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REDUCING THE BURDEN OF THE THREE DELAYS ON MATERNAL HEALTH IN TIMOR-LESTE:

Results from a Mixed-Methods Study on Individual- and Community-Level Factors Contributing to First and Second Delays in Ermera and Manatuto Municipalities and the Special Administrative Region of Oecusse Ambeno

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Introduction

Introduction

Approximately 80% of maternal deaths globally are due to obstetric complications.

With a maternal mortality ratio (MMR) of 557 deaths per 100,000 live births, Timor-Leste has one of the highest rates of maternal death in the region.

Approximately 78% of births in Timor-Leste are delivered at home and less than 30% of all births are delivered by a skilled provider such as a doctor, nurse, assistant nurse, or midwife.[1]

With such a large percentage of births occurring outside facilities and attended by unskilled providers, coupled with a largely rural terrain and limited transportation infrastructure, Timorese women are at increased risk of dying from delivery complications.

The time needed to receive adequate care is the most significant contributor to maternal mortality.[2,3] Addressing delays resulting from hindered accessibility to reaching and receiving care are particularly critical in countries with high MMRs.[4]

Delay factors are not always simple and often vary within and between contexts. It is important to understand the factors and dynamics within a specific context to mitigate delays.

To that end, the **Ministry of Health (MOH)** and the **National Institute for Health (INS)**, with technical assistance provided by **John Snow, Inc. (JSI)** through the **Health Improvement Project (HIP)** and financial support provided by the **United States Agency for International Development (USAID)** and the **Australian Department of Foreign Affairs and Trade**, implemented the **Maternal Health Community Study**.

The following summary report provides key findings from the mixed-methods study implemented in HIP project areas in Timor-Leste.

The report also highlights recommendations to reduce critical delays and improve maternal health outcomes.

The Three Delays

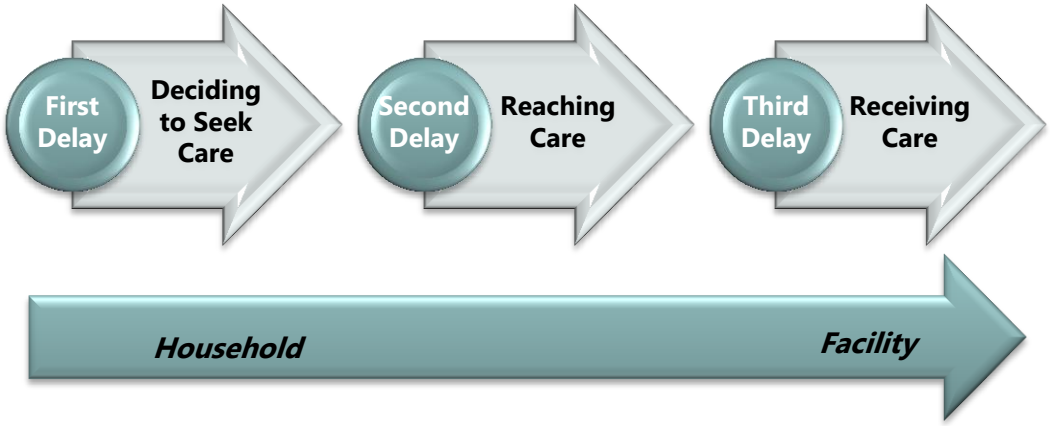
The study is based on **Three Delays Model,**[5] which is an explanatory conceptual framework for maternal mortality. The model outlines three phases of delay that affect reaching and receiving care.

The **first delay** is **recognizing a problem and deciding to seek care.** Factors shaping this decision-making process include knowledge about pregnancy and childbirth complications, recognizing the seriousness of symptoms, cultural beliefs, and traditional decision-making roles.

The **second delay** is **reaching a facility** that provides an appropriate level of care. Factors contributing to this delay include physical accessibility, transport cost and availability, distance, and infrastructure conditions.

