING AND IMPLEMENTING INTERVENTIONS

Results of these studies indicate the need to pay attention to appropriate design and implementation of interventions for ethnic minority people living in each of the provinces in the "Leaving no one behind" project, including:

- To increase the rate of ANC utilization, attention should focus on the target communes of Lai Chau, Kon Tum and Gia Lai provinces where ANC utilization rates were low. The quality of ANC should follow WHO recommendations in all six provinces, including having 4+ ANC checkups during pregnancy, having 1+ ANC checkup in which blood pressure, urine testing and blood testing were performed.
- To increase use of SBAs, intervention is needed in all target communes of six provinces, since utilization rates are uniformly low. The recommended activities include recruitment of new VHWs or VBAs in these disadvantaged areas, developing and using specific criteria for further training of essential midwifery skills (such as assistance for home birth in inaccessible areas or eliminating harmful cultural practices that occur at home deliveries). Training in essential skills should cover identification of risk of difficult births and how to persuade family members to bring the pregnant woman to the health facility early.
- Regarding contraceptive use, the target communes of Son La, Lai Chau and Dak Nong provinces require increased investments. Contraception interventions should take into account the ethnic characteristics of the couples. For example, the Hmong women have a very low contraceptive prevalence rate, a low rate of ANC, a high rate of childbirth at

home, etc., therefore comprehensive maternal and FP interventions are needed. On the other hand, the Thai women have a low contraceptive prevalence rate, but most of them give birth in health facilities, so interventions for these women should prioritize FP.

- Provincial trainers should be equipped with models (for professional training) and video/ lesson packages such as pictures/presentations (for both professional training and communication). The practical training should include the obstetric emergency model, the neonatal emergency model, the normal delivery model and the ANC examination instruments. In the context of the COVID-19 epidemic, online classes could be combined with in-person lessons to ensure the progress and quality of this activity.
- The study showed statistical differences across ethnic groups for most of the indicators of maternal health care. Therefore, the design of communication interventions should ensure ethnic specificities, for example the Hmong people have less access to mass media and internet, therefore face-to-face communication would be more relevant. In addition, the project should support the provinces with appropriate communication materials (flyers, flip charts). For example, leaflets can be printed in ethnic languages such as Hmong, Thai or Xo Dang to increase communication effectiveness.

PROVINCIAL HEALTH DEPARTMENT

- Strengthening the management and monitoring of essential equipment (weighing scales and measuring tapes, sphygmomanometer, cardiopulmonary stethoscope, proteinuria test materials, blood glucose test equipment, delivery kit, episiotomy instruments) and essential reproductive health drugs such as magnesium sulfate (injection), intravenous antibiotics and oxytocin.
- Continuing to organize specialized training courses in emergency obstetric care for district health workers. For the commune level, organize specialized training courses for CHC staff on the benefits of ANC, integrated management of pregnancy and childbirth, detection and initial management of obstetric complications, and skills of face-to-face communication in small groups
- CDC and the provincial health authorities need to monitor human resource turnover after training. After training, newly trained health workers can help to retrain new staff to ensure effective obstetric service provision.
- Monitor private hospitals and clinics to strengthen their communication during ANC service provision about the importance of giving birth in health facilities and postpartum care/FP, since a high share of women receive ANC in private facilities.

- Develop plans for human resources training. Training resources should be focused not only midwives at CHC but also emergency obstetric staff at the district level. The Provincial Health Department and CDC can advise the Provincial People's committee to invest budget (especially in the northern mountainous provinces) to pay allowances for VBAs/VHWs in extremely disadvantaged communes. In addition, allowances for VBAs/VHWs can be obtained through social mobilization or corporate social responsibility funding, such as the Thien Tam fund.

DISTRICT HEALTH CENTERS AND CHCS

- Develop plans to increase provision to and utilization of basic and comprehensive obstetric services for pregnant women.
- Plan to deliver easy-to-provide testing services such as proteinuria testing and HIV testing.
- It is necessary to continue communication activities to women and their families in all target communes and to evaluate the benefits of regular ANC checkups and safe motherhood, especially institutional births. Communication is essential for both mothers from ethnic minority groups and their family members, such as their husbands, and more generally within their communities. The survey results in the study show that the percentage of ethnic people who read newspapers, listen to the radio, watch TV or use the internet is very low, therefore, in addition to using online communication channels, traditional communication methods should be implemented such as small groups or relying on respected people in the community, such as village elders and village heads, to maximize the effectiveness of communication.
- Communication needs to be expanded to include private health facilities in the area because pregnant women are increasingly receiving ANC services in these facilities.
- Communication activities on family planning should focus on ethnic groups and target communes with low rates of contraceptives and high unmet needs such as communes in Son La and Lai Chau, women aged 19-24 and 35–49 years, women with low education levels (primary school or lower level), Thai and Hmong ethnic groups and women who already have two or more children.
- Face-to-face communication and small group discussion are more effective than other communication channels. Despite relatively limited access to internet in the surveyed communes, it is still possible to use communication through social networks such as Facebook, Zalo for areas with good internet coverage and for young mothers.

REFERENCES

1. World Health Organization, UNICEF. Maternal mortality: Levels and trends 2000 to 2017. Geneva: World Health Organization. 2019.
2. World Health Organization. Estimates of MMR from the 225 difficult districts in Viet Nam using the HMIS data in 2010. 2012.
3. Vietnam Ministry of Health Hasp. National Maternal and Neonatal Mortality Survey in Vietnam 2006-2007. 2010.
4. Ministry of Health. Report on maternal mortality surveillance and responses (2016 - 2019). Hanoi: MOH. 2019.
5. Chuong NC, Van Minh H, Thi Thuy Duong D, Duc DM, Anh Dao LT, Duy Anh N. Progress on maternal health care in Vietnam: Findings from Vietnam Multiple Indicator Cluster Survey 2000, 2006, 2011, and 2014. Health Care Women Int. 2018;39(4):368-76.
6. General Statistic Office of Vietnam. Điều tra thực trạng kinh tế - xã hội của 53 dân tộc thiểu số năm 2015 [Survey on socio-economic status of 53 ethnic groups in 2015]. Hanoi: GSO 2017.
7. United Nations Population Fund. Exploring barriers to accessing maternal health and family planning services in ethnic minority communities in Viet Nam. 2017.
8. Duong DTT, Van Minh H, Long KQ, Ha NT, Trang NTT, Quang CH, et al. The Utilization of Maternal Healthcare Services Among Ethnic Minority Populations in Vietnam. J Racial Ethn Health Disparities. 2021;8(3):723-31.
9. Demombynes G, Hurt K. Quality and equity in basic health care services in Vietnam: findings from the Vietnam District and Commune Health Facility Survey. Washington: World Bank. 2015.
10. Goland E, Hoa DTP, Målqvist M. Inequity in maternal health care utilization in Vietnam. International Journal for Equity in Health. 2012;11(1):24.
11. McKinn S, Linh DT, Foster K, McCaffery K. A qualitative analysis of factors that influence Vietnamese ethnic minority women to seek maternal health care. BMC Pregnancy and Childbirth. 2019;19(1):243.
12. Hoang VM, Khuong QL, Nguyen TH, Doan TTD, Tran T, Hoang TH, et al. Health financial hardship among ethnic minority populations in Vietnam. Asian Ethnicity. 2020:1-14.
13. Malqvist M, Hoa DT, Thomsen S. Causes and determinants of inequity in maternal and child health in Vietnam. BMC public health. 2012;12:641.
14. Axelson H, Gerdtham UG, Ekman B, Dinh TP, Alfven T. Inequalities in reproductive, maternal, newborn and child health in Vietnam: a retrospective study of survey data for 1997-2006. BMC health services research. 2012;12:456.

15. United Nations Population Fund. A Review of Reproductive Health Studies conducted in Ethnic Minority Communities, 2000-2007. 2008.

16. McKinn S, Duong TL, Foster K, McCaffery K. 'I do want to ask, but I can't speak': a qualitative study of ethnic minority women's experiences of communicating with primary health care professionals in remote, rural Vietnam. International Journal for Equity in Health. 2017;16(1):190.

17. World Health Organization. Standards for improving quality of maternal and newborn care in health facilities. 2016.

18. General Statistic Office of Vietnam. Statistical Yearbook 2020. Hanoi: GSO 2021.

19. UNICEF. Viet Nam SDG indicators on Children and Women Survey 2020-2021. Vietnam. Hanoi: UNICEF; 2021.

20. Ngoc LB. Demand and concernment about reproductive health of ethnic minority adolescents. Anthropology. 2004;4:24-35.

21. 21. Man NV, Ha NT, Nga PQ, Quang LN, Hung TQ. The survey on ability, utilization and quality of health care service for maternal during pregnant and delivery period in 2004. Hanoi: Hanoi School of Public Health; 2006.

22. Hoa DTP, Binh TH. Seeking and health care utilization behaviour on reproductive health care of ethnic women in Tay Nguyen. Health Research. Hanoi: Department of Reproductive Health - Ministry of Health, Vietnam Scientific and Social Institute; 2007.

23. Save the Children. Nâng cao sức khoẻ bà mẹ và trẻ sơ sinh qua cách tiếp cận chăm sóc liên tục từ gia đình đến bệnh viện năm 2013-2016 tại tỉnh Cà Mau, Đắk Lắk và Yên Bái [improving maternal and neonatal health through continuing care from family to hospital]. Hanoi: Save the Children, 2016.

24. Save the Children. Báo cáo đánh giá cuối kỳ: Dự án Chăm sóc sức khoẻ trẻ em tại các địa bàn khó khăn [Final evaluation report: child health project in disadvantaged areas] Hanoi: Save the Children; 2021.

25. World Health Organization. Managing complications in pregnancy and childbirth. Geneva: World Health Organisation. 2017.

26. UNFPA Viet Nam Midwifery Report 2016 Hanoi Vietnam 2017

27. Ministry of Health. Barriers in provision of neonatal care services in Vietnam Hanoi: Ministry of Health; 2013

ANNEXES

ANNEX 1: STUDY TEAM

The research team included one team leader and five researchers, all of whom had experience in reproductive health or health systems research. The team leader has rich experience in reproductive health research and maternal health policy related to ethnic minorities. The other senior researchers in the team had rich experience in qualitative and quantitative research.

