Baseline Survey Report

Reproductive, Maternal and Neonatal Health Situation Analysis in Eight Cambodian Provinces

September 2014

Principal Investigator: Ir Por, MD, MPH, PhD
Health System Development Support Unit
National Institute of Public Health

Table of contents

List of tables

List of figures

Acknowledgements

First of all, the study team would like to thank the National Ethics Committee for Health Research for its review and approval on the study protocol. We would also like to thank the Provincial Health Directors and Operational District Directors in the study sites for their support and facilitation of the study in their relevant area.

Our sincere thanks go to the Operational District supervisors for maternal and child health services, midwives and other personnel at assessed facilities, and the women of reproductive age who dedicated their valuable time to participate in the interviews.

We are grateful to the key personnel of the PSL NGO partners for their technical inputs and the excellent coordination and facilitation support given to our team throughout the whole process of this study.

Funding

This report was funded by the Australian Government through the Partnering to Save Lives program. The findings, interpretations and conclusions expressed in the report are those of the authors and do not necessarily reflect the views of the Australian Government.

Abbreviations

ANC	Antenatal Care
BAT	Battambang
BCC	Behaviour Change Communication
BEmONC	Basic Emergency, Obstetric and Neonatal Care
CEmONC	Comprehensive Emergency, Obstetric and Neonatal Care
CBD	Community-Based Distribution
CCMN	Community Care of Mothers and Newborns
CDHS	Cambodia Demographic and Health Survey
CI	Confidence Interval
DFAT	Department of Foreign Affairs and Trade
FP	Family Planning
FTIRMN	Fast Track Initiative Road Map for Reducing Maternal and Newborn Mortality
HC	Health Centre
HCMC	Health Centre Management Committee
HIS	Health Information System
HP	Health Post
IUD	Intra-uterine Device
KKG	Koh Kong
KRT	Kratie
LAM	Lactational Amenorrhoea Method
LAPM	Long-acting or Permanent Method
MCAT	Midwifery Coordination Alliance Team
MCH	Maternal and Child Health
MCM	Modern Contraceptive Method
MERI	Monitoring, Evaluation, Reporting and Improvement
MKR	Mondulkiri
MoH	Ministry of Health
MSIC	Marie Stopes International Cambodia
NGO	Non-governmental Organisation
OD	Operational District
PNC	Postnatal Care
PSK	Population Services Khmer
PSL	Partnering to Save Lives
PUR	Pursat
RAT	Ratanakiri
RHAC	Reproductive Health Association of Cambodia
RH	Referral Hospital
RMNH	Reproductive, Maternal and Neonatal Health
SBA	Skilled Birth Attendant
SHV	Sihanoukville
STR	Stung Treng
TBA	Traditional Birth Attendant
WRA	Woman of Reproductive Age (15-49 years)

Executive summary

Building on the considerable progress made on reproductive, maternal and neonatal health (RMNH) within Cambodia in recent years, Partnering to Save Lives (PSL) combines the complementary strengths of government and non-governmental partners to achieve the goals of the Fast-Track Initiative Roadmap for Reducing Maternal and Neonatal Mortality (FTIRMN) and beyond. PSL is a partnership between three implementing non-governmental organisations (CARE, Marie Stopes International Cambodia, and Save the Children), the Cambodian Ministry of Health and the Australian Department of Foreign Affairs and Trade.

The overall goal of PSL is to save the lives of women and neonates in Cambodia through improved quality, access and utilisation of RMNH services through a partnership approach. After three years of implementation, there are expected to be six primary outcomes:

- improved quality of RMNH services for target populations;
- greater equity of access to appropriate RMNH services for target populations;
- more responsive RMNH services meet the needs of target populations;
- improved RMNH behaviours amongst target populations;
- evidence-based innovation and learning that contributes to improved policy and practices;
- a partnership model that demonstrates impact and value for money to achieve RMNH outcomes.

To achieve these outcomes, the program works through three core components: improving health service delivery, community strengthening and engagement, and translating learning and knowledge into policy.

PSL focuses on holistic RMNH service provision in the underserved north-eastern provinces of Kratie, Mondulkiri, Ratanakiri and Stung Treng. Family planning (FP) services and safe abortion capacity development are supported in an additional 17 provinces across the country. PSL also works to improve access to RMNH information and services for vulnerable young women working in garment factories in Phnom Penh and Kandal.

The PSL partners commissioned an independent baseline evaluation. The general objectives of the survey were to:

(1) establish indicator values and provide an information base against which PSL can monitor and assess progress towards program outcomes;
(2) gather and analyse information that will inform program implementation and revision of indicators and targets as needed.

Following a literature review and document analysis, data for measuring performance indicators were collected through:

- a cross-sectional survey among women of reproductive age (WRA) in the five PSL-targeted operational districts (ODs) in the north-eastern provinces of Kratie, Mondulkiri, Ratanakiri and Stung Treng (component 1), and four comparison ODs in Battambang, Koh Kong, Pursat and Sihanoukville provinces (component 2);
- interviews with OD supervisors for maternal and child health (MCH) services in all nine ODs;
- facility-based assessment of basic emergency obstetric and newborn care (BEmONC) in the five north-eastern ODs.

Researchers selected WRA through a multi-stage cluster sampling method, first selecting 60 villages (clusters) for each component, and then selecting 22 households per village. They applied a structured household questionnaire to household heads and a structured women's questionnaire to WRA in each household. Researchers interviewed 1,412 WRA in 1,318 households for component 1 and 1,350 WRA in 1,320 households for component 2. The women's questionnaire included seven sections:

(1) household and woman's identification data;

(2) key characteristics of the woman, including age, gender, marital status, highest level of education and religion;
(3) functional impairment/disability status of the woman, including sensory, physical, intellectual and communication impairments;
(4) woman's knowledge and utilisation of FP services;
(5) woman's pregnancy experience and related information such as antenatal care (ANC), delivery care, immediate newborn care, postnatal care (PNC), abortion and post-abortion care;
(6) satisfaction, referral, health expenditures and financial support mechanisms for any woman who had used RMNH services within the past 12 months;
(7) woman's RMNH knowledge and self-efficacy relating to FP and refusing sex.

The tables below and on the following page summarise the survey results for relevant PSL core indicators.

Outcome Level	Performance Measures / Indicators	Target Areas	Result
End-of-project Outcomes			
Improved quality RMNH services for target populations	O1.2. % of women delivering in a health facility with a skilled birth attendant (SBA)	KRT, MKR, RAT, STR*	50.9%
	O1.4.% of newborns with low birth weight	KRT, MKR, RAT, STR	5.7%
Greater equity of access to appropriate RMNH services for target populations	O2.1. % of target population using modern contraception	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	26.8%
More responsive RMNH services meet the needs of target populations	O3.2. % of women attending PNC who receive counselling in modern FP methods	KRT, MKR, RAT, STR	26.3%
	O3.3. % of target population who report being highly satisfied with RMNH services provided	KRT, MKR, RAT, STR	41.6%
Improved RMNH behaviours amongst target population	O4.1. % of women of reproductive age who can identify 5 danger signs during pregnancy	KRT, MKR, RAT, STR	3%
	O4.2. % of women attending 4 or more ANC consultation (ANC4)	KRT, MKR, RAT, STR	47%
	O4.3. % of women receiving 2 or more PNC visits (PNC2)	KRT, MKR, RAT, STR	59%
	O4.4. % of women (modern FP users) using long acting or permanent methods of FP	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	23.5

*BAT = Battambang; KKG = Koh Kong; KRT = Kratie; MKR = Mondulkiri; PUR = Pursat; RAT = Ratanakiri; SHV = Sihanoukville; STR = Stung Treng.

Households in the north-east (component 1) were significantly poorer than in component 2, with a higher proportion in the poorest two quintiles (49.3% versus 30.7%) and greater numbers of households possessing ID Poor cards (31.9% versus 30.1%). Unlike component 2, there was a mismatch between the proportion of households in component 1 which were in the poorest two

quintiles (49.3%) and which had an ID Poor card (31.9%). This may reflect differences in the methods used to assess poverty for these two indicators or may indicate lower participation in the ID Poor assessment process in the north-east. Median expenditures on RMNH services were similar between the two components at around $8 over 12 months, but only 6.8% of RMNH service users in component 1 and 13.6% in component 2 used any form of financial support mechanism to access services. The results highlight the importance of increasing awareness of and access to financial support mechanisms, particularly for the poorest households.

Outcome Level	Performance Measures / Indicators	Target Areas	Result
Intermediate Outcomes			
Health facilities have improved capacity and resources to deliver on FTIRMN outcomes	I1.1. % of functioning BEmONC facilities (health centres)	KRT, MKR, RAT, STR	0/7
Client- centered, equitable RMNH services are improved at health facilities	I2.1. Total attendance at Midwifery Coordination Alliance Team (MCAT) meetings in one year	KRT, MKR, RAT, STR	54/ quarter
Financial mechanisms enable access to RMNH services	I5.1. % of target population accessing RMNH services using a financial support mechanism in the previous 12 months	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	10.3%
RMNH behaviour change communication (BCC) strategy developed and implemented	I6.2. % of target population who can identify 3 danger signs for neonatal distress	KRT, MKR, RAT, STR	11.3%
	I6.3. % of women who feel empowered to discuss and use modern family planning	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	25.3%
	I6.4. % of women who know that abortion is legal	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	11.7%
	I6.5. % of women delivering with an SBA	KRT, MKR, RAT, STR	58.8%
Increased community demand for RMNH services	I7.2. # of health centre catchment areas implementing community based distribution (CBD) of contraceptives	KRT, MKR, RAT, STR	37

Around 30% of the WRA interviewed in component 1 came from ten ethnic minority groups. This has important implications for BCC activities as Khmer may not be their first language. Different ethnic minority groups also hold traditional beliefs relating to RMNH that may affect their behaviour and that should be taken into account for BCC. Differences in language and cultural beliefs may also act as barriers to accessing RMNH services, if services providers are not familiar with them. The lower educational status of WRA in the north-east also has implications for BCC, as written materials are unlikely to be appropriate for more than one quarter of women who have had no education.

This is the first time that the Washington Group short series of questions have been used in Cambodia to assess the prevalence of self-identified levels of functional impairment or disability in communities. Overall, 4.7% of WRA had a severe or total functional impairment and 44% (49.4% in component 1 and 38.4% in component 2) had some functional impairment. The most common

severe impairments were visual or related to concentration or memory. The levels of functional impairment among WRA within this survey highlight the importance of considering their needs when developing BCC approaches and efforts to improve access to health services.

These results revealed a significantly higher fertility rate in component 1 areas (2.96 live births/woman) than in component 2 (2.65 live births/woman), reflecting a similar trend to the results of the Cambodia Demographic and Health Survey (CDHS) 2010. While rates of modern contraceptive use among all WRA and married WRA and the proportion of contraceptive users choosing long-acting or permanent methods were somewhat lower in component 1 than in component 2, none of these differences was statistically significant. The combined proportion of married WRA using modern contraceptive methods (MCM) across both components was 36.6%, slightly higher than the national average of 34.9% reported in CDHS 2010. Overall these results suggest that the gap may be closing between the north-eastern provinces and the national average, in relation to family planning. There is still considerable room for improvement, however, and the heavier reliance on the public sector as a source of contraceptives in component 1 compared with component 2 confirms the importance of ongoing efforts to improve FP service delivery through these channels in the north-east.

Bigger (and statistically significant) differences were seen between component 1 and component 2 in relation to other RMNH indicators, including ANC4 (47.0% versus 78.5%, respectively), delivery with an SBA (58.8% versus 95.0%) and in a public health facility (50.9% versus 79.2%), proxy indicators for immediate newborn care (36.0% versus 64.2%), PNC2 (59.1% versus 77.4%) and post-natal FP counselling (26.3% versus 39.7%). While key indicators suggest an improvement in component 1 areas compared with the results of CDHS 2010, coverage of all these indicators was substantially poorer in component 1 than component 2. Ongoing intensive efforts on both the demand and supply sides will be required to accelerate improvement of the quality, accessibility and utilisation of RMNH services in the north-east provinces.

This survey found wide awareness of different FP methods among WRA. 97.8% had heard of at least one modern contraceptive method (compared with a national average of 99.5% in CDHS 2010). The fact that knowledge on FP does not necessarily lead to use of MCM may be explained in part by the results on self-efficacy, which showed that only a quarter of WRA across both components were fully confident that they could negotiate FP use in a range of situations and less than a third were fully confident that they could refuse sex. Another important factor may be the primary role of family members, particularly husbands, in influencing decision-making around RMNH, which suggests the need for their engagement through BCC.

While knowledge of FP methods was generally strong, this survey revealed gaps in other areas of RMNH knowledge, with no significant differences between components. Only 11.7% of WRA in the survey knew that induced abortion is legal in Cambodia, and only 2.6% and 12.4% knew at least five danger signs during pregnancy or at least three signs of neonatal distress, respectively.

A key result in relation to abortion is that WRA in this survey accessed services through the private sector and/or at home, much more than in the public sector. This suggests that immediate efforts to improve access to quality safe abortion services and post-abortion FP need to focus in the private sector and community, whilst increasing capacity within the public sector.

Interviews with OD MCH Supervisors highlighted the opportunity to improve service quality and accountability by supporting and building the capacity of Health Centre Management Committees. MCATs were not yet fully operating in all provinces, which is a missed opportunity to build the skills and confidence of midwives. Given the relative remoteness of many communities in the north-east, greater implementation of community care of mothers and newborns and CBD may further contribute to the improvement of RMNH indicators. Finally, health facilities in the north-east had yet to achieve fully functional BEmONC status. Addressing the immediate issues of necessary supplies and equipment will enable the focus to move to supporting clinical skills building and quality of care.

1 Background

1.1 Introduction to the Partnering to Save Lives program

Building on the considerable progress made on reproductive, maternal and neonatal health (RMNH) within Cambodia in recent years, Partnering to Save Lives (PSL) combines the complementary strengths of government and non-governmental partners to achieve the goals of the Fast-Track Initiative Roadmap for Reducing Maternal and Neonatal Mortality (FTIRMN) and beyond. PSL is a partnership between three implementing non-governmental organisations (NGOs) (CARE, Marie Stopes International Cambodia [MSIC], and Save the Children), the Cambodian Ministry of Health (MoH) and the Australian Department of Foreign Affairs and Trade (DFAT).

The overall goal of PSL is to save the lives of women and neonates in Cambodia through improved quality, access and utilisation of RMNH services through a partnership approach. After three years of implementation, there are expected to be six primary outcomes:

- improved quality of RMNH services for target populations;
- greater equity of access to appropriate RMNH services for target populations;
- more responsive RMNH services meet the needs of target populations;
- improved RMNH behaviours amongst target populations;
- evidence-based innovation and learning that contributes to improved policy and practices;
- a partnership model that demonstrates impact and value for money to achieve RMNH outcomes.

To achieve these outcomes, the program works through three core components: improving health service delivery, community strengthening and engagement, and translating learning and knowledge into policy.

PSL focuses on holistic RMNH service provision in the underserved north-eastern provinces of Kratie, Mondulkiri, Ratanakiri and Stung Treng. Family planning (FP) services and safe abortion capacity development are supported in an additional 17 provinces across the country. PSL also works to improve access to RMNH information and services for vulnerable young women working in garment factories in Phnom Penh and Kandal. Progress is monitored and assessed against indicators in the program's monitoring, evaluation, reporting and improvement (MERI) framework.

1.2 Rationale and objectives of the baseline study

The PSL partners commissioned an independent baseline evaluation. The general objectives of the survey were to:

(1) establish indicator values and provide an information base against which PSL can monitor and assess progress towards program outcomes;
(2) gather and analyse information that will inform program implementation and revision of MERI framework indicators and targets as needed.

The baseline survey included three components:

Component 1: a baseline study, including a quantitative population-based survey, covering all RMNH services in five operational districts (ODs) (Kratie, Chhlong, Mondulkiri, Ban Lung and Stung Treng) in the four north-eastern provinces of Kratie, Mondulkiri, Ratanakiri and Stung Treng.
Component 2: a baseline study, including a quantitative population-based survey, focusing on family planning and safe abortion services in four ODs (Sampov Loun, Sampov Meas, Smach Meanchey and Preah Sihanouk) in Battambang, Koh Kong, Pursat and Sihanoukville Provinces
Component 3: a qualitative and quantitative survey of selected garment factory workers in Phnom Penh municipality and Kandal Province.

This report focuses on components 1 and 2 of the survey.

1.3 Context in the study sites

The five ODs covered by component 1 have a total population of approximately 700,000 people. The number of women of reproductive age (WRA) is estimated to be 180,000.[1] In these four provinces, ethnicity, language and remoteness create major challenges for the local population in accessing essential health care. As a result, these locations consistently show poor health status and the lowest RMNH and FTIRMN indicators (Table 1).

Table 1: Key RMNH indicators in component 1 provinces

Key RMNH indicators	Kratie	Stung Treng[2]	Ratanakiri/ Mondulkiri	National Average
Total fertility rate for all WRA	3.9	3.5	4.5	3.0
% of currently married WRA using any modern contraceptive method (MCM)	23.9	32.3	32.7	34.9
% of women receiving antenatal care (ANC) at least once from a skilled provider	65.2	66.9	61.8	89.1
% of deliveries attended by a skilled provider	44.4	28.2	38.4	71.0
% of deliveries in a health facility	25.8	21.2	30.1	53.8
% of deliveries in a public health facility	20.8	18.8	27.2	43.9
% of women receiving postnatal care (PNC) at least once from a skilled provider	20.7	19.7	28.2	64.9
Neonatal mortality rate (deaths/1,000 live births)	47	29	30	27

Source: Cambodia Demographic and Health Survey (CDHS) 2010[3].

The population of the four ODs selected for component 2 of the baseline study is approximately 700,000 people, of which 181,081 are WRA[1]. Table 2 summarizes key RMNH indicators in these four provinces, which are generally comparable to the national average.

Table 2: Key RMNH indicators in component 2 provinces

Key RMNH indicators	Battambang	Pursat	Koh Kong / Sihanoukville	National Average
Total fertility rate for all WRA	3.2	3.4	2.9	3.0
% of currently married WRA using any MCM	36.5	34.3	34.3	34.9
% of women receiving ANC at least once from a skilled provider	91.1	90.2	88.1	89.1
% of deliveries attended by a skilled provider	78.1	73.9	79.2	71.0
% of deliveries in a health facility	51.5	48.8	56.6	53.8
% of deliveries in a public health facility	38.0	43.8	39.5	43.9
% of women receiving PNC at least once from a skilled provider	63.2	60.5	69.4	64.9
Neonatal mortality rate (deaths/1000 live births)	28	29	20	27

Source: CDHS 2010[3].

[1] Estimated at around 26% of the total population, using CDHS 2010 data as reference.
[2] As an average of Stung Treng together with Preah Vihear Province.
[3] National Institute of Statistics, Directorate General for Health, and ICF Macro, 2011: Cambodia Demographic and Health Survey 2010. Phnom Penh, Cambodia, and Calverton, Maryland, USA

2 Methodology

Following a literature review and document analysis, data for measuring performance indicators were collected through:

- a survey of WRA or 'women's survey';
- interviews with OD supervisors for maternal and child health (MCH) services or 'OD MCH supervisor interviews';
- facility-based assessment of basic emergency obstetric and newborn care (BEmONC) or 'BEmONC assessment'.