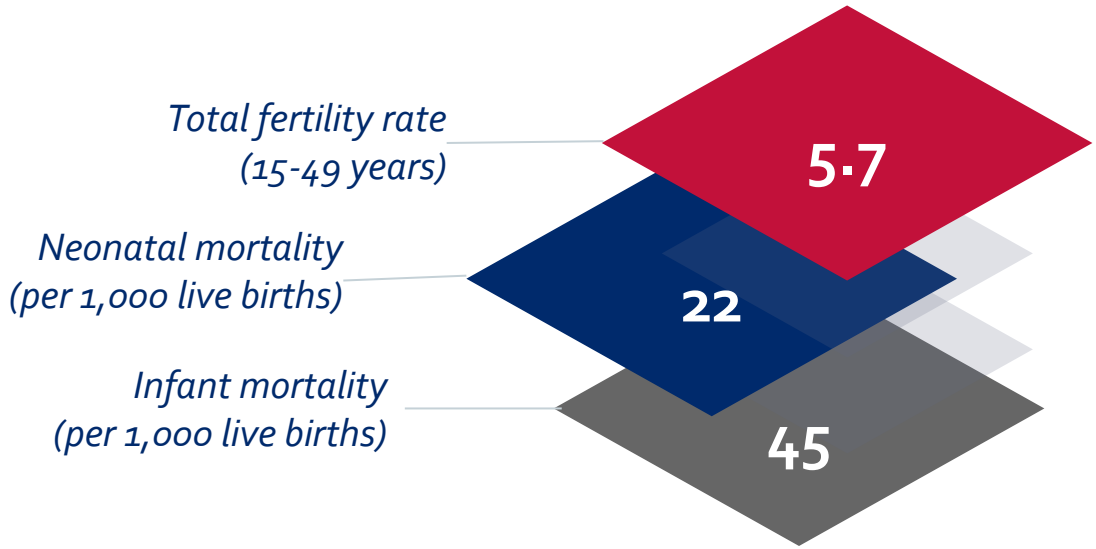
The **third delay** is **receiving adequate and appropriate care**. Availability of supplies and equipment, a lack of trained and competent personnel, and the quality of care received all contribute to this delay.

Delays from the household to facility levels can postpone provision of appropriate treatment, thus increasing the risk of maternal death.



Mother and child. *Photo: TL-HIP staff at a SISCa in Natabora, Manatuto.*

About Timor-Leste



Timor-Leste comprises the eastern portion of the island of Timor and includes the islands of Ataúro and Jaco to the north, and the enclave of Oecusse on the western portion of the island.

Understanding the health situation in Timor-Leste today requires an understanding of a long and troubled history of colonization, occupation, and war.

In the early part of the 16th century, the Portuguese first made contact with the island as a point of trade. By mid-century, Portugal had colonized the whole island. In a territorial dispute in the early 1990s, Portugal ceded the western half of the island to the Dutch.

Due to its strategic location, the island was also invaded and occupied by Japan from 1942-1945, during the Second World War.

A formative stage began with the Timorese independence movement in 1975 following the 1974 coup in Portugal. However, only a few days after declaring independence, the eastern half of the island was invaded and occupied by Indonesia. The following 25 years of occupation resulted in an estimated 100,000 – 200,000 Timorese deaths.

The 2013 Human Development Index (HDI) ranks Timor-Leste 128 of 187 countries, with approximately 64% of the population living in multidimensional poverty.[6]

Although Indonesian occupation ended in 1999, there was a further period of violence by the Indonesian military and anti-independence Timorese militias.

Indonesia's exit from the country was also marked by a "scorched earth" campaign resulting in the destruction of approximately 90% of the country's infrastructure. This included homes, water supply systems, and the electrical grid. The effects of this insidious campaign are still felt today.

Photo accessed at: http://www2.ilmci.com/2010/07/timor-leste-jadi-pusat-suaka.aspx on September 23, 2015.

Photo accessed at: http://www.unhcr.org/ on September 23, 2015.

