**Heng Molyaneth, Vong Sreytouch, So Phina, Nou Keosothea, Lê Gillian, Ensor Tim (2014) *Maternal Healthcare in the Cambodian Health System: A Literature Review*. Pnomh Penh: CDRI**

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## Glossary

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| Antenatal care: | Pregnancy-related health care check-ups that a pregnant woman had either at a health facility or at home. |
| Chmob | Indigenous midwife, sometimes specified as *chmob boran,* "traditional midwife", in contradistinction to medically trained midwives. |
| Maternal care | A spectrum of care that includes antenatal care, delivery, and 6-month postnatal care as well as care during abortion. |
| Maternal death | The death of a woman during pregnancy or 42 days after pregnancy, irrespective of the duration or site of pregnancy, from any causes that are related to or aggravated by pregnancy or its management, but not from accidental or incidental cause. |
| Medicalized childbirth: | Birth delivery at health facilities either private or public. |
| Obstetric care | The medical care provided to women during delivery (in maternity waiting room, delivery, and 2-hour post-delivery). This definition is based on information from Operational District staff. |
| Obstetric complications | Common direct obstetric complications causing maternal death around the world include hemorrhage, sepsis, obstructed labor, hypertensive disorders of pregnancy and septic abortion. |
| Postnatal care | Health care usually comprised of checkups by a health professional or others within 41 days or six weeks of childbirth. Some studies limit postnatal care to only within 48 hours after birth because this period is important for identifying and managing postpartum hemorrhage. It is likely that different authors and organizations define this period differently. |
| Psychosocial childbirth | Birth delivery at home. |

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|---|---|
| Referral service | The movement of women to and between facilities where healthcare staff have been involved in that movement. |
| Skilled birth attendance | Delivery assistance provided by a doctor, nurse, or midwife in an enabling environment with Emergency Obstetric and Neonatal Care. |
| Skilled birth attendant | As defined by the World Health Organization, an SBA is “an accredited health professional” – such as a midwife, doctor, or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and immediate postnatal period, and in the identification, management, and referral of complication in women and newborns. |

## 1. Introduction

This literature review aims to provide an overall understanding of obstetric referral in the Cambodian health care system and describe characteristics of Prey Veng province, the study province chosen for the project.

This review is structured into nine sections. Following this introduction section, Section 2 explains the search strategies and sets the scope of this review. Section 3 reviews maternal and child mortality in Cambodia for updated information of progress and remaining challenges in reducing these two types of mortality in the country. Section 4 provides a brief account of psychosocial childbirth and medicalized childbirth to understand how childbirth is practiced in Cambodia. Section 5 briefly describes various policy interventions specifically targeting maternal care or having implications on maternal care. Moving from the national context, Section 6 provides an overview of Prey Veng and includes general information, and regional practice of obstetric care, and various on-going health financing schemes. Sections 7 and 8 review existing literature on factors influencing maternal health seeking behavior and referral system in the context of rural Cambodia. Finally, Section 9 concludes by summarizing the literature and pinpointing knowledge gaps regarding the public obstetric referral services.

## 2. Search Methods

Literature in this study is in two forms - online materials and printed publications – and only in English language. CDRI conducted an online search engine to search for reports of studies conducted by local and international organizations on maternal health in Cambodia, policy documents and national guidelines published by the Cambodian government, and academic journals referencing childbirth in Cambodia. The majority of academic journals were retrieved from three databases: PubMed, Web of Science and Ovid Medliner. We did not take note of the number returned. However, due to limited subscription, CDRI was not able to access all relevant academic journals in these three databases.

Main source of printed publications is the CDRI library. Although it is possible that relevant documents may be available at libraries of some institutions working on health issues in Cambodia (for example NIPH, ADB, WB, JICA, UNFPA, URC, and NCMCH) the research team did not include those libraries in the search due to time constraint.

Key terms used and Boolean search vary depending on the purpose of each section, but they often reflect the heading of the section. For example, on Google or the CDRI library search catalogue, the research team typed “maternal mortality in Cambodia” or “maternal health in Cambodia” to find the information for Section 3 and “childbirth practices in Cambodia” or “birth delivery in Cambodia” to locate information for Section 4. To find information about obstetric referral in Cambodia, the research team based the search on four arrangements of key terms:

"obstetric referral in Cambodia", "referral in Cambodia", "factors affecting obstetric referral in Cambodia" and "factors affecting referral system in Cambodia".

University of Leeds team conducted a search of the following databases:

- Web of Science
- Ovid Medliner
- Pubmed

Using the search terms 'Cambodia AND referral'. A total of 137 items were returned. The titles of the returned items were scanned for:

- They were research articles (not letters to the editor/opinion pieces etc)

And for reference to:

- Hospital – health centre – community referral systems in Cambodia (public or private sector)
- Management of health facilities in Cambodia (public or private sector)
- Maternal health care
- Patient attitudes to healthcare in Cambodia
- Paying for healthcare in Cambodia

Duplicates were deleted (most of the references were duplicates in each db); no non English language articles were included. Articles in journals that University of Leeds had no access to were deleted. 19 remained and were emailed to CDRI for consideration for this literature review

## 3. Maternal and Child Mortality in Cambodia

The national maternal mortality ratio (MMR) per 100,000 live births significantly declined from 472 in 2005 to 206 in 2010, which was already far below the 2015 Millennium Development Goal (MDG) of 250 (National Institute of Public Health: NIPH, National Institute of Statistics: NIS et al. 2006, National Institute of Statistics: NIS, Directorate General for Health: DGH et al. 2011). However, there are regional disparities with remote provinces such as Stung Treng, Koh Kong, Rattanakiri and Mondolkiri having highest rate of MMR.

Koum et al conducted a study in 2002 to analyse maternal death cases and their risk factors at the top referral hospital in Cambodia and found that three main causes of maternal death were hemorrhage, infection and hypertensive disorders (MoH 2007). The study also revealed risk factors for maternal death included age (older than 35 years), parity (four or more), no antenatal care attendance, and residence in the provinces (not in Pnomh Penh). Moreover, the major cause of maternal death was delayed arrival at the referral hospital. MoH (2009a) and UNFPA (2013) also reported similar factors contributing to high maternal deaths in Cambodia: (i) delay in seeking medical assistance, (ii) delay in referring complicated cases, and (iii) delay in receiving

services (UNFPA 2013). The same UNFPA study further suggested that mothers' reluctance to seek medical assistance can be attributed to cultural preferences for giving birth at home; possibly lack of awareness regarding risks associated with pregnancy and birth delivery; and health system delays in referring complicated cases that could be a result of limited number of EmONC (Emergency Obstetric and Newborn Care) trained medical staff.

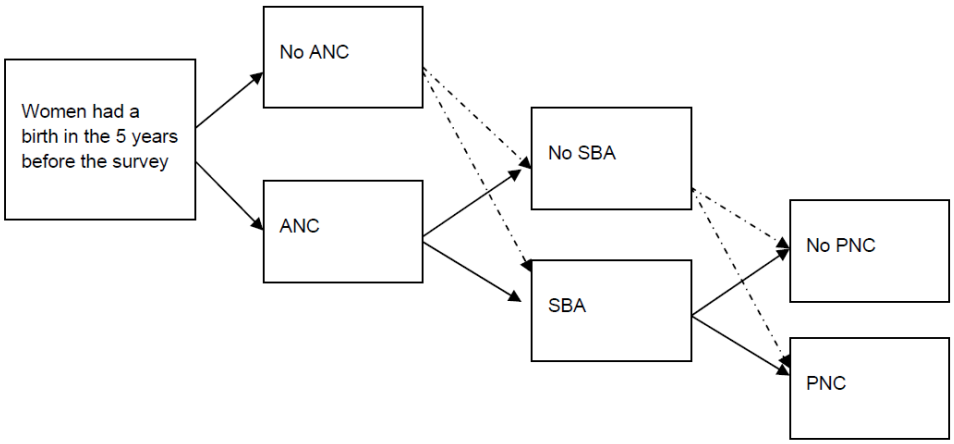
The country has succeeded in reducing the overall infant mortality rate (IMR) and under-five year child mortality rate (U5MR) during the past decade. This success makes the achievement of MDG of 50% IMR and 65% U5MR by 2015 very promising. In 2010, IMR was already 45%, and U5MR was 54% (NIPH et al. 2006; NIS et al. 2011). This success could be attributed to several factors, such as successful immunisation programmes, breastfeeding promotion, poverty reduction, improved education and better roads (WHO and MoH 2012, RGC and UNDP 2013).

However, rural areas and some remote provinces – Preah Vihear, Steung Treng, Mondulkiri and Ratanakiri – experience the highest IMR and U5MR. Mortality rates decline as mother's education and household's wealth increases; therefore, intervention programmes on poverty alleviation and women's education are likely to have positive impacts on reducing IMR and U5MR. Cambodia encountered higher IMR and U5MR of baby boys than baby girls.

Promoting access to "continuum of maternal health care" – including antenatal care (ANC), Skilled Birth Attendance (SBA), and postnatal care (PNC) – is very important for reducing maternal and neonatal mortality (Wang and Hong 2013). Antenatal care creates an opportunity for medical staff to deliver interventions for improving maternal nutrition, providing health education, and encouraging SBA and use of health facilities for emergency obstetric care. Having skilled birth attendant, equipment, drugs, and other necessary supplies during delivery can prevent and manage obstetric complication. WHO advocates birth delivery at health facilities as the most important intervention in preventing maternal deaths (WHO 1999 as cited in Wang and Hong 2013). Postnatal care, especially within the first 48 hours after births, is an effective intervention to prevent postpartum haemorrhage, one of the leading causes of maternal death in Cambodia, and neonatal sepsis and asphyxia/hypothermia as the leading causes of neonatal deaths.

Figure 1 shows a possible pathway that a woman can take in the use of maternal care. The 2010 CDHS (Cambodia Demographic Health Survey) has shown that 91% of the surveyed women who gave birth in the 5 years before the survey, received ANC; 71% had both ANC and SBA; and 60% had ANC, SBA and PNC altogether. For ANC, 92.6% of women received it at public facility. However, only 47% gave birth at the public facilities. Among the 43% of those who delivered at home, 17.2% were assisted by a skilled birth attendant (mostly by a midwife), while the rest 25.8% still depended on a TBA (Wang and Hong 2013). This result indicates that home delivery is still common among Cambodian women and although medical midwives are increasingly being used, TBA remains a major source of assistance in childbirth at home.

**Figure 1: Possible Pathway of Maternal Care Usage**




Source: Wang and Hong (2013)

## 4. Psychosocial Childbirth and Medicalized Childbirth in Cambodia

Two types of childbirth could be observed in Cambodia: psychosocial childbirth and medicalized childbirth. This section explains how psychosocial childbirth is practiced and the challenges in medicalizing childbirth.

### *4.1 Psychosocial Childbirth*

The psychosocial concept of childbirth, *"chlong tonle" or "crossing the river",* is associated with physical, social and spiritual dimensions but not medical. Childbirth involves two main tasks: bringing baby to the world and restoring mother's physical body after delivery. Before French colonization, deliveries were performed by an indigenous midwife, *chmob* (Ovesen and Trankell 2010).