2.1 Study design, sampling and sample size

The women's survey is a cross-sectional survey among WRA in the five PSL-targeted ODs in component 1 (for all RMNH indicators) and four other ODs in component 2 (for family planning and safe abortion indicators). The four ODs in component 2 were chosen as they are areas where PSL implements a package of activities relating to behaviour change communication (BCC), family planning, safe abortion training and quality improvement, and reducing financial barriers to accessing health care. Because of some technical and financial constraints, no control study site was used. One of the technical constraints was that the geographical coverage of the PSL program is very large, with varying combinations of activities occurring in different provinces. In addition, RMNH activities are being supported by other donors in provinces outside the north-east, making a true control situation difficult. However, for impact assessment at a later stage (mid-term or end-of-program evaluation), data for indicators other than FP and abortion care were also collected in component 2 areas to allow comparisons between the two components. Similarly, comparisons can be made between data in the study sites and secondary data from CDHS and the MoH's Health Information System (HIS).

For comparison purposes, the researchers used the same minimum sample size for both component areas. The sample size calculation used a two-proportion comparison formula (see below). The estimation was based on two key variables: proportion of currently married WRA using modern contraceptive methods and proportion of births occurring with assistance of a skilled attendant in a health facility. The expected change for these variables between this baseline study and a later survey was 15 and 20 percentage points, respectively, over a three-year period.

$$n = D\left[(Z_\alpha + Z_\beta)^2 \left(P_1(1 - P_1) + P_2(1 - P_2)\right) / (P_2 - P_1)^2\right]$$

n = the minimum sample size required in each group
D = design effect (set at 2, taking into account the cluster effect)
P1 = proportion at baseline survey
P2 = proportion at follow-up/end-of-project survey
P2-P1 = level of change (impact) between baseline and follow-up/end-of-project survey
Zα = degree of confidence (usually 95% = 1.96)
Zβ = degree of certainty with the change or desired power (if 80% = 0.84)

The estimation resulted in a minimum sample size of 319 currently married WRA or 592 WRA in total for indicator (1) and 180 births in a health facility for indicator (2). To reach a total of 180 births in a health facility within a two-year recall period required a sample of 781 WRA. Taking into account disaggregation (e.g. by socio-economic status) and the available budget, the researchers proposed a minimum sample size of 1,500 WRA or 1,320 households (based on an average of 25% WRA in the general population and average household size of 4.5 people) for each component.

Researchers selected WRA through a multi-stage cluster sampling method. The sampling frame was the updated list of villages with the respective number of households by health centre catchment area (the updated OD coverage plan) within the five ODs of component 1 and four ODs of component 2. First, the team selected 60 villages[4] (clusters) for each component, based on the estimated number of WRA or general population of each OD – a population-proportional-to-size method commonly used for immunisation surveys. The number of selected villages by OD for components 1 and 2 are presented in Table 3 and Table 4. Please refer to Annex 1 for details on the 120 selected villages.

Table 3: Number of villages by OD for component 1

Province	OD	Population		Number of villages
		General	WRA	
Kratie	Kratie	204,325	28,606	18
	Chhlong	99,819	13,975	8
Mondulkiri	Mondulkiri	66,767	9,347	6
Ratanakiri	Ban Lung	197,315	27,624	17
Stung Treng	Stung Treng	125,498	17,570	11
Total	**5**	**693,724**	**97,122**	**60**

Table 4: Number of villages by OD for component 2

Province	OD	Population		Number of villages
		General	WRA	
Battambang	Sampov Loun	155,706	40,484	13
Pursat	Sampov Meas	283,425	73,691	25
Koh Kong	Smach Meanchey	57,916	15,058	5
Preah Sihanouk	Preah Sihanouk	199,423	51,850	17
Total	**4**	**696,470**	**181,081**	**60**

In each of the 60 villages, researchers selected 22 households (1,320/60 = 22) through a systematic sampling approach based on the village list of households. In the few villages lacking a reliable list of households, the teams used a systematic walking direction approach. All WRA in a selected household were invited for interview. Researchers sought help from village chiefs to identify selected households in their respective village.

2.2 Data collection

The women's survey data were collected in late December 2013 and early January 2014 through administration of a structured questionnaire to WRA (Annex 2) and a structured household questionnaire (Annex 3) to household heads or adult members (including WRA) in all selected households. The household questionnaire for both components included women's household identification data and information related to household socio-economic status, including ownership of durable assets and access to water, sanitation and essential social services, as well as household ownership of a card provided by the Ministry of Planning's Pre-identification of Poor Households Project, known as an 'ID Poor card'. Although component 2 focuses on FP and abortion, the study used the same women's questionnaire for both components (Annex 2). Researchers collected non-

[4] Theoretically, a minimum of 30 clusters is needed. To minimise the design effect and increase the randomness of the sample, this study covered 60 clusters.

FP and abortion data in the component 2 areas for the purpose of comparison with component 1. The women's questionnaire included seven sections:

(1) household and woman's identification data;
(2) key characteristics of the woman, including age, gender, marital status, highest level of education and religion;
(3) functional impairment/disability status of the woman, including sensory, physical, intellectual and speech/language disability;
(4) woman's knowledge and utilisation of family planning services;
(5) woman's pregnancy experience and related information such as ANC, delivery care, immediate newborn care, PNC, abortion and post-abortion care;
(6) satisfaction, referral, health expenditures and financial support mechanisms for any woman who had used RMNH services within the past 12 months;
(7) woman's RMNH knowledge and self-efficacy relating to family planning and refusing sex.

A group of 20 trained enumerators, divided into five teams each closely supervised by a senior surveyor, conducted the interviews in Khmer. Most ethnic minority people, especially women of reproductive age, could speak the Khmer language, except a few who had difficulty in expressing some Khmer words. For these women, the interviewer asked for translation from another woman in the village who could speak Khmer, whilst maintaining as much privacy and confidentiality as possible.

Trained senior midwives interviewed all OD MCH supervisors (one per OD), using a semi-structured questionnaire (Annex 4). Based on findings from the interviews, the team conducted a BEmONC assessment for all public health facilities considered by OD MCH supervisors as potential or official BEmONC facilities (Annex 5).

Prior to data collection, the senior researchers provided a two-day training session for all enumerators, field supervisors and other people involved in the study (e.g. those involved in the data entry). The main objectives of the training were to introduce the research protocol and to familiarise them with the questionnaires. At the end of the training, there was a field testing of the research tools and practical planning of the field work.

2.3 Data processing and analysis

Supervisors gathered all completed questionnaires in the field and checked them for accuracy and completeness, making necessary corrections, and/or re-interviewing respondents as needed. The completed questionnaires were then processed for data entry. Two trained people entered data from each questionnaire into a database form at the same time (double entry) under the supervision of an experienced database manager who developed and tested the database form. The team then cleaned the data and uploaded them into an SPSS/STATA format developed for the analysis.

Senior researchers analysed the data using SPSS software to calculate the variables/indicators (Annex 6) for each component. For some key variables (such as the current use of FP methods, ANC, delivery, newborn care and PNC coverage), data were disaggregated by type of services, providers, women's key characteristics, disability and socio-economic status.

The researchers used the internationally-validated Washington Group short set of questions to assess disability status[5]. Respondents self-assessed their level of difficulty or impairment (none, some, a lot, total) in carrying out six functions (seeing, hearing, self-care, walking, communication, memory/concentration). Study data were then disaggregated two ways: those with at least some

[5] CDC National Center for Health Statistics, 2006: Overview of implementation protocols for testing the Washington Group short set of questions on disability. Atlanta, USA. www.cdc.gov/nchs/washington_group/wg_questions.htm

impairment versus those with none; those with severe or total impairment versus those with some or no impairment.

For socio-economic status, a principal component analysis of household ownership of durable assets and access to water, sanitation and essential social services was used to compute a poverty index score[6]. This classified each household into one of five wealth quintiles within the sample, from quintile 1 (the poorest) to quintile 5 (the wealthiest). Data from households and WRA were disaggregated into two groups: those falling into the lowest two socio-economic quintiles (1 and 2) and those in quintiles 3-5. In addition, data were disaggregated according to household ownership of an ID Poor card.

The researchers used Chi-square tests to compare proportions between the two component areas and significance was determined at the 5% level ($p < 0.05$). They compared means of normally-distributed data between the two component areas using Independent-Samples t-tests and applied a non-parametric test (Mann-Whitney) for skewed data. This report provides 95% confidence intervals (CI) for key indicator values where applicable.

2.4 Ethical considerations

The researchers strictly followed ethical procedures, including submission of the study protocol and related tools to the National Ethics Committee for Health Research in Cambodia for review. The committee approved the protocol on 24 December 2013 (reference number: 0248 NECHR).

Prior to each interview, the researcher obtained verbal consent from the interviewee, based on a consent form attached to each questionnaire as an introductory section. The consent form varied slightly across the different survey tools. In general, it included a greeting and self-introduction by the interviewer, a short introduction of the study and its objectives, and the voluntary and unconditional nature and confidentiality of the interview. The interviews were carried out by trained and professional surveyors. The research team is responsible for the confidentiality of all interviewees' personal information. The data collected are kept securely and will not be shared with unauthorised people. No names will be used in any dissemination of the results.

The researchers did not pay or provide any services to respondents during the survey, except a symbolic gift given to each respondent, which cost about US$ 0.5. If the subject matter of the survey prompted demand or need for services or support by the respondents, team members provided relevant information, including the telephone numbers of help-lines.

[6] S. Yvas and L. Kumuranayake, 2006: Constructing socio-economic status indices: how to use principal component analysis. Health Policy and Planning 21 (6): 459-68.

3 Results from the quantitative survey

3.1 Description of the sample

Table 5 describes the survey sample in the two component areas. Researchers interviewed a total of 2,763 WRA in 2,638 households. These included 1,412 WRA in 1,318 households for component 1 and 1,350 WRA in 1,320 households for component 2. One interviewed WRA with missing address information could not be allocated to either component.

The number of interviewed WRA in each of the two components is slightly smaller than the estimated sample size (1,500) because at the time of data collection, many were absent from home and were reported to have migrated for work outside their village. Only two WRA refused to be interviewed as they were leaving immediately for work and rescheduling was not possible.

Table 5: Description of the sample

	Component 1	Component 2	All
Total number of WRA	1,412	1,350	2,763[†]
Total number of households	1,318	1,320	2,638
Number of villages	60	60	120
Number of communes	57	52	109
Number of health centres	49	47	96
Number of districts	24	16	40
Number of operational districts	5	4	9
Number of provinces	4	4	8

[†] One woman cannot be classified in any component group because of missing address data.

Table 6 describes key characteristics of the sample households. The average household size (number of members per household) in all areas was 5 with a relatively larger households in component 1 (5.15) than that in component 2 (4.86). Consequently, there were significantly more WRA per household in component 1 (1.18) than in component 2 (1.15).

Households in component 1 were relatively poorer than those in component 2. According to the asset-based poverty ranking, there were significantly larger proportions of quintile 1 and 2 households in component 1 (49.3%) than in component 2 (30.7%). The proportion of households having an ID Poor card was also significantly larger in component 1 (31.9%) than in component 2 (30.1%).

There were 399 (30.3%) households in component 1 which were from ethnic minorities, whereas there were none in component 2. Table 7 describes distribution of the ethnic minority households by group. In total, there were 10 reported ethnic minority groups. Tampoun and Phnong were the two largest, each representing over 20% of ethnic minority households in the sample.

Table 8 provides an overview of key characteristics of the interviewed WRA. The mean age in both components was approximately 30 years old. Women in component 1 were generally less well educated than those in component 2; the proportions having no schooling at all were 28.8% and 17.9%, respectively. A large majority (82.9%) of the WRA in both components were Buddhist. Among all WRA, 72.6% were married at the time of interview. Single women accounted for 21.2% of all WRA and almost all of these had no sexual partner (sexually inactive). Just over 60% of the women reported that they had always lived in their current village. Others moved in and out for work and other reasons, including marriage. Based on the six Washington Group questions on functional impairment/disability, 44% (49.4% in component 1 and 38.4% in component 2) of the women

reported having at least some functional impairment and 4.7% had severe impairment or disability. The most common severe impairments or disabilities were visual (1.6% across both components) and related to memory and concentration (2.2%).

Table 6: Household characteristics

Key variables	Component 1 n = 1,318	Component 2 n = 1,320	All n = 2,638
Household size or average no. of members/household (range)			
• All members	*5.15 (1-15)	*4.86 (1-14)	5.01 (1-15)
• Male members	2.58 (0-11)	2.43 (0-10)	2.50 (0-11)
• Female members	2.47 (0-8)	2.44 (0-10)	2.50 (0-10)
• WRA	*1.18 (0-5)	*1.15 (0-5)	1.17 (0-5)
Households having no WRA (% within component)	128 (9.7)	161 (12.2)	289 (11.0)
Distribution of households by wealth quintile (% within component)			
• Q1 –poorest	326 (24.7)	206 (15.6)	532 (20.2)
• Q2	324 (24.6)	199 (15.1)	523 (19.8)
• Q3	261 (19.8)	266 (20.2)	527 (20.0)
• Q4	218 (16.5)	310 (23.5)	528 (20.0)
• Q5 –richest	189 (14.3)	339 (25.7)	528 (20.0)
• Q1+Q2	*650 (49.3)	*405 (30.7)	1,055 (40.0)
Households having an ID Poor card (% within component)	*421 (31.9)	*397 (30.1)	818 (31.0)
Ethnic minority households (% within component)	399 (30.3)	0	399 (15.1)

* Statistically significant ($p < 0.05$).

Table 7: Ethnic minority groups

Ethnic minority group	Frequency	Percent
Tampoun	95	23.8
Phnong	81	20.3
Jarai	63	15.8
Kreung	46	11.5
Praov	39	9.8
Kouy	25	6.3
Kavaet	22	5.5
Khmer Khin	15	3.8
Samrae	7	1.8
Stieng	6	1.5
Total	**399**	**100.0**

Table 8: Women's characteristics

Key variables	Component 1 n = 1,412	Component 2 n = 1,350	All n = 2,763[†]
Mean age in years (range)	29.9 (15-49)	29.9 (15-49)	29.9 (15-49)
% distribution of WRA by highest level of education			
• No education	*28.8	*17.9	23.5
• Primary	43.9	48.4	46.1
• Lower secondary	16.9	22.1	19.5
• Upper secondary	8.8	9.3	9.1
• Higher	1.6	2.2	1.9
% distribution of WRA by religious group			
• Buddhist	*74.4	*91.9	82.9
• Muslim	3.5	7.6	5.5
• Christian	1.3	0.6	0.9
• Others	20.8	0	10.6
% distribution of WRA by marital status			
• Single (0.1% with boyfriend)	18.6	24.3	21.2
• Married	*74.8	*70.2	72.6
• Divorced/separated/widowed	6.7	5.6	6.1
% distribution of WRA always living in the area	64.2	57.5	60.9
% distribution of WRA having disability			
• Having at least some impairment	*49.4	*38.4	44.0
• Having severe impairment or disability	5.0	4.5	4.7

[†] One woman cannot be classified in any component group because of missing data on address.
*Statistically significant ($p < 0.05$).

3.2 Family planning

Researchers collected data on 11 MCM: female and male sterilisation, intra-uterine device (IUD), injectable, implant, daily pills, monthly pills, male condoms, female condoms, the lactational amenorrhea method (LAM), and emergency contraception. Data were also collected on two traditional methods: rhythm or periodic abstinence and withdrawal.

To collect data on knowledge of contraceptive methods, the interviewer described each method, according to the definitions provided in the questionnaire, and probed if necessary, rather than just reading the list of methods. This follows the method used for the CDHS. Table 9 summarises the knowledge of contraceptive methods among all WRA and currently married WRA in both component areas. In general, knowledge of any contraceptive method and any modern method was nearly universal among all women and currently married women, which is similar to the results of CDHS 2010[3]. Contraceptive knowledge among all women was generally slightly lower than that among currently married WRA. In addition, contraceptive knowledge among women in component 1 was in general lower than that in component 2. However, knowledge of individual methods varied greatly. Women's knowledge of male sterilisation, female condoms, LAM, emergency contraception and the two traditional methods was relatively low.

Table 9: Knowledge of contraceptive methods

Key variables	Component 1	Component 2	All
% distribution of all WRA knowing:	n = 1,412	n = 1,350	n = 2,763[†]
• Any method (95% CI)	96.8 (95.9-97.7)	99.2 (98.7-99.7)	98.0 (97.4-98.5)
• *Any modern method* (95% CI)	*96.6 (95.7-97.5)*	*99.0 (98.4-99.5)*	*97.8 (97.2-98.3)*
• *Female sterilisation*	*70.7*	*83.5*	*76.9*
• *Male sterilisation*	*36.5*	*59.3*	*47.7*
• *IUD*	*85.8*	*94.5*	*90.0*
• *Injectable*	*92.6*	*97.0*	*94.7*
• *Implant*	*78.5*	*90.0*	*84.1*
• *Daily pills*	*92.8*	*97.9*	*95.3*
• *Monthly pills*	*70.5*	*77.6*	*74.0*
• *Condom (male)*	*79.5*	*92.6*	*85.9*
• *Female condom*	*12.4*	*15.8*	*14.0*
• *LAM*	*33.1*	*39.1*	*36.1*
• *Emergency contraception*	*10.8*	*15.5*	13.1
• Rhythm	45.3	47.9	*46.6*
• Withdrawal	43.8	56.4	50.0
• Others	1.3	0.1	0.7
% distribution of currently married WRA knowing:	n = 1,056	n = 948	n = 2,005[†]
• Any method (95% CI)	97.7 (96.8-98.6)	100.0	98.8 (98.3-99.3)
• *Any modern method* (95% CI)	*97.4 (96.5-98.4)*	*99.8 (99.5-100)*	*98.6 (98.0-99.1)*
• *Female sterilisation*	*72.9*	*88.0*	*80.0*
• *Male sterilisation*	*38.4*	*66.0*	*51.5*
• *IUD*	*87.4*	*97.0*	*92.0*
• *Injectable*	*94.7*	*99.3*	*96.9*
• *Implant*	*81.1*	*94.0*	*87.2*
• *Daily pills*	*94.0*	*99.4*	*96.6*
• *Monthly pills*	*72.7*	*83.1*	*77.7*
• *Condom (male)*	*81.2*	*95.0*	*87.7*
• *Female condom*	*12.5*	*16.8*	*14.5*
• *LAM*	*35.3*	*44.6*	*39.8*
• *Emergency contraception*	*11.8*	*18.2*	14.9
• Rhythm	49.2	55.5	*52.2*
• Withdrawal	51.6	70.4	60.4
• Others	1.6	0.1	0.9

[†] One woman cannot be classified in any component group because of missing data on address. NA = Not applicable.

Table 10 shows the current use of contraceptive methods among all WRA, currently married WRA, and vulnerable WRA (i.e. ethnic minorities, women living with a functional impairment, and those in the lowest two wealth quintiles). Among all WRA, 35.6% (34.6% in component 1 and 36.6% in component 2) were using an FP method and 26.8% (25.8% in component 1 and 27.8% in component 2) were using an MCM. The proportion of currently married WRA using any contraceptive methods was 48.6% (46.1% in component 1 and 51.5% in component 2), whereas the proportion of currently married WRA using an MCM was 36.6% (34.4% in component 1 and 39.1% in component 2), compared with only 30% reported in Health Information System (HIS) 2013 data. This difference may be due to underreporting of private sector users in the HIS.