Team leader: Bui Thi Thu Ha: Prof. MD, PhD

Qualitative expert team:

1. Le Minh Thi, MD, Ph.D. (Senior researcher)
2. Doan Thi Thuy Duong MA, Ph.D. candidate (Senior researcher)

Quantitative expert team

3. Duong Minh Duc, Ph.D. (Senior researcher)
4. Le Thi Vui, Ph.D. (Senior researcher)
5. Vu Thi Thanh Mai (Research assistant)

ANNEX 2: TOOL FOR COLLECTION OF SECONDARY DATA (SUB-STUDY 1)

Health facility assessment tool

Commune Health Centre assessment for maternal health care

CODE_____

I. General Information:

1. Commune:……..…..…… District: …… Socio-Economic classification
2. Total number of population in 2020: ……..…..……No. of households: ……..…..……
3. Total number of reproductive women (aged 15 – 49): …….
4. Average number of children per women: …….
5. Number of household accessing to clean water: …….
6. Number of household accessing to hygienic latrines: …….
7. Main occupation of the residents: …….
8. Household income: poor (….. households, ….. %), near-poor (….. households, ….. %), middle/rich (….. households, ….. %)
9. People with health insurance: …….. number, …….%
10. Ethnic minority population (list the three main group): …… people, ……%
11. Number of villages:……., in which, Area I……., Area II (poor)……., Area III (extremely poor)……..
12. The distance from the furthest village to the CHC …….km.
13. Time from the furthest village to the CHC (by most popular vehicle) ……minutes
14. The distance from the CHC to the closest DHC …….km.
15. Time from the CHC to the closest DHC (by most available vehicle) ……minutes
16. Villages with village health worker(s): …… number
17. Full name of the data provider: Position……..
18. Contact Phone #: ……..Email: ……

II. Content

A. Background information of the CHC

No	Content	Number
A1	**# of beds**	..... beds
A1.1	# of in-patient beds?	..... beds
A2	**# of staff, in which:**	..... staff
A2.1	General physician	..... staff
A2.2A	General physician providing obstetric services	..... staff
A2.2B	General physician providing pediatric services	..... staff
A2.3	Obstetric/pediatric doctor assistants	..... staff
A2.4	Doctor assistant	..... staff
A2.5	College-level or higher midwives	..... staff
A2.6	Secondary midwives	..... staff
A2.7	Elementary midwives	..... staff
A2.8	Nurses	..... staff
A2.9	Village health workers	..... staff
A2.10	Village based birth attendants (VBA, non-permanent staff)	..... staff
A2.11	Other health staff	..... staff
A3	**# of Village based birth attendants**	..... VBAs
A3.1	# of VBA who have been trained for 6-month course	..... VBAs
A3.2	# of currently working VBA who have been trained for 6-month course	..... VBAs
A3.3	# of VBA who being paid with monthly allowance	..... VBAs
A3.4	# of meetings of VBA with CHC in 2020, in which:	..... meetings
	1 month	.....meetings
	1 quarter	..... meetings
	6 months	..... meetings
A3.5	# of VBAs who were provided with clean delivery kit and medical supplies in 2020	..... VBAs
A3.6	# of VBAs who were trained/re-trained in 2020	..... VBAs

No	Content	Number
A3.7	# of VBAs who were supervised in 2020	……. VBAs
A3.8	# of VBAs who sent report to CHC in 2020	……. VBAs
A4	**# of staff who were trained on maternal health during 2019-2021, in which:**	**……. staff**
A4.1	General physician	……. staff
A4.2A	General physician with GBYGN orientation training	……. staff
A4.2B	General physician providing pediatric orientation training	……. staff
A4.3	Obstetric/pediatric doctor assistants	……. staff
A4.4c	Doctor assistant	……. staff
A4.5	College-level or higher midwives	……. staff
A4.6	Secondary midwives	……. staff
A4.7	Elementary midwives	……. staff
A4.78	Nurses	……. staff
A4.9	Village health workers	……. staff
A4.10	Village based birth attendants	……. staff
A4.11	Other health staff	……. staff
A5	**# of ethnic minority staff, in which**	**……. staff**
A5.1	General physician	……. staff
A5.2A	General physician with OBGYN orientation training	……. staff
A5.2B	General physician with pediatric orientation training	……. staff
A5.3	Obstetric/pediatric doctor assistants	……. staff
A5.4	Doctor assistant	……. staff
A5.5	College-level or higher midwives	……. staff
A5.6	Secondary midwives	……. staff
A5.7	Elementary midwives	……. staff
A5.8	Nurses	……. staff
A5.9	Village health workers	……. staff
A5.10	Village based birth attendants	……. staff
A5.11	Other health staff	……. staff

No	Content	Number
A6	**# of staff who could speak fluently an ethnic minority language, in which**	**……. staff**
A6.1	General physician	……. staff
A6.2A	Assistant doctor	……. staff
A6.2B	General physician with OBGYN orientation training	……. staff
A6.3	General physician with pediatric orientation training	……. staff
A6.4	Obstetric/pediatric doctor assistants	……. staff
A6.5	College-level or higher midwives	……. staff
A6.6	Secondary midwives	……. staff
A6.7	Elementary midwives	……. staff
A6.8	Nurses	……. staff
A6.9	Village health workers	……. staff
A6.10	Village based birth attendants	……. staff
A6.11	Other health staff	……. staff

B. Some indicators on maternal health in 2020

No	Indicator	2020	Note
B1	**# of pregnant women in 2020**		
B1.1	# of pregnant women who have ANC at CHC in 2020		
B2	**# of ANC amongst women delivered a baby in 2020, in which:**		
B2.1	# of women having ≥1 antenatal visits		
B2.2	# of women having ≥3 antenatal visits		
B2.3	# of women having ≥4 antenatal visits		
B3	**# of women who having enough doses of tetanus vaccine in 2020**		
B4	**# of births in the commune, in which**		
B4.1	# of births in CHC		
B4.2	# of births at home/farm, on the road, etc., in which		
B4.2.1	# of home births with the assistance of trained birth attendants		
B4.2.2	# of home births without trained birth attendants		

No	Indicator	2020	Note
B4.3	# of births in other health facilities		
B4.4	# of normal births		
B4.5	# of difficult births		
B4.6	# of births referred to higher-level facilities		
B4.7	# of births referred by VBAs		
B5	**# of births monitored by partographs**		
B6	**# of obstetric complication cases in 2020**		
B6.1	Hemorrhage		
B6.2	Uterine rupture		
B6.3	Eclampsia		
B6.4	Pre-eclampsia		
B6.5	Infection		
B6.6	Abortion		
B6.7	Others (clarify):		
B7	**# of maternal deaths in the commune during 2019-2021**		
B7.1	2019 (specify the causes of deaths)		
B7.2	2020 (specify the causes of deaths)		
B7.3	2021 (specify the causes of deaths)		
B8	**# of postpartum women/ newborn who are visited in the first week**		
B9	**# of pregnant women who were referred to the higher-level health facilities**		
B10	**# of live births in 2020, in which**		
B10.1	# of healthy newborns		
B10.2	# of newborns suffering from asphyxia after birth		
B10.3	# of newborns suffering from infection		
B10.4	# of pre-term births (< 37 weeks)		
B10.5	# of LBW newborns (< 2500gr)		

No	Indicator	2020	Note
B10.6	# of newborn with birth defects		
B11	**Average time of postpartum women staying at CHC**	**..... days**	
B11.1	Average time of postpartum women who were encouraged to stay at CHC after birth	..... days	

C. Service delivery

C1. Basic services provided in the CHC

No	Services	Yes	No
C1.1	Basic health service availability (24h/7 days)		
C1.2	Contacting equipment availability (24h/7 days)		
C1.3	Community-based referral team		
C1.3.1	If yes, how many team members?	..... members	
C1.4	Birth assistance for home deliveries		
C1.5	Assess to ambulance referral		
C1.6	Delay to provide service due to COVID-19 in the last 12 months		

C2. Maternal health services provided in the CHC

	Services	Yes	No
	1. Antenatal care		
C2.1	Integrated management of pregnancy and childbirth		
C2.2	ANC		
C2.3	Urine protein test		
C2.4	Hb blood test		
C2.5	Supply Iron tablet /Acid folic/ multi-micronutrient tablets for pregnant women		
C2.6	Tetanus vaccination		
C2.7	HIV test		
C2.8	Syphilis test		
C2.9	Hepatitis B Test		

	Services	Yes	No
	2. Emergency services		
C2.10	Antibiotic injection/infusion		
C2.11	Oxytocin injection/infusion		
C2.12	Anticonvulsant drugs injection/infusion (Magnesium sulfate)		
	3. Birth assistance		
C2.13	Normal birth assistance		
C2.14	Manual removal of placenta		
C2.15	Manual exploration of uterine cavity		
C2.16	Use of partographs		
C2.17	Initial management of bleeding		
C2.18	Initial management of pre-eclampsia/eclampsia		
	4. Postnatal care		
C2.19	EENC during and immediately after birth, includes:		
C2.19.1	Dry and warm the newborn		
C2.19.2	Skin-to-skin care		
C2.19.3	Early breastfeed and exclusively breastfeed in the first hour after birth		
C2.19.4	Umbilical cord care		
C2.19.5	Breastfeed		
C2.19.6	Eye care		
C2.19.7	Inject Vitamin K_1		
C2.19.8	Inject HBV vaccine		
C2.19.9	Inject BCG vaccine		
C2.19.10	Newborn resuscitation		
C2.20	Examine and monitor the mother and newborn in the first week after birth		
	5. Family planning services		
C2.21	All family planning services, include:		
C2.21.1	Condom		
C2.21.2	Contraceptive pill		

	Services	Yes	No
C2.21.3	Contraceptive injection		
C2.21.4	IUD		
	6. Other services		
C2.22	SRH services for Adolescent/Youth		
C2.23	Examine and treat reproductive tract infection		
C2.24	HIV/AIDS counselling and testing		
C2.25	Referral services		

D. Infrastructure, medicines, equipment and consumable materials

D1. Available facilities at CHC (following the national guidelines on RH services and national standards on CHC)

Tick (x) to the appropriate column

No	Service-provided rooms	Not available	Yes/No	
	(1)	*(2)*	*Separate room (specify the m2) (3)*	*Available but shared (specify the m2) (4)*
D1.1	Room for RH care (could be shared)			
1.1	Room for antenatal care			
1.2	Corner for newborn care			
1.3	Room for gynecological examination			
1.4	Room for family planning services			
1.5	Delivery room			
1.6	Room for postpartum women (could be use together with in-patient room)			
1.7	Corner/room for IEC (could be shared with functions)			

No	Content	No	Yes
D1.2	Clean water source(s)		
D1.3	Types of water sources		
1.3.1	Piped/tap water		
1.3.2	Drilling well		
1.3.3	Dug well		
1.3.4	Water from spring		
1.3.5	Rainwater		
1.3.6	Delivered water (tanker, bottled or packaged water)		
1.3.7	Surface water (river, dam, lake, pond, stream, canal, etc.)		
1.3.8	Other (specify).....		
D1.4	Water treated by Chlorine 70% in delivery room		
D1.5	Hygienic latrines for health staff		
D1.6	Hygienic latrines for patients		