According to Ovesen and Trankell (2010), not everyone can choose to be a *chmob.* The person must have necessary physical and technical skills, which were acquired through apprenticeship and one's own experience, and she should be believed by the community to have spiritual power. However, Ebihara (1971), in his ethnographic study of lives of rural Cambodian people in a village, did not mention spiritual power as a character of *chmob.* Ovesen and Trankell (2010) further explained that being a *chmob* is a calling which is transmitted in the female family line, and the spirits also belong to the family. There were also cases where a woman also receives the spirit from her husband's relative. The calling starts with a young girl working as a helper or apprentice for her grandmother or other older relatives. The girl is selected by the spirits when she reaches puberty to inherit the role, but she cannot assist in childbirth until she delivers her own baby with the assistance of other. Then she becomes a fully-fledged *chmob* called *yeay mob.*

The spiritual power of *the chmob* is necessary to keep the birth clean and safe. In this psychosocial concept, childbirth complications leading to maternal and neonatal mortality are

believed to be a result of pollution caused by woman during the birthing process and the attacks by *preay,* evil spirits of childless women or women who had died during childbirth and are therefore jealous of the better fortune of others. To protect the mother and newborn from *preay,* the *chmob* needs to keep the delivery room safe by ritually demarcating the room and bed with a *sima* in the forms of cotton thread or chalk line (Ovesen and Trankell 2010). The delivery takes place in private, at home, and no males, unmarried females or children are allowed to enter the delivery room. The expectant mother is assisted by the *chmob* and adult female relatives and neighbors who must have already given birth. The female relatives and neighbors sit around the woman to support her by placing their hands on her back as a way to continuously give her the energy needed to give birth. The *chmob* checks the position of fetus, monitors the opening of the uterus, guides the woman through labour by reciting Pali mantras and blowing from stomach to face of the woman; supports the virginal opening with her hands to push back skin and tissue in order to prevent ruptures before receiving the baby; cuts and binds the umbilical cord, and handles the placenta (Ebihara 1971; Ovesen and Trankell 2010). It is unknown how the *chmobs* commonly perform these roles but for those who have received medical training to be a "traditional birth attendant" (details of the training provided in the following section), they may use fingers as instructed in the medical training to measure the opening of the uterus, inject oxytocin to accelerate the opening of the uterus if it does not happen, use surgical gloves and a razor to cut the umbilical cord. However, TBA may not have a foetal stethoscope to listen to heartbeats of the foetus (Ovesen and Trankell 2010).

After delivery, the *chmob* cleans the baby but keeps the vernix on the skin, believing that it helps make the baby physically strong. She also assists the new mother to clean her body and nipples with lukewarm water and herbal ointment to produce breastmilk. The husband is expected to help the *chmob* prepare the placenta for burial and arrange fire to reheat the new mother, *ang pleung,* from three days to a month after the delivery as a way to restore her physical strength. The woman's physical strength is reduced by the excessive use of bodily heat during labour and the weakened 'conduits' (direct translation from Khmer) inside the woman's body or *sorsay* due to too much stretching and exhaustion during pregnancy, labor and delivery. *Ang pleung* also helps prevent *toah* – a sickness like headache, diarrhea, abdominal cramps and post-partum depression – and is held as a religious ritual to protect the mother and baby away from *preay* (Ebihara 1971; Ovesen and Trankell 2010).

The *chmob*, therefore*,* assists childbirth with her technical skills and some religious rituals. Her roles would last totally for about three days, and she would gain thanksgiving gifts or *som bon* from the baby's father. Regardless of the gender of the baby, the gifts usually include rice, incense and candles, bananas, cooked chicken, and fee amounting to 30,000 riels (Ebihara 1971; Ovesen and Trankell 2010).

### *4.2 Medicalized Childbirth*

The government's concern over safe motherhood in Cambodia seems visible since French colonisation, which was the inception of medicalized childbirth in Cambodia. Prior to the French, there was no indigenous idea that childbirth could be medicalized and that midwifery could be a profession. Rather, midwifery was seen as a practice related to spiritual calling, social maturity, and experience of giving birth. This belief stymied early French efforts to create a corps of young, biomedically educated Khmer midwives (Ovesen and Trankell 2010).

The French colonial government's initially paid little attention to maternal and obstetric care but this changed when increasing number of wives accompanied colonial personnel to Cambodia. There was an initial proposal to place midwives in the medical service. However, this proposal was rejected by the chief doctor of the Mixed Hospital for two reasons.[1] On a medical basis, he argued that another medical doctor (gender unknown) instead of a midwife should be appointed since the doctor could help with the birth. On financial grounds, he considered it a waste of resources employing midwives since experience from Vietnam had shown that people still saw the doctors, not midwives, even in uncomplicated cases (Ovesen and Trankell 2010). As a result, maternity[2] and child health issues were handled mainly by charitable organizations (nationality unspecified), and the concept of medical assistance during birth delivery remained unpopular among the Khmer population.

In 1907, a private maternity clinic in the Cambodian quarter of Phnom Penh was established targeting the Khmer population. The clinic was funded by donations from both European and Cambodian notables and subsidies from the Cambodian King and the colonial authorities. In 1908, 115 women gave birth there: 97 Khmer, 17 Vietnamese and 1 Chinese. The number of clients increased to 218 in 1911, but the composition of clients changed: 145 Vietnamese and only 73 Khmer. The rising number of Vietnamese clients could be explained by their familiarity with European practice of maternal health care. In 1920, another colonial clinic, *the Roume Maternity*, was founded for the same purpose: to make childbirth at a hospital attractive to 'ordinary' (meaning unspecified) Khmer women. The new clinic adopted a different strategy by advertising superior advantages of giving birth at hospital – clean and safe – and inviting elite women to visit the clinic (Oversen and Trankell 2010).

However, the medical service's 1922 annual report has shown that the services remained uninviting. This could probably be attributed to two factors: nationality of doctors and medical midwives and the cost of medical services. Until 1922, doctors and midwives were all French and Vietnamese trained by the French colonial government. To show that midwifery could be a respectable profession, the local health authorities employed two granddaughters of King Sisowath to serve as honorary midwives at the Roume Maternity. Moreover, the clinic also abolished user fees and created a charitable committee to financially assist Khmer women who

[1]The Mixed Hospital served both military and civilian clients.
[2] Maternity in the cited books seems to mean care from pregnancy to post-delivery

give birth or have antenatal care visits at a clinic. As a result, the number of Khmer clients increased to 547 in 1926 (Oversen and Trankell 2010).

Notwithstanding this hard-earned success, hospitals were still not favored by most Khmer women. The places were a last resort, to be used by those who were abandoned by their husband or family or had unexpected labor during travelling. Plausible explanations for reluctance of Khmer women to use the hospital services were their modesty, shyness and nervousness to communicate with unknown health personnel, and respect for ancient customs. Young expectant mothers usually received advice from their mother or elder female neighbors on how to prepare for pregnancy, delivery and post-delivery (see previous section) They were not confident to hand over their and their baby's, safety to unknown persons who employed unfamiliar procedures contradictory to traditional practice of their ancestors (Oversen and Trankell 2010).

While the French government seemed to totally disregard the important role of *chmobs*, the Sihanouk government started to recognise their importance in promoting safe motherhood. During his administration, Prince Norodom Sihanouk initiated a medical modernization programme. As a result, in 1963, Cambodia had about 140 medical midwives (with a three-year education in a government medical school) and about 400 so-called "rural birth attendants" (trained for six months). While the total childbirths in 1963 were estimated to be around 236,000 cases, these two types of trained health personnel assisted a total of 55,000 births during the year. Out of this number, 25,000 cases took place at a maternity clinic, while the rest were assumed to be done at home with the assistance of rural birth attendants. It is unknown how many rural birth attendants were *chmobs,* for there was no official record of the number of *chmobs* receiving the short-course training to be rural birth attendants. The records only mentioned that there were some "grey-haired matrons" (presumably *chmobs*) in the motherhood courses for mothers and prospective mothers in hygiene and pre- and postnatal care at some health centers. Some *chmobs* recounted that they used to attend short-term medical training course during the Prince Sihanouk period (Oversen and Trankell 2010).

Childbirth at public facilities probably reached its peak in the mid-1960s but dramatically declined during the Pol Pot regime. The common belief that the modern medical services were totally destroyed during the regime is erroneous because a few major hospitals in Phnom Penh and in the provinces kept functioning and the regime still used imported modern medicines. However, the hospitals, *chmobs* and modern medicines were reserved specifically for the highest Khmer Rouge leadership, cadres and the most reliable "*base people"*, residents of countryside who participated in the revolution and thus considered as the base of revolutionary society. Pregnant women and the majority of people were taken care of by *pet padevat* using herbal medicines*. Pet padevat* were people in the countryside who had been trained on nursery skills for about a week, had some relevant experience, and felt passionate about the revolutionary ideology. Since *pet padevat* were those who had almost no technical skills plus their lack of empathy as a result of their revolutionary training, women received very poor quality treatment

and care. Therefore, while we can say that the modern medical system still existed during the Pol Pot regime, it was accessible to only a few (Oversen and Trankell 2010).

The medical system in the People's Republic of Kampuchea (PRK) regime (1979-1989) was also divided among two groups of population. The first class population consisted of Vietnamese and cadres, while Cambodian people fell into the second group. In most hospitals, there were even two pharmacies. The ones for Khmer people were often empty or stocked with expired pharmaceuticals, while the ones for Vietnamese and cadres were said to be full. Doctors were not allowed to use medicines reserved for Vietnamese and cadres to treat ordinary Cambodian people. The PRK government promoted the use of traditional herbal medicines for Cambodians but ignored the spiritual dimensions of the medicines (Oversen and Trankell 2010).

It was not until intervention of the United Nations Transitional Authority in Cambodia (UNTAC) (1991-1993) that indigenous healing and its spiritual dimension was revitalized. A number of *chmobs* who were able to flee the country during or after the Pol Pot regime hid themselves at refugee camps along the Thai/Cambodian border where they were provided basic medical training by international organizations working there. By 1993 when Cambodia was more open to international community influence and local knowledge was seen as important, *chmobs* were given a title "traditional birth attendant (TBA)". TBAs were provided basic biomedical training in midwifery, so that they could be respected for their social and spiritual association as well as capacity to ensure safe and clean childbirth.

Experience has shown that this transformation was successful since indigenous midwives were enthusiastic to join the initiative and that TBAs were popular among rural women. A study by the Reproductive and Child Health Alliance (RACHA) in 1999 has found that rural women preferred TBA to medically trained midwives because they think that the service fee of midwives is too expensive and that midwives are young and inexperienced compared to TBA whom they tend to know because TBA reside in the same village or commune. Although the attendance of TBA in birth delivery is declining, it remains a widespread practice of rural Cambodian women. On the other hand, 71 % of women in Cambodia had access to a skilled birth attendant (SBA) in 2010, and just over half of births took place in a health facility either a private or a public one. SBA are mobile and can attend home births.

## 5. Maternal Care Relevant Policy Interventions

Following the intervention of UNTAC, Cambodia has been receiving substantial financial and technical development aid to rehabilitate the country. One of the targeted sectors is health. Particularly, maternal and child health (MCH) has been placed at the center of most of policy interventions, as a result of the Safe Motherhood Initiative in 1987 and its subsequent initiatives, namely the 1994 International Conference for Population and Development (ICPD) and the 2000 United Nations Development Goals (MDGs). These three global initiatives have drawn significant attention of the international community on the health of women, especially pregnant women,

in developing countries. To enhance the understanding of what influence maternal care in Cambodia, this section reviews important policy interventions but limited to only those deemed relevant or having implications on maternal care. Some interventions touch on supply-side factors, while some other focused on demand-side factors.

### *5.1 Health Sector Reform*

The first policy intervention targeting the wider health sector was "the Health Sector Reform" initiative. Since it targets the whole sector, it has had significant impact on maternal health. The intervention was undertaken with support from the international donor community and took place in three phases. Under the name of "Strengthening Health Systems Project Phase I", the first phase (1991-1994) focused on strengthening the health system, building organizational capacity of Ministry of Health (MoH) and developing plans to rehabilitate the sector (Hill and Mao 2007). Continuing from the first phase under the name of "Strengthening Health Systems Project Phase II", the second phase (1995-1997) touched upon issues of service delivery and health financing. Under a different name of "Health Sector Reform Project", the third phase (1998-2000) concentrated on establishing mechanisms to monitor and evaluate the new health system and operational district (OD) services, systematically extend and monitor health financing schemes, and test a new way of cooperation with private sector for better quality of health services (MoH 2007).

### *5.2 Health Sector Strategic Plan (HSSP)*

The Health Sector Strategic Plan (HSSP) has been developed into two phases (Phase I: 2003-2007; Phase II: 2008-2015). The first-phase HSSP (HSSP1) was formulated in 2002 to guide the work of MoH as well as relevant stakeholders to achieve the government's planned outcomes for health section for the period 2003-2007. The seven expected outcomes of the HSSP1 are concerned with maternal and child health: (i) reduced infant mortality, (ii) reduced child mortality, (iii) reduced maternal mortality, (iv) improved nutrition among children and women, (v) reduced total fertility rate, (vi) reduced household health expenditure, especially among the poor, and (vii) more effective and efficient health system. To achieve these outcomes, the government prioritised six areas of work: (i) health service delivery, (ii) behaviour change of health providers, (iii) quality improvement, (iv) human resource development, (v) health financing, and (vi) institutional development (MoH 2002).