Table 10: Current use of contraceptive methods

Key variables	Component 1	Component 2	All
% of all WRA using:	n = 1,412	n = 1,350	n = 2,763[†]
• Any method (95% CI)	34.6 (32.1-37.1)	36.6 (30.0-39.2)	35.6 (33.8-37.4)
• *Any modern method (95% CI)*	*25.8 (23.6-28.1)*	*27.8 (25.4-30.2)*	26.8 (25.1-28.4)
• *Female sterilisation*	*1.4*	*2.1*	1.7
• *IUD*	*2.3*	*3.7*	3.0
• *Injectable*	*8.0*	*7.3*	7.7
• *Implant*	*1.6*	*1.6*	1.6
• *Daily pills*	*11.6*	*11.7*	11.7
• *Monthly pills*	*0.2*	*0.4*	0.3
• *Condom (male)*	*0.6*	*1.0*	0.8
• LAM	0.2	0.1	0.1
• Rhythm	3.1	1.1	2.1
• Withdrawal	6.7	8.1	7.4
% of all ethnic minority WRA using:	n = 455	NA	NA
• Any method	36.5		
• *Any modern method*	33.4		
% of all WRA with some functional impairment using:	n = 697	n = 518	n = 1,215
• Any method	38.3	40.3	39.2
• *Any modern method*	27.4	29.3	28.2
% of all WRA with severe impairment or disability using:	n = 70	n = 61	n = 131
• Any method	28.6	44.3	35.9
• *Any modern method*	21.4	34.4	27.5
% of all 40% poorest WRA using:	n = 684	n = 363	n = 1,047
• Any method	33.0	43.3	36.6
• *Any modern method*	26.6	33.3	28.9
% of women (modern FP users) using LAPM (95% CI):	n = 365 20.8 (16.6-25.0)	n = 375 26.1 (21.7-30.6)	n = 740 23.5 (20.5-26.6)
% of currently married WRA using:	n = 1,056	n = 948	n = 2,005[†]
• Any method (95% CI)	46.1 (43.1-49.1)	51.5 (48.3-54.7)	48.6 (46.4-50.8)
• *Any modern method (95% CI)*	*34.4 (31.5-37.2)*	*39.1 (36.0-42.2)*	36.6 (34.5-38.7)
• *Female sterilisation*	*1.8*	*2.7*	2.2
• *IUD*	*3.1*	*5.2*	4.1
• *Injectable*	*10.7*	*10.3*	10.5
• *Implant*	*2.2*	*2.2*	2.2
• *Daily pills*	*15.4*	*16.7*	16.0
• *Monthly pills*	*0.3*	*0.5*	0.4
• *Condom (male)*	*0.9*	*1.4*	1.1
• LAM	0.3	0.1	0.2
• Rhythm	4.2	1.6	2.9
• Withdrawal	9.0	11.4	10.1

Key variables	Component 1	Component 2	All
% of ethnic minority currently married WRA using: • Any method • *Any modern method*	n = 358 46.4 42.5	NA	NA
% of married women with some functional impairment using: • Any method • *Any modern method*	n = 553 48.1 34.4	n = 393 52.7 38.4	n = 946 50.0 36.0
% of currently married WRA with severe impairment or disability using: • Any method • *Any modern method*	n = 60 33.3 25.0	n = 48 56.2 43.8	n = 108 43.5 33.3
% of 40% poorest currently married WRA using: • Any method • *Any modern method*	n = 526 42.8 34.4	n = 276 56.9 43.8	n = 802 47.6 37.7

† One woman cannot be classified in any component group because of missing data on address. NA = Not applicable.

The most widely used method was the daily pill, followed by injectables. There was no reported case of female condom use at all. The current use of long acting or permanent methods (LAPM: female and male sterilization, IUD and implant) among all MCM users was 23.5% (20.8% in component 1 and 26.1% in component 2). The current use of contraceptive methods among vulnerable women in both component areas was similar to or slightly higher than the use among all women.

Figure 1 shows the distribution of current use of any MCMs by source. The main source of MCMs in both components was a health centre (HC) or health post (HP), followed by pharmacies and drug stores. Component 1 showed a greater reliance on HC/HP and lower use of pharmacies than component 2. NGO clinics were the source of nearly 10% of MCM use in component 2.

Figure 1: Distribution of any MCM use by source

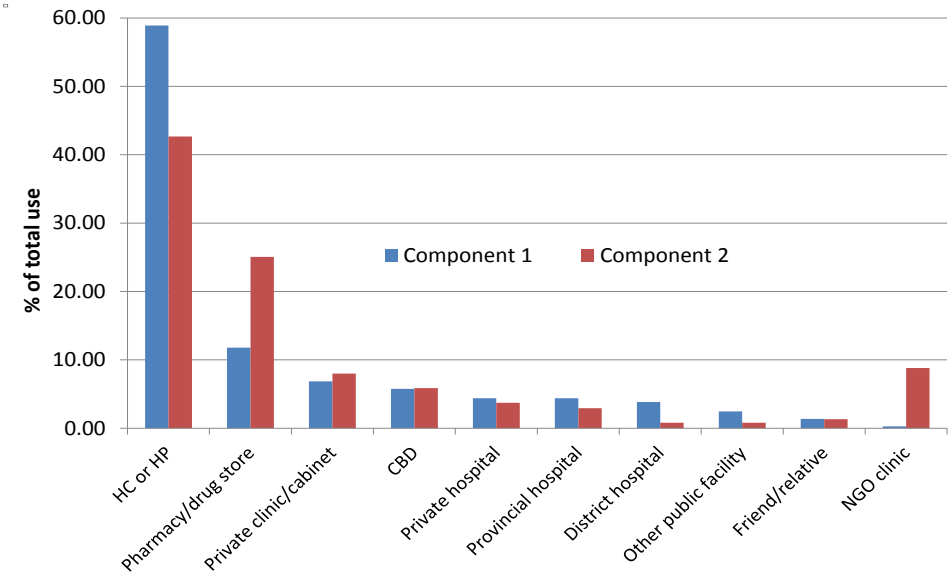
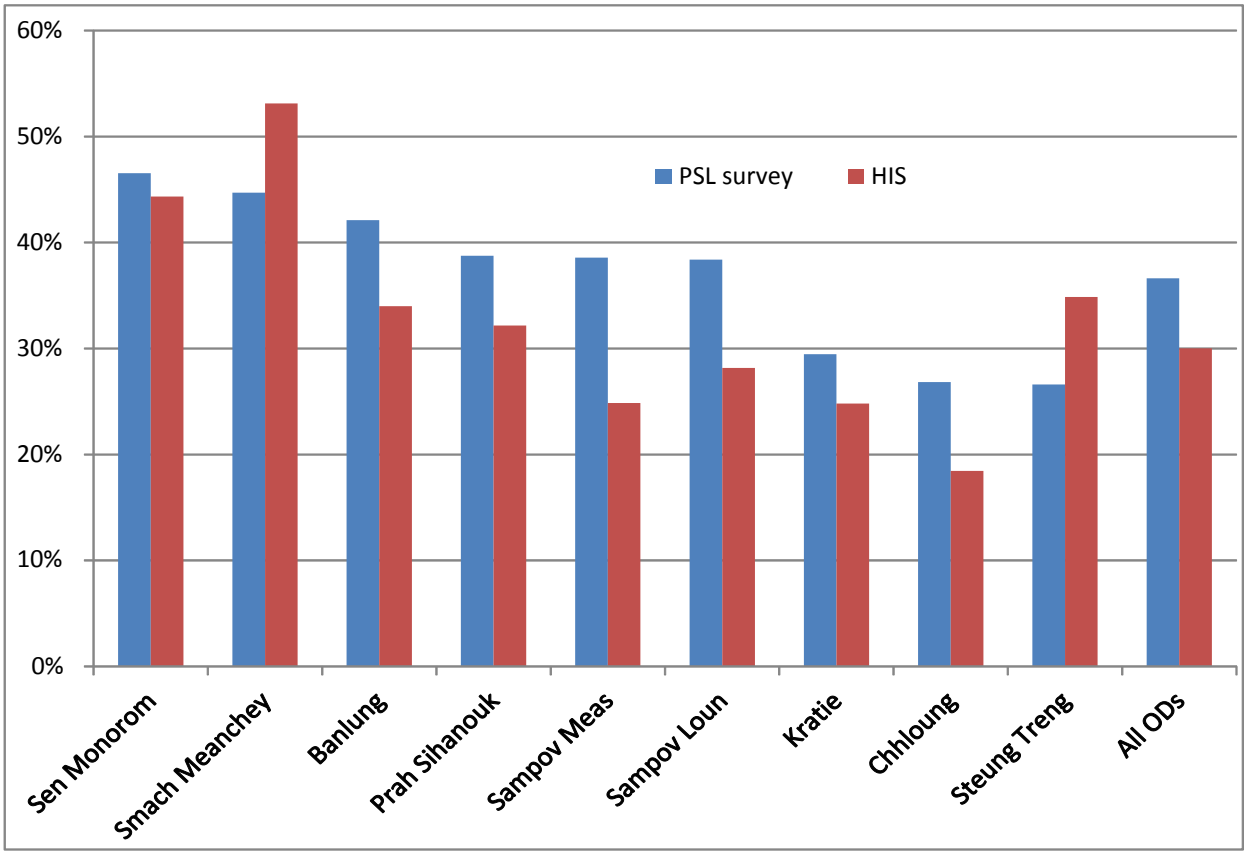


Figure 2 shows the distribution of current use of any MCMs among currently married WRA by OD based on data from the women's survey and HIS. Comparison of these survey data across ODs should be interpreted with caution as the original design and sample size did not aim for this level of disaggregation. In general, however, there is a parallel trend between the two sources of data with relatively lower coverage reported in the HIS, except for Smach Meanchey and Stung Treng OD. In addition to possible underreporting of private sector users, the discrepancy between the data sources could be related to the estimated number of currently married WRA (the denominator) used for the HIS, which is calculated as a flat rate percentage of the projected total population. Based on the results from the women's survey, the coverage rates of MCM use among married WRA varied greatly across ODs, ranging from 46.5% in Sen Monorum OD to 26.6% in Stung Treng OD. According to HIS data, the highest coverage rate was 53.1% in Smach Meanchey OD, and the lowest coverage rate was 18.5% in Chhlong OD.

Figure 2: Percent distribution of any MCM use among currently married WRA by OD



3.3 Pregnancy, antenatal care and delivery

Table 11 presents the pregnancy experience of the interviewed WRA in the two component areas. More than three quarters of all WRA reported at least one pregnancy. The average number of pregnancies per woman was nearly four, of which close to three ended in a live birth, and the rest ended in miscarriage, abortion or stillbirth. There were 161, or 5.8% of all WRA, who reported that they were pregnant at the time of interview. The mean age of the pregnancy was around six months. There were 658 (23.8%) WRA who reported at least one live birth in the 24 months preceding the survey.

Table 12 shows the distribution of ANC coverage in the past 24 months by type of provider and location among different groups of women. The proportion of all WRA who had live births in the past 24 months preceding the survey and received at least one ANC visit (ANC1 coverage) was89.1%. This compares with ANC1 coverage of 73.5% for ethnic minority WRA, 87.9%/78.3% for WRA with at least some/severe functional impairment and 82.1% for WRA in quintiles 1 and 2. The proportion of

all WRA who gave birth in the past 24 months and received at least four ANC visits (ANC4 coverage) was 60.3% (47% and 78.5% in component 1 and 2 area respectively). The corresponding figures were only 30.5% for ethnic minority WRA, 57.8%/56.5% for WRA with at least some/severe functional impairment, and 44.9% for the WRA in quintiles 1 and 2. Almost all ANC visits (99.7%) were provided by trained health personnel, most commonly midwives (95.1% of all ANC visits). The majority (93.9%) of ANC visits were carried out in public health facilities, mainly in HCs (87.2%).

Table 11: Pregnancy experience

Key variables	Component 1 n = 1,412	Component 2 n = 1,350	All n = 2,763[†]
Number of women with at least one pregnancy (% within component)	*1,104 (78.2)	*989 (73.3)	2,093 (75.8)
Average number of pregnancies/woman or fertility rate (range)			
• All pregnancies	*3.72 (1-17)	*3.50 (1-18)	3.61 (1-18)
• Pregnancies ended in a live birth	*2.96 (0-12)	*2.65 (0-10)	2.81 (0-12)
• Pregnancies ended in a stillbirth	*0.19 (0-7)	*0.15 (0-6)	0.16 (0-7)
• Pregnancies ended in a miscarriage/abortion	*0.57 (0-10)	*0.71 (0-14)	0.64 (0-14)
Number of women currently pregnant (% within component)	88 (6.2)	73 (5.4)	161 (5.8)
Mean age of the current pregnancy (in months)	6.35	5.42	5.93
Women with live birth experience in the past 24 months (% within component)			
• Within the past 12 months	200 (14.2)	165 (12.2)	365 (13.2)
• Over 12 months up to 24 months	179 (12.7)	114 (8.4)	293 (10.6)
• All in the past 24 months	*379 (26.8)	*279 (20.7)	658 (23.8)

[†]One woman cannot be classified in any component group because of missing data on address.
*Statistically significant ($p < 0.05$).

While 62.9% (50.9% in component 1 and 79.2% in component 2) of all the reported most recent live births in the 24 months preceding the survey took place in public health facilities, and presumably attended by an SBA, the corresponding figure from HIS 2013 data in the nine study ODs was only 44.1% of expected births. In general, HCs were reported to be the most common birth location, followed by women's homes and provincial hospitals. While HCs were the most common birth location in component 2 areas (62%), 44.3% of women in component 1 areas gave birth at home. The proportion of births attended in public health facilities among vulnerable groups of women varied greatly.

Table 13 shows the distribution of most recent live births in the 24 months preceding the survey by type of attendant and location among different groups of women. The proportion of births attended by trained health personnel or SBA among all WRA was 74.2% (58.8% in component 1; 95% in component 2), compared with only 47.1% reported in the HIS 2013 data. Midwives were the most common type of attendant in both components (accounting for 67.3% of all births), followed by TBAs (24.6%). However, 39.3% of births in component 1 were attended by TBAs. The proportion of births attended by SBAs among vulnerable groups was in general slightly lower than those among all WRA, except for the severe/total impairment WRA group in component 1. However, the SBA coverage among disabled WRA should be interpreted with caution, as the sub-sample of this group is very small.

Table 12: Distribution of ANC coverage in the past 24 months by type of provider and location

Key variables	Component 1 n = 379	Component 2 n = 279	All n = 658
% of WRA with live births in the past 24 months receiving at least one ANC visit / ANC1 coverage (95% CI)			
• All WRA	83.4 (79.6-87.1)	96.8 (94.7-98.9)	89.1 (86.7-91.4)
• Ethnic minority WRA	73.5 (n = 151)	NA	NA
• WRA with some functional impairment	83.1 (n = 166)	96.7 (n = 90)	87.9 (n = 256)
• WRA with severe impairment or disability*	68.8 (n = 16)	100.0 (n = 7)	78.3 (n = 23)
• WRA in quintiles 1 and 2	76.3 (n = 211)	95.6 (n = 90)	82.1 (n = 301)
% of WRA with live births in the past 24 months receiving at least four ANC visits / ANC4 coverage (95% CI)			
• All WRA	47.0 (41.9-52.0)	78.5 (73.6-83.3)	60.3 (56.6-64.1)
• Ethnic minority WRA	30.5 (n = 151)	NA	NA
• WRA with some functional impairment	46.4 (n = 166)	78.9 (n = 90)	57.8 (n = 256)
• WRA with severe impairment or disability*	43.8 (n = 16)	85.7 (n = 7)	56.5 (n = 23)
• WRA in quintiles 1 and 2	36.5 (n = 211)	64.4 (n = 90)	44.9 (n = 301)
% of ANC visits by type of provider	n = 316	n = 270	n = 586
• *Any trained health personnel (skilled birth attendant; SBA)*	*99.7*	*99.6*	99.7
• *Doctor/medical assistant*	*8.5*	*7.4*	8.0
• *Midwife*	*92.4*	*98.1*	95.1
• *Nurse*	*5.1*	*4.8*	4.9
• *Other trained health personnel*	*1.9*	*3.3*	2.6
• Traditional birth attendants (TBA)	0.3	0	0.2
• Don't know	0.3	0.4	0.3
% of ANC visits by location	n = 316	n = 270	n = 586
• *Any public health facility*	*93.0*	*94.8*	93.9
• *National hospital*	*0*	*0*	0
• *Provincial hospital*	*5.4*	*1.5*	3.6
• *District hospital*	*4.7*	*0.7*	2.9
• *Health centre/health post*	*82.9*	*92.2*	87.2
• *Other public facility*	*0*	*0.4*	0.2
• Private hospital	5.7	3.3	4.6
• NGO clinic	0.3	2.6	1.4
• Private clinic/cabinet	8.9	9.6	9.2
• Other private medical facility	0.6	0	0.3
• Women's home	0.9	0.4	0.7
• Other home	1.3	0.4	0.9

* Coverage among disabled WRA should be interpreted with caution, as the sub-sample of this group is very small.

Table 13: Distribution of most recent live births in past 24 months by type of attendant/location

Key variables	Component 1 n = 379	Component 2 n = 279	All n = 658
% of births by type of attendants (95% CI) among all WRA			
• *Any trained health personnel (SBA)*	*58.8 (53.9-63.8)*	*95.0 (92.4-97.6)*	74.2 (70.8-77.5)
• *Doctor/medical assistant*	*5.0*	*7.9*	6.2
• *Midwife*	*53.6*	*86.0*	67.3
• *Nurse*	*0.3*	*0*	0.2
• *Other trained health personnel*	*0*	*1.1*	0.5
• TBA	39.3	4.7	24.6
• Relative	1.1	0	0.6
• Others	0.3	0	0.2
• No attendant	0.5	0.4	0.5
% of births attended by an SBA among vulnerable WRA			
• Ethnic minority WRA	38.4 (n = 151)	NA	NA
• WRA with some functional impairment	59.0 (n = 166)	94.4 (n = 90)	71.5 (n = 256)
• WRA with severe impairment or disability*	75.0 (n = 16)	100.0 (n = 7)	82.6 (n = 23)
• WRA in quintiles 1 and 2	44.5 (n = 211)	93.3 (n = 90)	59.1 (n = 301)
% of births by location (95% CI)			
• *Any public health facility*	*50.9 (45.9-55.9)*	*79.2 (74.4-84.0)*	62.9 (59.2-66.6)
• *National hospital*	*0.3*	*0.4*	0.3
• *Provincial hospital*	*16.9*	*10.4*	14.1
• *District hospital*	*3.4*	*6.5*	4.7
• *Health centre/health post*	*30.3*	*62.0*	43.8
• Private hospital	2.4	6.5	4.1
• NGO clinic	0	0.4	0.2
• Private clinic/cabinet	2.1	4.7	3.2
• Other private medical facility	0	0.4	0.2
• Women's home	44.3	8.6	29.2
• Other home	0.3	0.4	0.3
% of births in a public health facility among vulnerable WRA			
• Ethnic minority WRA	37.1 (n = 151)	NA	NA
• WRA with some functional impairment	52.4 (n = 166)	80.0 (n = 90)	62.1 (n = 256)
• WRA with severe impairment or disability*	68.8 (n = 16)	85.7 (n = 7)	73.9 (n = 23)
• WRA in quintiles 1 and 2	42.2 (n = 211)	88.9 (n = 90)	56.1 (n = 301)

* Coverage among disabled WRA should be interpreted with caution, as the sub-sample of this group is very small.

While 62.9% (50.9% in component 1 and 79.2% in component 2) of all the reported most recent live births in the 24 months preceding the survey took place in public health facilities, and presumably attended by an SBA, the corresponding figure from HIS 2013 data in the nine study ODs was only 44.1% of expected births. In general, HCs are reported to be the most common birth location,

followed by women's homes and provincial hospitals. While HCs are the most common birth location in component 2 areas (62%), 44.3% of women in component 1 areas gave birth at home. The proportion of births attended in public health facilities among vulnerable women groups varied greatly.

Figure 3 shows the percent distribution of births attended by SBA by OD based on data from the women's survey and the HIS. Once again, comparison of these survey data across ODs should be interpreted with caution. However, in general, the SBA coverage reported in the HIS in all individual ODs is far lower than that found by the PSL survey. Similarly to the MCM coverage, this could be explained by possible underreporting of births attended by an SBA in the private sector and overestimation of births (denominators) used for HIS. Estimates of births in HIS are based on crude birth rates from 2008 by province, not OD. Based on the results from the women's survey, the SBA coverage rates varied greatly across ODs, ranging from 97.2% in Sampov Loun OD to 39.9% in Ban Lung OD. According to HIS data, the highest coverage rate was 74.7% also in Sampov Loun, and the lowest coverage rate was 22.5% in Smach Meanchey OD.