D2. Basic equipment (following the national guidelines on RH services and national standards on CHC)

No	Equipment	Unit	Available	Usable	Being used	Sufficient or not?
1	***Pregnancy care kit***	***Kit***				
	- Watch with seconds	Item				
	- Height measuring scale for adult	Item				
	- Infant scale	Item				
	- Sphygmomanometer, Cardiopulmonary stethoscope	Item				
	- Fetal stethoscope	Item				
	- Pregnancy test	Item				
	- Equipment for urine protein test	Item				
	- Equipment for Hb blood test	Item				
	- Test or equipment for blood glucose	Item				
	- Pelvic Measure tape	Item				

No	Equipment	Unit	Available	Usable	Being used	Sufficient or not?
2	***Delivery kit***	***Kit***				
	- Straight clamp (with tab)	Item				
	- Straight scissor	Item				
	- Metal container with tight lid	Item				
	- Long clamp for antiseptic	Item				
3	***Episiotomy kit***	***Kit***				
	- Episiotomy scissors	Item				
	- Suture scissors	Item				
	- Vaginal specula	Item				
	- Dressing Forceps (with tab)	Item				
	- Needle Holder	Item				
	- Round needles (suture muscles and mucous membranes)	Item				
	- 3-sided needle (suture skin)	Item				
	- Metal container with tight lid	Item				
4	***Cervical examination kit***	***Kit***				
	- Long clamp for antiseptic	Item				
	- Vaginal specula	Item				
	- Heart-shaped forceps (28 cm)	Item				
	- Dressing Forceps (without tab)	Item				
	- Needle Holder	Item				
	- Round needles (suture muscles and mucous membranes)	Item				
	- Metal container with tight lid	Item				
	- Sewing thread	Item				
5	***IUD insertion and removal kit***	***Kit***				
	- Long clamp for antiseptic	Item				
	- Vaginal specula	Item				
	- Cervical forceps	Item				
	- Straight clamp (to remove IUD)	Item				

No	Equipment	Unit	Available	Usable	Being used	Sufficient or not?
	- Pelvic Measure tape	Item				
	- Scissor	Item				
	- Metal container with tight lid	Item				
6	***Gynecological examination kit***	***Kit***				
	- Speculum	Item				
	- Long clamp for antiseptic	Item				
	- Metal container with tight lid	Item				
	- VIA test	Item				
7	***Consumable materials***					
	- Medical cotton	Item				
	- Rubber gloves	Item				
	- Disposable gloves	Item				
	- Cloth or lining paper	Item				
	- Sterile cylinder	Item				
	- Nylon towel	Item				
8	**Testing machine**					
	- Biochemistry testing machine (basic)	Item				
	- Hematology testing machine (basic)	Item				
	- Urine testing machine (basic)	Item				
9	**Sterilization tools**					
	- Electric pressure cooker 18 liters	Item				
	- Electric tool boiling pot	Item				
	- Boiling pot	Item				
	- Boiling pot (use oil)	Item				
	- Small electric drying cabinet	Item				
10	***Other equipment***					
	- Generator 1500VA/220V /50Hz	Item				
	- Fridge	Item				
	- Sterilized delivery kit	Item				

D3. Essential drugs for maternal health

Drug	Yes	No	Not expired
1. Antibiotics			
- Amoxilin 250mg; 500mg, oral			
- Ampixilin 250mg; 500mg, oral			
- Erythromixin 250mg, oral			
- Doxycyclin 100mg, oral			
- Tetracyclin 250mg, oral			
- Cotrimoxazol 480mg, oral			
- Metronidazol 250mg; 500mg, oral, vaginal tablet			
- Clotrimazol 500mg, vaginal tablet			
- Nystatin 100,000đv, vaginal tablet			
- Benzyl penixilin: 1,200,000 U; 2,400,000 U, injection			
- Benzyl penixilin procain:1,000,000 U;3,000,000, injection			
- Chloramphenicol 1g, injection			
- Gentamyxin 80mg/ml, injection			
2. Antihypertensive drugs			
Aldomet (methyldopa), 250mg oral			
Nifedipin: 10mg (slow-release)			
3. Antispasmodic drugs			
Atropin 0,25mg oral			
- 0,25mg/ml injection (provided in CHC having physician)			
Papaverine 40mg oral			
- 40mg/ml injection (provided in CHC having physician)			
4. Uterotonic drugs			
Ergometrine 0,2mg/ml, injection			
Oxytocin 5 U/ml, injection			
Misoprostol			
5. Sedatives			
- Diazepam 5mg (tablet), oral; 5mg/ml (injection - provided in CHC having physician)			
6. Vitamin and Mineral			
- Vitamin K1 20mg/ml injection (with 1ml syringe)			
Iron tablet - 60mg and 0,5mg acid folic			

Drug	Yes	No	Not expired
7. Contraception			
Combined contraceptive pills (such as Rigevidon, Ideal)			
Progestogen-only pill: Exluton			
Contraceptive injection: DMPA 150mg			
Emergency contraceptive pill			
IUD			
Male condom			
8. Others			
8.1 Intravenous fluids			
- Glucose 5%: solution, infusion/injection			
- Natriclorua 0,9%: solution, infusion/injection			
- Ringer Lactate: solution, infusion/injection			
8.2 Malaria drugs (areas with malaria)			
- Artemisinin 250mg: oral			
- Chloroquine 150mg: oral			
- Mefloquin 250mg: oral			
8.3. Others			
- Magnesium sulfate 15%, tube 10ml			
- Calcium gluconate 100mg/10ml, injection tube			
- BCG vaccine (tuberculosis)			
- HBV vaccine			

Equipment to store essential drugs	Yes	No
9.1. Specialized cabinet:		
- Locked cabinet for toxic drugs (A and B)		
- Refrigerator (for cold chain management)		
9.2. Have drug list:		
9.3. For each drug		
- Ampule in box with label information		
- Tablet in bottle with label information		
- Store in required place		
- Daily check the number of used and stored drugs		

D4. Drug inventories and supplies for maternal emergency care

No	Question	Answer options
1	In the last 12 month, has your CHC ever experienced stockouts of Magnesium sulfate (injection)?	1. Yes 2. No
1a.	If Yes, what is the most recent time when your CHC experienced stockouts of Magnesium sulfate (injection)? (Circle the appropriate options)	1. Currently 2. Last month 3. Last three months 4. Last six months 5. Last 12 months
2.	In the last 12 month, has your CHC ever experienced stockouts of Oxytocin (injection)?	1. Yes 2. No
2a.	If Yes, what is the most recent time when your CHC experienced have stockouts of Oxytocin (injection)? (Circle the appropriate options)	1. Currently 2. Last month 3. Last three months 4. Last six months 5. Last 12 months
3	In the last 12 month, has your CHC ever experienced stockouts of any type of intravenous fluids?	1. Yes 2. No, specify…..
3a	If Yes, what is the most recent time when your CHC experienced stockouts of intravenous fluids? (Circle the appropriate options)	1. Currently 2. Last month 3. Last three months 4. Last six months 5. Last 12 months
4	In the last 12 month, has your CHC ever experienced stockouts of injectable antibiotics?	1. Yes 2. No, specify…..
4a	If Yes, what is the most recent time when your CHC experienced stockouts of injectable antibiotics? (Circle the appropriate options)	1. Currently 2. Last month 3. Last three months 4. Last six months 5. Last 12 months
5	Is Oxytocin stored in a refrigerator?	1. Yes 2. No
6	Is Ergometrine stored in a refrigerator?	1. Yes 2. No

D5. reproductive health and newborn care documents

No.	Name of document	Type of document (guideline, procedure)	Year of issued	Level of approval
Specialized / IEC documents				
1	IEC on maternal and newborn care			
2	National guideline on Reproductive health care			
3	National guideline on EENC			
4	Guideline on Family Planning/ Contraceptive methods			
Record/ reporting documents				
1	Health book/registry			
2	Pregnancy examination book			
3	Delivery book			
4	Table on integrated management of pregnancy and childbirth (at CHC)			
5	Maternal and child health monitoring register			
6	Contraceptive supply register			
7	Partograph book/record			
8	Gynecological examination register			
9	Obstetric medical records			
10	Maternal and neonatal referral register			
11	Death register			
12	Referral register			
13	Home birth monitoring register			
14	Home postpartum care monitoring register			
15	Pregnancy check-up card (home)			
16	Others			

E. Self administration questionnaire for midwives, managers at district and commune on the needs of training and communication

(Note: Part E is an individual who is a midwife, obstetrician and pediatric assistant doctor, district manager in charge of maternal and child health programs at a commune or district. A unit can have more than 1 person complete the E form)

CODE: ……

Name: ……

Location: …… Commune: …… District: …… Province: ……

Tel: ……

Please fill in or circle the number box for the best answer

No	Question	Answer	Note
1	How old are you?	…….years old	Solar time
2	What is your work position?	1. Management of maternal health care program at district level 2. Commune doctor (in charge of maternal health) 3. District midwives 4. Commune midwives 5. OBGY-pediatric assistant doctor at the commune 6. Other (specify) ……	
3	Working time at current position?	……..year ……month	
4	Are you using smartphone, internet, social media?	1. Smartphone 2. Phone with internet connection 3. Computer connected to the internet 4. Social network	Tick /circlethe answer that is used, can be multi-selected
5	In the past 2 years, has the province/district organized training for staff providing maternal health care services?	1. Yes 2. No	If you do not participate in any course (answer 2), go to question 11.