The second-phase HSSP (HSSP2) was formulated in 2008 with a vision "to enhance sustainable development of the health sector for better health and well-being of all Cambodian, especially of the poor, women and children, thereby contributing to poverty alleviation and socio-economic development". The plan focused on population health problems and essential services, specifically (i) reducing maternal, new born and child morbidity and mortality with increased reproductive health, (ii) reducing morbidity and mortality of HIV/AIDS, Malaria, TB and other communicable disease, and (iii) reducing the burden of non-communicable diseases and other

health problems. To achieve these three expected outcomes, MoH and relevant stakeholders concentrated their efforts and resources on five cross-cutting health strategies: health service delivery, health care financing, human resources for health, health information system, and health system governance (MoH 2008).

### *5.3 Health Coverage Plan*

The first important policy output of the Health Sector Reform is "the 1996 Health Coverage Plan". To deliver cost-effective and comprehensive primary health care services with no functional gaps, the Health Coverage Plan adopted a "district-based health system called operation district or OD" (Hill and Mao 2007, MoH 2007). The system divided public providers of primary health care services at the district level into two tiers: health centers (HC) and operational district referral hospitals (RH). As of December 2012, Cambodia has 1,024 HCs, 121 Health Posts (HPs), 82 RHs, and 8 national hospitals (NHs) (MoH 2013).

Since the success of Health Coverage Plan depends on the rational allocation and standardization of activities to achieve the best intervention at the best possible cost, MoH has divided public health service delivery at the OD level into two levels: the Minimum Package of Activities (MPA) at the HCs and the Complementary Package of Activity (CPA) at the RHs (MoH 2006). MoH adopted the criteria for dividing clinical services into each package together with the criteria for location of health facilities in the Health Coverage Plan (MoH 2007). This rule of *division does not apply to private sector*; private providers and international NGOs deliver only a limited range of services (WHO and MoH 2012).

At the national level, the top providers of public health services in Cambodia are national hospitals, and they serve as RHs for sub-national-level health facilities. The sub-national-level health facilities in the capital city Phnom Penh consists of Phnom Penh Municipal Referral Hospital (PPMRH), and RHs and HCs in each OD. In the province, there are provincial referral hospital (PRHs) as well as RHs and HCs in each OD.

A HC is established within communes and villages to serve a population between 8,000 and 12,000 with 14 types of health services identified in the MPA. Those services include general consultation, STA/AIDS, small surgery, malaria testing and care, vaccination, pre-natal examination, birth spacing, normal birth delivery, post-delivery care, TB care using DOTS, Hansen detection and referral service, provision of vitamin A, detection of malnourished people and health education (Chou, Horn et al. 2007). Only out-patient services are available at the HC.

With larger coverage, a RH serves the whole population in an OD. The RHs perform advanced services beyond MPA and are allowed to handle major health injuries. In-patient care is available at the RHs together with other services as set forth in the CPA. CPA status is classified into three levels based on number of staff and physicians, number of beds, medicines and medical equipment, and clinical activities (MoH 2006). CPA 1 is a RH that has no surgery requiring anesthesia but it should have obstetric service (see Appendix 1 for details of obstetric services in

each level of CPA). CPA 2 is a higher level RH since it has emergency care services and surgery with general anesthesia. CPA 3 has all the services of CPA 2 plus various specialized services (e.g. Ear, Nose, and Throat treatment (ENT) and Ophthalmology) (see Table 1 for a list of clinical services in each level of CPA) (MoH 2006).

**Table 1: List of Clinical Services at Each Level of CPA**

| Clinical Services | CPA1 | CPA2 | CPA3 | Observations |
|---|---|---|---|---|
| Emergency care | * | * | * | Different package |
| General medicine for adults | * | * | * | |
| Surgery | | * | * | |
| Gynaeco-obstetrics | * | * | * | |
| Pediatrics | * | * | * | |
| Tuberculosis | * | * | * | |
| Referral consultation and Kinetic therapy | * | * | * | |
| Operation theatre and ICU | | * | * | |
| Oral and dentist | * | * | * | |
| Infectious diseases: TB, HIV/AIDS, Malaria | * | * | * | |
| Medical audit death | * | * | * | |
| Specialized services | | | * | E.g. ENT, Ophthalmology |
| Clinical support services | | | | |
| Laboratory | * | * | * | |
| Blood bank | | | * | |
| Blood depot | | * | | |
| Pharmacy | * | * | * | |
| Imagery | * | * | * | |

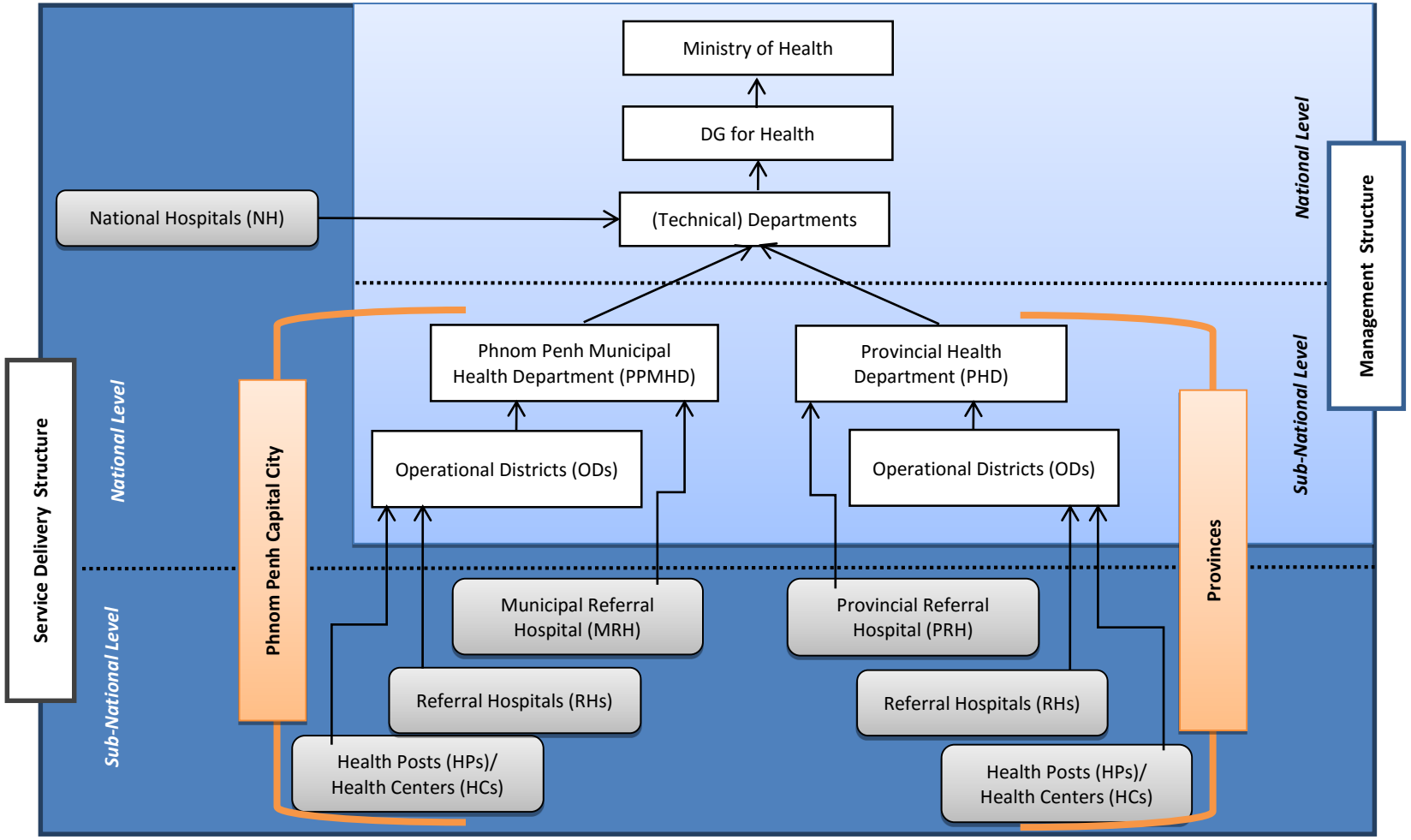
*Source: MoH (2006)*

From a management perspective, the top management authority in Cambodian health care system is Ministry of Health (MoH), and the lowest body is health center (HC) or health post (HP). Key players in management of health care system at the national level include (i) Minister of Health, (ii) Director of the Directorate General for Health (DG for Health), and (iii) Directors of seven technical departments, national hospitals, national programs, national institutes, University of Health Science, and regional training centers. The sub-national level consists of two divisions: capital city and provinces, but their governance structures are alike. In the capital city Phnom Penh, the hierarchy starts from the Phnom Penh Municipal Health Department (PPMHD) at the top and four ODs at the bottom. Similarly, the provincial health department (PHD) is the highest top authority in health care system at the provincial level, and it manages ODs (see Figure 2).

Reporting and feedback systems follow the same channels but in reverse orders. In the capital city, HCs and RHs are required to report directly to OD offices, and the OD offices and the Phnom Penh Municipal Referral Hospital (PPMRH) need to report to the office of Phnom Penh Municipal Health Department (PPMHD). The PPMHD further reports to the Department of Planning and Health Information (DPHI), who will organize the obtained information and send to each responsible national program. Similarly, in the province, HCs and RHs must report to the OD

offices as well, and the OD offices and the PRHs reports to the Provincial Health Department offices who will further report to DPHI in Phnom Penh. Except that the national programs are not obliged to return feedback to DPHI, the feedback channel is in reverse order with the reporting channel (MoH 2007).

**Figure 2: Overview of Health Care System in Cambodia: Management and Service Delivery Structures**




*Source: Authors based on pers. comm. with Vice-director of National Institute of Public Health and Vice-director of National Center of Health Promotion*

### *5.4 Health Financing Schemes*

Finance is one of many key factors to improve quality and accessibility of public health services. The 1996 National Charter on Health Financing created a floor for several subsequent financing initiatives to take place (MoH 2013). Since both supply and demand sides of health services faced similar financial constraints, the Cambodian government, so-far, has been able to tackle financial challenges of both sides by installing both supply-side and demand-side financing mechanisms. Particularly relevant to maternal health, several important supply-side mechanisms are currently in place, namely (i) user fees and exemption for the poor, (ii) special operating agency (SOA). The current demand-side mechanisms include (i) health equity funds (HEF), (ii) community-based health insurance, and (iii) voucher scheme for reproductive health services (see Table 2 for details of each scheme).

#### 5.4.1 Supply side financing schemes

- **User fee and exemption system**

The 1996 National Charter on Health Financing is a policy output from the second phase of the Health Sector Reform. The Charter was promulgated to allow public health facilities, under consultation with local communities, to levy and collect user fees. The objective of this policy is to reduce the actual costs of health care to the patient, enhance staff motivation, suppress unofficial fees, improve transparency, improve quality of care and improve access to public health services for the majority of the population, including the poor (Annear, Bigdeli et al. 2007). Out of 100% of collected fees, 60% is used for incentives of staff at health facilities; 39% is for operating costs; and the remaining 1% is to be transferred to the National Treasury (MoH 2013). Although the user fee system is set, health facilities have the right to grant fee exemptions to very poor patients.

A number of studies have been conducted to examine the impact of user fees and reported both positive and negative effects. For example, a study on Takeo RH has shown that the hospital was able to increase the utilization level up to more than 50% for in-patient and surgical services and to achieve financial sustainability after four years of financial support from external donors (Barber, Bonnet et al. 2004). Similarly, another study on the National Maternal and Child Health Center (NMCHC) in Pnomh Penh also reported, as a result of the application of user fee system, the increase in patient satisfaction rate, number of outpatients, number of birth delivery, and bed occupancy rate (Akashi, Yamada et al. 2004). The study also argued that the user fee system has led to self-sustainability of the hospital. On the other hand, a study on Kirivong RH in Takeo province reported a decline in the utilization rate, and the analysis of patients' socio-economic condition has revealed that the proportion of poor people using the services declined after the introduction of user fees (Jacobs and Price 2004).