Figure 3: Percent distribution of births attended by an SBA by OD

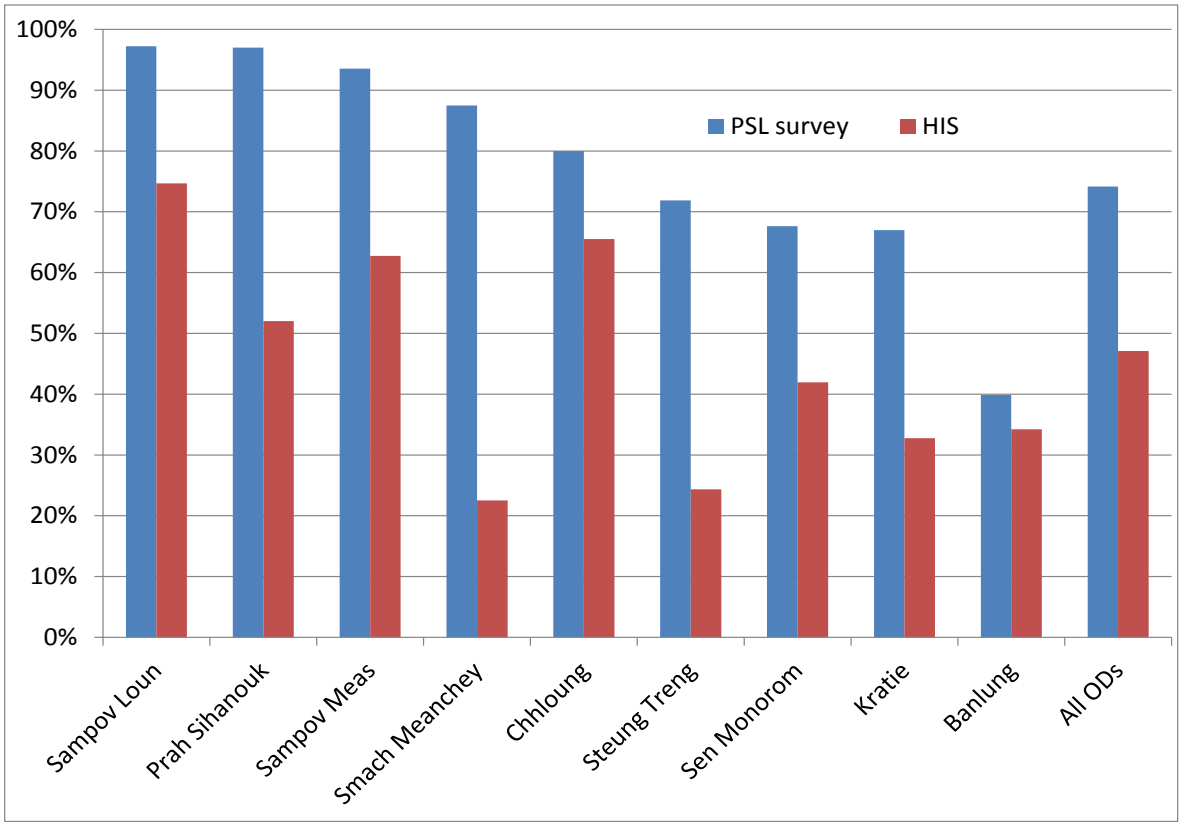
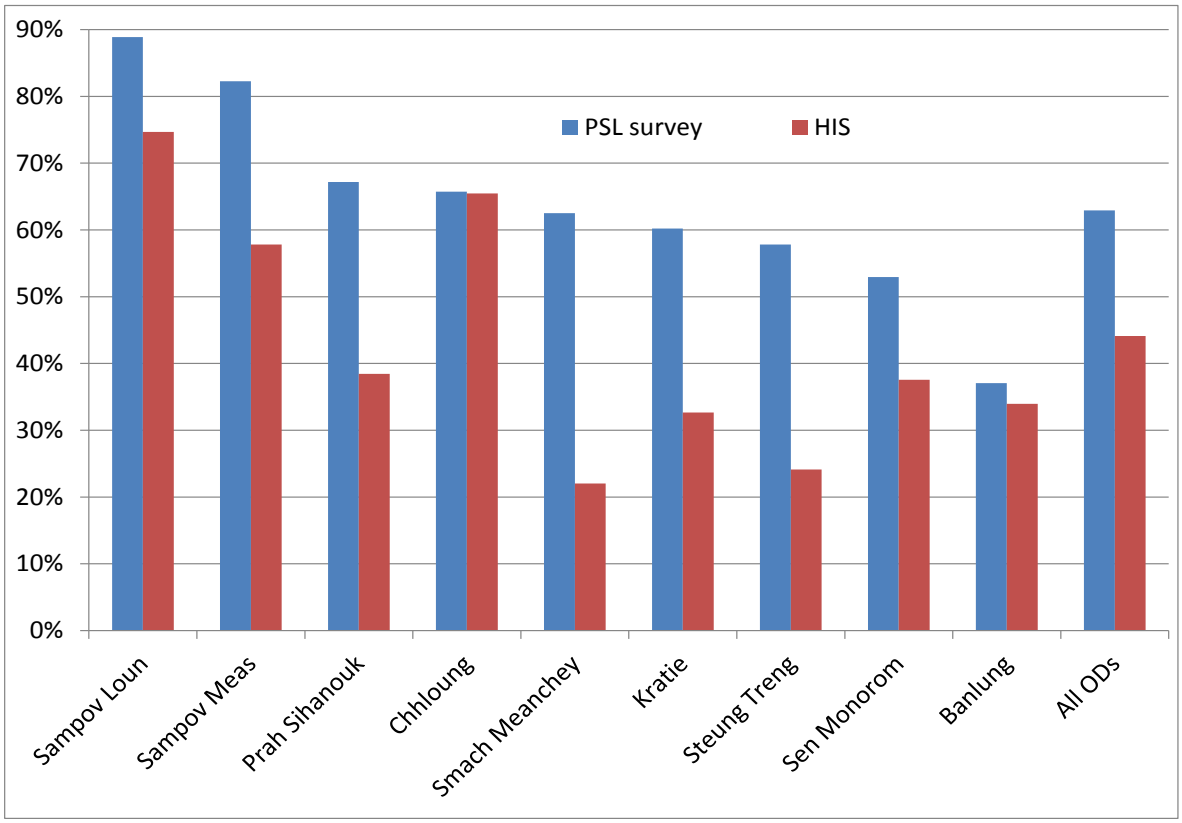


Figure 4 shows the distribution of births attended by SBA in public health facilities by OD based on data from the women's survey and HIS. While the public health facility birth coverage reported in the HIS is also generally lower than that found in this survey, the difference is smaller than in Figure 3. As for SBA coverage, the best performing OD was Sampov Loun (88.9%) and the poorest were Ban Lung (37.1%) as found by the survey and Smach Meanchey (22%) as reported in the HIS 2013 data.

Figure 4: Percent distribution of births attended by an SBA in public health facilities by OD



3.4 Newborn and postnatal care

Table 14 summarises care and condition of newborns in the 24 months preceding the survey. Appropriate immediate newborn care was assessed by three proxy indicators: (1) the newborn was placed on the bare chest of mother for a few minutes immediately after birth; (2) the newborn was dried or wiped immediately after birth; and (3) the first bath was delayed at least 6 hours after birth. Any newborn given all three types of care was considered as having received appropriate immediate newborn care. The proportion of all newborns receiving appropriate immediate care was 47.4% (36% in component 1 versus 64.2% in component 2). In component 1, fewer newborns of ethnic minority women and those in quintiles 1 and 2 received appropriate newborn care. The higher proportions of appropriate care among newborns of severely impaired/disabled WRA should be interpreted with caution, due to the small sample size.

Newborns weighing less than 2.5 kg at birth are considered to have a low birthweight. The best way to measure this indicator is to use weight data recorded on the 'yellow card'. However, such data were not available for many cases, because the babies were not weighed, they were weighed but their weight was not recorded in yellow card, or the yellow card was lost. Therefore, researchers asked mothers an additional question to recall the weight of their child at birth if no yellow card record was available. The proportion of newborns with low birthweight based on yellow cards was 6.7% (5.7% in component 1 and 7.6% in component 2). These figures changed to 9.2% (12.5% in component 1 and 6% in component 2) adding cases with low birthweight recalled by mothers. In addition, mothers were also asked to give their perception of whether their newborn was very large, large, average, smaller than average or very small. The proportion of newborns perceived by their mother as being smaller than average or very small was approximately 12.6% (15.3% in component 1 and 9% in component 2).

Table 14: Newborn care and birthweight

Key variables	Component 1 n = 379	Component 2 n = 279	All n = 658
% of newborns receiving immediate care among all WRA (95% CI)			
• Placed on the bare chest of mother for a few minutes immediately after birth	51.2	79.6	63.2
• Dried (wiped) immediately after birth	83.9	84.9	84.3
• Delay bath at least 6 hours after birth	57.0	81.7	67.5
• All three types of care	36.0 (31.0-40.9)	64.2 (58.2-70.3)	47.4 (43.5-51.4)
% of newborns receiving all three types of immediate newborn care among vulnerable WRA			
• Ethnic minority WRA	26.4 (n = 148)	NA	NA
• WRA with some functional impairment	32.7 (n = 153)	62.0 (n = 79)	42.7 (n = 232)
• WRA with severe impairment or disability*	58.3 (n = 12)	83.3 (n = 6)	66.7 (n = 18)
• WRA in quintiles 1 and 2	27.5 (n = 204)	73.4 (n = 79)	40.3 (n = 283)
% of newborns with low birth weight among all WRA (95% CI)			
• Perceived by mother as smaller than average or very small	15.3	9.0	12.6
• Weight recorded on yellow card®	5.7 (1.2-10.1)	7.6 (3.0-12.1)	6.7 (3.5-9.9)
• Weight recorded on yellow card & recalled by mothers®	12.5 (8.4-16.6)	6.0 (3.1-8.9)	9.2 (6.7-11.7)

® Many newborns were not weighed and for many cases weight was not recorded.

* Coverage among disabled WRA should be interpreted with caution, as the sub-sample of this group is very small.

Table 15 summarizes postnatal care related to the most recent births in the 24 months preceding the survey. The proportion of women who received at least one PNC visit (PNC1 coverage) was 83.1% (75.2% and 93.9% in components 1 and 2, respectively), while the proportion of women who received at least two PNC visits (PNC2 coverage) was 66.9% (59.1% in component 1 versus 77.4% in component 2). Comparison of PNC2 coverage between different groups shows that the coverage among vulnerable women, especially severely impaired/disabled WRA, was generally lower than that among all WRA.

Of the PNC1 visits, 68.1% were done within four hours after birth, mainly when the women remained at the place of delivery. Most PNC visits (83.5%) were done by trained health personnel, although this proportion was lower for component 1 (71.9%) than component 2 (96.2%). Midwives were responsible for 74.8% of all PNC visits. However, in component 1 areas, TBAs performed 28.1% of all PNC visits, compared with only 3.8% in component 2 areas. Over a third (68.7%) of all PNC visits (59.3% in component 1 and 79% in component 2) were carried out at public health facilities, mainly health centres. More than one third of PNC visits in component 1 happened in women's homes, compared with only 8.8% in component 2.

The proportion of all WRA attending PNC who received counselling from the service provider on modern contraception was 32.7% (26.3% in component 1 and 39.7% in component 2). There was no significant difference in this indicator among different groups of women.

Table 15: Postnatal care

Key variables	Component 1 n = 379	Component 2 n = 279	All n = 658
% of all WRA receiving at least one PNC visit	75.2	93.9	83.1
Timing of first PNC visit after birth (PNC1)	n = 283	n = 260	n = 543
• Less than 4 hours	64.7	71.9	68.1
• Between 4-23 hours	17.3	16.2	16.8
• Between 1-2 days	11.3	8.8	10.1
• 3 days or over	6.7	3.1	5.0
% of PNC2 coverage (95% CI)			
• All WRA	59.1 (54.1-64.1)	77.4 (72.5-82.4)	66.9 (62.3-70.5)
• Ethnic minority WRA	47.7 (n = 151)	NA	NA
• WRA with some functional impairment	59.0 (n = 166)	72.2 (n = 90)	63.7 (n = 256)
• WRA with severe impairment or disability*	37.5 (n = 16)	28.6 (n = 7)	34.8 (n = 23)
• WRA in quintiles 1 and 2	48.3 (n = 211)	73.3 (n = 90)	55.8 (n = 301)
% of all PNC visits by type of provider	n = 285	n = 262	n = 547
• *Any trained health personnel (SBA)*	71.9	96.2	83.5
• *Doctor/medical assistant*	4.2	5.7	4.9
• *Midwife*	63.9	86.6	74.8
• *Nurse*	3.5	2.7	3.1
• *Other trained health personnel*	0.4	1.1	0.7
• TBA	28.1	3.8	16.5
% of all PNC visits by location	n = 285	n = 262	n = 547
• *Any public health facility*	59.3	79.0	68.7
• *National hospital*	0.4	0	0.2
• *Provincial hospital*	19.6	10.3	15.4
• *District hospital*	4.2	4.6	4.4
• *Health centre/health post*	35.1	63.0	48.4
• *Other public facility*	0	0.8	0.4
• Private hospital	2.5	6.1	4.2
• NGO clinic	0	0.4	0.2
• Private clinic/cabinet	1.4	4.6	2.9
• Other private medical facility	0.4	0	0.2
• Women's home	34.7	8.8	22.3
• Other place	1.8	1.2	1.4
% of women attending PNC receiving counselling on MCMs by group (95% CI)			
• All WRA	26.3 (21.2-31.5)	39.7 (33.7-45.7)	32.7 (28.3-36.7)
• Ethnic minority WRA	23.7 (n = 97)	NA	NA
• WRA with some functional impairment	25.6 (n = 125)	46.9 (n = 81)	34.0 (n = 206)
• WRA with severe impairment or disability*	18.2 (n = 11)	40.0 (n = 5)	25.0 (n = 16)
• WRA in quintiles 1 and 2	25.9 (n = 143)	47.6 (n = 82)	33.8 (n = 225)

* Coverage among disabled WRA should be interpreted with caution, as the sub-sample of this group is very small.

3.5 Abortion and post abortion care

Of all the interviewed women, 161 (5.8%) reported to have had a pregnancy that ended in miscarriage or abortion within the 24 months preceding the survey (91 in component 1 and 70 in component 2), of which 65.2% happened within the past 12 months. Seventy-five WRA, including 46 in component 1 and 29 in component 2, reported having an induced abortion within the past 24 months.

Table 16 summarises data regarding abortion and post-abortion care. The mean age of pregnancy at the time of miscarriage or abortion was approximately 2 months. Among the women who reported a miscarriage or abortion in the past 24 months, 42.9% (34.1% in component 1 versus 54.3% in component 2) sought medical care. (Please note that for miscarriage, this refers to post-abortion care; for induced abortion, it may refer to abortion services or post-abortion care.) Private health facilities were the major source of abortion-related care, through private clinics or cabinets (29%) and private hospitals (24.6%), while only a third (29% in component 1 and 36.8% in component 2) sought care in public health facilities. 58% of the women who sought abortion-related care were advised or recommended to use family planning, but only 46.4% did use a family planning method, and only 36.2% used an MCM within 28 days after the miscarriage or abortion.

The most common method used for induced abortion was manual vacuum aspiration, followed by oral pills. Almost two thirds of the cases (56.6% in component 1 and 72.3% in component 2) were assisted by trained health personnel, mainly midwives. Over one third of cases did not report any attendant. Unlike other RMNH services, induced abortion was mostly carried out in private health facilities, mainly private clinics or cabinets (32.8%) and private hospitals (18.7%), or in women's homes (32%).

Table 16: Abortion and post abortion care

Key variables	Component 1	Component 2	All
Mean age (months) of pregnancy at the time of miscarriage/abortion	n = 91 2.2	n = 70 2.0	n = 161 2.3
% of women with a miscarriage/abortion seeking care	34.1	54.3	42.9
% of miscarriage/abortion care by location	n = 31	n = 38	n = 69
• *Any public health facility*	29.0	36.8	33.3
• *National hospital*	0	2.6	1.4
• *Provincial hospital*	6.5	5.3	5.8
• *District hospital*	0	7.9	4.3
• *Health centre/health post*	22.6	21.1	21.7
• Private hospital	29.0	21.1	24.6
• NGO clinic	0	5.3	2.9
• Private clinic/cabinet	25.8	31.6	29.0
• Other private medical facility	0	2.6	1.4
• Women's home	12.9	2.6	7.2
% of women who sought miscarriage/ abortion care receiving:	n = 31	n = 38	n = 69
• Advice on family planning	58.1	57.9	58.0
• A family planning method within 28 days	48.4	44.7	46.4
• An MCM within 28 days	35.5	36.8	36.2

Key variables	Component 1	Component 2	All
% of miscarriage/abortions which were induced abortion	50.5	41.4	46.6
% of induced abortions by method	n = 46	n = 29	n = 75
• Manual vacuum aspiration	45.7	62.1	52.0
• Oral pill/tablet	43.5	31.0	38.7
• Vaginal pill/tablet	4.3	3.4	4.0
• Traditional methods	4.3	0	2.7
• Don't know	2.2	3.4	2.7
% of induced abortions by type of provider	n = 91	n = 70	n = 161
• *Any trained health personnel (SBA)*	56.6	72.3	62.7
• *Doctor/medical assistant*	8.7	10.3	9.3
• *Midwife*	45.7	58.6	50.7
• *Other trained health personnel*	2.2	3.4	2.7
• TBA	0	0	0
• No attendant	43.5	27.6	37.3
% of induced abortions by location	n = 91	n = 70	n = 161
• *Any public health facility*	13.0	10.2	12.0
• *National hospital*	2.2	0	1.3
• *Provincial hospital*	4.3	3.4	4.0
• *District hospital*	0	3.4	1.3
• *Health centre/health post*	6.5	3.4	5.3
• Private hospital	19.6	17.2	18.7
• NGO clinic	0	3.4	1.3
• Private clinic/cabinet	23.9	44.8	32.8
• Other private medical facility	4.3	3.4	4.0
• Women's home	39.1	20.7	32.0
% of women knowing that (induced) abortion is legal (95% CI)	n = 1,412 13.5 (11.7-15.3)	n = 1,350 9.8 (8.2-11.4)	n = 2,763[†] 11.7 (10.5-12.9)
% of women knowing where to access to safe abortion (95% CI) [®]	n = 1,412 60.4 (57.6-63.2)	n = 1,350 62.5 (59.7-65.4)	n = 2,763[†] 61.5 (59.4-63.4)

[†] One woman cannot be classified in any component group because of missing data on address.

[®] Those who answered "Yes" to Q706 and chose "1, 2, 3, 5" as an answer to Q707.

Knowledge on abortion law among the interviewed WRA was limited. Only 11.7% of all WRA knew that abortion is legal. However, 61.5% knew where to access safe abortion services when needed. The latter indicator was assessed based on those WRA who broadly reported that they knew where to get safe abortion (i.e. answering Yes to Q706) and referred to a place with the presence of trained health personnel (i.e. answering 1, 2, 3, or 5 to Q707).

3.6 Service utilisation, satisfaction, expenditure and financial support

Researchers collected data on five groups of RMNH services: FP, abortion and post-abortion care, ANC, delivery and associated services, and PNC. Table 17 shows the distribution of RMNH users in the past 12 months, their satisfaction with RMNH services at public facilities, the referral mechanisms used, their total out-of-pocket expenditure on RMNH services, and any financial support they received.