No	Question	Answer	Note
6	If yes, which classes did you take and the duration of each course in the last 2 years?	1. Continuing Medical Education Training (CME) 1.1. Number of courses: …… 1.2. Total study time: …… 2. Short and long-term professional training (from 1 month or longer) 2.1. Number of courses: …… 2.2. Total study time: …… 3. Other training (politics, management, promotion, foreign languages, skills,...) 3.1. Number of courses: …… 3.2. Total study time: ……	There can be many options, you fill in the course name and time by date of the courses attended
7	Type of training?	**Continuing Certified Education training (CME)** Form: 1.1. Online training; 1.2. Direct training Type of training 1.3. Compulsory course; 1.4. According to demand of health workers	Circle both form and type of training course
		Short and long-term professional training (from 1 month or more) Form: 2.1. Online; 2.2. Direct training Type of training 2.3. Compulsory course; 2.4. According to demand of health workers	Circle both form and type of training course
		Other on the job training (politics, management, upgrade position, foreign languages, skills,...) Form: 3.1. Online; 3.2. Direct training Type of training 3.3. Compulsory course; 3.4. According to demand of health workers	Circle both form and type of training course

No	Question	Answer	Note
8	Did you have to pay training fees?	1. Yes (specify) …… 2. No ……	Specify the course
9	Are there any courses you took for which you received a certificate?	1. Yes (specify) …… …… 2. No	Specify course or type of certificate
10	Any clinical training course that you participated had practice component? How many hour for practice?	1. Yes *1.1. Specify total hour for practice duration:* ……*(hour)* *1.2. Total course duration:* ……*(hour)* *2.* No	Specify the number of practical hours for each course and the total duration of the clinical course, if there are multiple courses, write each course

No	Question	Answer	Note
11	In the process of providing services, what knowledge and skills on maternal health care do you need to equip with?	1. Pregnant management 2. Antenatal check-up 3. Risk assessment of pregnancy 4. Screen and detect anaemia among pregnant women 5. Counselling and testing for HIV, syphilis, hepatitis B 6. Detect the risk of gestational diabetes 7. Detect the risk of preeclampsia 8. Initial management of severe preeclampsia 9. First aid for eclampsia 10. Detecting chronic diseases in pregnant women (heart, blood pressure, respiratory) 11. Diagnosis of delivery 12. Monitoring normal delivery 13. Practice monitor delivery by using delivery chart 14. Detecting danger signs during delivery 15. Assist normal delivery with cephalic presentation 16. Essential newborn care immediately after delivery 17. Maternal and newborn care within the first week 18. Determine the amount of blood loss after giving birth 19. Detect postpartum haemorrhage 20. Temporary haemostasis skills 21. The skill of removing the placenta by hand 22. Uterine control skills 23. Detecting severe postpartum infection 24. Initial management of severe postpartum infections 25. Knowledge of contraceptive methods 26. Knowledge COVID-19 prevention on maternal care 27. Skills in using personal protective equipment to prevent COVID-19 28. Personal communication skills 29. Group communication skills 30. How to organize a group communication session 31. Comprehensive essential obstetric care 32. Manage maternal health care program 33. Implementation of communication program on maternal health care 34. Doing Statistic report 35. Other (specify)	Maybe multiple options, please circle the options that are right for your needs (see next page)

No	Question	Answer	Note
12	What type of clinical training course on reproductive health care do you want? (direct or online training, have certificate, clinical practice,...)	1. Online; 2. Direct course (offline) 3. With certification; 4. Without certification 5. With practice (clinical/communication component); 6. Without practice (clinical/communication component);	Read each row, circle the appropriate choices, maybe multiple answers
13	In your opinion, which form of communication and behavior change is appropriate in the next 3 years?	1. Face- to-face individual consultation 2. Face-to-face group consultation 3. Advice from village midwives, village health workers 4. TV 5. Radio 6. Leaflets 7. Via web 8. Via mobile app 9. Via internet (social media such as Zalo) 10. Via local website 11. Other (specify)	Multiple answers
14	In your opinion, which contents are most necessary and appropriate for behavior change in the next 3 years?	1. Basic knowledge of pregnancy and postpartum care 2. Planning to give birth at a medical facility 3. Examining and detecting risks of pregnancy and childbirth 4. Nutrition for pregnant women 5. Basic knowledge of family planning 6. Integrating COVID-19 prevention in maternal health care 7. Other (specify):	Choose the 2 most relevant and necessary content

No	Question	Answer	Note
15	In your opinion, which content are most appropriate to integrated communication activities?	1. Population communication program 2. Nutritional care 3. Family Planning Program 4. Immunization for mothers 5. Periodic gynaecological examination program for women 6. Program of examination and counselling for adolescents 7. Non-communicable diseases prevention program 8. COVID-19 prevention program 9. Other (specify)	Multiple answers
16	According to you, how is the need for media/ media equipment at the district and commune levels to enhance maternal health?	1. Radio 2. Computer 3. Internet (zalo, social media) 4. Leaflet 5. Poster 6. Booklet 7. Flip book 8. Video 9. Other (specify)	Maybe multiple answers
17	What other needs are there to strengthen and improve communication of maternal health care?	…… …… …… …… ……	

Date Month Year

Information provider (signed)

ANNEX 3: TOOL FOR THE WOMEN'S SURVEY (SUB-STUDY 2)

***WM0A. Checking: Did you give birth from* 15/12/2019- 15/11/2021?**	
YES.....1 NO.....2	1⇨ *CONTINUE* 2⇨*STOP*
WM0B. My name is…….; I am carrying out a study managed by the Hanoi University of Public Health. In this study, we want to learn about your use health services during pregnancy, childbirth and after your baby is born. We also want to learn more about family planning and contraception in your area. This information will help improve the health system in the future. About 700 ethnic minority women in 6 provinces (Lai Chau; Son La; Bac Kan, Kon Tum; Gia Lai; Đak Nong) will participate in this study. It is completely up to you to decide whether or not to participate. Deciding not to participate will not impact your health care in anyway. The survey will take about 30 minutes to complete. If you have any question about your rights as a participant, you can contact Mrs. Le Thi Vui – Hanoi University Of Public Health, at her cellphone 0912 370 672. Do you wish to participate in a survey?	
YES.....1 NO.....2	1⇨*CONTINUE* 2⇨*STOP*

WOMEN INFORMATION	**WM**
WM1. Province name:	**WM2**. District name*:*
WM3. Commune name*:*	**WM4**. Village*:*
WM5. Woman's name, Number in sample …… NUMBER ……..	**WM6**. Phone number:
WM7. Interviewer's name:	**WM8**. Day / Month / Year of interview: ___ ___ /___ ___ / _2__0__2 _1__
WM9. Supervisor's name:	**WM10**. Day / Month / Year of supervise: ___ ___ /___ ___ / _2__0__2 _1

QUESTION	ANSWER	NOTE
PART I. WOMAN'S BACKGROUND		**WB**
WB1. In what month and year were you born?	MONTH .....__ __ DK MONTH ..... 98 YEAR.....__ __ __ __ DK YEAR..... 9998	
WB2. How old are you? *Probe:* How old were you at your last birthday? *If responses to WB1 and WB2 are inconsistent, probe further and correct. Age must be recorded.*	AGE (IN COMPLETED YEARS) ..... __ __	
WB3. Which ethnicity are you?	H'MONG.....1 GIA RAI .....2 THAI.....3 HA NHI .....4 BA NA .....5 M'NONG .....6 XE ĐANG .....7 TAY .....8 DAO .....9 OTHER 99	
WB4. which religion are you?	NO RELIGION.....0 BUDDHISM .....1 CHRISTIAN.....2 PROTESTANFISM.....3 OTHER 4	
WB5. Have you ever attended school or any early childhood education programme?	YES .....1 NO.....2	**2⇨ *WB6A***
WB6. What is the highest level and grade or year of school you have attended?	EARLY CHILDHOOD EDUCATION.....000 PRIMARY.....1__ __ LOWER SECONDARY .....2__ __ UPPER SECONDARY.....3__ __ VOCATIONAL HIGH SCHOOL .....4__ __ UNIVERSITY/ COLLEGE OR HIGHER.....5__ __	**2⇨ *WB7*** **3⇨ *WB7*** **4⇨ *WB7*** **5⇨ *WB7***

QUESTION	ANSWER	NOTE
WB6A. Now I would like you to read this sentence to me. *Show sentence on the card to the respondent.* *If respondent cannot read whole sentence, probe: Can you read part of the sentence to me?*	CANNOT READ AT ALL.....1 ABLE TO READ ONLY PARTS OF SENTENCE.....2 ABLE TO READ WHOLE SENTENCE .....3 NO SENTENCE IN REQUIRED LANGUAGE / BRAILLE (SPECIFY LANGUAGE) 4	
WB7. What is your main occupation?	FARMER.....1 WORKER .....2 CIVIL SERVANT.....3 BUSINESS .....4 HOUSEWIFE .....5 DAY LABORER.....6 UNEMPLOYED .....7 OTHER (SPECIFY) 99	
WB7A. What is your marital status now?	NOT MARRIED .....0 MARRIED .....1 SEPARATED .....2 DIVORCED .....3 WIDOWED 4	
WB8. How long have you been continuously living in (*name of current commune*)? *If less than one year, record '00' years.*	YEARS .....__ __ ALWAYS / SINCE BIRTH 95	**95⇨ *WB10***
WB9. Just before you moved here, where did you live in? *Probe to identify the type of place.*	COMMUNE IN THE SAME DISTRICT.....1 DISTRICT IN THE SAME PROVINCE .....2 OTHER PROVINCE IN VIETNAM.....3 OTHER COUNTRY.....4 DK.....8	
WB10. Are you covered by any health insurance?	YES.....1 NO.....2	

QUESTION	ANSWER	NOTE
WB11. How many people are there in your household?	NUMBER……	
WB12. What is your family's main water source for drinking/cooking purposes? (select only one)	PIPED WATER .....1 DRILLED WELL WATER .....2 DUG WELL WATER .....3 FILTERED WATER PIPED FROM MOUNTAINOUS POND.....4 RAIN WATER.....5 JAR WATER (XITEC,BOTTLE OR JUG) .....6 RIVER/STREAM/POND/LAKE WATER.....7 OTHER: 8	
WB13. What is your household's economic status? (as confirmed by the commune government)	POOR .....1 NEAR- POOR .....2 NON POOR .....3 DK.....99 DO NOT ANSWER.....98	

QUESTION	ANSWER	NOTE
PART II. MASS MEDIA AND ICT		**MT**
MT1. Do you read a newspaper or magazine at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY 3	***0⇨ MT2***
MT2. Do you listen to the radio at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY 3	***0⇨ MT3***

QUESTION	ANSWER	NOTE
MT3. Do you watch television at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY.....3	***0⇨ MT4***
MT4. Have you ever used a computer or a tablet from any location?	YES.....1 NO.....2	***2⇨ MT6***
MT5. During the last 3 months, did you use a computer or a tablet at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happened almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY.....3	***0⇨ MT6***
MT6. Have you ever used the internet from any location and any device?	YES.....1 NO.....2	***2⇨ MT8***
MT7. During the last 3 months, did you use the internet at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY.....3	***0⇨ MT8***
MT8. Do you own a mobile phone?	YES.....1 NO.....2	***2 ⇨ MT10***

QUESTION	ANSWER	NOTE
MT9. Which type of mobile phone?	SMART PHONE, CONNECTED TO INTERNET ..1 SMART PHONE, NO CONNECTED TO INTERNET .....2 BASIC MOBILE PHONE.....3	
MT10. During the last 3 months, did you use a mobile telephone at least once a week, less than once a week or not at all? *Probe if necessary:* I mean have you communicated with someone using a mobile phone. *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY 3	**0⇨ *MT11***
MT11. Have you ever used the FACEBOOK from any location and any device?	YES.....1 NO.....2	**2⇨ *MT13***
MT12. During the last 3 months, did you use the Facebook at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY 3	**0⇨ *MT13***
MT13. Have you ever used the Zalo from any location and any device?	YES.....1 NO.....2	**2⇨*PART III***