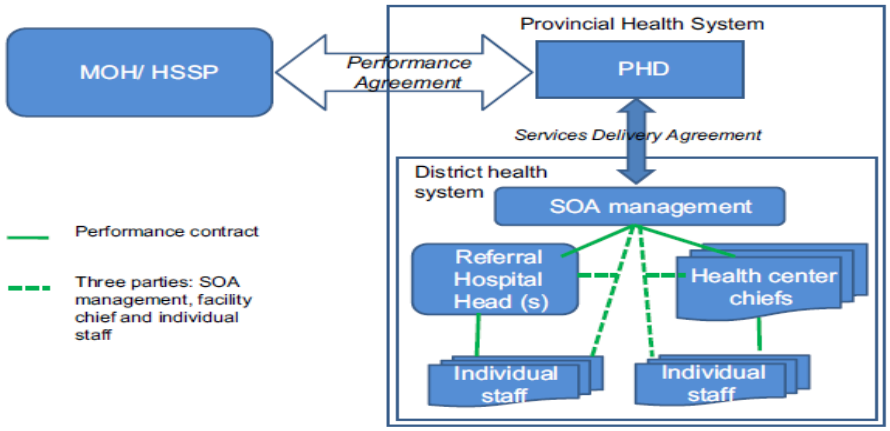
One possible explanation why poor patients were negatively affected by the user fees was because the fee exemption system did not work efficiently to serve the poor. The execution of fee exemption varies widely across health districts in Cambodia, for example no exemption granted at Peariang RH, 2% exemptions at Takeo RH, 13-15% granted at Pursat RH, and 25% granted at Rovieng HC (Espinosa and Bitran 2000 as cited Annear, Wilkinson et al. 2006). Evidence has shown that the exemption system worked more efficiently at HCs than at RHs because HCs are closer to users and thus was better able to disseminate the information of fee exemption (Wilkinson 2001 as cited in Annear, Wilkinson et al. 2006). Health facilities faced limited capacity, both technically and financially, to identify who should be eligible for fee exemption (Jacobs and Price 2004). Moreover, because the fee exemption leads to a decrease in total revenue of the health facilities and incentives to health staff, the staff were less interested in granting fee exemptions (Annear, Wilkinson et al. 2006).

- **Special Operating Agencies (SOA)**

The SOA scheme is a new kind of contracting approach implemented since 2009 as a part of a national public sector reform program called "the National Program for Administrative Reform" (Khim and Annear 2013, MoH 2013). The scheme is established with four objectives: (i) improve the quality and delivery of government health services in response to health needs, especially of the poor, (ii) change the behavior of health sector staff gradually towards the principles of motivation, loyalty, service and professionalism, (iii) promote prudent, effective and transparent performance based management, and (iv) develop sustainable service delivery capacity with the available resource (MoH 2013).

According to the 2012 Health Financing Report of MoH published in 2013, there are 30 SOAs established in Cambodia, located in 9 provinces covering 8 provincial hospitals and 22 ODs that further cover 16 RHs, 291 HCs, and 63 HPs (MoH 2013). A PHD is contracted by MoH through a "Performance Agreement" to serve as a third-party commissioner monitoring performance of public health facilities. The PHD then signs a "Service Delivery Agreement" with head of each SOA, which could be provincial hospital or OD. In case of OD, heads of RH and HCs sign a "Performance Contract" to represent the agreement made between SOA/OD and RH and each HC at the institutional level. At individual level, each staff of RH or HC also signs a "Performance Contract" with the head of RH or HC (Khim and Annear 2013)(see Figure 3).

## Figure 3: Contracting Mechanisms and Parties




Source: Khim and Annear (2013)

The contract (Service Delivery Agreement) between PHD and the SOA stipulates (i) responsibilities of the contracting parties, (ii) service provision, (iii) resource needs, (iv) performance achievement and sanction, (v) financing and legal representation. The PHD is responsible for providing financial resources, drugs and medical supplies to the SOA in a timely and transparent manner and to support the SOA in enforcing a performance management system, including reshuffling of non-performing staff. The SOA (provincial hospital or RH and HC in the OD) must adhere to three rules: (i) no under-the-table payments, (ii) no pilfering of clients or conduct of private services in the public facilities, and (iii) no pilfering of drugs and medical supplies from the public facilities. In return, when targets as stipulated in the contract are met, each facility is paid full incentives but the incentives are deducted when targets go unmet. The Head of facility is responsible for ensuring the achievement of stated targets (Khim and Annear 2013).

The SOAs receive funds from three sources: recurrent costs from the national budget, Service Delivery Grant (SDG) from the Health Sector Support Project (HSSP) Phase 2, and user fees. There are two sources of user fees: fee-paying users and fee exemption reimbursement from the Health Equity Fund (HEF), Community-Based Health Insurance, and Voucher schemes (Khim and Annear 2013) (details of these three schemes provided in Section 5.4.2).

- **Government subsidy for the poor (SUB)**

This scheme is an outcome of the agreement between MEF (Ministry of Economy and Finance) and MoH under *Prakas No. 809*, dated 13 October 2006. The objective of the scheme is to improve the poor's access to public health services. MoH is responsible for setting criteria and mechanisms to identify the poor based on principle of equity, fairness, and transparency. The *Prakas* allows the poor to enjoy a benefit package which include OPD (Out-Patient Department)

at health center level and IPD at national hospital, national centers and referral hospital levels (MoH 2013).

Public health facilities are paid on a fixed case basis at flat rate according to types of services and health facilities. For example, HC is entitled to get reimbursement of 1,000 riel and 10,000 riel for a consultation and hospitalization respectively. The fee rate become more expensive for national hospitals, national centers, and RHs. National hospital and national centers are paid 80,000 riel alike for a hospitalized patient regardless of disease conditions and duration of stay. RHs CPA1, CPA2, and CPA3 receive only 40,000 riel, 50,000 riel, and 70,000 respectively for a hospitalization (MoH 2013).

The SUB scheme receive subsidy from the government, and the fund is managed by public health facilities under the name of "Subsidy Operators (SUBOs)". Two groups of SUBOs are (i) national hospital (classified as Group I) and (ii) OD (classified as Group II). In2012, the SUB scheme has supported 42,792 cases. RHs received 74% of the cases, national hospitals 22% and HCs 12% (MoH 2013). However, it is unknown why the share of cases at HCs is much lower than that in RHs.

- **Midwifery incentives**

MoH considers medical midwives as key to improve the overall health, especially of those in rural and remote areas due to the lack of doctors (Minca 2011). In late 2007, the "Government Midwifery Incentive Scheme (GMIS)" was initiated and implemented nationwide. The objective of the scheme is to promote birth delivery at public health facilities as a mechanism to reduce maternal mortality (HEFPA n.d.). The scheme provides incentives to medical midwives and other health personnel (probably including doctors and nurse) US$15 per live birth in HCs and US$10 per live birth in RH.

The EU-funded "HEFPA" project (Health Equity and Financial Protection in Asia) has found that the share of birth delivery in public facilities has increased from 19 % in 2006 to 57 % in 2011. HCs saw the highest increase among all public facilities. The GMIS might have accounted for 15% of increase after its operation for 12 months (HEFPA n.d.).

### 5.4.2 Demand side financing schemes

- **Health Equity Fund (HEF)**

The "Health Equity Fund (HEF)" and the "Community-Based Health Insurance (CBHI)" are two kinds of contracting schemes to reduce financial burden of the poor, so that they are more able to access public health services. The two schemes were both initiated in 1999, in the third phase of the Health Sector Reform but the HEF was more popular than the CBHI (Annear, Bigdeli et al. 2007).

A number of international NGOs funded the HEF as a social protection scheme. In principle, the fund is managed by a local NGO sub-contracted by the international NGOs. The local NGO conducts screening to identify the eligible poor (pre-identification) and submit the list of users to

be exempted to the district RH. The RH follows the list and reimburses user fees monthly from the local NGO for delivered services. It is noteworthy that the HEF operates only at the district RHs. The fund manager of local NGO works as a monitor of the quality of services provided by the RH and as an advocate for identified poor patients who come to use services of the RH, so that their voices and concerns are heard. Overall, the main aims of HEF are to (i) reduce financial barriers, (ii) facilitate access to priority health care costs, (iii) protect the poor from catastrophic expenditures, (iv) improve the quality of the public health services, and (v) increase the accountability of service providers (Annear, Bigdeli et al. 2007).

- **Community-Based Health Insurance (CBHI)**

Unlike the HEF, the CBHI is a voluntary, locally-based scheme administered by independent NGOs. If they are interested in the scheme, each family is required to pay less than US$2 per month in exchange for health services (in-patient and out-patient) at nominated public health facilities. The NGOs deploy field staff to advertise the scheme, collect monthly premium from households, and negotiate with public health facilities. The CBHI serves as a third-party purchaser of health services for contracted households by paying monthly fee for the upcoming service usage in advance to the facilities. The scheme, therefore, works to increase utilization rate at public health facilities, provide an additional source of revenue to facilities, and may act as a voice for patients. Since the scheme needs to be financially sustainable, it has to ensure that the quality of delivered services of health facilities was satisfied by users, so that they still continue participating in the scheme (Annear, Bigdeli et al. 2007). However, unlike the HEF, the CBHI is not a free-of-charge scheme since households need to pay monthly premium; this could be a reasons why this scheme is not as popular as the HEF.

- **Voucher Scheme for Reproductive Health Services**

MoH has introduced a set of policy and strategic interventions including the National Strategy for Reproductive and Sexual Health (2006-2010) and Road Map for Accelerating Maternal and Child Mortality as initiatives to reduce maternal mortality. The voucher scheme for reproductive health project has been operated as a mechanism to reduce maternal mortality and to achieve the above two initiatives. The scheme receives financial support from the Social Health Protection Program.

Poor women need to be identified for their eligibility as beneficiaries of the scheme. Upon identification, the poor women are provided “vouchers”, which entitle them to use reproductive health services at contracted public and private health facilities. The services covered by the vouchers include antenatal care, delivery, postnatal care, family planning and safe abortion (for all women). In case of no HEF operating, the poor women are also entitled to reimbursement for transportation cost and hospital services at RHs. The scheme is managed by Voucher Management Agency (VMA), and public health facilities (voucher operators) are contracted by MoH to provide health care services. Statistics of MoH has shown that vouchers were mostly spent at HCs (MoH 2013).

## Table 2: Overview of Current Health Financing Mechanisms Relevant to Maternal Care in Cambodia

| No. | Financing Mechanism | Implementer/ Operator | Target Population | Benefits/Services | Provider Payment Method | Coverage |
|---|---|---|---|---|---|---|
| **1** | Tax funding via government budget | Ministry of Economy and Finance, MoH, PHD, OD, RH, HC | All population | Recurrent budget, drug and material supplies | Line item, budget, and in-kind including equipment and drugs | Nationwide public health facilities |
| **2** | User fee exemptions | MoH, public health facilities | Poor patients | MPA and CPA123 | User fee exemption | Nation wide |
| **3** | HEF | NGOs for HEFs | The eligible poor (those under the national poverty line) | MPA and CPA services, food, transport, funeral expenses | Official standardized case base payment | In 46 RHs and 290 HCs, covering approx. 78% of the target group |
| **4** | Government subsidy schemes (SUBO) | MoH, PHD, OD | The eligible poor (those under the national poverty line) | MPA and CPA services | Official flat rate | In 6 National Hospital, 11 RHs, and 57 HCs |
| **5** | CBHI | NGOs | Mainly informal sector, people living above poverty line | MPA and CPA services, food, transport, funeral expenses | Capitation, case base, fee for services | 19 schemes with 17 RHs, 1 NH, and 231 HCs, covering 166,664 persons, <1% of the population |
| **6** | Vouchers for reproduc0tive health | NGOs | Poor women | Reproductive health services | Fee for services | In 9 ODs, 5 RHs, 118 HCs, and 4 private clinics, covering 107,763 women |
| **7** | Midwifery incentive | MoH, PHD, OD, and Health Facilities | Midwife attending delivery | $15 per live birth at HC; $10 per live birth at RH | Case reimbursement | All public health facilities |
| **8** | Special Operating Agency (SOA) facilities | MoH, donors, Health Sector Support Project (HSSP) | All population in the coverage area | Decentralize together with performance-based incentive for providers | Line item and special delivery grant (SDG) | In 30 ODs |

*Source: MoH (2013)*

### *5.5 Safe Motherhood Policy*

The National Safe Motherhood policy formulated by the Ministry of Health (MOH) and the National Maternal and Child Health Center (NMCHC) in 1997 focuses on four pillars to ensure safe motherhood for women. Women are guaranteed safe motherhood when they (i) have full knowledge of family planning, (ii) receive quality antenatal care, (iii) have clean labor and delivery, and (iv) are provided with essential obstetric care. What follow are types of essential obstetric services delivered by health personnel (e.g. doctors, midwives and nurse) at HCs as specified in the Safe Motherhood Clinical Management Protocols for Health Centers (MoH2010). The protocols, however, does not detail the different roles and responsibilities between doctors and midwives in obstetric care. A study of MoH has found that nurses and midwives, who are the front-line workers of health system, have no legal authority, technical training or access to appropriate treatments to deal with obstetric emergency (MoH 2009a). For example, they are not allowed to use certain drugs – namely Oxytocin, Magnesium Sulphate, oral Ampicillin and oral metronidazole – and have no skills to resuscitate and stabilize women and start IV infusion in an emergency and at the same time take action to arrange transport to a higher level of care (MoH 2009a).