Table 17: RMNH users in the past 12 months, satisfaction, expenditure and financial support

Key variables	Component 1 n = 1,412	Component 2 n = 1,350	All n = 2,763[†]
% RMNH service use in the past 12 months			
• Any RMNH service	46.5	45.0	45.8
• Family planning	29.3	30.7	30.0
• Abortion and post abortion care	4.1	3.2	3.7
• Antenatal care	16.4	16.8	16.6
• Delivery	13.7	14.1	13.9
• Postnatal care	8.1	10.4	9.2
% of public facility RMNH users very satisfied with (95% CI):	n = 448	n = 381	n = 829
• Any RMNH service	42.9 (35.2-45.1)	40.2 (38.3-47.5)	41.6 (38.3-45.0)
• Family planning	47.4	44.4	46.1
• Abortion and post abortion care	16.7	41.7	29.2
• Antenatal care	40.8	38.9	39.9
• Delivery	36.6	42.0	39.8
• Postnatal care	32.4	41.0	37.4
% of RMNH users receiving advice from:	n = 518	n = 475	n = 993
• Family member, including husband	75.9	82.3	79.0
• Health service provider	31.1	40.0	35.3
• Friend, including boyfriend	22.4	13.4	18.3
• Village Health Support Group	11.4	11.8	11.6
• Community-Based Distributor	1.5	3.4	2.4
• Phone hotline/helpline	0.2	1.9	1.0
• Other (TV, radio)	0.2	1.1	0.6
• Self-decision	6.2	5.1	5.6
Median (range) total expenditure on RMNH services in the past 12 months in US$	n = 632	n = 589	n = 1,221
• All RMNH services	7.5 (0-3,007.5)	8.5 (0-2,792.3)	8.0 (0-3,007.5)
• Family planning	2.5 (0-1,000.0)	3.0 (0-400.0)	2.9 (0-1,000.0)
• Abortion and post abortion care	18.8 (0-3,000.0)	30.0 (0-175.0)	25.0 (0-3,000.0)
• Antenatal care	4.4 (0-500.0)	5.0 (0-125.0)	5.0 (0-500.0)
• Delivery	15.0 (0-2,500.0)	27.5 (0-2,500.0)	22.0 (0-2,500.0)
• Postnatal care	3.8 (0-242.5)	4.4 (0-250.0)	3.8 (0-250.0)
% RMNH service users receiving financial support	n = 500	n = 522	n = 1,022
• Any RMNH service	6.8 (4.7-9.0)	13.6 (10.7-16.6)	10.3 (8.4-12.1)
• Family planning	5.3	13.1	9.4
• Abortion and post abortion care	2.4	2.8	2.6
• Antenatal care	6.9	12.7	9.9
• Delivery	11.1	18.9	15.1
• Postnatal care	5.3	14.4	10.4

[†] One woman cannot be classified in any component group because of missing data on address.

Of all the interviewed WRA, 45.8% reported to have used at least one RMNH service in the 12 months preceding the survey. FP was the most commonly used RMNH service, followed by ANC and delivery. The RMNH user rates are comparable between the two component areas.

The majority of the RMNH services were provided by public health facilities, especially ANC and delivery, except for abortion and post-abortion care, which were predominantly provided by private health facilities. Among all the public facility RMNH users, approximately 41.6% reported that they were highly satisfied with the services provided. Satisfaction was highest among FP users (46.1%) and lowest among users of abortion and post-abortion care (29.2%), especially in component 1 (16.7%).

The most common sources of information, advice or recommendations to use services were family members, including husbands, who accounted for 79%, followed by health service providers, friends and Village Health Support Group volunteers.

Data on out-of-pocket expenditure (total cost, including service fees and transport costs) for RMNH services in the past 12 months were collected in Cambodian Riels and subsequently converted to US$ for analysis, using an exchange rate of US$ 1 = 4,000 Riels. The amount spent on RMNH services in the past 12 months varied greatly, from no expenditure at all to over US$ 3,000 per woman. Figure 5 shows the out-of-pocket expenditure for RMNH services by category of amount spent. The median expenditure per woman over the past 12 months for all RMNH services in the two component areas was US$ 8.

Comparison between the two components shows that RMNH service users in component 1 areas generally spent less than those in component 2 areas. The highest median expenditure was for abortion and post-abortion and delivery care; the lowest was for family planning and PNC.

Figure 5: Expenditure on RMNH services by category

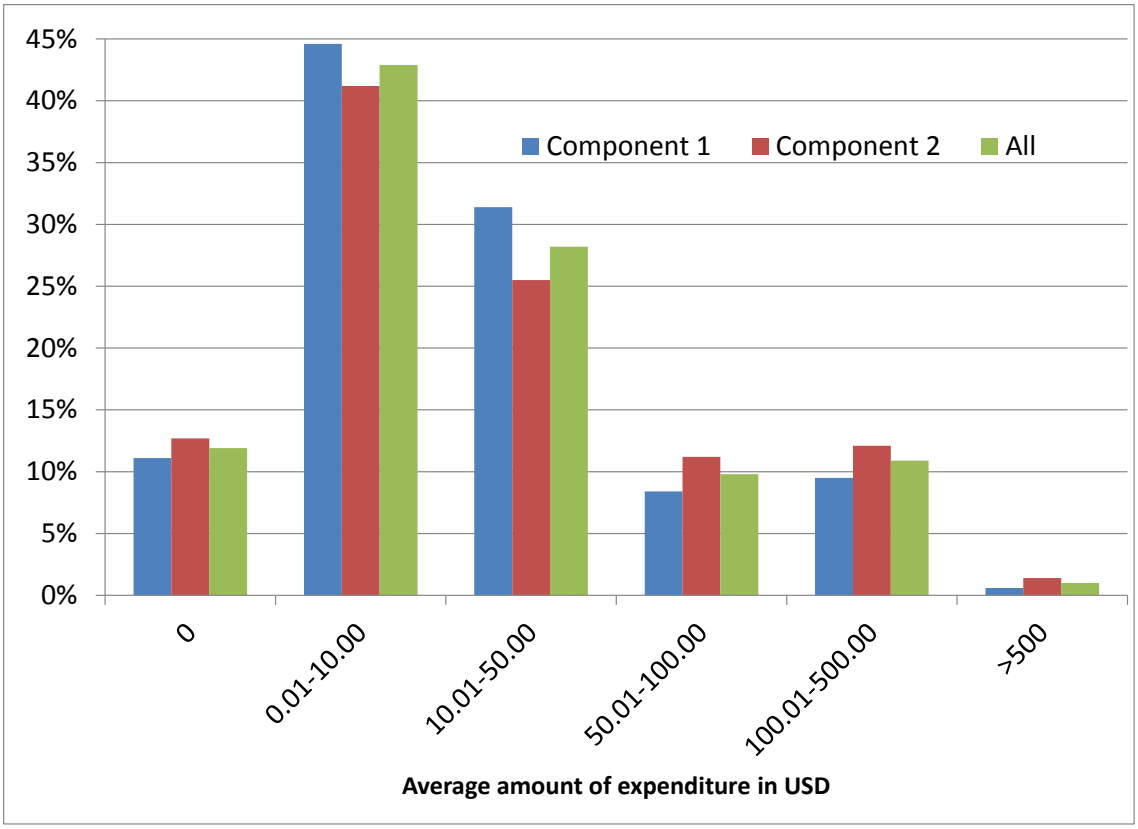
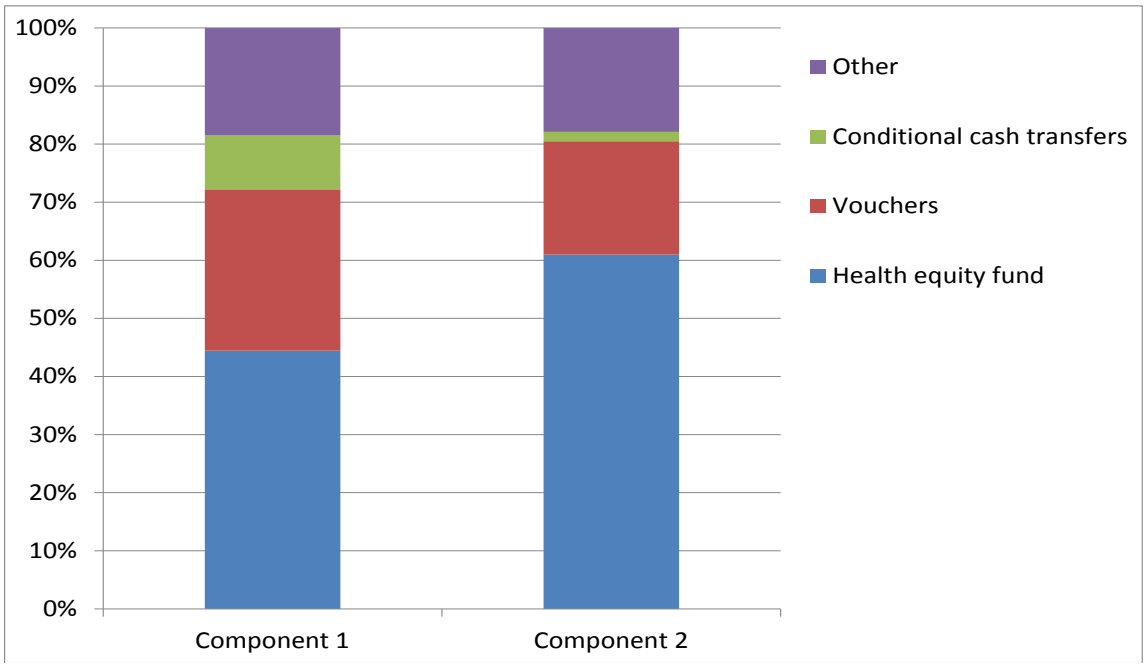


Figure 6 shows percent distribution of financial mechanisms supporting RMNH service users. 10.3% (6.8% in component 1 and 13.6% in component 2) of all RMNH service users in the past 12 months reported to have received financial support. Health equity funds were the most frequently used

mechanism, followed by vouchers. 'Other' mechanisms included user fee exemptions and obstetric emergency referral systems, such as village emergency referral systems and other referral support initiatives.

Figure 6: Distribution of financial mechanisms supporting RMNH service users



3.7 RMNH knowledge and self-efficacy

Table 18 summarises knowledge and self-efficacy of WRA regarding RMNH. Knowledge of danger signs during pregnancy and danger signs for neonatal distress are two key indicators in the MERI framework. Women were asked to identify as many as possible out of nine listed symptoms and signs indicating danger during pregnancy and seven symptoms and signs of neonatal distress. For pregnancy these were: 1) vaginal bleeding (early or late pregnancy); 2) anaemia; 3) elevated blood pressure, headache, blurred vision, convulsions or loss of consciousness; 4) fever (during pregnancy and labour); 5) abdominal pain in early pregnancy; 6) abdominal pain in later pregnancy; 7) difficulty in breathing; 8) loss of foetal movements; 9) pre-labour rupture of membranes. For neonatal distress, they were: 1) abnormal body temperature; 2) jaundice; 3) lethargy; 4) feeding difficulty; 5) vomiting and/or abdominal distension; 6) bleeding and/or pallor; 7) umbilicus red and swollen, draining pus or foul smelling.

Among all WRA, 66.8% and 63%, respectively, could correctly name at least one danger sign during pregnancy or for neonatal distress. Only 12.4% could identify at least three danger signs of neonatal distress and 2.6% could identify five danger signs during pregnancy.

Questions using a five-point scale (5 = completely sure; 4 = somewhat sure; 3 = neither sure/unsure; 2 = somewhat unsure; 1 = not at all sure) were administered to WRA to measure their self-efficacy or confidence on negotiating and using family planning and refusing sex in a number of different situations (see women's questionnaire in Annex 2). The proportion of WRA who answered "completely sure" to all four questions relating to family planning was 25.3%; 31.5% answered "completely sure" to all five questions relating to refusing sex.

Table 18: RMNH knowledge and self-efficacy

Key variables	Component 1 n = 1,412	Component 2 n = 1,350	All n = 2,763[†]
% distribution of knowledge on danger signs during pregnancy			
• Know at least 1 danger sign	65.2	68.5	66.8
• Know at least 3 danger signs	20.9	26.4	23.6
• Know at least 5 danger signs (95% CI)	3.0 (2.1-3.9)	2.2 (1.4-3.0)	2.6 (2.0-3.2)
% distribution of knowledge on danger signs of neonatal distress			
• Know at least 1 danger sign	63.5	62.4	63.0
• Know at least 3 danger signs (95% CI)	11.3 (9.6-12.9)	13.6 (11.7-15.4)	12.4 (11.1-13.6)
• Know at least 5 danger signs	1.6	0.2	0.9
Self-efficacy or confidence on family planning (completely sure)			
• All 4 situations (95% CI)	25.1 (22.9-27.4)	25.5 (23.2-27.8)	25.3 (23.7-26.9)
• Any of the 4 situations	82.9	87.6	85.2
• She can bring up the topic with her husband/partner	78.7	84.0	81.3
• She can tell her husband/partner that she wants to use family planning	72.2	79.0	75.7
• She can use family planning	52.2	59.7	55.9
• She can use family planning even if her husband/partner does not want to	29.2	28.8	29.0
Self-efficacy or confidence on refusing sex (completely sure)			
• All 5 situations	30.2 (27.8-32.6)	32.7 (30.2-35.2)	31.5 (29.7-31.2)
• Any of the 5 situations	73.7	82.8	78.1
• When she does not want to, but her husband/partner does	53.8	61.6	57.6
• If she is feeling tired	67.6	79.0	73.2
• If her husband/partner gets angry with her if she does not agree	45.3	49.5	47.4
• If her husband/partner threatens to hurt her if she does not agree	41.3	44.7	43.0
• If her husband/partner threatens to have sex with other woman if she does not agree	44.5	47.0	45.7

[†] One woman cannot be classified in any component group because of missing data on address.

4 Results from OD MCH supervisor interviews and BEmONC assessments

In addition to the women's survey, researchers interviewed all MCH Supervisors in the nine ODs, mostly in the presence of the OD Director or Chief of Technical Bureau, to collect additional data necessary for indicators which were not covered by the quantitative survey. These include the number of health facilities, mainly public health facilities, offering comprehensive modern contraceptive services; the number of HCs that have Health Centre Management Committees (HCMCs) and regularly coordinate HCMC meetings; the number of HCs or HPs whose catchment areas (or villages in the catchment areas) are implementing community care of mothers and newborns (CCMN; also known as 'Baby-Friendly Communities') and community-based distribution of contraceptives (CBD); the number of ODs regularly facilitating Midwifery Coordination Alliance Team (MCAT) meetings, and the number of health providers, mainly midwives, attending the MCAT meetings. The interviews also identified the number of health facilities officially considered as BEmONC facilities. Where necessary, researchers followed up OD MCH supervisor interviews with reference to available data and email or telephone consultations with relevant stakeholders. The results from OD MCH supervisor interviews are summarised in Table 19.

According to OD MCH supervisors, there were 112 functioning public health facilities (7 referral hospitals [RHs], 62 HCs and 43 HPs) in component 1 areas, and 70 functioning public health facilities (4 RHs, 58 HCs and 8 HPs) in component 2 areas. Snoul HC in Kratie OD and Borkeo HC in Ban Lung OD had recently been upgraded to become district RHs. Permanent contraceptive methods (tubal ligation and vasectomy) were only available at RHs, whereas IUDs and implants were only available at HCs. Only 60% of the HCs in component 1 areas provided IUD compared with 91% in component 2 areas. More than half of the HCs in both areas offered implants. The most common methods (injections, daily pills and male condoms) were available in almost all functioning HCs and also some HPs, although some experienced stock-outs from time to time. None of the public health facilities provided female condoms.

In addition to the public health facilities, some 50 private health facilities were also reported to provide modern contraceptive services in both areas (23 in component 1 and 27 in component 2). These private health facilities included 40 Population Services Khmer (PSK) Sun Clinics, one MSIC clinic in Koh Kong, one Reproductive Health Association of Cambodia (RHAC) clinic in Sihanoukville, and eight private clinics, including five MSIC-contracted private clinics in Sihanoukville. Sun Clinics are small facilities, each run by one trained midwife, offering common modern contraceptive methods such as IUD, implant, injection, pills, and condoms, and possibly abortion services.

Only two of the five ODs in component 1 area were reported to have facilitated MCAT meetings quarterly, while three of four ODs in component 2 regularly did so until the third quarter of 2014, after which some stopped the meetings due to lack of financial support. In total, there were approximately 54 health providers, mainly midwives, attending MCATs every quarter in the two ODs in component 1, and 223 in the three ODs in component 2. About two thirds of HCs in component 1 coordinated regular HCMC meetings, compared with all the HCs in component 2. Fewer HC catchment areas in component 1 than those in component 2 implemented Baby-Friendly Communities (20/62 vs. 26/58) and CBD (37/62 vs. 55/58). In many HC catchment areas implementing such services, only a few villages offered Baby-Friendly Community services, whereas almost all villages had CBD.

There were five and four official CEmONC facilities (RHs) in component 1 and 2, respectively. Seven out of the 62 HCs and one RH in component 1 and seven out of the 58 HCs in component 2 were reported to be official BEmONC facilities.

Table 19: Summary of results from OD MCH supervisor interviews

Key variables	Component 1	Component 2	All
Number of public health facilities (HCs) offering modern contraceptive services:	n = 112 (62)	n = 70 (58)	n = 182 (120)
• Permanent methods	6 (0)	4 (0)	10 (0)
• IUD	37 (37)	53 (53)	90 (90)
• Implant	39 (39)	31 (31)	70 (70)
• Injection	88 (62)	61 (58)	149 (120)
• Daily pills	105 (62)	62 (58)	167 (120)
• Male condoms	105 (62)	45 (43)	150 (105)
• Female condoms	0	0	0
Number of ODs facilitating quarterly MCAT meetings®	2	3	5
Number of health providers attending each quarterly MCAT meeting	54	223	277
Number of HCs regularly coordinating HCMC meetings	50	58	108
Number of HC catchment areas implementing Baby Friendly Communities	20	26	46
Number of HC (HP) catchment areas implementing CBD	37 (10)	55	92 (10)
Number of official CEmONC facilities reported by OD MCH supervisors	5	4	9
Number of official BEmONC facilities reported by OD MCH supervisors	8	7	15

®Most of them used to organise MCAT meetings in early 2013, but stopped in quarter 4 because of lack of external funding.

Researchers then visited the eight official BEmONC health facilities in component 1 and assessed them against the seven signal functions of BEmONC:

(1) administer parenteral antibiotics;
(2) administer uterotonic drugs (e.g. parenteral oxytocin, misoprostol);
(3) administer parenteral anticonvulsants (e.g. magnesium sulphate);
(4) perform manual removal of placenta;
(5) perform removal of retained products (e.g. manual vacuum aspiration, misoprostol);
(6) perform assisted vaginal delivery (e.g. vacuum extractor);
(7) perform neonatal resuscitation (e.g. with bag and mask).

The assessment involved six questions on each signal function, covering: staff training and authorised cadres; availability and functional status of supplies and equipment; total number of reported cases and cases in the past three months; reasons for any gaps (see BEmONC assessment form in Annex 5). According to the answer (yes = 1 or no = 0) to the questions, each BEmONC facility was scored from 0 to 5 points for each of the seven signal functions. A complete or fully performing BEmONC facility should get a total of 35 points. The results from BEmONC assessment are summarized in Table 20.

The average score from the eight assessed facilities was 27.8/35 points (79%). None of the facilities was rated as fully functional. Among all seven signal functions, scores were lowest for signal

functions 3 and 6. The main issues were related to staff training and availability of magnesium sulphate and vacuum extractor equipment. For other signal functions, many of these facilities did not have any cases (ever or in the past three months).