QUESTION	ANSWER	NOTE
MT14. During the last 3 months, did you use the Zalo at least once a week, less than once a week or not at all? *If 'At least once a week', probe:* Would you say this happens almost every day? *If 'Yes' record 3, if 'No' record 2.*	NOT AT ALL .....0 LESS THAN ONCE A WEEK.....1 AT LEAST ONCE A WEEK.....2 ALMOST EVERY DAY 3	

QUESTION	ANSWER	NOTE
PART III. FERTILITY/BIRTH HISTORY		**CM**
CM1. *This module and the birth history should only include children born alive. Any stillbirths should not be included in response to any question.*		
CM2. Do you have any sons or daughters to whom you have given birth who are now living with you?	YES.....1 NO.....2	**2⇨ *CM5***
CM3. How many sons live with you? *If none, record '00'.*	SONS AT HOME..... __ __	
CM4. How many daughters live with you? *If none, record '00'.*	DAUGHTERS AT HOME ..... __ __	
CM5. Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES.....1 NO.....2	**2⇨ *CM8***
CM6. How many sons are alive but do not live with you? *If none, record '00'.*	SONS ELSEWHERE..... __ __	
CM7. How many daughters are alive but do not live with you? *If none, record '00'.*	DAUGHTERS ELSEWHERE..... __ __	

QUESTION	ANSWER	NOTE
CM8. Have you ever given birth to a boy or girl who was born alive but later died? *If 'No' probe by asking:* *I mean, to any baby who cried, who made any movement, sound, or effort to breathe, or who showed any other signs of life even if for a very short time?*	YES.....1 NO.....2	**2⇨ *CM11***
CM9. How many boys have died? *If none, record '00'.*	BOYS DEAD ..... __ __	
CM10. How many girls have died? *If none, record '00'.*	GIRLS DEAD ..... __ __	
CM11. Sum answers to CM3, CM4, CM6, CM7, CM9 and CM10.	SUM..... __ __	

QUESTION	ANSWER	NOTE
CM12. Just to make sure that I have this right, you have had in total (**total number in CM11**) births during your life. Is this correct?	YES.....1 NO.....2	***1⇨ CM14***
CM13. Check responses to CM1-CM10 and make corrections as necessary until response in CM12 is 'Yes'.		
CM14. Check and write the name of youngest child	NAME OF YOUNGEST CHILD	

QUESTION	ANSWER	NOTE
PART IV. DESIRE FOR LAST BIRTH		**DB**
DB1. Repeat the name of youngest child:	NAME OF YOUNGEST CHILD _____	
DB2. When you got pregnant with (***name***), did you want to get pregnant at that time?	YES.....1 NO.....2	**1**⇨ ***PART V***
DB3. Check CM11: Number of births:	ONLY 1 BIRTH.....1 2 OR MORE BIRTHS.....2	**1**⇨ ***DB4A*** **2**⇨ ***DB4B***
DB4A. Did you want to have a baby later on, or did you not want any children? **DB4B**. Did you want to have a baby later on, or did you not want any more children?	LATER.....1 NO MORE / NONE.....2	
PART V: ANCMN		
MN1. Did you see anyone for antenatal care during your pregnancy with (***name***)?	YES.....1 NO.....2	**2**⇨ ***MN5A***
MN2. Whom did you see? *Probe:* Anyone else? Probe for the type of person seen and record all answers given.	**HEALTH PROFESSIONAL** DOCTOR.....A NURSE / MIDWIFE.....B **OTHER PERSON** TRADITIONAL BIRTH ATTENDANT.....F VILLAGE HEALTH WORKER.....G RELATIVE / FRIEND/HUSBAND.....H OTHER (specify).....X NO ONE.....Y	

QUESTION	ANSWER	NOTE
MN2A. Where did you go for ANC? Probe: Anywhere else? ***(Select 2 most frequent/ important places)***	NATIONAL/PROVINCIAL HOSPITAL..... 01 PROVINCIAL REPRODUCTIVE HEALTH CENTRE ..... 02 DISTRICT HOSPITAL/DISTRICT FAMILY PLANNING TEAM ..... 03 INTERCOMMUNE CLINIC ..... 04 COMMUNE HEALTH CENTRE..... 05 PRIVATE MATERNAL WARD ..... 06 PRIVATE CLINICS ..... 07 PRIVATE HOSPITALS..... 08 NGO-LED HEALTH FACILICITES..... 09 PHARMACIES/ SELF-MEDICATION..... 10 NOT AT HEALTH FACILITIES ..... 11 OTHERS (specify)..... 96 DK..... 98	
MN3. How many weeks or months pregnant were you when you first received antenatal care for this pregnancy? *Record the answer as stated by respondent. If "9 months" or later, record 9.*	WEEKS .....__ __ MONTHS.....__ __ DK..... 98	
MN4. How many times did you receive antenatal care during this pregnancy? *Probe to identify the number of times antenatal care was received. If a range is given, record the minimum number of times antenatal care received.* IN WHICH:	NUMBER OF TIMES.....__ __ DK.....98	

QUESTION	ANSWER	NOTE
[A] How many times in the first 3 months?	TIMES.....__ __ DK.....98	
[B] How many times in the middle 3 months?	TIMES.....__ __ DK.....98	
[C] How many times in the last 3 months?	TIMES.....__ __ DK.....98	
MN5. As part of your antenatal care during this pregnancy, were any of the following done at least once: [A] Was your blood pressure measured? [B] Did you give a urine sample for testing? [C] Did you give a blood sample for testing?	YES NO BLOOD PRESSURE ..... 1 2 URINE SAMPLE FOR TESTING..... 1 2 BLOOD SAMPLE FOR TESTING 1 2	***1; 2⇨ MN6*** ***1; 2⇨ MN6*** ***1; 2⇨ MN6***
MN5A. If you did not go for antenatal care during pregnancy, what were the reasons? **Checking: If MN1=2; or if MN1=1 and MN2=F then ask MN5A** *(Please select only 1 main reason)*	NOT NECESSARY ....1 HEALTH FACILITY TOO FAR AWAY .....2 COULD NOT AFFORD TO GO TO HEALTH FACILITY .....3 HUSBAND/PARTNER INSISTED NOT TO GO HEALTH FACILITY .....4 MOTHER-IN-LAW INSISTED NOT TO GO HEALTH FACILITY ....5 NO TRANSPORTATION TO GO TO HEALTH FACILITY .....6 FEAR OF INABILITY TO COMMUNICATE WITH HEALTH STAFF .....7 TBAD ATTITUDE OF HEALTH STAFF .....8 TRADITIONAL PRACTICES/CUSTOMS .....9 SHY .....10 DO NOT KNOW NEED TO GO ANC/ DO NOT HAVE INFORMATION .....11 TOO BUSY/ DO NOT HAVE TIME TO GO ANC.....12 OTHERS (specify).....99	

QUESTION	ANSWER	NOTE
MN6. Do you have a card or a booklet with your own immunizations listed? *If yes, ask*: May I see it please? *If a card/a book is presented, use it to assist with answers to the following questions.*	YES (CARD OR BOOKLET SEEN) ..... 1 YES (CARD OR BOOKLET DOCUMENT NOT SEEN) ..... 2 NO ..... 3 DK 8	
MN7. When you were pregnant with (***name***), did you receive any injection in the arm or shoulder to prevent the baby from getting tetanus, that is, convulsions after birth?	YES ..... 1 NO ..... 2 DK 8	***2⇨ MN10*** ***8⇨ MN10***
MN8. How many times did you receive this tetanus injection during your pregnancy with (***name***)?	NUMBER OF TIMES ..... __ DK 8	***8⇨ MN10***
MN9. *Check MN9: How many tetanus injections during last pregnancy were reported?*	ONLY 1 INJECTION ..... 1 2 OR MORE INJECTIONS 2	***2⇨ MN14***
MN10. At any time before your pregnancy with (***name***), did you receive any tetanus injection either to protect yourself or another baby? *Include DTP (Tetanus) vaccinations received as a child if mentioned.*	YES ..... 1 NO ..... 2 DK 8	**2⇨ *MN14*** **8⇨ *MN14***

QUESTION	ANSWER	NOTE
MN11. Before your pregnancy with (***name***), how many times did you receive a tetanus injection? If 7 or more times, record '7'. Include DTP (Tetanus vaccinations received as a child if mentioned.	NUMBER OF TIMES.....__ DK.....8	
MN12. Check MN12: How many tetanus injections before last pregnancy were reported?	ONLY 1 INJECTION .....1 2 OR MORE INJECTIONS OR DK 2	**1**⇨ ***MN13A*** **2**⇨ ***MN13B***
MN14A. How many years ago did you receive that tetanus injection **MN14B**. How many years ago did you receive the last of those tetanus injections? *The reference is to the last injection received prior to this pregnancy, as recorded in MN11.* If less than 1 year, record '00'.	YEARS AGO.....__ __ DK.....98	
MN14. Who mainly made the decision on your health care: you, your husband / partner, or both of you, or someone else?	MOSTLY RESPONDENT.....1 MOSTLY HUSBAND/PARTNER.....2 BOTH.....3 OTHER (SPECIFY) 4	

QUESTION	ANSWER	NOTE
PART VI: LAST BIRTH		
MN15. What date is your youngest child born on?	DAY……..MONTH……..YEAR…….	
NM15A. Sex of this child?	Boy ..... 1 Girl 2	
MN16. Who assisted with the delivery of (***name***)? *Probe:* Anyone else? Probe for the type of person assisting and record all answers given.	**HEALTH PROFESSIONAL** DOCTOR ..... A NURSE / MIDWIFE ..... B **OTHER PERSON** TRADITIONAL BIRTH ATTENDANT ..... F VILLAGE HEALTH WORKER ..... G RELATIVE / FRIEND/HUSBAND ..... H **OTHER (specify) ..... X** NO ONE ..... Y	
MN17. Where did you give birth to (***name***)? Probe to identify the type of place. *If unable to determine whether public or private, write the name of the place and then temporarily record '76' until you learn the appropriate category for the response.* (Name of place)	**HOME** RESPONDENT'S HOME ..... 11 OTHER HOME ..... 12 **PUBLIC MEDICAL SECTOR** PUBLIC HOSPITAL ..... 21 LOCAL CLINIC ..... 22 COMMUNE HEALTH CENTRE ..... 23 HOSPITAL OF A MINISTRY OR A SECTOR ..... 24 OTHER PUBLIC (specify) ..... 26 **PRIVATE MEDICAL SECTOR** PRIVATE HOSPITAL ..... 31 OTHER PRIVATE MEDICAL (specify) ..... 36 DK PUBLIC OR PRIVATE ..... 76 OTHER (specify) 96	 **21** ⇨ ***MN18*** **22** ⇨ ***MN18*** **23** ⇨ ***MN18*** **24** ⇨ ***MN18*** **26** ⇨ ***MN18*** **31** ⇨ ***MN18*** ***36*** ⇨ ***MN18*** **76** ⇨ ***MN18***