The antenatal care provided by health personnel at HCs has a number of components. Women are expected to have at least two antenatal care visits during pregnancy. During the visits, they are screened for risks or early signs of pregnancy dangers. If any signs are found, women will be provided appropriate treatments or referred to a RH. At the same time, women also receive tetanus immunization (2 times); anemia prophylaxis (90 iron/folate tablets); diagnosis and treatment of anemia; syndromic treatment of STDs; health education on danger signs, nutrition and harmful traditional practices, place of delivery with transport problems activity; and breast feeding and birth spacing counseling.

Health personnel at HCs are also obliged to provide labor and delivery care services, which includes labor management using partograph and safe, labour and delivery. Foetal and maternal complications are detected, and the case needs to be referred (from HCs to RHs) when necessary. Other services include the control of bleeding during the third stage of labor, thermal control, early breast feeding of the newborn, obstetric first aid, and organization of transport for obstetric emergencies from community/health center. The health personnel who should carry out these tasks *can be* a doctor, midwife or nurse but there is role confusion. MoH (2010) states that health personnel could be doctor, midwife or nurse however earlier MOH promulgations (2009a) states that nurses and midwives <u>are not</u> allowed to carry out some tasks. We conclude that the policy does allocate tasks to job roles but we are not clear what the actual division of roles are because it is not clear from the policy documents.

Responsibilities on essential Emergency Obstetric and Neonatal Care (EmONC) are divided between HCs and RHs (see Section 5.6 for a list of basic and comprehensive EmONC). Health

personnel at HCs are authorized to provide basic EmONC services including (i) prevention and control of hemorrhage including active management of the third stage of labor and removal of placenta/retained products; (ii) vacuum extraction; (iii) repair of perineal laceration; (iv) control of convulsions with parental medication; (v) treatment of sepsis with antibiotics; (vi) evacuation of retained products for incomplete abortion (manual vacuum aspiration); (vii) birth spacing services except surgical; (viii) essential newborn care; and (ix) quality services for termination of less than 12 weeks pregnancy. Again the allocation of these roles to different medical personnel is not specified in the protocol.

Health personnel at RHs are allowed to operate comprehensive EmONC services, which include all the basic EOC services and several other advanced services. Those services include (i) services related to surgery, such as surgical obstetrics (caesarean section), laparotomy for ectopic/extra-uterine pregnancy or ruptured uterus, repair of virginal and cervical tears, evacuation of retained products of incomplete abortion, amniotomy with/without oxytocin infusion to augment labour, active management of third stage of labor to reduce blood loss, and quality services for termination of unwanted or high risk pregnancy; (ii) anaesthesia; (iii) medical treatment of sepsis and shock, hypertensive disorders of pregnancy including eclampsia and severe aneamia; (iv) blood replacement; (v) surgical birth spacing; and (vi) essential newborn care. Again, this is thought to be the work of doctors and midwives but we cannot be sure as it is not clear from different policy documents what the division of labour actually is.

Safe motherhood services also incorporate post-natal care. In case that doctors or midwives assist women during birth delivery at home, the same personnel are recommended to make at least one postnatal visit to women at home within 24 hours of delivery and another one during the first week of birth. During the visits, doctor or midwife needs to examine women for any sign of complication and provide appropriate treatment to mother and the newborn. Advice on breastfeeding, thermal control, immunization, and nutrition and hygiene counseling are all parts of the services. In making this recommendation, the protocol suggests that publically employed medical staff (SBA) should attend a home visit and at least one post-natal check-up and this should be part of a package of publically provided services. However, we have heard anecdotally that in practice households pay a midwife to come for the birth and to come for any check-up. Again this issues remains unclear.

### *5.6 Emergency Obstetric and Newborn Care (EmONC)*

As mentioned in the earlier section, EmONC services have been divided between HCs and RHs (basic EmONC at HCs; comprehensive EmONC at RHs). Table 3 presents types of services included in basic EmONC and comprehensive EmONC.

**Table 3: Emergency Obstetric and Newborn Care (EmONC)**

| Basic EmONC | Comprehensive EmONC |
|---|---|

| | |
|---|---|
| 1. Antibiotics IM and IV<br>2. Oxytocics (IM and IV)<br>3. Anticonvulsants such as magnesium suplhate<br>4. Manually remove the placenta<br>5. Post abortion care (MVA)<br>6. Assisted vaginal delivery (vacuum extraction, forceps)<br>7. Perform neonatal resuscitation of newborn | A basic EmONC plus:<br>8. Surgery (caesarean section)<br>9. Blood transfusion |

*Source: MoH (2009a)*

While basic EmONC is delivered at HC level, not all HCs have enough capacity to provide basic EmONC. Similarly, while comprehensive EmONC services are provided at RHs, not all RHs are able to deliver comprehensive EmONC. In late 2008, MoH undertook a national assessment of availability, quality, and utilization of EmONC. The study included 347 health facilities (4 national hospitals, 73 RHs, and a purposive sampling of 230 HCs, and 40 private facilities). To be considered as a basic EmONC facility (BEmONC), the health facility must have performed the entire seven types of services in the basic EmONC package in 3 months prior to the survey. Similarly, to be eligible as a comprehensive EmONC facility (CEmONC), the health facility must have delivered all the nine services in the comprehensive EmONC package (7 basic EmONC plus another 2 as shown in Table 3). The national study found that there were not enough facilities providing EmONC to make the services accessible nationwide. Out of the 347 surveyed health facilities, 4 national hospitals, 21 referral hospitals and 2 private clinics are qualified to be considered CEmONC. Only 19 RHs and 1 private clinic qualified as BEmONC. None of HCs is qualified as BEmONC (MoH 2009b). This might suggest that any complications that might be envisaged to be treated at a HC are in fact being referred on from HCs to RHs.

The same national study reported several other findings. There is a geographical disproportion across the country in terms of number of facilities providing EmONC, and there is a critical shortage of EmONC at HCs, suggesting that the needs of women with complications of pregnancy are not being met. For instance, there were women who require caesarean sections and were not receiving them. Finally, the quality of EmONC services is poor. The study also found several barriers to functional EmONC services, of which one is the weak referral system (MoH 2009b).[3]

Following the findings of the national assessment, MoH developed the "EmONC Improvement Plan 2010-2015" in 2009. The purpose of the plan was to improve coverage and utilization of quality EmONC and services and skilled care particularly among the poor and

[3]Barriers to functional EmONC services included the lack of standardization of services, policies not supporting the implementation of life saving EmONC functions, lack of qualified and competent staff, weak procurement and logistics system for drugs, supplies and equipment, problems of infrastructure, poor patient flow, services which are not "women friendly", weak referral system, a safe blood supply not always universally available, and weak monitoring supervision and evaluation (MoH 2009a).

vulnerable. Totally, seven outputs are expected from the implementation of the plan: (i) policy and minimum standards to support implementation of EmONC at all levels of care, (ii) improved availability and access to EmONC, (iii) strengthened capacity to support the development of skilled care, (iv) increased utilization of quality functional EmONC and services, (v) functioning referral system, (vi) provincial EmONC plans developed and implemented by PHDs, and (vii) strengthened links to communities and increased utilization of EmONC (MoH 2009a).

When women experience obstetric complication, they have to be provided adequate and timely care. However, their access to health care services is often constrained by three delays leading to their maternal death: delays in deciding to seek care, delays in reaching care, and delays in getting treatment at the facility. To address these three delays, the EmONC improvement plan outlines several necessary interventions including raising community awareness on obstetric dangers, educating TBAs about obstetric emergencies, improving referral systems, improving coverage and distribution of EmONC, building capacity of health facilities, and improving quality of service delivery (see Table 4 for details of each intervention).

**Table 4: Key Interventions to Address the Three Delays**

| Three Delays | Common Causes | Key Interventions Required |
|---|---|---|
| The first delay | Women are not recognized as needing emergency obstetric care. | • Increased utilisation and awareness of obstetric danger signs among women, men and families through strengthened linkages to the community<br>• Through a Midwife TBA Alliance involve TBAs in early recognition and timely referral of women with obstetric emergencies. |
| The second delay | Women and newborns arrive late to referral facility. | • Improve referral system, including communication capacity and transport mechanism and strengthening linkages between facilities. |
| The third delay | Facilities are not staffed and equipped to provide EmONC services, or woman and newborns are not able to access the services upon arrival. | • Improving coverage and distribution of EmONC to meet the minimum requirement (e.g., four basic and one comprehensive EmONC facilities for every 500,000 people).<br>• Capacity building of selected hospitals as clinical training sites to support the staffing of 24 hour EmONC by service providers.<br>• Improve utilization of EmONC by strengthening systems to support ongoing quality and improvement of service delivery |

*Source: MoH (2009a)*

### *5.7 Obstetric Referral Protocols and Practices*

Referral is made when a mother or newborn experiences a problem which requires higher level capacity in terms of skills of doctors or midwives or technology. Responsible doctors or midwives have to consider potential risks of transferring and available resources to ensure safe referring (e.g. from a health center to a referral hospital). The Ministry of Health has developed "safe motherhood clinical management protocols", including referral procedures, for health centers (MoH 2010).

Before transferring, doctors or midwives must always (i) stabilize the mother/newborn; (ii) explain to mother and/or family the reason for the referral/transfer; (iii) quickly organize transport and possible financial help; (iv) notify the referral hospital (if possible) about condition of the mother/newborn and their estimated time of arrival; (v) send mother's/newborn's records with them to the referral hospital; (vi) ensure availability of supplies needed for a clean and safe birth during transfer if the mother is in labor; (vii) give oxygen, if available, when the mother or baby is having breathing difficulty, or if mother is in shock or has any other problem requiring oxygen; (viii) must have a skilled provider accompany the mother/newborn to the referral hospital; and (ix) ensure that mother's/newborn's condition is monitored before and during transfer, and that all findings are recorded (MoH 2010).

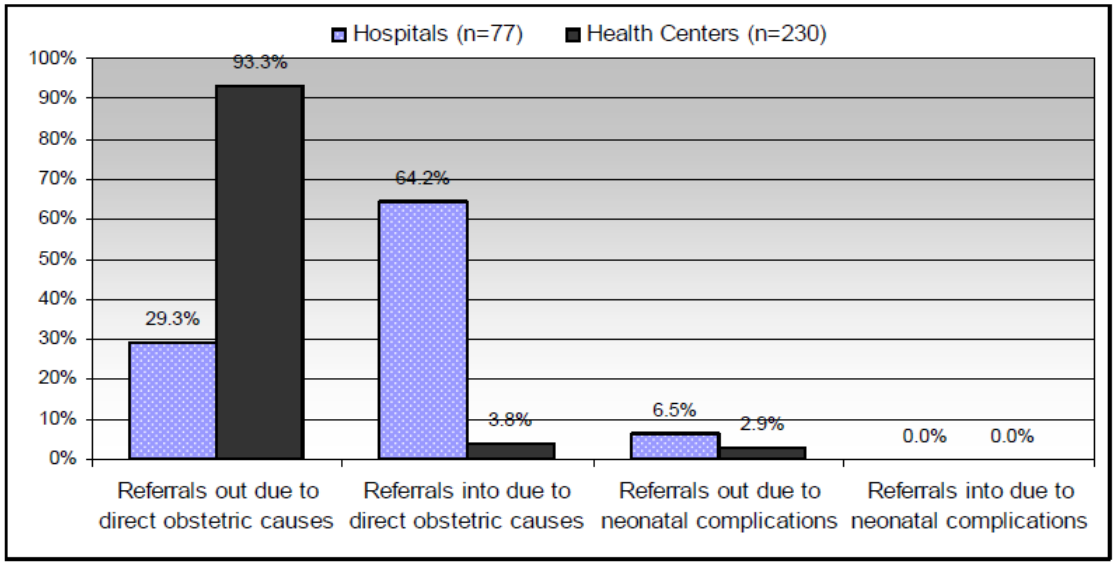
During transfer, a woman needs to be covered with a blanket to prevent heat loss, but doctors or midwives must ensure that she is not overheated. One family member should be allowed to accompany the woman or newborn. As for newborn, s/he also needs to be kept warm. The heat could come from skin-to-skin contact with mother or relative with both covered by clothes. The baby also needs to be protected from sunlight and should be breastfed along the way (MoH 2010). The protocol covers both the delivery and postnatal care.