Table 20: Summary of results from BEmONC assessments

Name of health facility	Score by the 7 BEmONC signal functions								Explanations
	1	2	3	4	5	6	7	All	
Sambo HC	5	5	0	5	4	3	5	27	Lack of magnesium sulphate; no training on magnesium sulphate and/or vacuum extraction
Snoul HC	5	5	2	5	4	5	4	30	Lack of magnesium sulphate; no record of vacuum extraction and newborn resuscitation cases
Chambak HC	4	4	2	4	4	5	5	28	Lack of magnesium sulphate; no cases for signal functions 1, 2, 4, & 5 in the past 3 months
Sre Krasaing HC	4	5	2	5	5	2	5	28	Lack of magnesium sulphate; no cases for antibiotic use in the past 3 months; no vacuum extractor
Siem Pang HC	5	5	3	4	4	2	4	27	Never had a case requiring magnesium sulphate; no cases for signal functions 4, 5 & 7 in the past 3 months; no vacuum extractor
Bor Keo RH	4	5	3	3	5	3	5	28	Insufficient antibiotic supplies and no cases in the past 3 months; lack of magnesium sulphate (use calcium gluconate instead); just received vacuum extractor but no cases yet
Koh Ngek HC	3	5	3	5	3	2	5	26	Just received magnesium sulphate but no cases yet; never had case to use antibiotic; aspirator recently broken; no vacuum extractor
Keo Seyma HC	5	5	3	3	5	2	5	28	Never had case requiring magnesium sulphate nor manual removal of placenta; no vacuum extractor
Average	**4.4**	**4.9**	**2.3**	**4.3**	**4.3**	**3.0**	**4.8**	**27.8**	

5 Discussion and conclusions

5.1 Validity and limitations

This baseline evaluation was conducted as part of PSL's MERI framework, to establish indicator values and provide an information base against which PSL can monitor and assess progress. Because of technical and financial constraints, the protocol did not include a control site. Instead, additional indicators or variables were added to component 2, which focuses on FP and abortion, to allow comparison with those in component 1.

Despite some challenges during data collection, including remoteness of the study sites and competing demands on the time of women to be interviewed, the research team was able to conduct the women's survey successfully. Almost all eligible women accepted the invitation for interview. Most of the ethnic minority women of reproductive age could speak the Khmer language and local translation was provided if not. The quality of collected data was good with only a few missing variables and no surprising or inconsistent results across key variables. Although the total sample size of WRA was smaller than expected, it is big enough to see significant changes (at the expected level) in many key variables in a subsequent survey assuming a similar sample size. Confidence intervals are relatively small for many key indicators or variables related to FP, ANC, delivery and knowledge on RMNH. Looking at the indicators used to calculate the sample size:

1. Proportion of currently married WRA using an MCM: the number of cases included in the study is large enough to detect change (expected to be 15 percentage points) in the next survey. According to the results, 34% (95% CI: 32%-37%) of 1,056 currently married WRA in component 1 and 39% (95% CI: 36%-42%) of 948 currently married WRA in component 2 reported to use an MCM.
2. Proportion of births attended by an SBA in a public health facility: the number of cases included in the study is large enough to detect change (expected to be 20 percentage points) in the next survey. The results show that 51% (95% CI: 46%-56%) of 379 births within the 24 months preceding the survey in component 1 and 79% (95% CI: 74%-84%) of 279 births in component 2 were attended by an SBA in a public health facility.

However, the results show that 161 WRA (91 in component 1 and 70 in component 2) reported to have had a pregnancy that ended in miscarriage or abortion, of which only 75 (46 in component 1 and 29 in component 2) reported to have had an induced abortion within the study period. This small number of cases suggests that the possibility of detecting significant change for indicators related to abortion at a subsequent survey with a similar sample size is low, unless the change is unexpectedly large. A bigger sample size (e.g. 2,500 WRA for each component) would increase the power to detect significant change in these indicators.

In addition to the issue of sample size, differences in key demographic characteristics and levels of performance for the majority of key indicators between the two component areas make it difficult to do any crude comparison between them, which is a challenge for impact assessment. A more advanced data analysis method, such as the Difference-in-Differences approach, which can control for some confounding factors, may be needed for impact assessment in the next survey.

Institutional and facility-based data collected through OD MCH Supervisor interviews is not directly comparable with data that will be collected through facility-based assessment, but remains useful when verified against available routine data and information from key stakeholders.

In addition to providing baseline data, lessons learned through the process of the study, including discussion between NIPH senior researchers and PSL technical representatives on the study design and key indicators, prompted modification and improvement of the MERI framework.

5.2 Key findings and their implication for the PSL program

Households in the north-east (component 1) were significantly poorer than in component 2, with a higher proportion in the poorest two quintiles (49.3% versus 30.7%) and greater numbers of households possessing ID Poor cards (31.9% versus 30.1%). Unlike component 2, there was a mismatch between the proportion of households in component 1 which were in the poorest two quintiles (49.3%) and which had an ID Poor card (31.9%). This may reflect differences in the methods used to assess poverty for these two indicators or may indicate lower participation in the ID Poor assessment process in the north-east. Median expenditures on RMNH services were similar between the two components, but only 6.8% of RMNH service users in component 1 and 13.6% in component 2 used any form of financial support mechanism to access services. The results highlight the importance of increasing awareness of and access to financial support mechanisms, particularly for the poorest households.

Around 30% of the WRA interviewed in component 1 came from ten ethnic minority groups. This has important implications for BCC activities as Khmer may not be their first language[7]. Different ethnic minority groups also hold traditional beliefs relating to RMNH that may affect their behaviour and that should be taken into account for BCC[8]. Differences in language and cultural beliefs may also act as barriers to accessing RMNH services, if services providers are not familiar with them.

The lower educational status of WRA in the north-east also has implications for BCC, as written materials are unlikely to be appropriate for more than one quarter of women who have had no education.

This is the first time that the Washington Group short series of questions have been used in Cambodia to assess the prevalence of self-identified levels of functional impairment or disability in communities. Overall, 4.7% of WRA had a severe or total functional impairment and 44% (49.4% in component 1 and 38.4% in component 2) had some functional impairment. The most common severe impairments were visual or related to concentration or memory. Other recent surveys have used different methods for assessing disability, making comparison difficult. The 2008 Cambodia National Census estimated that 1.44% of the entire population was disabled[7]. In the 2013 Cambodia Socio-Economic Survey, around 4% of respondents nationwide self-identified as having one or more 'disability'[9]. The levels of functional impairment among WRA within this survey highlight the importance of considering their needs when developing BCC approaches and efforts to improve access to health services.

These results revealed a significantly higher fertility rate in component 1 areas (2.96 live births/woman) than in component 2 (2.65 live births/woman), reflecting a similar trend to the results of the CDHS 2010[3]. While rates of modern contraceptive use among all WRA and married WRA and the proportion of contraceptive users choosing long-acting or permanent methods were somewhat lower in component 1 than in component 2, none of these differences was statistically significant. The combined proportion of married WRA using MCM across both components was 36.6%, slightly higher than the national average of 34.9% reported in CDHS 2010[3]. Overall these results suggest that the gap may be closing between the north-eastern provinces and the national average, in relation to family planning. There is still considerable room for improvement, however, and the heavier reliance on the public sector as a source of contraceptives in component 1 compared with component 2, confirms the importance of ongoing efforts to improve FP service delivery through these channels in the north-east.

[7] National Institute of Statistics, Ministry of Planning, 2009: General Population Census of Cambodia 2008. National report on final census results. Phnom Penh, Cambodia.

[8] Action Research to Advocacy Initiative, 2006: Indigenous women working towards improved maternal health. Ratanakiri Province, Cambodia.

[9] National Institute of Statistics, Ministry of Planning, 2014: Cambodia Socio-Economic Survey 2013. Phnom Penh, Cambodia.

Bigger (and statistically significant) differences were seen between the components in relation to other RMNH indicators, including ANC1 (83.4% in component 1 versus 96.8% in component 2), ANC4 (47.0% versus 78.5%), delivery with a skilled birth attendant (58.8% versus 95.0%) and in a public health facility (50.9% versus 79.2%), proxy indicators for immediate newborn care (36.0% versus 64.2%), PNC2 (59.1% versus 77.4%) and post-natal FP counselling (26.3% versus 39.7%). While key indicators suggest an improvement in component 1 areas compared with the results of CDHS 2010[3], coverage of all these indicators was substantially poorer in component 1 than component 2. Ongoing intensive efforts on both the demand and supply sides will be required to accelerate improvement of the quality, accessibility and utilisation of RMNH services in the north-east provinces.

This survey found wide awareness of different FP methods among WRA. 97.8% had heard of at least one modern contraceptive method (compared with a national average of 99.5% in CDHS 2010[3]). The fact that knowledge on FP does not necessarily lead to use of MCM may be explained in part by the results on self-efficacy, which showed that only a quarter of WRA across both components were fully confident that they could negotiate FP use in a range of situations and less than a third were fully confident that they could refuse sex. Another important factor may be the importance of family members, particularly husbands, in influencing decision-making around RMNH, which suggests the need for their engagement through BCC.

While knowledge of FP methods was generally strong, this survey revealed gaps in other areas of RMNH knowledge, with no significant differences between components. Only 11.7% of WRA in the survey knew that induced abortion is legal in Cambodia, and only 2.6% and 12.4% knew at least five danger signs during pregnancy or at least three signs of neonatal distress, respectively.

A key result in relation to abortion services is that WRA in this survey accessed abortion through the private sector and/or at home, much more than in the public sector. This suggests that immediate efforts to improve access to quality safe abortion services and post-abortion family planning need to focus in the private sector and community, whilst increasing capacity within the public sector.

Interviews with MCH OD Supervisors highlighted the opportunity to improve service quality and accountability by supporting and building the capacity of HCMCs. MCATs were not yet fully operating in all provinces, which is a missed opportunity to build the skills and confidence of midwives. Given the relative remoteness of many communities in the north-east, greater implementation of CCMN and CBD may further contribute to the improvement of RMNH indicators. Finally, health facilities in the north-east had yet to achieve fully functional BEmONC status. Addressing the immediate issues of necessary supplies and equipment will enable the focus to move to supporting clinical skills building and quality of care.

Annexes

Annex 1: List of villages (clusters) selected for the study

	Village			Nearest public health facility		
	Name	**Commune**	**Population**	**Name**	**Type**	**Distance from village (km)**
Component 1						
Chhlong OD						
1	ChrouyAmpilMuoy	Chambak	1622	Chambak	HC	4
2	Chhney	Chhloung	539	ChroyThma	HC	3
3	Prey Kou	DamreiPhong	1191	ChroyThma	HC	11
4	Chheu Teal Phloas	PreaekSaman	4368	Kanhchor	HC	2
5	Tnaot	Pongro	1911	KhsachAndet	HC	3
6	Chong Kaoh	Kaoh Ta Suy	543	Pongro	HC	12
7	PreaekPrasabKraom	PreaekPrasab	1239	PrekPrasob	FDH	0
8	KrahamKaKraom	Ta Mau	1008	Ta Mau	HC	10
Kratie OD						
1	BosLeavLeu	BosLeav	1047	BosLeav	HC	2
2	Kasang	Changkrang	2841	Changkrang	HC	0
3	L'iet	ChrouyBanteay	855	ChrouyBanteay	HC	5
4	Ta Nguon	Dar	479	Da	HC	15
5	MakKandal	Srae Char	2221	Kbaltrach	HC	7
6	S'at	Srae Char	3291	Kbaltrach	HC	15
7	Ruessei Char	ThmaKreae	2065	Momnorum	HC	4
8	OuPreah	OuKrieng	2052	OuKrieng	HC	15
9	SraeSdau	OuRuessei	4087	OuRuessei	HC	1
10	Roka Kandal Ti Pir	Roka Kandal	3217	RakarKandal	HC	3
11	KaohDambang	Boeng Char	664	Sambo	FDH	54
12	KaohChbar	KaohKhnhaer	1150	Sambo	FDH	20
13	Sangkom	Sandan	2026	Sandan	HC	12
14	BoengChraeng	Saob	1367	Saob	HC	5
15	KbalSnuol	Snuol	5996	Snuol	HC	0
16	Rumpuk	SvayChreah	1630	SvayChreah	HC	8
17	Sambok	Sambok	3332	ThmaKrae	HC	6
18	Thmei	Thmei	1245	Thmei	HC	6
Sen Monorom OD						
1	PuChhab	Dak Dam	499	Dak Dam	HC	40
2	OuBuonLeu	OuBuonLeu	401	KohNhek	HC	11
3	Rangsei	SraeSangkom	1218	KohNhek	HC	0
4	Ou Am	SraeKhtum	3890	O Am	HC	15
5	PuReang	Bu Sra	484	Pich Chreada	HC	2
6	Pu Lung	Romonea	798	Sen Monorom	HC	15
Ban Lung OD						
1	Lom	Malik	1116	AndaungMeas	FDH	4
2	PhumBei	Labansiek	2381	Ban Lung	HC	2
3	PhumMuoy	Labansiek	11662	Ban Lung	HC	0
4	Yeun	Kak	756	Borkeo	FDH	4
5	Chaet	Seung	369	Borkeo	FDH	7

6	Kam Bak	Teun	463	Kachanh	HC	32
7	KaChounKraom	KaChoun	544	Kachuon	FDH	0.2
8	Rak	KokLak	740	Koklak	HP	5
9	KaChanh	La Bang Pir	558	LabangMuoy	HP	35
10	Pruok	Pa Tang	1351	Lumphat	FDH	5
11	Muoy	Nhang	391	Nhang	HP	27
12	Tang Pleng	Ou Chum	377	Ochum	HC	4
13	Un	LumChoar	1279	Oyadav	FDH	1
14	Sam	Ya Tung	460	Oyadav	FDH	35
15	SakmotrLeu	Seda	843	Seda	HP	30
16	Phyang	Ta VeaengKraom	366	Taveng	FDH	8
17	PhnumKokLav	PhnumKok	311	Veunsai	FDH	13
Stung Treng OD						
1	AnlongPhe	AnlongPhe	627	ChamkarLeu	HC	18
2	Hang Savat	Samkhuoy	624	Kampun	HC	8
3	KaohHib	OuSvay	431	PreahRumkel	HC	30
4	KhesSvay	PreaekMeas	1076	Siem Pang	FDH	11
5	Siem Pang	Sekong	1469	Siem Pang	FDH	1
6	DamreiPhong	KaohSampeay	737	SraeKrasang	FDH	5
7	KaohKrouch	SraeKrasang	902	SraeKrasang	FDH	2
8	SraePou	SarhRuessei	3039	SrahRuessei	HC	4
9	Preaek	StuengTraeng	6444	StuengTraeng	HC	3
10	Spean Thma	StuengTraeng	2843	StuengTraeng	HC	3
11	Pong Tuek	OuRai	619	Thalabarivat	HC	10
Component 2						
Sampov Loun OD						
1	Kaoh Touch	Sampov Lun	273	Angkor Ban	HC	1
2	Hong Tuek	Baraing Thleak	430	Baraing Thleak	HC	5
3	Anlong Sdei	Chak Krey	2279	Chak Krei	HC	8
4	Phnum Prampir	Chak Krey	2986	Chak Krei	HC	3
5	Samraong	Ou Da	644	Kamrieng	HC	9
6	Ou Tapon	Pech Chenda	835	Pich Chenda	HC	13
7	Anlong Mean	Pech Chenda	803	Raksmey Samki	HC	8
8	Kilou Dabbei	Santepheap	1446	Serei Meanchey	HC	4
9	Damnak Sala	Ta Krei	629	Ta Krey	HC	13
10	Boeung Reang	Boeng Rean	765	Trang	FDH	9
11	Lumphat	Ou Da	1327	Trang	FDH	18
12	Lvea Te	Trang	646	Trang	FDH	1
13	Ou Kandal	Santepheap	1,750	Travchou	HC	1
Sampov Meas OD						
1	Chamkar Chrey Cheung	Anlong Reab	455	Anlong Reab	HP	19
2	Trapeang Rumdenh	Kbal Trach	826	Ansa Chambak	HC	11
3	Sna Reach	Kampong Pou	286	Boeng Kantuot	HC	15
4	Dangkieb Kdam	Chheu Tom	1138	Chheu Tom	HC	1.5
5	Boeng Smok	Svay Sa	1490	Chheu Tom	HC	7
6	Ta Kaev Leu	Boeng Kantuot	482	Chhouk Meas	HC	10

7	Phum Pram	Kg Luong	2335	Kampong Luong	HC	10
8	Ampil Kanchrinh	Koh Chum	938	Koh Chum	HC	20
9	Krang Pophleak	Svay At	1255	Koh Chum	HC	4
10	Totueng	Anlong Tnaot	509	Krakor	FDH	3
11	Sarovoan	Sna Ansa	270	Krakor	FDH	7
12	Dangkear	Phteah Prey	736	Peal Nheaek	HC	4
13	Krouch Chhmar	Leach	1038	Phnom Kravanh	FDH	1
14	Kol Totueng	Santreae	1343	Phnom Kravanh	FDH	3
15	Doun Ei	Chamraeun Phal	754	Preaek Tnaot	HC	20
16	Roleab	Roleab	1817	Preaek Tnaot	HC	15
17	Bak Roteh	Prey Nhi	1134	Prey Nhi	HC	0
18	Ou Srav	Prongil	1102	Prongil	HC	2
19	Phteah Rung	Phteah Rung	1175	Samraong	HC	10
20	Samraong Pir	Samraong	1784	Samraong	HC	9
21	Thlea Ampil	Srae Sdok	658	Srae Sdok	HC	7
22	Tuol Totueng	Kanhchor	769	Sya	HC	13
23	Ou Rumchang	Bak Chenhchien	1590	Ta Sah	HC	6
24	Sdok Khtum	Phteah Rung	1012	Ta Sah	HC	5
25	Voat Luong	Lolok Sa	925	Voat Luong	HC	1
Preah Sihanouk OD						
1	Samrong Kraom	Samrong	2064	Andaung Thma	HC	5.8
2	Trapeang Mul	Cheung Kou	1405	Cheung Kou	HC	6
3	Boeng Ta Prum	Boeng Ta Prum	1302	O Chrov	HC	2
4	Bang Kokir	Ou Oknha Heng	2659	O Oknha Heng	HC	0
5	Ong	Ream	2816	Ream	HC	6
6	Thma Thum	Ream	1675	Ream	HC	1
7	Phum Muoy	Sangkat Bei	3083	Sangkat Muoy	HC	1
8	Phum Bei	Sangkat Muoy	8983	Sangkat Muoy	HC	1
9	Phum Pir	Sangkat Muoy	2748	Sangkat Muoy	HC	1
10	Phum Buon	Sangkat Buon	2820	Sihanoukville	HC	1
11	Phum Pir	Sangkat Buon	3073	Sihanoukville	HC	2.2
12	Phum Pir	Kampenh	953	Steung Hav	HC	3
13	Phum Pir	Tumnob Rolok	1211	Steung Hav	HC	3
14	Stueng Samraong	Ou Bak Roteh	1871	Takkaveth	HC	16
15	Preaek Sangkae	Tuek Thla	1113	Tuek Laak	HC	8
16	Tuol Totueng Muoy	Tuol Toetueng	1620	Tuol Tatoeung	HC	0
17	Veal Thum	Veal Renh	5047	Veal Rinh	HC	2
Smach Meanchey OD						
1	Bak Khlang Pir	Bak Khlang	2163	Bak Khlang	FDH	2
2	Preaek Khsach	Preaek Khsach	773	Kaoh Sdach	FDH	40
3	Prek Svay	Thma Doun Pov	200	Ruessei Chrum	HC	19
4	Phum Ti Bei	Smach Mean Chey	4414	Smach Mean Chey	HC	2
5	Stueng Veaeng	Stueng Veaeng	1952	Steung Veng	HC	3

Annex 2: Women's questionnaire

SECTION 1: IDENTIFICATION AND INTERVIEW DATA

101.	Household ID number	: [ ][ ][ ][ ]
102.	Woman's ID in the household	: [ ][ ]
103.	Interviewer's ID number	: _____
104.	Date of interview	: [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy)
105.	Interview outcome	1 = Completely done 2 = Incomplete
106.	If incomplete, give the main reason	1 = The respondent refused to participate 2 = The respondent refused to answer some questions 3 = The respondent was not available for the interview
107.	Duration of the completed interview	: _____ minutes
108.	Language used for interview	1 = Khmer 2 = Ethnic Minority (with translation) 3 = Other language (specify): _____
109.	Checked by supervisor	Date : [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy) Signature
110.	Data entry	Date : [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy)

For ethnic minority women who cannot communicate in Khmer, please ask for a translator.