QUESTION	ANSWER	NOTE
MN17A. If you did not give birth at health facility, what was the reason? If NM17=11; 12; 13; 14 ask MN17A **Please select only 1 main reason**	I PREFERRED TO DELIVER AT HOME ..... 1 HEALTH FACILITY TOO FAR AWAY ..... 2 COULD NOT AFFORD TO GO TO HEALTH FACILITY ... 3 HUSBAND/PARTNER INSISTED NOT TO GO ..... 4 MOTHER- IN-LAW INSISTED NOT TO GO ..... 5 NO TRANSPORTATION TO GO TO HEATH FACILITY ..... 6 FEAR OF INABILITY TO COMMUNICATE WITH HEALTH STAFF ..... 7 BAD ATTITUDE OF HEALTH STAFF ..... 8 VILLAGE HEALTH WORKER/VILLAGE MIDWIFE CAME TO MY HOUSE TO ASSIST ..... 10 GIVE BIRTH AT MIDNIGHT ..... 11 DELIVERY AT HOME IS AN HABIT ..... 13 QUICK DELIVERY ..... 14 EASY DELIVER, SO DO NOT NEED TO GO ..... 15 SHY ..... 16 TRADITIONAL PRACTICES/CUSTOMS ..... 17 OTHER(SPECIFY) 99	
MN18. Was (***name***) delivered by caesarean section? That is, did they cut your belly open to take the baby out?	YES ..... 1 NO 2	**2⇨ *Part VII***
MN19. When was the decision made to have the caesarean section? *Probe if necessary: Was it before or after your labor pains started?*	BEFORE LABOR PAINS ..... 1 AFTER LABOR PAINS 2	

QUESTION	ANSWER	NOTE
PART VII : POST-NATAL HEALTH CHECKS		**PN**
PN0*: Repeat the name of the baby you are asking about this birth*	NAME.....	
PN1. Check MN17: Was the child delivered in a health facility?	YES, MN17=21-36 OR 76 .....1 NO, MN17=11-14 OR 96 2	***2⇨ PN4***
PN2. Now I would like to ask you some questions about what happened in the hours and days after the birth of (***name***). You have said that you gave birth in (***name or type of facility in MN17***). How long did you stay there after the delivery? *If less than one day, record hours.* *If less than one week, record days.* *Otherwise, record weeks.*	HOURS.....**1** __ __ DAYS.....**2** __ __ WEEKS .....**3** __ __ DK / DON'T REMEMBER.....998	
PN3. And what about checks on your health – I mean, someone assessing your health, for example asking questions about your health or examining you? Did anyone check on your health before you left (***name or type or facility in MN17***)?	YES .....1 NO 2	
PN4. Check MN16: Did a health professional, traditional birth attendant, or village health worker assist with the delivery?	YES, AT LEAST ONE OF THE CATEGORIES A TO G RECORDED .....1 NO, NONE OF THE CATEGORIES A TO G RECORDED 2	***2⇨ PN5A***

QUESTION	ANSWER	NOTE
PN5. You have already said that (***person or persons in MN16***) assisted with the birth. Now I would like to talk to you about checks on your health after delivery, for example examining you, checking the cord, or seeing if you are ok. After the delivery was over and before (***person or persons in MN16***) left you, did (***person or persons in MN16***) check on your health?	YES.....1 NO.....2	
PN5A*.Check MN17: Was the child delivered in a health facility?*	YES, MN17=21-36 OR 76.....1 NO, MN17=11-14 OR 96.....2	**2⇨ *PN6A***
PN6. After you left (***name or type of facility in MN17***), did anyone check on your health?	YES.....1 NO.....2	***1⇨ PN8*** **2⇨ *PART VIII***
NOTE: PN6A; PN7; PN7A just ask when women DO NOT GIVE birth at health facility		
PN6A. *Check MN16: did a health professional, traditional birth attendant, or village health worker assist with the delivery?* **This question for women DO NOT give birth at health facility**	YES, AT LEAST ONE OF THE CATEGORIES A TO H RECORDED.....1 NO, NONE OF THE CATEGORIES A TO H RECORDED.....2	2⇨ ***PN7A***
PN7. After the delivery was over and (***person or persons in MN16***) left, did anyone check on your health?	YES.....1 NO.....2	**1⇨ *PN8*** **2⇨ *Part VIII***

QUESTION	ANSWER	NOTE
PN7A. If did not have a health professional, traditional birth attendant, or village health worker assist, After the birth of (***name***), did anyone check on your health, for example asking questions about your health or examining you? **PN7A is applied for women who did NOT give birth at health facility, and also did NOT have a health professional, traditional birth attendant, or village health worker assist with the delivery**	YES.....1 NO.....2	**2⇨ *Part VIII***
PN8. Did such a check happen only once, or more than once?	ONCE.....1 MORE THAN ONCE.....2	**1⇨ *PN9A*** **2⇨ *PN9B***
PN9A. How long after delivery did that check happen? **PN9B**. How long after delivery did the first of these checks happen? *If less than one day, record hours.* *If less than one week, record days.* *Otherwise, record weeks.*	HOURS..... **1** __ __ DAYS..... **2** __ __ WEEKS..... **3** __ __ DK / DON'T REMEMBER.....998	
PN10. Who checked on your health at that time?	**HEALTH PROFESSIONAL** DOCTOR..... A NURSE / MIDWIFE.....B **OTHER PERSON** TRADITIONAL BIRTH ATTENDANT.....F VILLAGE HEALTH WORKER.....G RELATIVE / FRIEND.....H OTHER (specify)..... X	

QUESTION	ANSWER	NOTE
PN11. Where did this check take place? *Probe to identify the type of place. If unable to determine whether public or private, write the name of the place and then temporarily record '76' until you learn the appropriate category for the response.* _____ _____ (Name of place)	**HOME** RESPONDENT'S HOME ..... 11 OTHER HOME ..... 12 **PUBLIC MEDICAL SECTOR** PUBLIC HOSPITAL ..... 21 LOCAL CLINIC ..... 22 COMMUNE HEALTH CENTER..... 23 MINISTRY'S OR SECTOR'S HOSPITAL... 24 OTHER PUBLIC (SPECIFY) ..... 26 **PRIVATE MEDICAL SECTOR** PRIVATE HOSPITAL ..... 31 OTHER PRIVATE MEDICAL (SPECIFY) .....36 DK PUBLIC OR PRIVATE ..... 76 **OTHER (SPECIFY) 96**	
PART VIII: CONTRACEPTION		**CP**
CP1. I would like to talk with you about another subject: family planning. Are you pregnant now?	YES, CURRENTLY PREGNANT .....1 NO.....2 DK OR NOT SURE 8	***1*** ⇨ ***CP3***
CP2. Couples use various ways or methods to delay or avoid getting pregnant. Are you currently doing something or using any method to delay or avoid getting pregnant?	YES.....1 NO.....2	***1*** ⇨ ***CP4***
CP3. Have you ever done something or used any method to delay or avoid getting pregnant?	YES.....1 NO.....2	***1*** ⇨ ***CP6*** ***2*** ⇨ ***CP6***

QUESTION	ANSWER	NOTE
Note: CP4 and CP5 just ask for women are using contraceptive method		
CP4. What are you doing to delay or avoid a pregnancy? *Do not prompt.* *If more than one method is mentioned, record each one* *Probe: Any other method?*	FEMALE STERILIZATION ..... A MALE STERILIZATION ..... B IUD ..... C INJECTABLES ..... D IMPLANTS ..... E PILL ..... F MALE CONDOM ..... G FEMALE CONDOM ..... H DIAPHRAGM ..... I FOAM / JELLY ..... J LACTATIONAL AMENORRHOEA METHOD (LAM) ..... K PERIODIC ABSTINENCE / RHYTHM ..... L WITHDRAWAL ..... M OTHER (specify) X	
CP5. Who mainly made the decision on which contraception method to use: you, your husband / partner, or both of you, or someone else?	MOSTLY RESPONDENT ..... 1 MOSTLY HUSBAND/PARTNER ..... 2 BOTH ..... 3 OTHER (specify) 4	
CP6. Can you say no to (husband/partner) if you don't want to have sex?	YES ..... 1 NO ..... 2 NOT SURE 8	
PART IX: UNMET NEED		**UN**
UN1. Check CP1: Currently pregnant?	YES, CP1=1 ..... 1 NO, DK OR NOT SURE, CP1=2 OR 8 2	***2⇨ UN6***

QUESTION	ANSWER	NOTE
UN2. Now I would like to talk to you about your current pregnancy. When you got pregnant, did you want to get pregnant at that time?	YES ..... 1 NO 2	***1*** ⇨ ***UN5***
UN3. Check CM11: Any births?	NO BIRTHS ..... 0 ONE OR MORE BIRTHS 1	***0*** ⇨ ***UN4A*** ***1*** ⇨ ***UN4B***
UN4A. Did you want to have a baby later on or did you not want any children? **UN4B**. Did you want to have a baby later on or did you not want any more children?	LATER ..... 1 NONE / NO MORE 2	
UN5. Now I would like to ask some questions about the future. After the child you are now expecting, would you like to have another child, or would you prefer not to have any more children?	HAVE ANOTHER CHILD ..... 1 NO MORE / NONE ..... 2 UNDECIDED / DK 8	***1*** ⇨ ***UN8*** ***2*** ⇨ ***UN14*** ***8*** ⇨ ***UN14***
UN6. Check CP4: Currently using 'Female sterilization'?	YES, CP4=A ..... 1 NO, CP4≠A 2	***1*** ⇨ ***UN14***