Although the referral protocols are in place, the EmONC needs assessment conducted by MoH has found that referral is not widely implemented and that the system is not working in most provinces (MoH 2009). Women were referred (we guess from community) to only 3% of the HCs participating in the study (n = 230 HCs) due to direct obstetric causes, while up to 64.2% of participating RHs (n = 77 RHs) received referred cases due to direct obstetric causes (MoH 2009b). The study has attributed the low number of referral *into* HCs due to direct obstetric causes to the poor record keeping at HCs or to the possibility of HCs where women used the services in case of direct obstetric causes being excluded from the study. However, if the statistics really represent the actual practice, HCs seem to be the place where women approach for what they believe will be an uncomplicated birth delivery, while RHs are most likely to be the first choice of women when they have direct obstetric causes. This would be consistent with research evidence from Vietnam.

Referral out from HCs due to direct obstetric causes happened in 93.3% of the participating HCs, while it happened to only 29.3% of the participating RHs (MoH2009b). Either HCs or RHs are less likely to make referral due to neonatal complications (MoH 2009b) (see Figure 4 for statistics

on referrals in and out of obstetric and newborn cases). We searched for but could not find any referral protocols in the private sector.

**Figure 4: Referrals In and Out of Obstetric and Newborn Cases**




*Source: MoH (2009b)*

## 6. Prey Veng: Context of the Study

### *6.1 Introduction to Prey Veng*

Prey Veng is located in the Southeast of Cambodia and is bordered by three provinces and Vietnam: Kampong Cham province to the north, Kandal province to the west, SvayRieng province to the east, and Vietnam to the south. The province is also crossed by two major rivers: the Mekong and TonleBassac. The total land area of the province is 4,883 $km^2$.

According to the report from the Prey Veng Provincial Health Department (PVPHD), the province consists of 1,137 villages, 113 communes, 3 sangkats, 12 districts and 1 municipality. Those districts are: Ba Phnum (9 communes), KamchayMear (8 communes), Kampong Trabaek (13 communes), Kanhchriech (8 communes), Me Sang (8 communes), PeamChor (10 communes), Peam Ro (8 communes), Pearaing (9 communes), PreahSdach (11 communes), Prey Veng (3 sangkats), PurRieng (7 communes), SithorKandal (11 communes) and SvayAntor (11 communes) (National Committee for Sub-National Democratic Development: NCDD 2010). Four districts are bordered with Vietnam: PeamChor, PreahSdach, Kampong Trabaek and KamchayMear(PVPHD 2012).

The provincial capital is 91km away from Phnom Penh and is accessible through a combination of two national roads: National Road No. 1 (61 km) and National Road No. 11 (30 km). Recently the province could also be reached through National Road No. 8 but with longer time, for the new road makes the province 107 km away from Phnom Penh. The commute

through this new national road, however, has been very popular because people do not need to use a ferry to cross the river, which is required if they travel on National Road No. 1. All except three districts - Ba Phnum, Me Sang, and PeamChor– are accessible by national roads. However, in rainy season, travelling to PeamChor, SithorKandal and Kampong Trabek has to be done only by boat due to flood. Distance from the provincial capital to each district town ranges from 15 km to 56.6 km.

As of 2010, total population of the province was 1,145,979 with females 51.8%. The population was organized by 250,808 households, of which 17.3% was headed by females. While the most recent data is unavailable, the province was the fourth most populated province in Cambodia by the 2008 National Census (National Institute of Statistics: NIS 2008). In addition to Khmer, as of 2010, the province also gave homes to 471 Khmer Islamic families (2,031 persons) and 2,186 Vietnamese families (11,524 persons). No information about religion and spirituality is found.

Generally, the province is not classified as a poor province, based on poverty rate and share of poor households in ID Poor Program.[4] In 2011, the national poverty line was 19.8%; that of Phnom Penh was 10.9%; that of other urban areas was 22.5%; and that of rural areas was 20.7% (RGC and UNDP 2013). With the poverty rate 16.6%, Prey Veng was the 6th province with lowest poverty rate after Phnom Penh, Sihanouk Ville, SvayRieng, Kandal and Takeo.The 2011 survey result of ID Poor Program has shown that 27 % of households in Prey Veng was classified as "poor" with "poor level 1: very poor" 11.6% and "poor level 2: poor" 15.3% (Ministry of Planning: MoP 2012). By this share of poor households, Prey Veng was the 10th province having smallest share of poor households among 20 surveyed provinces. Prey Veng province was originally chosen for this study because it had relatively high MMR (8th out of 25 provinces); high poverty rate (4th out of 25 provinces) based on earlier data, was an acceptable travel distance to Pnomh Penh (3hrs); has Special Operating Agency Operational Districts (SOA OD) and non SOA ODs; has at least 3 ODs). We note that the ID Poor Program and poverty data appear conflicting. We do not attempt to resolve that conflict in this literature review.

Agriculture is the main source of income for 93.9% of population, and rice farming occupied a share as large as 92.6% in 2010. Only 5.4% and 0.5% of population engaged in service sector and craft work respectively.

With a large number of 810 public schools, the province ranked fourth in academic year 2012/13 in terms of number of public schools. Within that, 156 are pre-schools; 535 are primary schools; 95 are colleges; and 24 are lycees. However, while the total number of enrolment in all levels in academic year 2012/13 was 237,705, only 45.6% were girls, making Prey Veng the

[4] The Identification of Poor Households (ID Poor) Programme was established in 2006 within the Ministry of Planning (MoP) to more efficiently achieve poverty reduction by providing a national, standardised mechanism for identifying poor households in need of assistance and encouraging the equitable distribution of resources to priority regions. Number of households covered in the survey was 247,187, which was around 98.5 % of the total households in the province (MoP 2012).

province with lowest girl enrolment rate after Ratanakiri. The province is the fifth best performing province regarding completion rate of students with 93.26%, but males slightly outperformed females in all levels of education (Ministry of Education Youth and Sport: MoEYS 2013). The illiterate population in 2010 was 27.06%, of which females comprised 15.16%, of the total population. Literacy programs are available in the province. In 2010, 40 classes with 973 students (unclear if adults or children) were completed, and another 42 classes with 981 students were still continued (National Committee for Sub-National Democratic Development: NCDD 2010).

### *6.2 Obstetric Care in Prey Veng*

Public health care providers include 82 Health Centres (HCs), 5 Health Posts, 6 Referral Hospitals (RHs), and 1 provincial hospital. In each village in Prey Veng, there are two community health volunteer workers. OD Pearaing and OD PreahSdach have been functioning as Special Operating Agencies (SOA) since July 2009. The 7 ODs have different size of population covered, with SvayAntor the most populated OD and PreahSdach the least populated OD.

MMR of Prey Veng in 2008 was 614, which sets the province as the eighth province with highest MMR among 24 provinces.[5] IMR and U5MR of the province in 2010 was 64 and 74 respectively (CDHS 2010). The figures decreased from 121 for IMR and 143 for U5MR in 2005 (NIPH et al. 2006). Both IMR and U5MR have an inverse relationship with education of the mother and economic level of the family.

Table 5 presents obstetric data of Prey Veng in 2013. According to the 2013 Health Activity Monitoring report (we aren't clear what this is at time of writing this review) of Prey Veng, 64.21% of pregnant women received 2 ANC visits in public facilities, but only 39.78% received post-natal care (PNC) up to 1 week after delivery in public facilities. The share of at-risk pregnancies detected in 2013 was 4.64% of the total pregnancies in the year. There was no information about where women were referred to but the number of pregnant women referred out of public facilities in 2013 was 599 cases. HCs was the most popular choice for birth delivery since the number of birth deliveries in HCs in 2013 was 13,703, with 3,659 at RHs, 913 SBAs at home, and 145 cases by TBAs at home. No maternal deaths at HCs, RHs, and private clinics in 2013 were reported. However, there were 20 neonatal births at HCs and RHs in the same year (Prey Veng Health Information System Unit: PVHISU 2013). This could suggest that the rate of facility births in Prey Veng is relatively high (that is, choice of location of birth in a facility looks relatively high), since home delivery *appears* to be in a substantial minority. However, the total number of *reported births* was 18,420 for a provincial population of over 1,145,979. If the reported births equated to the actual births, then the birth rate in a facility would be 94% of all births. However, the national birth rate for Cambodia in 2013 was reported to be 24 births per 1000 population (pers comm Tim Ensor). If the national rate holds for Prey

[5]NIS, MoP (http://app.nis.gov.kh/caminfo/libraries/aspx/Home.aspx) Accessed 11 November, 2013

Veng, then it implies that there should be 27,503 births in Prey Veng rather than the reported 18,420. If this were the case, then the number of actual births is higher than that recorded and hence the facility delivery rate lower than official figures suggest (i.e. 63% of provincial births were in a facility cf to 94% as suggested by official figures). The 2005 data by UNICEF suggested that facility birth in rural areas was less than 20%. So even if births have been under reported, by 2015 facility births in rural Prey Veng, at least, had increased substantially.

The Prey Veng provincial health department has attributed its success in reproductive, maternal, and child health to several factors. First, all HCs have midwives, and there appears to be training provided to TBA on how to recognise obstetric emergency and how to refer women to health facility (EmONC improvement plan, Section 5.6 above). Second, birth delivery at health facilities is accelerated by financial incentives to midwives (see section 5.4.1 above). Third, the so-called "child-loving communities" have been established in all villages (no more information given on this). Fourth, there is close cooperation between local authorities at all levels, health worker volunteers, and people in the community (no further details in the report). There is also strong financial and technical support from the Ministry of Health and other partner organizations. Health personnel are committed to improving quality of primary health care services. Last but not least, success is also attributed to local authorities being able to keep a clear record of the number of population in each locality (PVPHD2012).

There are, however, some challenges that need to be overcome. The province did not see any increase in number of women having antenatal care visits and delivering birth at public health facilities. We are not sure why this should be the case. It could be that the report means that they are successful to some extent. Since PHD classified reproductive, maternal and child health together, the success can be more on reproductive health than on maternal and child health – for instance, the report notes that the share of women using modern contraceptive methods increased from 24.76 in 2010 to 28.3% in 2011. Quality of emergency obstetric and child care is still limited, especially at RHs with CPA3 status - not all midwives have been trained on life-saving procedures, for instance, and planning and distribution of childhood vaccinations have been hindered by wrong estimates of number of children (PVPHD 2012).