INTRODUCTION AND CONSENT

INFORMED CONSENT:

Hello. My name is_____. I am working with the National Institute of Public Health, Ministry of Health. We are conducting a baseline survey for a health project, collecting information on reproductive, maternal and newborn health (RMNH) services in several provinces in Cambodia. The information we collect will help the project to improve RMNH in the project coverage areas, including your area (village). Your household (including yourself) is selected for this survey. The questions usually take about 30 to 60 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You are not obliged to participate in this survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

Do you have any questions? May I begin the interview now?

Signature of interviewer: _____

Date: _____

Respondent agrees to be interviewed => Continue

Respondent does not agree to be interviewed => End

SECTION 2: KEY CHARACTERISTICS

Now, I would like to ask some general information about you.			
201	In what month and year were you born?	*Month: _____* *Year: _____* *Write 98 if don't know*	*If Gregorian date of birth impossible, ask for Khmer one and use **date conversion chart***
202	How old are you now?	*_____ years* *Write 98 if don't know*	
203	Interviewer to check and confirm if the woman is aged between 15 and 49.	*0 = No1 = Yes*	*If No, end the interview*
204	What is the highest level of schooling you attended? ***One answer***	*0 = No education at all* *1 = Primary or equivalent* *2 = Lower secondary or equivalent* *3 = Upper secondary or equivalent* *4 = Higher*	
205	What is your religion? ***One answer***	*1 = Buddhist* *2 = Moslem* *3 = Christian* *4 = Other (specify):* *_____*	
206	What is your current marital status? ***One answer***	*1 = Single and **NOT** in a regular relationship* *2 = Single with boyfriend living elsewhere* *3 = Single living with a partner* *4 = Married* *5 = Divorced/separate* *6 = Widowed*	*Skip to Q208, **except answer 4***
207	If married, is your husband living with you or staying elsewhere now?	*1 = Living with her* *2 = Staying elsewhere* *98 = Don't know*	
208	For how many years have you been living continuously in this village?	*_____ year(s)* *Write 95 if always stay in this village and* *98 if don't know the number of year(s)*	*Write 00 if living for less than a year*

SECTION 3: DISABILITY STATUS

The next questions ask about difficulties you may have doing certain activities.			
301	Do you have difficulty seeing, ***even if wearing glasses***? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot see at all*	*Circle one answer which corresponds to the answer*
302	Do you have difficulty hearing, ***even if using a hearing aid***? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot hear at all*	*Circle one answer which corresponds to the answer*
303	Do you have difficulty walking or climbing steps? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot walk at all*	*Circle one answer which corresponds to the answer*
304	Do you have difficulty remembering or concentrating? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot remember at all*	*Circle one answer which corresponds to the answer*
305	Do you have difficulty (with self-care such as) washing all over or dressing? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot do at all*	*Circle one answer which corresponds to the answer*
306	Because of a physical, mental or emotional problem, do you have difficulty communicating (using your usual/customary language), for example understanding others or others understanding you? ***One answer***	*0 = No – no difficulty* *1 = Yes – some difficulty* *2 = Yes – a lot of difficulty* *3 = Yes – cannot do at all*	*Circle one answer which corresponds to the answer*

SECTION 4: FAMILY PLANNING

Now, I would like to talk to you about family planning – the various ways or methods that an adult man or woman or a couple use to delay or avoid a pregnancy.			
401	Have you ever heard of (METHOD)?		*PROBE:*
	Female sterilisation	*0 = No 1 = Yes*	*Women can have an operation to avoid having any more children*
	Male sterilisation	*0 = No 1 = Yes*	*Men can have an operation to avoid having any more children*
	IUD	*0 = No 1 = Yes*	*Women can have a loop or coil placed inside their uterus to avoid becoming pregnant*
	Injectable	*0 = No 1 = Yes*	*Women can have an injection by a health provider to avoid becoming pregnant*
	Implant	*0 = No 1 = Yes*	*Women can have small rod(s) placed in their upper arm to avoid becoming pregnant*
	Daily pills	*0 = No 1 = Yes*	*Women can take a pill every day avoid becoming pregnant*
	Monthly pills	*0 = No 1 = Yes*	*Women can take a pill once a month to avoid becoming pregnant (Chinese pills)*
	Condom (male)	*0 = No 1 = Yes*	*Men can put a rubber sheath on their penis before sexual intercourse*
	Female condom	*0 = No 1 = Yes*	*Women can put a rubber sheath in their vagina before sexual intercourse*
	Lactational Amenorrhea Method (LAM)	*0 = No 1 = Yes*	*Period after birth during which a woman has <2% chance becoming pregnant if her menstrual cycle has not resumed and she is exclusively breastfeeding a child <6 months old*
	Rhythm Method	*0 = No 1 = Yes*	*Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on that days of the months*
	Withdrawal	*0 = No 1 = Yes*	*Men can be careful and pull off before climax*
	Emergency Contraception	*0 = No 1 = Yes*	*For emergency measure, within 3 days after unprotected sexual intercourse, women can take special pills to prevent pregnancy*
	Other method (specify):	*0 = No 1 = Yes*	*If Yes, specify: _____*
402	Have you ever done something or used any	*0 = No 1 = Yes*	*If No, skip to SECTION 5*

	method to delay or avoid pregnancy?		
403	If Yes, which method(s) have you used? ***Multiple answers***	***1 = Female sterilisation*** ***2 = Male sterilisation*** ***3 = IUD*** ***4 = Injectable*** ***5 = Implants*** ***6 = Daily pills*** ***7 = Monthly pills*** ***8 = Condom (male)*** ***9 = Female condom*** *10 = LAM* *11 = Rhythm method* *12 = Withdrawal* *13 = Other modern method: _____* *14 = Other traditional methods: _____*	*Circle all mentioned*
404	Are you currently doing something or using any method to delay or avoid pregnancy?	*0 = No1 = Yes*	*If No, skip to Q407*
405	If Yes, which method(s) are you using? ***Multiple answers***	***1 = Female sterilisation*** ***2 = Male sterilisation*** ***3 = IUD*** ***4 = Injectable*** ***5 = Implants*** ***6 = Daily pills*** ***7 = Monthly pills*** ***8 = Condom (male)*** ***9 = Female condom*** *10 = LAM* *11 = Rhythm method* *12 = Withdrawal* *13 = Other modern method: _____* *14 = Other traditional methods: _____*	*Circle all mentioned*
406	**If answer 1 to 9 to Q405,** where do you get this method of family planning? ***One answer***	*1 = National hospital (PP)* *2 = Provincial hospital (RH)* *3 = District hospital (RH)* *4 = Health center or health post* *5 = Military hospital* *6 = Other public facility (specify): _____* *7 = Private hospital* *8 = NGO clinic (specify): _____* *9 = Private clinic/cabinet* *10 = Private pharmacy/drug store* *11 = Community-based distributor (CBD)* *12 = Friend/relative*	*Probe to identify the type of source and record it.* *If unable to specify, record the name of the place:* *_____*
407	If ever used (answer Yes to Q402), but currently do not use any method (answer	*1 = Not convenient for me* *2 = I feel uncomfortable (side effect)* *3 = The method is expensive* *4 = Afraid of not being able to have a child*	*Probe and circle all mentioned*

	No to Q404), please tell me one of the most important reasons that make you stop using that method. ***Multiple answers***	*later* *5 = I wanted to get pregnant* *6 = Other (Specify): _____*	

SECTION 5: PREGNANCY EXPERIENCE AND RELATED INFORMATION

Now I would like to ask you some questions about your experience in pregnancy and related information			
501	Have you ever been pregnant, regardless how long it lasted or ended, including stillbirth, miscarriage and abortion?	*0 = No 1 = Yes*	*If No, skip to SECTION6*
502	If Yes, how many times have you been pregnant so far?	*_____ time(s)*	
503	How many of the pregnancies ended in a: ***Multiple answers***	*live birth? _____ times* *stillbirth? _____ times* *miscarriage or abortion? _____ times* *Write 00 if No, and 98 if Don't know*	***SECTION 5.1*** ***SECTION 5.2***
504	Are you currently pregnant?	*0 = No 1 = Yes 98 = Unsure*	*If No, skip to SECTION 5.1*
505	If Yes, how many months pregnant are you?	*_____ month(s)* *Complete month(s). Write 98 if unsure*	

SECTION 5.1: ANTENATAL CARE, DELIVERY, IMMEDIATE NEWBORN CARE AND POSTNATAL CARE

506	How many live births have you had in total **in the last 2 years**? *Please verify with answer to Q503*	*_____ birth(s)* *Write 00 if no live birth in this period*	*If 00 (None), skip to SECTION 5.2*
507	If Yes (at least one live birth in this period), in what month and year was the last live birth? *Get the NAME of the last baby or child for following use.*	*Month: _____* *Year: _____* *Write 98 if don't know*	*If Gregorian date of birth impossible, ask for Khmer one and use **date conversion chart***
508	Interviewer to check and confirm if (NAME) was born:	*1 = Within the last 12 months* *2 = 12 to 24 months ago* *98 = Don't know*	*Verify with birth registration paper/health card if available*
509	During the pregnancy of (NAME), did you see anyone for antenatal care (or have your pregnancy	*0 = No 1 = Yes*	*If No, skip to Q513*

	checked) before the delivery?		
510	If Yes, for how many times did you receive antenatal care during this last birth-related pregnancy?	_____ *time(s)*	
511	Whom did you see for the above-mentioned antenatal care? ***Multiple answers***	*1 = Doctor/Medical assistant* *2 = Midwife* *3 = Nurse* *4 = Other trained health personnel* *5 = Traditional birth attendant* *6 = Relative/friend* *7 = Other person (specify): _____* *98 = Don't know*	*Probe to identify each type of person and record all mentioned*
512	Where did you receive the above-mentioned antenatal care? ***Multiple answers***	*1 = National hospital (PP)* *2 = Provincial hospital (RH)* *3 = District hospital (RH)* *4 = Health centre or health post* *5 = Military hospital* *6 = Other public facility (specify): _____* *7 = Private hospital* *8 = NGO clinic (specify): _____* *9 = Private clinic/cabinet* *10 = Other private medical facility* *11 = Your home* *12 = Other home* *13 = Other place (specify): _____* *98 = Don't know*	*Probe to identify each type of sources and record all mentioned.* *If unable to specify, record the name of the place:* _____
513	Where did you give birth to (NAME)? ***One answer***	*1 = National hospital (PP)* *2 = Provincial hospital (RH)* *3 = District hospital (RH)* *4 = Health centre or health post* *5 = Military hospital* *6 = Other public facility (specify): _____* *7 = Private hospital* *8 = NGO clinic (specify): _____* *9 = Private clinic/cabinet*	*Probe to identify the type of source and record it.* *If unable to specify, record the name of the place:* _____

		10 = Other private medical facility *11 = Your home* *12 = Other home* *13 = Other place (specify): _____* *98 = Don't know*	
514	Who assisted with the delivery of (NAME)? ***One answer***	*0 = No one* *1 = Doctor/Medical assistant* *2 = Midwife* *3 = Nurse* *4 = Other trained health personnel* *5 = Traditional birth attendant* *6 = Relative/friend* *7 = Other person (specify): _____* *98 = Don't know*	*Probe to identify the most qualified person and record it*
515	When [NAME] was born, did the attendant place him/her on your bare chest for a few minutes immediately after birth?	*0 = No 1 = Yes 98 = Don't know*	
516	Did the attendant dry (wipe) [NAME] immediately after birth?	*0 = No 1 = Yes 98 = Don't know*	
517	How long after delivery was [NAME] bathed for the first time?	*_____ hour(s).* *Write 00 if immediately/less than 1h* *98 if don't know*	
518	When (NAME) was born, was s/he very large, larger than average, average, smaller than average, or very small? ***One answer***	*1 = Very large* *2 = Larger than average* *3 = Average* *4 = Smaller than average* *5 = Very small* *98 = Don't know*	
519	Was (NAME) weighed at birth?	*0 = No 1 = Yes 98 = Don't know*	*If No, skip to Q521*
520	If Yes, how much did (NAME) weigh?	*___,___ Kg from CARD (e.g. 2.85 kg)* *___,___ Kg from recall (e.g. 2.80 kg)*	*Record the weigh from **health card**, if available*
521	After you gave birth to (NAME), did anyone check on your health and the baby's health (postnatal care) **while you were still at the facility**?	*0 = No 1 = Yes*	*If No for both questions, skip to SECTION 5.2*

	PNC = Check temperature, blood pressure, pulse, urine output, bleeding, vaginal injury/swelling, anemia (pallor) and breast problem within the first 24h after delivery		
522	After you gave birth to (NAME), did anyone check on your health and the baby's health (postnatal care) **after you left the facility**? *Usually within the first week after delivery*	*0 = No 1 = Yes*	
523	If Yes, for how many times did you get your health and the baby's health checked on?	_____ *time(s)*	
524	How long after delivery did the first check take place?	*Time in hours:* _____ *if <1 day* *Time in days:* _____ *if <1 week* *Time in weeks:* _____	
525	Where did you get your health and the baby's health checked for the first time? ***One answer***	*1 = National hospital (PP)* *2 = Provincial hospital (RH)* *3 = District hospital (RH)* *4 = Health centre or health post* *5 = Military hospital* *6 = Other public facility (specify):* _____ *7 = Private hospital* *8 = NGO clinic (specify):* _____ *9 = Private clinic/cabinet* *10 = Other private medical facility* *11 = Your home* *12 = Other home* *13 = Other place (specify):* _____ *98 = Don't know*	*Probe to identify the type of source and record it.* *If unable to specify, record the name of the place:* _____
526	Who did the first check? ***One answer***	*1 = Doctor/Medical assistant* *2 = Midwife* *3 = Nurse* *4 = Other trained health personnel* *5 = Traditional birth attendant* *6 = Relative/friend*	*Probe to identify the most qualified person and record it*

		7 = Other person (specify): _____ *98 = Don't know*	
527	Did s/he talk to you about family planning methods **within 24 hours after birth**?	*0 = No 1 = Yes*	*If No, skip to SECTION 5.2*
528	If Yes, which method did s/he talk about? ***Multiple answers***	***1 = Female sterilisation*** ***2 = Male sterilisation*** ***3 = IUD*** ***4 = Injectable*** ***5 = Implants*** ***6 = Daily pills*** ***7 = Monthly pills*** ***8 = Condom (male)*** ***9 = Female condom*** *10 = LAM* *11 = Rhythm method* *12 = Withdrawal* *13 = Other modern method: _____* *14 = Other traditional methods: _____* *98 = Don't know*	*Circle all mentioned*

SECTION 5.2: ABORTION AND POST-ABORTION CARE

529	For how many times have you had a pregnancy that resulted in miscarriage or was aborted in total **in the past 2 years**? *Please verify answer to Q503*	_____ *time(s)* *Write 00 if no miscarriage or abortion in this period*	*If 00 (None), skip to SECTION6*
530	If Yes (at least one miscarriage or abortion in this period), in what month and year did the last pregnancy end in miscarriage or abortion?	*Month: _____* *Year: _____* *Write 98 if don't know*	*If Gregorian date impossible, ask for Khmer one and use **date conversion chart***
531	Interviewer to check and confirm if the ending date of the last such pregnancy was:	*1 = Within the last 12 months* *2 = 12 months to 24 months ago* *98 = Don't know*	
532	How many months pregnant were you when the last such pregnancy ended?	_____ *months* *Write 98 if don't know*	

533	Did the last such pregnancy end in an induced abortion?	*0 = No 1 = Yes*	*If No, skip to Q537*
534	What was the method used for that **induced** abortion? ***One answer***	*1 = Medical Vacuum Aspiration (MVA)/evacuation* *2 = Oral pill/tablet* *3 = Vaginal pill/tablet* *4 = Traditional methods* *5 = Other method (specify): _____* *98 = Don't know*	*In case of doubt, record the name:* _____
535	Where did the induced abortion take place? ***One answer***	*1 = National hospital (PP)* *2 = Provincial hospital (RH)* *3 = District hospital (RH)* *4 = Health centre or health post* *5 = Military hospital* *6 = Other public facility (specify): _____* *7 = Private hospital* *8 = NGO clinic (specify): _____* *9 = Private clinic/cabinet* *10 = Other private medical facility* *11 = Your home* *12 = Other home* *13 = Other place (specify): _____* *98 = Don't know*	*Probe to identify the type of place and record it. If unable to specify, record the name of the place:* _____
536	Was anyone present to help you at the time of the induced abortion? ***One answer***	*0 = No one* *1 = Doctor/Medical assistant* *2 = Midwife* *3 = Nurse* *4 = Other medical professional* *5 = Traditional birth attendant* *6 = Other person (specify): _____* *98 = Don't know*	*If more than one, record the one with the highest professional qualification*
537	For both induced and spontaneous abortion, did you seek any post-abortion care?	*0 = No 1 = Yes*	*If No, skip to SECTION6*
538	If Yes, where did you receive such care?	*1 = National hospital (PP)* *2 = Provincial hospital (RH)*	*Probe to identify the type of place and record it. If*

	One answer *If more than one answer, record the highest level facility*	*3 = District hospital (RH)* *4 = Health centre or health post* *5 = Military hospital* *6 = Other public facility (specify): _____* *7 = Private hospital* *8 = NGO clinic (specify): _____* *9 = Private clinic/cabinet* *10 = Other private medical facility* *11 = Your home* *12 = Other home* *13 = Other place (specify): _____* *98 = Don't know*	*unable to specify, record the name of the place:* _____
539	Were you advised or recommended to use any family planning method(s) after the abortion?	*0 = No 1 = Yes 98 = Don't know*	
540	Did you receive a family planning method within 28 days after the abortion?	*0 = No 1 = Yes 98 = Don't know*	*If No, skip to SECTION 6*
541	If Yes, which method(s)? ***One answer*** *If more than one answer, record the first one*	***1 = Female sterilisation*** ***2 = Male sterilisation*** ***3 = IUD*** ***4 = Injectable*** ***5 = Implants*** ***6 = Daily pills*** ***7 = Monthly pills*** ***8 = Condom (male)*** ***9 = Female condom*** *10 = LAM* *11 = Rhythm method* *12 = Withdrawal* *13 = Other modern method: _____* *14 = Other traditional methods: ___* *98 = Don't know*	*Circle one answer which corresponds to the answer*

SECTION 6: SATISFACTION, REFERRAL, HEALTH EXPENDITURES AND FINANCIAL SUPPORT MECHANISMS AMONG RMNH SERVICE USERS IN THE PAST 12 MONTHS

Interviewer to check in SECTION 4, 5.1 & 5.2 and verify again with the respondent if there is any reported use of family planning, miscarriage/abortion, antenatal care, delivery (including caesarean section) and postnatal care within the last 12 months and then try to get answers to the following questions:

Type of RMNH services	**601** In the past 12 months, did you use any family planning, abortion and post abortion care, antenatal care, delivery and post natal care services? ***Record one answer*** *0 = No* *1 = Yes* *98 = Don't know* *If No or don't know for all services, skip to SECTION 7*	**602** If Yes (used any of the services), were the services received from a public health facility? ***Record one answer*** *0 = No* *1 = Yes* *98 = Don't know* *99 = If no service use*	**603** If Yes (received the service from a public health facility, could you tell me how satisfied were you with the service? ***Record one answer*** *5 = very satisfied,* *4 = satisfied,* *3 = not satisfied, neither dissatisfied,* *2 = somewhat dissatisfied,* *1 = very dissatisfied*
Family planning services			
Abortion and post abortion care services			
Antenatal care services			
Delivery and associated services			
Postnatal care services			

Type of RMNH services	**604** Was there anyone giving you advice or recommending you to use the above-mention services? ***Record one answer*** *0 = None (self-decision)* *1 = Family member, including husband* *2 = Friend, including boyfriend* *3 = Health service provider* *4 = Village Health Support Group (VHSG)* *5 = Community-Based Distributor (CBD)* *6 = Phone hotline/helpline* *7 = Other (specify): _____* *98 = Don't know* *99 if no service use*	**605** Could you tell me how much money have you spent for the services (including private services) you used in the past 12 months (actual out-of-pocket payments, excluding subsidies by different schemes)? ***Record the reported amount in Riels.*** *Record 00 if no expenditure,* *98 = Don't know the amount* *99 if no service use* USD1 = 4,000 Riels One Baht = ….			**606** Have you received any financial assistance from the following schemes for using the above-mentioned services? ***Record one answer*** *0 = None* *1 = Health equity fund* *2 = Vouchers (specify): _____* *3 = Conditional cash transfers* *4 = Village Saving Scheme* *5 = Other (specify): _____* *98 = Don't know* *99 = If no service use*
		Total: service fees, transport cost, and others	Service fees only	Transport cost only	
Family planning services					
Abortion and post abortion care services					
Antenatal care services					
Delivery and associated services					
Postnatal care services					

SECTION 7: KNOWLEDGE AND SELF-EFFICACY ON RMNH

Now I am going to ask you some questions about your knowledge on symptoms or signs during pregnancy and after childbirth which indicate that the mother and baby are in danger.			
701	Could you tell me all symptoms or signs of dangers (**for mothers and foetus during pregnancy)** you know, starting from the early period of pregnancy until the labour? ***Multiple answers***	[ ] *Vaginal bleeding (early or late pregnancy)* [ ] *Anaemia* [ ] *Elevated blood pressure, headache, blurred vision, convulsions or loss of consciousness* [ ] *Fever (during pregnancy and labour)* [ ] *Abdominal pain in early pregnancy* [ ] *Abdominal pain in later pregnancy* [ ] *Difficulty in breathing* [ ] *Loss of foetal movements* [ ] *Pre-labour rupture of membranes*	*Please do not read, but listen and tick in [ ] for all appropriate answers*
702	Interviewer to verify and calculate the number of correct answer(s) to Q701	_____ correct answers	
703	Could you tell me all symptoms or signs of dangers for **newborns** (neonatal distress) you know? ***Multiple answers***	[ ] *Abnormal body temperature* [ ] *Jaundice* [ ] *Lethargy* [ ] *Feeding difficulty* [ ] *Vomiting and/or abdominal distension* [ ] *Bleeding and/or pallor* [ ] *Umbilicus red and swollen, draining pus or foul smelling*	*Please do not read, but listen and tick in [ ] for all appropriate answers*
704	Interviewer to verify and calculate the number of correct answer(s) to Q703	_____ correct answers	
Now I am going to ask you some questions about your knowledge on (induced) abortion and where to access safe abortion.			
705	Could you tell whether (induced) abortion is:	*1 = Legal (allowed by low = woman has the right to end the pregnancy if she does not want to keep it* *2 = Illegal (not allowed by low = woman has no right to end the pregnancy if she does not want to keep it* *98 = Don't know*	*If no straight answer, probe by reading the text in brackets*
706	Even if you have no abortion experience or do not want to, try to imagine sometime in the	*0 = No 1 = Yes 98 = Don't know*	*If No or Don't know, skip to Q709*

	future when you might wish to do so, do you know where you can get a safe abortion?		
707	If Yes, where? Please indicate one place of your preference ***One answer***	*Name of the place: _____* *1 = A public hospital or health centre with trained midwife/MD/MA* *2 = A private hospital or clinic with trained midwife/MD/MA* *3 = At a known NGO clinic: MSIC & RHAC* *4 = At private pharmacy* *5 = At home with trained midwife/MD/MA* *6 = At home with TBA or other untrained/not properly trained person* *7 = Other (specify): _____*	*Record the name of the place and circle one most appropriate category*
708	Why do you think you can get safe abortion there [PLACE]? ***Multiple answers***	*Reason(s): _____* *1 = There are trained midwife/MD/MA* *2 =There are experienced personnel* *3 = There are enough equipment/medicines* *4 = Women usually get safe abortion there* *5 = I just learn from family/friend/other* *6 = Other (specify): _____*	*Record the reason(s) and circle all appropriate categories*
Now I am going to ask you some questions about how confident or sure you are that you could use family planning if wanted to do so. Even if you do not want to use family planning right now, try to imagine sometime in the future when you might wish to use it, how sure are you that you could:			
709	Bring up the topic of family planning with your husband (or partner)? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
710	Tell your husband (or partner) that you wanted to use family planning? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
711	Use family planning? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure*	*Circle one answer which corresponds to the answer*

		2 = Somewhat unsure *1 = Not at all sure*	
712	Use family planning, even if your husband (or partner) did not want to? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
Now I am going to ask you some questions about whether you feel you can refuse to have sex in certain situations. Your answers will be kept completely secret and you don't have to answer questions you don't want to do so. How sure are you that you could refuse to have sex with your husband (or partner):			
713	When you don't want to have sex but he does? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
714	If you were feeling tired? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
715	If he gets angry with you if you don't have sex? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
716	If he threaten to hurt you if you don't have sex? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*
717	If he threaten to have sex with other women if you don't have sex with him? ***One answer***	*5 = Completely sure* *4 = Somewhat sure* *3 = Neither sure/Unsure* *2 = Somewhat unsure* *1 = Not at all sure*	*Circle one answer which corresponds to the answer*

Annex 3: Household questionnaire

SECTION 1: HOUSEHOLD'S IDENTIFICATION AND INTERVIEW DATA

111.	Household ID number	: [ ][ ][ ][ ]
112.	Name of head of household (spouse)	: _____ (Spouse:_____)
113.	Province	: name _____ code: [_____]
114.	District	: name _____ code: [_____]
115.	Commune	: name _____ code: [_____]
116.	Village	: name _____ code: [_____]
117.	Operational District	: name _____ code: [_____]
118.	Health Centre catchment area	: name _____ code: [_____]
119.	Distance from village to HC	: _____ km
120.	Interviewer's ID number	: _____
121.	Date of interview	: [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy)
122.	Interview outcomes	1 = Completely done 2 = Incomplete
123.	If incomplete, give the main reason	1 = Household with no eligible respondent (WRA) 2 = Eligible respondent not available/absent 3 = Eligible respondent refused to participate
124.	Duration of the completed interview	: _____ minutes
125.	Language used for interview	1 = Khmer 2 = Ethnic Minority language (with translation) 3 = Other language (specify): _____
126.	Checked by supervisor	Date : [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy) Signature
127.	Data entry	Date : [__ __ /__ __ /__ __ __ __] (dd/mm/yyyy)

INTRODUCTION AND CONSENT

INFORMED CONSENT:

Hello. My name is_____. I am working with the National Institute of Public Health, Ministry of Health. We are conducting a baseline survey for a health project, collects information on reproductive, maternal and newborn health (RMNH) services in several provinces in Cambodia. The information we collect will help the project to improve RMNH in the project coverage areas, including your area (village). Your household (including yourself) is selected for this survey. The questions usually take about 30 to 60 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You are not obliged to participate in this survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

Do you have any questions? May I begin the interview now?

Signature of interviewer: _____

Date: _____

Respondent agrees to be interviewed => Continue

Respondent does not agree to be interviewed => End

SECTION 2: SOCIO-ECONOMIC STATUS OF HOUSEHOLD

201	Is your household among an ethnic minority group?	*0 = No* *1 = Yes*	*If No, Skip to Q203*
202	If Yes, which ethnic minority group? ***One answer***	*1 = Jarai* *2 = Tampoun* *3 = Kreung* *4 = Phnong* *5 = Stieng* *6 = Kuoy* *7 = Samrae* *8 = Kavaet* *9 = Kanh Chak* *10 = Other (specify): _____*	
203	How many people are living in this household (household members)?	*Male: _____ people* *Female: _____ people*	
204	Among the female members, how many are of reproductive age (15-49 years old)?	*_____ WRA* *If No, write 00*	
205	How many of the household members generate income (income earners)?	*_____ people* *If No, write 00*	
206	Does any household member own any agricultural land?	*0 = No* *1 = Yes*	*If No, Skip to Q208*
207	If Yes, what is the size of the land?	*_____ hectare(s)*	*1ha = 10,000 m^2* *1rai = 1,600 m^2* *1kong = 1,000 m^2*
208	Does your household own any buffalo, cow, horse, donkey, elephant, goat, sheep or pig?	*0 = No* *1 = Yes*	*If No, Skip to Q210*
209	If Yes, how many in total does your household own?	_____	*Record the number*
210	Does your household have: ▪ Electricity? ▪ A radio? ▪ A television? ▪ A mobile telephone? ▪ A non-mobile telephone? ▪ A refrigerator? ▪ A wardrobe? ▪ A sewing machine/loom? ▪ A CD/VCD/DVD player? ▪ A generator/battery/solar	 *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes* *0 = No* *1 = Yes*	*Probe by reading the list and circle the correct answer for each item*

	panel?		
211	Does any member of this household own: ▪ A watch? ▪ A bicycle or cyclo? ▪ A motorcycle or scooter? ▪ A motorcycle-cart? ▪ An oxcart or horsecart? ▪ A car or van or truck or *Koyun*? ▪ A boat with a motor? ▪ A boat without a motor?	*0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes* *0 = No 1 = Yes*	*Probe by reading the list and circle the correct answer for each item*
212	What is the main source of drinking water for your household? ***One answer***	*1 = Dam/pond/river* *2 = Rain water* *3 = Tanker truck/water vendor* *4 = Public open well* *5 = Public tube well/borehole* *6 = Open well in own yard* *7 = Tubed well or borehole in residence yard* *8 = Piped drinking water*	*Circle only one most relevant answer*
213	What is the main fuel used for cooking in your household? ***One answer***	*1 = Dung* *2 = Collected wood* *3 = Purchased wood/sawdust* *4 = Charcoal* *5 = Kerosene* *6 = Gas* *7 = Electricity*	*Circle only one most relevant answer*
214	What kind of toilet facility do your household members usually use? ***One answer***	*0 = No facility/bush/rice field* *1 = Shared pit latrine* *2 = Own pit latrine* *3 = Shared flushed toilet* *4 = Own flushed toilet*	*Circle only one most relevant answer*

215	What is the main material of the roof of the house? ***One answer***	*1 = Plastic sheet* *2 = Natural materials (thatch, leaves)* *3 = Galvanized iron or fibrous cement* *4 = Tiles* *5 = Concrete* *6 = Other (specify): _____*	*Observe and circle only one most relevant answer*
216	What is the main material of the exterior wall of the house? ***One answer***	*0 = None* *1 = Thatch/leaves or bamboo* *2 = Galvanized iron* *3 = Wood* *4 = Concrete, brick/stone* *5 = Other (specify): _____*	*Observe and circle only one most relevant answer*
217	What is the main material of the floor of the house? ***One answer***	*1 = Earth/sand* *2 = Rudimentary (bamboo/planks)* *3 = Polished wood* *4 = Cement* *5 = Cement with additional covering*	*Observe and circle only one most relevant answer*
218	How many rooms in this household are used for sleeping?	_____ *room(s)*	
219	Does your household hold a poor card (issued by the MOP's ID Poor project)?	0 = Yes (holding a poor card) 1 = No 98 = Don't know	

Annex 4: OD MCH supervisor questionnaire

Introduction and consent

Hello. I am _____, a researcher from the National Institute of Public Health, Ministry of Health. We are collecting baseline data in the coverage areas of an Australian Aid funded reproductive, maternal and newborn health (RMNH) project, known as Partnering to Save Lives (PSL) as part of the project monitoring and evaluation framework. Your health district (OD) is in the coverage area of this PSL project. You are an OD supervisor for MCH, a key person on RMNH in this OD (OD NAME). Therefore, I would like to ask you some questions on RMNH services in your OD. The interview will take about 30 minutes. Your participation in the interview is crucial for this baseline data collection and for the PSL project to help improve RMNH services in Cambodia, including your OD. However, you are free to decide whether to participate or not. During the interview, you can also refuse to answer any question you do not want to do so. Do you have any questions? May I start the interview now?

Signature of interviewer: _____

Date: _____

Respondent agrees to be interviewed => Continue

Respondent does not agree to be interviewed => End

Questions

1. In your OD (NAME), how many health facilities are there?
    a. _____ HC(s)
    b. _____ HP(s)
    c. _____ RH(s)
    d. _____ Private facilities providing RMNH services. Write 98 if don't know

2. Among these health facilities, how many of them are officially considered as functioning BEmONC facilities or offering BEmONC services (See the list 1 below)?
    a. _____ HC(s). Record names:_____
    b. _____ RH(s). Record names:_____
    c. _____ Private facilities. Write 98 if don't know

3. Among these health facilities, how many of them are offering (comprehensive) modern contraceptive methods or services? Please complete cells in the following table with 0 = No, 1 = Yes, and 9 = Not applicable

Public Facilities	PH	RH	HC1	HC2	HC3...	HP1	HP2	HP3...
Female sterilisation								
Male sterilisation								

IUD								
Implant								
Injectable								
Daily pills								
Monthly pills								
Male condom								
Female condom								

4. Among the health centres/health posts, how many of their catchment areas (or villages in the catchment areas) implement community care of mothers and newborns?
    a. _____ HC(s)
    b. _____ HP(s)
5. Among the health centres/health posts, how many of their catchment areas (or villages in the catchment areas) implement community-based distribution of contraceptive?
    a. _____ HC(s)
    b. _____ HP(s)
6. Among the health centres/health posts, how many of them regularly coordinate Health Centre Management Committee (HCMC) meetings?
    a. _____ HC(s)
    b. _____ HP(s)
7. Is your OD (NAME) facilitating quarterly Midwifery Coordination Alliance Team (MCAT) meetings?

    0 = No 1 = Yes 98 = Don't know. If No or Don't know, stop the interview
8. If Yes, what is the approximate number of midwives who regularly attend MCAT meetings?

    _____ midwives

List 1: basic emergency obstetric and newborn care (BEmONC) services

- Administer parenteral antibiotics
- Administer uterotonic drugs (e.g. parenteral oxytocin, misoprostol)
- Administer parenteral anticonvulsants (e.g. magnesium sulfate)
- Perform manual removal of placenta
- Perform removal of retained products (manual vacuum aspiration, misoprostol)
- Perform assisted vaginal delivery (e.g. vacuum extractor)
- Perform neonatal resuscitation (e.g. with bag and mask)

Annex 5: BEmONC assessment form

This form is to be used for assessment of health facilities, mainly health centres with and without beds (including former district hospitals), which are considered by OD MCH supervisors to be potentially BEmONC facilities. The main aim is to learn about which signal functions are offered at a health facility in order to confirm that it really is a BEmONC facility as indicated by OD MCH supervisor.

In order to answer the six questions in the form, the trained midwife should pay a visit to each health facility and complete the form using:

- direct observation;
- interviewing facility registers and midwives;
- discussion with fellow team members.

CODES of answers to question 6:

1. *Training issues: authorised cadre available but not (sufficiently) trained or lack of confidence / skills.*
2. *Supplies / equipment issues: supplies / equipment are not available or not functional / broken, needed drugs are not available.*
3. *Management issues: providers desire compensation to perform this function or encouraged to perform alternative procedures or uncomfortable / unwilling to perform procedure for reasons unrelated to training.*
4. *Policy issues: required level of staff are not posted to this facility in adequate numbers (or at all).*
5. *No indication because no client needing this procedure came to this facility during this time period.*

Signal function	**Questions to assess BEmONC signal functions**					
	1-Is there any staff at the facility trained to perform the service? *0 = No; 1 = Yes*	2-Are the cadres of staff working at the facility authorised to perform the service? *0 = No; 1 = Yes*	3-Are the requisite supplies and equipment available and functioning? *0 = No; 1 = Yes*	4-Were there any cases for which the use of a particular signal function was indicated? *0 = No; 1 = Yes*	5-Were there any cases for which the use of a particular signal function was indicated **in the last 3 months**? *0 = No; 1 = Yes*	6-If No, why? *Tick in [ ] for all the relevant reasons*
1. Administer parenteral antibiotics						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
2. Administer uterotonic drugs (e.g. parenteral oxytocin, misoprostol)						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
3. Administer parenteral anticonvulsants (e.g. magnesium sulfate)						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
4. Perform manual removal of placenta						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
5. Perform removal of retained products (MVA, misoprostol)						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
6. Perform assisted vaginal delivery (e.g. vacuum extractor)						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]
7. Perform neonatal resuscitation (e.g. with bag and mask)						1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

Annex 6: MERI results

Outcome Level	Performance Measures / Indicators	Target Areas	Result
End-of-project Outcomes			
Improved quality RMNH services for target populations	O1.2. % of women delivering in a health facility with a skilled birth attendant (SBA)	KRT, MKR, RAT, STR*	50.9%
	O1.4.% of newborns with low birth weight	KRT, MKR, RAT, STR	5.7%
Greater equity of access to appropriate RMNH services for target populations	O2.1. % of target population using modern contraception	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	26.8%
More responsive RMNH services meet the needs of target populations	O3.2. % of women attending PNC who receive counselling in modern FP methods	KRT, MKR, RAT, STR	26.3%
	O3.3. % of target population who report being highly satisfied with RMNH services provided	KRT, MKR, RAT, STR	41.6%
Improved RMNH behaviours amongst target population	O4.1. % of women of reproductive age who can identify 5 danger signs during pregnancy	KRT, MKR, RAT, STR	3%
	O4.2. % of women attending 4 or more ANC consultation (ANC4)	KRT, MKR, RAT, STR	47%
	O4.3. % of women receiving 2 or more PNC visits (PNC2)	KRT, MKR, RAT, STR	59%
	O4.4. % of women (modern FP users) using long acting or permanent methods of FP	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	23.5
Intermediate Outcomes			
Health facilities have improved capacity and resources to deliver on FTIRMN outcomes	I1.1. % of functioning BEmONC facilities (health centres)	KRT, MKR, RAT, STR	0/7
Client- centered, equitable RMNH services are improved at health facilities	I2.1. Total attendance at Midwifery Coordination Alliance Team (MCAT) meetings in one year	KRT, MKR, RAT, STR	54/ quarter
Financial mechanisms enable access to RMNH services	I5.1. % of target population accessing RMNH services using a financial support mechanism in the previous 12 months	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	10.3%

RMNH behaviour change communication (BCC) strategy developed and implemented	I6.2. % of target population who can identify 3 danger signs for neonatal distress	KRT, MKR, RAT, STR	11.3%
	I6.3. % of women who feel empowered to discuss and use modern family planning	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	25.3%
	I6.4. % of women who know that abortion is legal	KRT, MKR, RAT, STR, BAT, KKG, PUR, SHV	11.7%
	I6.5. % of women delivering with an SBA	KRT, MKR, RAT, STR	58.8%
Increased community demand for RMNH services	I7.2. # of health centre catchment areas implementing community based distribution (CBD) of contraceptives	KRT, MKR, RAT, STR	37

*BAT = Battambang; KKG = Koh Kong; KRT = Kratie; MKR = Mondulkiri; PUR = Pursat; RAT = Ratanakiri; SHV = Sihanoukville; STR = Stung Treng.