QUESTION	ANSWER	NOTE
UN7. Now I would like to ask you some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?	HAVE (A/ANOTHER) CHILD ..... 1 NO MORE / NONE ..... 2 SAYS SHE CANNOT GET ..... PREGNANT 3 UNDECIDED / DK 8	***2*⇨ *UN10*** ***3*⇨ *UN12*** ***8*⇨ *UN10***
UN8. How long would you like to wait before the birth of (a/another) child? *Record the answer as stated by respondent.*	MONTHS ..... **1** __ __ YEARS ..... **2** __ __ DOES NOT WANT TO WAIT (SOON/NOW) ..... 993 SAYS SHE CANNOT GET PREGNANT ..... 994 AFTER MARRIAGE ..... 995 OTHER ..... 996 DK 998	***994*⇨ *UN12***
UN9. Check CP1: Currently pregnant?	YES, CP1=1 ..... 1 NO, DK OR NOT SURE, ... CP1=2 OR 8 2	***1*⇨ *UN14***
UN10. Check CP2: Currently using a method?	YES, CP2=1 ..... 1 NO, CP2=2 2	***1*⇨ *UN14***
UN11. Do you think you are physically able to get pregnant at this time?	YES ..... 1 NO ..... 2 DK 8	***1*⇨ *UN14*** ***8*⇨ *UN14***

QUESTION	ANSWER	NOTE
UN12. Why do you think you are not physically able to get pregnant?	INFREQUENT SEX / NO SEX .....A MENOPAUSAL .....B NEVER MENSTRUATED .....C HYSTERECTOMY (SURGICAL REMOVAL OF UTERUS) .....D HAS BEEN TRYING TO GET PREGNANT FOR 2 YEARS OR MORE WITHOUT RESULT .....E POSTPARTUM AMENORRHEIC .....F BREASTFEEDING .....G TOO OLD .....H FATALISTIC .....I OTHER (specify) .....X DK.....Z	
UN13. Check UN12: 'Never menstruated' mentioned?	MENTIONED, UN12=C.....1 NOT MENTIONED, UN12≠C 2	**1** ⇨ ***Part X***
UN14. When did your last menstrual period start? *Record the answer using the same unit stated by the respondent.* *If '1 year', probe:* How many months ago?	DAYS AGO.....**1** __ __ WEEKS AGO.....**2** __ __ MONTHS AGO.....**3** __ __ YEARS AGO.....**4** __ __ IN MENOPAUSE / HAS HAD HYSTERECTOMY.....993 BEFORE LAST BIRTH .....994 NEVER MENSTRUATED 995	**993** ⇨ ***Part X*** **994** ⇨ ***Part X*** ***995*** ⇨ ***Part X***
UN15. *Check UN14: Was the last menstrual period within last year?*	YES, WITHIN LAST YEAR .....1 NO, ONE YEAR OR MORE 2	**2** ⇨ ***Part X***
UN16. Due to your last menstruation, were there any social activities, school or work days that you did not attend?	YES.....1 NO.....2 DK / NOT SURE / NO SUCH ACTIVITY 8	
UN17. During your last menstrual period were you able to wash and change in privacy while at home?	YES.....1 NO.....2 DK.....8	

QUESTION	ANSWER	NOTE
UN18. Did you use any materials such as sanitary pads, tampons or cloth?	YES.....1 NO.....2 DK.....8	 **2⇨ *Part X*** **8⇨ *Part X***
UN19. Were the materials reusable?	YES.....1 NO.....2 DK.....8	

PART X: FINAL INFORMATON		
QUESTION	**ANSWER**	**NOTE**
FN1. Have you been vaccinated for COVID-19 yet?	NO.....1 YES.....2	**1⇨ *FN3***
FN2. How many shots of COVID-19 vaccine have you had?	NUMBER:	***GO TO FN4***
FN3. Are you ready for a COVID-19 vaccine?	YES.....1 NO.....2 DK/NOT SURE.....3	
FN4. I would like to ask you about your recent sexual activity. When was the last time you had sexual intercourse? *Record answers in days, weeks or months if less than 12 months (one year).* If 12 months (one year) or more, answer must be recorded in years.	DAYS AGO..... **1** __ __ WEEKS AGO..... **2** __ __ MONTHS AGO..... **3** __ __ YEARS AGO..... **4** __ __ DO NOT ANSWER..... **5** __ __	
FN5. *Checking, Language of the Interview.*	VIETNAMESE.....1 TAY, MUONG, THAI, NUNG .....2 KHMER .....3 MONG.....4 OTHER LANGUAGE (specify).....6	

QUESTION	ANSWER	NOTE
FN6. *Checking, Native language of the Respondent:*	VIETNAMESE.....1 TAY, MUONG, THAI, NUNG .....2 KHMER .....3 MONG.....4 OTHER LANGUAGE (SPECIFY).....6	
FN7. *Was a translator used for any parts of this questionnaire?*	YES, THE ENTIRE QUESTIONNAIRE .....1 YES, PARTS OF THE QUESTIONNAIRE .....2 NO, NOT USED 3	
FN8. We would like to continue to talk about you over the next 3 years. Again, all the information you provide will be confidential and anonymous. Would you like to participate?	YES.....1 NO.....2 OTHER 6	**2⇨ *Ending*** **6⇨ *Ending***
FN9. Please give all telephone number that we can contact with you:	....	

Thank you for participating in this interview

ANNEX 4: IN-DEPTH INTERVIEW AND FOCUS GROUP DISCUSSION GUIDELINES (SUB-STUDY 3)

4.1 Guideline for In-Depth Interview: Health providers at Dept. of RH/CDC, DHC and CHC

Participants:

Staff of CDC and DHC who are in charge of maternal health services

This study is part of a rapid assessment conducted by HUPH to establish ***baseline indicators and specify detailed needs for interventions*** for the project entitled "*Leave no one behind innovative interventions to reduce maternal mortality in ethnic minority regions of Vietnam*" during 2021-2024. You are invited to participate in this study as your answer is essential to help us plan project's activities.

Objectives:

To explore the following issues:

1. Needs for improving the technical capacities of health providers at district and commune levels
2. Needs for behavior change communication and community mobilization toward safe pregnancy and childbirth taking into account local culture and tradition.
3. Major barriers and facilitators of maternal and family planning services utilization

Content:

1. General information

- Name, age, working position, years of working
- Phone number
- Could you describe what is your current task regarding maternal health service (provide service, train for staff, M&E)?

2. Needs for training and re-training:

- In the past 2 years, how many training courses on maternal health were organized for health staff in your province?
- How often these training courses on maternal health content are being organized? Could you describe the content, target groups and duration of these training courses?

- What are the challenges/difficulties for organizing these training courses? (lecturers, duration, class structure, training materials, learners, etc.)
- During your work on maternal health service provision, what maternal health content/ skills that the lower-level staff are lacking?
- In the next 5 years, what are the maternal health content/skills that the health staff at grass-root level (village, commune and district) should be trained to improve maternal health service provision? (please specify by stages of pregnancy: ante-, intra- and postnatal-care, and family planning services).
- In the next 5 years, what are the maternal health service provision? (long-term and short-term).
- Check and ask for further information as followings:

Content	DHC	CHC	VBA/VHW
Basic obstetric services			
Essential obstetric services for physician, focusing on complication management			
Obstetric surgeons at DHC			
MMR report			
Basic knowledge and skills on maternal health and family planning			
Supervision and technical support to maintain and improve the quality of services			
Integrate in to COVID-19 prevention in maternal health and FP			
Communication skills (individual and group counseling) with the attention to local culture and custom and norm			
Other content? (specify…)			

3. Needs for BCC and community mobilization

- **Mass communication on maternal health and FP services?**
  - **Methods:** What mass communication methods are being used in your province/ district? Have the modern methods such as internet website and mobile phone being used and why? What are the needs of conducting communication for local people?
  - **Content:** What is the content of maternal health and FP usually used for mass communication? Which content is not fit to the local culture and custom and norm? What is the content that the local people want to know?

- **Media:** What are the most suitable types of media in your province/district?
- **What are the challenges/ difficulties? Do you have any suggestions?**

- **Individual counseling:** Have the mothers been counselled? Where? Who do the counseling? What are the most common maternal health and FP content for counseling? What are the challenges/difficulties?
- **Community communication:**
  - What are the communication materials (flyers, videos, websites, etc.)? Do these materials vary with adequate maternal health and FP content? Could they reach to the target population? Which content/materials are not fit to the local culture and custom and norm?
  - What are the most suitable communication materials in your province/district?
- **Community mobilization**: How are communication activities being integrated into other activities? What are the challenges/difficulties?
  - What is the need for integrating communication activities?
- What are the competencies (skills) of the staff who perform communication activities? What are their strengths and weaknesses?
  - Have the training courses on communication skills for communicators been well organized and frequently implemented? What are the challenges/ difficulties?
  - Do you think there have enough equipment and media for communication activities in your province/district? Any shortage? What are the needs of providing equipment and media for communication activities?
  - How are M&E activities being performed? Any difficulties?
- What should be done to improve communication activities on maternal and FP in the upcoming time? What content should be prioritized? What methods should be used?

4. Advantage and disadvantage on accessing to maternal and FP services of ethnic minority women?

Which maternal and FP services are not fit to the local culture and custom and norm? Could we improve these services?

- Antenatal care services
- Intrapartum care services
- Postnatal care services
- FP services

What are the challenges/ difficulties to access to maternal and FP services of ethnic minority women?

- Finance
- Long distance
- Weather condition
- Transportation
- Language barriers
- Availability of the services
- Time of service provision
- Sex of the health staff
- Quality of services
- COVID-19 pandemic and other disasters
- Other

4.2 Guideline for In-Depth Interview/Focus Group Discussion with VBAs/VHWs

Participants: VBA/VHW who are providing maternal health and FP services

(This guideline could be used for both IDI and FGD)

This study is a rapid assessment of HUPH to establish ***baseline indicators and specify detailed needs for interventions*** for the project entitled "*Leave no one behind innovative interventions to reduce maternal mortality in ethnic minority regions of Vietnam*" during 2021-2025. We invite you to participate in to this study as your answer is essential to help us plan best activities for the upcoming project.

Objectives:

1. Needs for improving the technical capacities of health providers at district and commune levels.
2. Needs for behavior change communication and community mobilization toward safe pregnancy and childbirth taking into account local culture and tradition.
3. Major barriers and facilitators of maternal health and family planning services utilization.