## Table 5: Obstetric Data of Prey Veng, 2013

| Indicators | KamchayMear | Kampong Trabek | Mesang | Neak Leung | Pearaing | PreahSdach | SvayAntor | Total |
|---|---|---|---|---|---|---|---|---|
| RH-CPA1 | 1 | | 1 | | | 1 | | 3 |
| RH-CPA2 | | 1 | | 1 | 1 | | | 3 |
| RH-CPA3 | | | | | | | 1 | 1 |
| HC-MPA | 10 | 8 | 10 | 11 | 16 | 9 | 12 | 76 |
| HC-FDH | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 6 |
| Health Posts | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 5 |
| SOA Status | Non-SOA | Non-SOA | Non-SOA | Non-SOA | SOA | SOA | Non-SOA | 2 SOAs |
| Population | 135,985 | 145,538 | 133,227 | 189,963 | 201,831 | 119,252 | 224,988 | 1,150,784 |
| % of women receiving ANC2 (PFs) | 51.13 | 48.85 | 50.43 | 59.72 | 87.27 | 101.94 | 53.34 | 64.21 |
| % of at-risk pregnancies detected (PFs) | 5.95 | 3.62 | 3.53 | 2.43 | 6.67 | 7.31 | 2.77 | 4.64 |
| No. of pregnant women referred out (PFs) | 39 | 67 | 57 | 35 | 244 | 119 | 38 | 599 |
| % of women receiving PNC during 1 week after delivery (PFs) | 18.84 | 36.36 | 24.28 | 38.93 | 69.06 | 67.71 | 20.31 | 39.78 |
| No. of deliveries at hospital | 213 | 545 | 464 | 298 | 1182 | 312 | n/a | 3659 |
| No. of deliveries at HCs | 1,801 | 1,609 | 1,550 | 1,940 | 2,665 | 2,193 | 1,945 | 13,703 |
| No. of deliveries by SBAs at home | 30 | 2 | 1 | 515 | 5 | 9 | 351 | 913 |
| No. of deliveries by TBAs at home | 5 | 7 | 24 | 66 | 13 | 12 | 18 | 145 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No. of maternal death at HCs, RHs, and Private clinics | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| No. of neonatal births at HCs and hospitals | 1 | 2 | 0 | 1 | 3 | 12 | 1 | 20 |

Note: FDH: former district hospital transformed into a health center with beds. Not clear if this means that the HC has in-patients.
Source: (Prey Veng Health Information System Unit: PVHISU 2013)

### *6.3 Health Financing in Prey Veng*

As reviewed in Section 5.4, there are several demand-side and supply-side health financing schemes being operated in Cambodia. The supply-side financing schemes include user fees and exemption system, special operating agencies (SOA), government's subsidy (SUB), and midwifery incentives. On the other hand, the demand-side financing schemes consist of health equity fund (HEF), community-based health insurance (CBHI), and voucher for reproductive health (Voucher). All of these schemes are also being implemented in Prey Veng.

Information of all supply-side financing schemes, except midwifery incentive, in Prey Veng is available. Total revenue from user fees in 2011 was almost 2,000 million riel, about 43% increase from 2010. The reported increase in revenue from user fees was a result of expanded CBHI, Voucher for Reproductive Health, and HEF schemes (PVPHD 2012). In 2011, the province executed exemption for user fees for 160,943 cases (124,711 cases in 2010) amounting to almost 494 million riel, about 52% increase from 2010 (PVPHD 2012). The reimbursement for these exemptions came from the CBHI, Voucher, and HEF schemes.

In the same year, the province received almost US$0.22 million Service Delivery Grant (SDG) from the Health Sector Support Project Phase II (HSSP2) and US$72,634 recurrent budget from the government to operate two SOAs (Pearaing and PreahSdach) (PVPHD 2012).

The government's subsidy scheme (SUB) is being implemented in OD Kampong Trabek, covering 1 RH (CPA2) and 8 HCs. However, the 2012 Health Financing Report of MoH (MoH 2013) has shown that none of the 8 HCs has ever utilized health services through this scheme and that the scheme was used to cover the costs of 1,500 OPD and1,060 IPD including delivery in the contracted RH.

Financing information for all the demand-side financing schemes is also available (see Table 6). The report from the Prey Veng PHD office states that in 2011 the HEF scheme was implemented by the USAID-funded institutes URC-CHS (University Research Co., LLC) in 8 HCs and 3 RHs (PVPHD 2012). However, the 2012 Health Financing Report of MoH mentioned only 2 RHs (both CPA2; each in OD Pearaing and OD PreahSdach) as recipients of the fund. While there was no detailed information in the provincial report on what types of services were financed by this scheme, the health financing report of MoH showed that 368 birth deliveries at RHs (178 cases in PrachSdach and 190 cases in Pearaing) in 2012 were financed through this scheme (MoH 2013).

Meanwhile, the Voucher for Reproductive Health, implemented by a German company EPOS and a local organization named AFH (Action For Health) is being used by 1,418 households in 2011 (PVPHD 2012), in three ODs: Kampong Trabek, Pearaing, and PreahSdach (MoH 2013). Households utilized the vouchers at HCs than at RHs. Totally, the scheme financed 1,551 birth delivery cases in the selected three ODs in 2012 (MoH 2013). RACHA (Reproductive & Child Health Alliance[6]) is implementing the CBHI scheme in 1 RH and 10 HCs in OD Pearaing covering

[6] RACHA has been closed in 2014 due to corruption, but we don't know if this scheme is still being operated or how it is affected.

6,674 users, which equals to 3.3 % of total population in the respective OD (PVPHD 2012). However, no information about types of utilization under the scheme is available.

## Table 6: Demand-Side Health Financing Schemes in Prey Veng, 2012

| Scheme | OD | No. of RHs | No. of HCs | Total Utiliz. Cases | Total Utilization Cases at RH | | | | | Total Utilization Cases at HC | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OPD | IPD | Delivery | Other | Total (OPD + IPD) | OPD | IPD | Delivery | Other | Total |
| HEF | Pearaing | 1 | 0 | 2,777 | 394 | 2,383 | 190 | 0 | 2,777 | 0 | 0 | 0 | 0 | 0 |
| | PreahSdach | 1 | 0 | 2,559 | 1 | 2,558 | 178 | 0 | 2,559 | 0 | 0 | 0 | 0 | 0 |
| | | | | | **FP** | **SA** | **Delivery** | **Other** | **Total** | **FP** | **SA** | **Delivery** | **Other** | **Total** |
| Voucher | Kampong Trabek | 1 | 8 | 3,726 | 27 | 14 | 182 | 4 | 227 | 686 | 0 | 456 | 2357 | 3499 |
| | Pearaing | 0 | 16 | 2,364 | 0 | 0 | 0 | 0 | 0 | 529 | 22 | 390 | 1,423 | 2,364 |
| | PreahSdach | 0 | 9 | 4,195 | 0 | 0 | 0 | 0 | 0 | 831 | 0 | 523 | 2,841 | 4,195 |
| | | | | | | | | | | | | | | |
| CBHI | Pearaing | 1 | 10 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |

*Note:* - OPD: Out-Patient Department; IPD: In-Patient Department; FP: Family Planning; SA: Safe Abortion

*Source: MoH (2013)*

## 7. Factors Influencing Public Obstetric Care

The review in this section consists of a summary of what have been reviewed so far and new information from existing literature on factors influencing health-seeking behaviors at public facilities, particularly maternal care, as well as referral services in Cambodia.

To understand what contributes to high or low usage of public obstetric care, it is necessary to understand what influences access to the services and what influences women's health seeking behaviors. A number of studies investigated public sector health-seeking behaviors of rural Cambodian people, including maternal health, have revealed several influential factors. Some factors are associated with service users i.e. pregnant women, while other are related to service providers. Specifically, causes of use or non-use of the public maternal health services are related to associated costs of the services, socio-economic conditions of users, nature and severity of illness or condition, users' knowledge of public providers, organizational factors, and psychological and socio-cultural factors. Findings on effect of each factor, however, are not always conclusive.

### *7.1 Policy interventions*

The review in Section 5 strongly indicates that access to public obstetric care, especially by the poor in rural areas, has been much facilitated by several important policy interventions. According to the research team, the district-based system introduced in the Health Coverage Plan, one of the outputs of Health Sector Reform, has paved the way for effective service delivery. The Health Coverage Plan also brought about the clear division of obstetric roles and responsibilities between HCs and RHs to avoid functional gaps. The seemingly most influential policy interventions promoting access to public obstetric care are those related to health financing schemes. Since any improvements in coverage and quality of service delivery all require budget, the supply-side financing schemes (user fees & exemption system, SOA, SUB, and midwifery incentive) help service providers overcome their financial constraints to a large extent. Similarly, the demand-side financing schemes (HEF, Vouchers for Reproductive Health, and CBHI) reduces financial burdens of users in accessing the public obstetric services.

Fundamentally, both supply and demand-side financing schemes improves access to public obstetric care by tackling financial constraints of both parties and at the same time serving as mechanisms to improve the quality of service delivery, so that users are satisfied with the services and continue their usage. The available statistics casts no doubt on the aggregate contribution of these schemes in promoting access to public obstetric care nationwide as well as in Prey Veng. However, little is known about conditions under which the schemes operate effectively since there are always cases where the implementation of the schemes does not translate into satisfactory results.

### *7.2 Associated costs of health services*

Costs associated with the public medical or obstetric services are direct and indirect costs. Direct costs include user fees, transportation costs, expenses on food and other basic items during travelling. Indirect cost is opportunity costs of going to a health facility. These costs discourage women as well as rural Cambodian from seeking medical services (Jacobs and Price 2005, Matsuoka, Aiga et al. 2010, Smith 2011, Ith, Dawson et al. 2013). A study by Hardeman and his colleague on the effectiveness of HEF in one district in Siem Reap has reported that medical expenses made up only 32 % of the direct cost per one visit to health facility, but that transport, food and other basic items consumed up to 68% of the direct cost (Hill and Mao 2007). Most of the surveyed users financed this expenditure by taking out loans or selling assets before going to the hospital(Chou, Horn et al. 2007, Hill and Mao 2007). Due to their limited resources, women could not, or think they could not, afford the lump-sum cash payment required by public providers. Private providers, thus, were preferred because they allowed their clients to delay the payment or pay by installment (Oversen and Trankell 2010).

Opportunity costs strongly influences the decision, especially of the poor, to seek services of health facilities. The costs are strongly influenced by seasonal factors and distance to health facilities (Hill and Mao 2007, MoH 2007). People delay seeking health care from the facilities because of household needs to plant or harvest rice, take care of young children, or work to earn income (Jacobs and Price 2005, Hill and Mao 2007). Nursing care in hospital is very limited, so a relative needs to accompany the patients, which increases both direct and indirect costs of hospitalization (Hill and Mao 2007). Evidence from various studies has shown that the current demand-side financing schemes, for example HEF, could help overcome only user fees but not other direct costs and opportunity costs(Hill and Mao 2007).

### *7.3 Socio-economic conditions of users*

Health-seeking behaviors were found to differ with users' socio-economic conditions. The same amount of direct costs placed stronger level of burden on the poor and poorest than on the non-poor. The costs are further accelerated by the geographical location of the poor and poorest, very often living further than the non-poor from the health facilities(Hill and Mao 2007, MoH 2007). Yanagisawa (2004) found no significant differences in HC utilization by floor area of the users but by the asset ownership.

### *7.4 Nature and severity of illness*

Users' decision whether or not to use the public sector health services in rural areas was partly determined by their (perceived) physical condition (Jacobs and Price 2005, Oversen and Trankell 2010, Ozawa and Walker 2011). Although HCs were chosen for mild illness in some cases, generally RHs were only for serious illness (MoH 2007).This also applies to obstetric care. Women did not see the necessity of going to a public health facility if their previous pregnancy was safe or if they themselves considered their current pregnancy to be a healthy one. On the other hand,

some selected women planned to delivery at the health center, but their pre-term labour did not provide them enough time to go to the health facility. In addition to the pre-term labour, lack of clarity on due date could interfere with their plan to deliver at a health center since they did not have enough time to go to the health center (Matsuoka et al. 2010). We think that if families could know and keep track of an estimated delivery date, then they can prepare their belongings to go to a health facility and delegate household responsibilities to other family members in order to reduce opportunity costs.

### *7.5 Users' knowledge of public providers*

Another often cited cause of non-use of public sector health services is users' limited knowledge of public providers. This makes public providers inaccessible in the sense of creating mental distance, unfamiliarity by users with the setting, uncertainty about the reception they would receive there, and therefore a sense of unpredictability about going to a public healthcare service (Oversen and Trankell 2010). Knowledge about the existence of health facilities and their available services and quality is therefore very important. Likewise, some women did not consider using public maternal health services due to perceptions held about user fees, beliefs about the quality of health services, and limited knowledge about health care staff and services (Matsuoka et al. 2010; UNFPA 2013). Chou and his colleagues (2007) writing on maternal health seeking behavior found that better educated, younger women did not adhere to psychosocial childbirth as strongly as older women in their neighborhood. The study, thus, argued that the more literate and less poor a younger woman is, the more likely she is to question the psychosocial beliefs and practices. Barber and his colleagues (2004) found that by formalizing user fees, Takeo RHs was able to control out of pocket expenditures of patients, ensure patients of fixed prices, protect patients from the unpredictability of hospital fees and promoted financial sustainability of the hospital. As a result, the service utilization rate increased significantly.