Content:

1. General information

- Name, age, working position, years of working
- Phone number
- Could you describe what is your current task regarding maternal healthcare service?
- Address: commune and district
- Phone number

2. Needs for training and re-training

- In the past 2 years, how many training courses on maternal health have you participated in? For each of the courses, could you describe its content, target group and duration?
- What are the challenges/difficulties for participating in these training courses? (lecturers, duration, class structure, training materials, learners, etc.)
- During your work on maternal healthcare service provision, what maternal health content/ skills are you lacking?
- **In the next 5 years, what are the maternal health content/skills that you should be trained to improve your maternal healthcare service provision?**
- Check and ask for further information as followings
  - Basic obstetric services
  - Basic Knowledge and Skills on maternal health and FP
  - Integrate in to COVID-19 prevention in maternal health and FP
  - Communication skills (individual and group counseling) with the attention to local culture and custom and norm
  - Online communication skills (by mobile phone, website and other methods)?
  - **Other content? (specify…)**

Content	VHWs	VBA	Notes
Basic obstetric services			
MMR report			
Basic Knowledge and Skills on maternal health care			
Basic knowledge and skills on FP			

Content	VHWs	VBA	Notes
Supervision and technical support to maintain and improve the quality of services			
Integrate COVID-19 prevention into maternal health care and FP			
Communication skills (individual and group counseling) with the attention to local culture, customs and norms			
Other content? **(specify…)**			

3. Needs for BCC and community mobilization

- **Mass communication on maternal healthcare and FP services**:
  - **Methods**: What mass communication methods are being used in your village? (TV, radio, loud speaker, website, Facebook, Zalo, phone messages, billboard, posters, flyers, integrate into service provision, small group communication and individual counseling…)? What are the strengths/ weaknesses of each of the methods? Have the modern methods such as internet website and mobile phone being done and why? Challenges and solutions.
  - **Content:** What is the content of maternal health and FP usually used for mass communication? Which content is not fit to the local culture and custom and norm? What is the content that the local people want to know?
- **Media:** What are the most suitable types of media in your province/district?
  - **What are the challenges/ difficulties? Do you have any suggestions?**
- **Individual counseling:** Have the mothers been counselled? Where? Who do the counseling? What are the most common maternal health and FP content for counseling? What are the challenges/ difficulties?
- **Community communication:** What are the communication materials **(**flyers, videos, websites, etc.)? Do these materials vary with adequate maternal health and FP content? Could they reach to the target population? Which content/materials are not fit to the local culture and custom and norm?
- **Community mobilization**: How are communication activities being integrated into other activities? What are the challenges/ difficulties?
- Are communication mobilization activities being implemented to the following groups? What are the challenges?
  - Civil society group (women club, male farmer, youth, money saving group, etc.).

- Entrepreneur and business people
- Village elder, village head and leaders of local religious

- What are your competencies (skills) on communication? What are your strengths and weaknesses?
  - Have you ever been trained on maternal health content/skills? What challenges/ difficulties you have?
  - Do you have enough equipment and materials for communication?
  - Have you been supported/ supervised to perform communication activities?
- What should be done to improve communication activities on maternal health and FP in the upcoming time? What content should be prioritized? What methods should be used?

4. Advantage and disadvantage on accessing to maternal healthcare and FP services of ethnic minority women?

- Which maternal healthcare and FP services are not fit to the local culture and custom and norm? Could we improve these services?
  - Antenatal care services
  - Intrapartum care services
  - Postnatal care services
  - FP services
- What are your challenges/ difficulties to provide maternal healthcare and FP services for ethnic minority women
- What are the challenges/ difficulties to access to maternal healthcare and FP services of ethnic minority women?
  - Finance
  - Long distance
  - Weather condition
  - Transportation
  - Language barriers
  - Availability of the services
  - Time of service provision
  - Sex of the health staff

- Quality of services
- COVID-19 pandemic and other disasters
- Other

4.3 Guideline for Focus Group Discussion with Women who gave birth in the past two years

Participants: Women who gave birth in the past two years

This study is a rapid assessment of HUPH to establish ***baseline indicators and specify detailed needs for interventions*** for the project entitled "*Leave no one behind innovative interventions to reduce maternal mortality in ethnic minority regions of Vietnam*" during 2021-2025. We invite you to participate in to this study as your answer is essential to help us plan best activities for the upcoming project.

Objectives:

1. Needs for behavior change communication and community mobilization toward safe pregnancy and childbirth taking into account local culture and tradition.
2. Major barriers and facilitators of maternal healthcare and family planning services utilization.

Content:

1. Introduction

- Name, age, age of your children
- Phone number
- Address: commune and district

2. Communication

- Were you received any information on ante-, intra- and post-natal care in your last pregnancy? From which sources?
- **Individual counseling:** Were you counselled? Where? Who did the counseling? Did you understand the counseling content? What did you like from the counseling activities? What was the content not fit to you and you were not followed?
- **Mass media**: Did you read maternal health and FP information on TV, radio, mobile phone, websites, etc. in your last pregnancy? Which content/materials were not fit to the local culture and custom and norm?

- **Communication materials** (flyers, poster, booklet, etc.): Were you received any communication materials? Which content/materials were not fit to the local culture and custom and norm?
- Beside individual counseling and mass media, what were communication channels that provide maternal health care and FP information during your last pregnancy such as women club, male farmer, youth, money saving group, village elder, village head, etc.?
- What communication channels that were best fit to you?
- How do you think about health communicators? What are their strengths and weaknesses?
- In your point of view, What should be done to improve the utilization on maternal health care and FP for pregnant women in your village/ commune?

3. Advantage and disadvantage on accessing to maternal healthcare and FP services of ethnic minority women?

- Which maternal healthcare and FP services are not fit to the local culture and custom and norm? How could we improve these services?
    - Antenatal care services
    - Intrapartum care services
    - Postnatal care services
    - FP services
    - What are your challenges/ difficulties to access to maternal health and FP services?
    - Finance
    - Long distance
    - Weather condition
    - Transportation
    - Language barriers
    - Availability of the services
    - Time of service provision
    - Sex of the health staff
    - Quality of services
    - COVID-19 pandemic and other disasters
    - Other

ANNEX 5: RATE OF HOUSEHOLDS ACCESSING TO HYGIENIC LATRINES IN 60 COMMUNES

Commune	District	Province	% of households accessing to hygienic latrines
Chu Krey	Kong Chro	Gia Lai	0.0%
Ngoc Linh	Dak Glei	Kon Tum	0.2%
Tua Sin Chai	Sin Ho	Lai Chau	2.3%
Al Ba	Chu Se	Gia Lai	3.4%
A Yun	Chu Se	Gia Lai	9.4%
Kon Chieng	Mang Yang	Gia Lai	10.6%
Dak Troi	Mang Yang	Gia Lai	11.0%
Hong Thu	Sin Ho	Lai Chau	13.4%
Ta Tong	Muong Te	Lai Chau	14.6%
Tong Qua Lin	Phong Tho	Lai Chau	14.9%
Ta Ngao	Sin Ho	Lai Chau	17.6%
Suoi Bau	Phu Yen	Son La	17.7%
Mu Sang	Phong Tho	Lai Chau	19.6%
Hang Chu	Bac Yen	Son La	20.1%

ANNEX 6: NUMBER OF VILLAGE HEALTH WORKERS IN CHC

No	Commune	District	Province	# of VHWs
1	Nam Manh	Nam Nhun	Lai Chau	0
2	Ia Ko	Chu Se	Gia Lai	0
3	Chu Krey	Kong Chro	Gia Lai	0
4	Nam Cha	Nam Nhun	Lai Chau	0
5	Quang Hoa	Dak Glong	Dak Nong	0
6	Bo E	Kon Plong	Kon Tum	0

No	Commune	District	Province	# of VHWs
7	An Thang	Pac Nam	Bac Kan	0
8	Al Ba	Chu Se	Gia Lai	0
9	De Ar	Mang Yang	Gia Lai	0
10	Kon Chieng	Mang Yang	Gia Lai	0
11	Hra	Mang Yang	Gia Lai	0
12	Ayun	Mang Yang	Gia Lai	0
13	Suoi Bang	Van Ho	Son La	0
14	Bo Ngoong	Chu Se	Gia Lai	0
15	Hong Thu	Sin Ho	Lai Chau	0
16	Mang But	Kon Plong	Kon Tum	0
17	Ta Ngao	Sin Ho	Lai Chau	0
18	Co Linh	Pac Nam	Bac Kan	0
19	Dak Ngo	Tuy Duc	Dak Nong	0
20	Quang Son	Dak Glong	Dak Nong	0
21	Binh Trung	Cho Don	Bac Kan	0
22	Ta Ba	Muong Te	Lai Chau	1
23	Muong Hoong	Dak Glei	Kon Tum	1
24	Ngoc Linh	Dak Glei	Kon Tum	1
25	Tua Sin Chai	Sin Ho	Lai Chau	2
26	Pa Ve Su	Muong Te	Lai Chau	2
27	Xuan Lac	Cho Don	Bac Kan	2
28	Nam Ban	Nam Nhun	Lai Chau	3
29	Dak Troi	Mang Yang	Gia Lai	3
30	Pa U	Muong Te	Lai Chau	4
31	Pu Dao	Nam Nhun	Lai Chau	4
32	Pu Sam Cap	Sin Ho	Lai Chau	4
33	Xim Vang	Bac Yen	Son La	4
34	Dak Po Pho	Kong Chro	Gia Lai	4
35	Tong Qua Lin	Phong Tho	Lai Chau	4
36	Dak Nen	Kon Plong	Kon Tum	4

No	Commune	District	Province	# of VHWs
37	Hang Dong	Bac Yen	Son La	5
38	Dak To Ver	Chu Pah	Gia Lai	5
39	Hang Chu	Bac Yen	Son La	5
40	Trung Chai	Nam Nhun	Lai Chau	5
41	A Yun	Chu Se	Gia Lai	6
42	Kong HTok	Chu Se	Gia Lai	6
43	Lang Mo	Sin Ho	Lai Chau	6
44	H Bong	Chu Se	Gia Lai	7
45	Chieng Khua	Moc Chau	Son La	7
46	Chieng Xuan	Van Ho	Son La	7
47	Suoi Bau	Phu Yen	Son La	7
48	Vang Ma Chai	Phong Tho	Lai Chau	7
49	Kim Bon	Phu Yen	Son La	8
50	Dak Ring	Kon Plong	Kon Tum	8
51	Nam Pi	Nam Nhun	Lai Chau	8
52	Tan Lap	Cho Don	Bac Kan	8
53	Dak R'Tih	Tuy Duc	Dak Nong	8
54	Mu Sang	Phong Tho	Lai Chau	9
55	Ta Tong	Muong Te	Lai Chau	10
56	Si Lo Lau	Phong Tho	Lai Chau	10
57	Tan Hop	Moc Chau	Son La	11
58	Muong Cai	Song Ma	Son La	15
59	Chieng En	Song Ma/	Son La	15
60	Dua Mon	Song Ma	Son La	26

Disclaimers: The views and opinions expressed in this report are those of the researchers and do not necessarily reflect the views and policies of the Ministry of Health and UNFPA

UNITED NATIONS POPULATION FUND

Green One UN House, 304 Kim Ma Street,
Ba Dinh District, Ha Noi, Viet Nam

Scan barcode to access:

https://vietnam.unfpa.org/
+84 24 38500 100
vietnam.office@unfpa.org

UNFPA Viet Nam
@unfpa_vietnam
UNFPA Viet Nam