In some cases, maternal health care at health centers were rejected by pregnant women because women thought that the centers had limited medical equipment, meaning limited quality as well. There were also cases where women had no idea about the existence of such health facilities and their services. Some women mentioned "no prior contact with any health personnel" as a reason for their reluctance to go to the public providers. It is not clear if this was due to lack of information or lack of experience or other factors (Matsuoka et al. 2010). Herdeman and his colleagues (2004) found that first-hand accounts from earlier patients (e.g. relatives or neighbors) appeared the most common source of information about public health facilities. The rare use of public services prevents women from obtaining most updated information about the health facilities (e.g. on user fees, referral system, and available financing schemes). However, in Ozawa and Walker's study (2011), rural Cambodian people reported "trust in quality of public providers" as a reason for choosing public health facilities. They explained that the public providers are honest, sincere, having good medical skills, not bad-

mouthing people, explaining the status of disease and having an effective referral system. Little is known, however, whether women who used public obstetric care had the same belief and what constituted the belief. Such contrasting evidence suggests that it is not advisable to draw a conclusion on quality of public providers including public obstetric care as good or bad, but what is more important is to understand under what conditions women experience good quality public services.

### *7.6 Organizational factors*

Access to public providers can be negatively affected by distance to the health facility, poor road condition, inadequate means of transportation, limited capacity of the health facility to accommodate patients after delivery, midwifery skills of health professionals, limited or no postnatal care, absence of health staff, and impolite behavior of health professionals (Jacobs and Parco 2000; Matsuoka et al. 2010; Ith el al. 2013; UNFPA 2013). Some interviewed women were reluctant to deliver at the health center because there was not enough space for them to rest after delivery, and this was also a reason why home-based delivery is preferable. At home, women had enough space to prepare fire for reheating their body after delivery as commonly followed in the psychosocial practice of giving birth (Matsuoka, Aiga et al. 2010).

### *7.7 Psychological and socio-cultural factors*

Experiential judgment of the elderly women of the community, traditional beliefs and practices, trust and comfort levels with TBAs, discomfort in delivery at public health facilities, and anxiety of delivering on the way to a health facility were all found to be causes of women's non-use of public maternal health services (Jacobs and Parco 2000, White 2002, Matsuoka, Aiga et al. 2010, UNFPA 2013).

## 8. Supply Factors Influencing Public Obstetric Referral Services

Literature on referral services, especially for obstetric care, in Cambodia is very limited. Nakahara and his colleagues conducted a study on referral systems for injured patients in low-income countries by taking the case of Cambodia (Nakahara, Saint et al. 2010). The study found several influential factors including identification of severe cases, organization of transportation, communication between facilities, and prompt care at the receiving facility.

The Nakahara study used data obtained from mailed questionnaire survey conducted in 80 HCs and 17 RHs from December 2006 to April 2007. The study found that in the 80 HCs surveyed, physicians were not available in 76 (96%). The commonly used modes of transportation to carry injured patients from HCs to RHs were taxi, ambulance (unspecified), motorcycle and private car. For transferring emergency obstetric patients, of the 79 HCs, only 18 (23%) indicated motorcycle as a common mode, whereas 59 (75%) and 46 (58%) indicated taxi and ambulance respectively. Cell phones or radios were available for communication in 98 % of the HCs. The majority of the HCs (60 %) did not contact the RH beforehand, but made the transfer without prior notice to the

RH the majority of RHs did not contact the higher-level facility before patient transfer. The majority of HCs (70%) had never received feedback from the RH whereas the RH had rarely received feedback from higher-level hospitals. Finally, village health volunteers usually brought injured patients to HCs but did not always fill a referral form. On the other hand, traditional healers (wide term) rarely referred injured patients to HCs and rarely fill a referral form. (Nakahara, Saint et al. 2010).

Similarly, MoH (2009b) revealed four major barriers to effective obstetric referral services: transport, communication, time and distance. Concerning the transport, all participating HCs and RHs are accessible by all means of transportation during 24 hours. Around 91% of the selected health facilities have cars, and 86% have ambulances. However, only 20.5% of EmONC facilities (those which are qualified as an EmONC facilities as explained in Section 5.5), 63.9% of facilities for upgrade (those which are not yet qualified as an EmONC facilities but have potential for upgrading to be one), and 92% of HCs (all are not qualified as an EmONC facility) faced financial problems to cover maintenance and fuel cost of vehicles. The public telephone lines and radio communication were very limited in the surveyed health facilities. Most of the time, communication was done through personal mobile phones of medical staff. Moreover, on average EmONC facilities were 50 km away from a higher level RH, and it takes about one hour from health facilities to the nearest RH (MoH 2009b).

## 9. Conclusions

This review suggests that different government regimes of Cambodia adopted different approaches to promote safe motherhood and that there was a changing government attitude towards psychosocial childbirth at the policy level. From time to time, the government started to realize the strong position of psychosocial childbirth in the Cambodian society and that ignoring the practice would not lead to satisfactory outcomes in safe motherhood initiative.

Notwithstanding significant progress in reducing maternal and child mortality in Cambodia, giving birth remains a risky mission for Cambodian women, especially in rural areas. Studies on health-seeking behaviors of rural Cambodian people towards public sector health services and women in case of public obstetric care have produced similar findings. Generally, women's non-use of public obstetric care services could be attributed to their limited socio-economic conditions, (perceived) nature and severity of their condition, their knowledge of public providers, organization factors of public health facilities, and women's associated psychological and socio-cultural factors.

However, while a lot is known about why women refuse public obstetric care services, little is known about why some women decided to use them. It is not wise to assume women's positive behavior is a result of the absence of the above constraints since even in the same locality and environment, there is always a mix of women who use and do not use the services. Examining obstetric referral processes could shed light on the contributing factors since it reveals why

women choose the services, how they make their journey from home to public health facility, and what positively or negatively affects each stage of their journey.

While examination of obstetric referral system is the key, knowledge generated from existing literature is not sufficient for drawing any rigorous conclusion. Prey Veng is chosen for the study, but so far there has not been any study investigating women's use of public obstetric care and the obstetric referral process in this province. Study on obstetric referral process in this province, therefore, is needed to fill these gaps.

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Appendix 1: Essential Obstetrics-Emergency Obstetrics and Gynecology

| Process: Conditions | CPA1 | CPA2 | CPA3 | Remarks |
|---|---|---|---|---|
| **a) Antenatal Care: Routine Management** | | | | |
| 1. Anemia | ✓ | ✓ | ✓ | |
| 2. High Blood Pressure during pregnancy | ✓ | ✓ | ✓ | |
| a) Pre-eclampsia | ✓ | ✓ | ✓ | CPA1: Treat hypertension then refer |
| b)Eclampsia | ✓ | ✓ | ✓ | |
| 3. Malaria during pregnancy | ✓ | ✓ | ✓ | |
| 4. Vaginal Bleeding during pregnancy less than 24 weeks | ✓ | ✓ | ✓ | |
| a) menace of abortion | ✓ | ✓ | ✓ | |
| b) inevitable abortion | ✓ | ✓ | ✓ | |
| c) Infectious induced abortion | ✓ | ✓ | ✓ | |
| d) spontaneous abortion | ✓ | ✓ | ✓ | |
| e) Extra-Uterin foetus | | ✓ | ✓ | |
| f) Molar Pregnancy | | | | |
| 5. Vaginal Bleeding during pregnancy more then 24 weeks | | | | |
| a) Placenta Praevia (placenta blockage in the cervix) | | ✓ | ✓ | |
| b) Pre-delivery dilatation of placenta | | ✓ | ✓ | |
| c) Rupture of uterus | | ✓ | ✓ | |
| 6. Frequent vomiting during pregnancy (morning sick) | ✓ | ✓ | ✓ | |
| 7. Urinary Tract Infections | ✓ | ✓ | ✓ | |
| 8. Vaginal Discharge Syndromes | ✓ | ✓ | ✓ | |
| 9. Genital ulcer signs | ✓ | ✓ | ✓ | |
| 10. HIV/AIDS | ✓ | ✓ | ✓ | |
| 11. Maternal Tuberculosis | ✓ | ✓ | ✓ | |
| 12. Premature Rupture of Membrane | ✓ | ✓ | ✓ | |
| 13. Multiple or twin pregnancy | | ✓ | ✓ | |
| 14. Stillbirth | ✓ | ✓ | ✓ | |
| **b) Labor: Routine management: stage 1** | | | | |
| 1. Prolonged latent phase | ✓ | ✓ | ✓ | |
| 2. Prolonged active phase | ✓ | ✓ | ✓ | |
| 3. Premature Rupture of membrane | ✓ | ✓ | ✓ | |
| 4. Premature delivery | ✓ | ✓ | ✓ | ✓ Should be ready to refer |
| 5. Placenta comes prior to presentation of the birth | | ✓ | ✓ | |
| **Routine management: Stage 2, 3, & 4** | | | | |
| 1. Prolonged second phase | | ✓ | ✓ | |
| 2. Abnormal presentation of birth | | | | probably needs C-section |
| a) transverse | | ✓ | ✓ | |
| b) breech presentation | ✓ | ✓ | ✓ | only for multiple delivery woman and small birth |
| c) Face | | ✓ | ✓ | |
| d) Forehead | | ✓ | ✓ | |
| 3. Rupture of uterus | ✓ | ✓ | ✓ | |
| 4. Post-delivery Hemorrhage | ✓ | ✓ | ✓ | Severe bleeding, refer |

| | | | | |
|---|---|---|---|---|
| 1. High Blood Pressure | ✓ | ✓ | ✓ | |
| 2. Post-delivery infection | ✓ | ✓ | ✓ | |
| 3. Problems on urinary system | ✓ | ✓ | ✓ | |
| 4. Status of Breasts | | | | |
| a) Cracked /sore nipples | ✓ | ✓ | ✓ | |
| b) Inverted nipples | ✓ | ✓ | ✓ | |
| c) Engorged nipples | ✓ | ✓ | ✓ | |
| d) Mastitis | ✓ | ✓ | ✓ | |
| e) Abscess of breasts | ✓ | ✓ | ✓ | |
| **d) Neonatal Care: Routine Management** | | | | |
| 1. Asphyxia after birth | ✓ | ✓ | ✓ | |
| 2. Premature delivery/pregnancy | | ✓ | ✓ | |
| 3. Severe bacterial infections | | ✓ | ✓ | |
| 4. Hypothermia (Abnormally cold) | | ✓ | ✓ | |
| 5. Acute Respiratory Infections | ✓ | ✓ | ✓ | |
| 6. Conjuctivitis | ✓ | ✓ | ✓ | |
| 7. Umbilical cord infections | ✓ | ✓ | ✓ | |
| 8. Neonatal infections | ✓ | ✓ | ✓ | |
| 9. Jaundice (not recover after 10 days, refer) | ✓ | ✓ | ✓ | only for normal jaundice |
| 10. Diarrhea | ✓ | ✓ | ✓ | |
| 11. Oral Fungus | ✓ | ✓ | ✓ | |
| 12. Anemia | ✓ | ✓ | ✓ | |
| **Obstetric & Gynecological Interventions** | | | | |
| 1. Normal delivery | ✓ | ✓ | ✓ | |
| 2. Breech delivery | ✓ | ✓ | ✓ | ✓ permitted only if a birth is small and with a multiple delivery mother |
| 3. Vaginal incision and suture | ✓ | ✓ | ✓ | |
| 4. Breaking of the membranes | ✓ | ✓ | ✓ | |
| 5. Vacuum Extractor | ✓ | ✓ | ✓ | |
| 6. Removal of Placenta | ✓ | ✓ | ✓ | |
| 7. C-section | | ✓ | ✓ | |
| 8. Suture of ruptured uterus to stop bleeding | | ✓ | ✓ | |
| 9. Suture of vaginal rupture at level 1, level 2 | ✓ | ✓ | ✓ | |
| 10. Suture of anal rupture at level 3 | ✓ | ✓ | ✓ | |
| 11. Suture of ruptured cervix | ✓ | ✓ | ✓ | |
| 12. Craniotomy | | ✓ | ✓ | |
| 13. Induced abortion by vacuum extractor or curettage | ✓ | ✓ | ✓ | |
| 14. Complete removal of uterus | | ✓ | ✓ | |
| 15. Tubectomy (surgery removal of Fallopian Tube) | | ✓ | ✓ | |
| 16. Tubilization | | ✓ | ✓ | |
| 17. Mascupialisation d'une | ✓ | ✓ | ✓ | |

Source: MoH (2006)