Since Timor-Leste was internationally recognized as an independent country in 2002, it has experienced a period of relative peace. However, it continues to face significant economic and development challenges. As a young and largely rural country, Timor-Leste's economy remains one of the poorest in the world with among the poorest health indicators in the region.

Population 1.13 million

70% live in rural areas; of which 35% live in isolated and remote areas

Almost 87% of the population is between 0-14 years of age

Methodology

Description of the Study

*The **Maternal Health Community Study** is a mixed-methods study design implemented in the Health Improvement Project municipalities of Ermera and Manatuto and the Special Administrative Region of Oecusse Ambeno in Timor-Leste.*

The aim of the study was to develop a better understanding of the individual- and community-level factors contributing to delays as they affect maternal mortality and morbidity.

Specific objectives:

- ❑ Identify factors contributing to delays in recognizing problems and deciding to seek care.
- ❑ Identify factors contributing to delays in reaching a facility that is able to manage obstetric complications.
- ❑ Identify perceptions of key community stakeholders on factors contributing to delays, and the availability and mobilization of community resources to address these delays.

Study Design

A mixed-methods study was designed to capitalize on the advantages of both quantitative and qualitative techniques for an in-depth exploration of the issue.

The first part of the study was a quantitative survey among women of reproductive age (15-49 years) who have been pregnant in the two years prior to the survey and the partners or spouses of eligible women.

The questionnaires obtained household and sociodemographic data as well as knowledge, attitudes, and perceptions, media exposure, and participation in community interventions.

Additionally, eligible women were asked about personal experiences with the last pregnancy and birth.

The second part was a series of qualitative in-depth interviews and focus group discussions.

A "near miss"' obstetric event refers to cases where women nearly died due to an obstetric complication that required medical intervention, but survived due to factors such as chance or having received timely and appropriate care.[7,8]

The six population domains of interest included: 1) women who had "near miss" events; 2) husbands of these women; 3) relatives assisting delivery during a "near miss" event; 4) midwives; 5) traditional birth attendants (TBAs), and; 6) male and female community leaders.

Study Sample

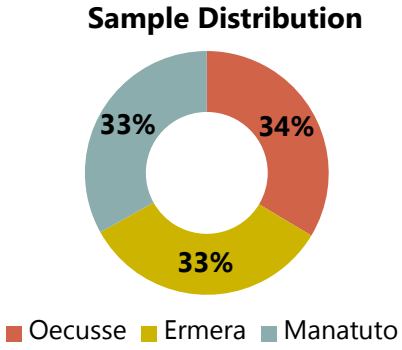
Quantitative Sample

A cluster survey design was used, with clusters (*sucos* ,or villages) randomly selected from each sampling domain (municipality/region) using probability proportional to size (PPS).

One *aldeia* (subvillage) was randomly selected from each *suco* using PPS, with 12 households randomly selected from each *aldeia* using simple random sampling (SRS).

The sample size allows for statistically significant differences to be detected between municipalities and gender groups.

The final quantitative sample size was 592 men and 592 women (total n=1,184). The sample was fairly evenly distributed across the three project areas.



Qualitative Sample

The qualitative sample provided a reasonable cross-section of perspectives from the six domains of interest.

Purposive sampling was used to select participants, capitalizing on local knowledge of community leaders, program staff, and health facility personnel to identify and approach eligible respondents.

A total of 47 in-depth interviews were completed and included the following:

"Near-miss" women	12
"Near-miss" husbands	12
"Near-miss" relatives	12
Midwives	11

A total of 27 focus group discussions were completed and included the following:

Male community leaders	7
Female community leaders	8
TBAs	12

Sample Description

Sociodemographic Characteristics

Previous studies have shown that a variety of sociodemographic factors have an effect on health behaviors like uptake of birth preparedness and complication readiness, as well as on health outcomes. For example, higher educational levels of the mother have been associated with greater birth preparedness and complication readiness,[9] while lower maternal education levels have been associated with adverse outcomes such as preterm births and low birth weights.[10]

Sociodemographic variables such as age, educational status, and gender help explain attitudes, behaviors, and health outcomes.

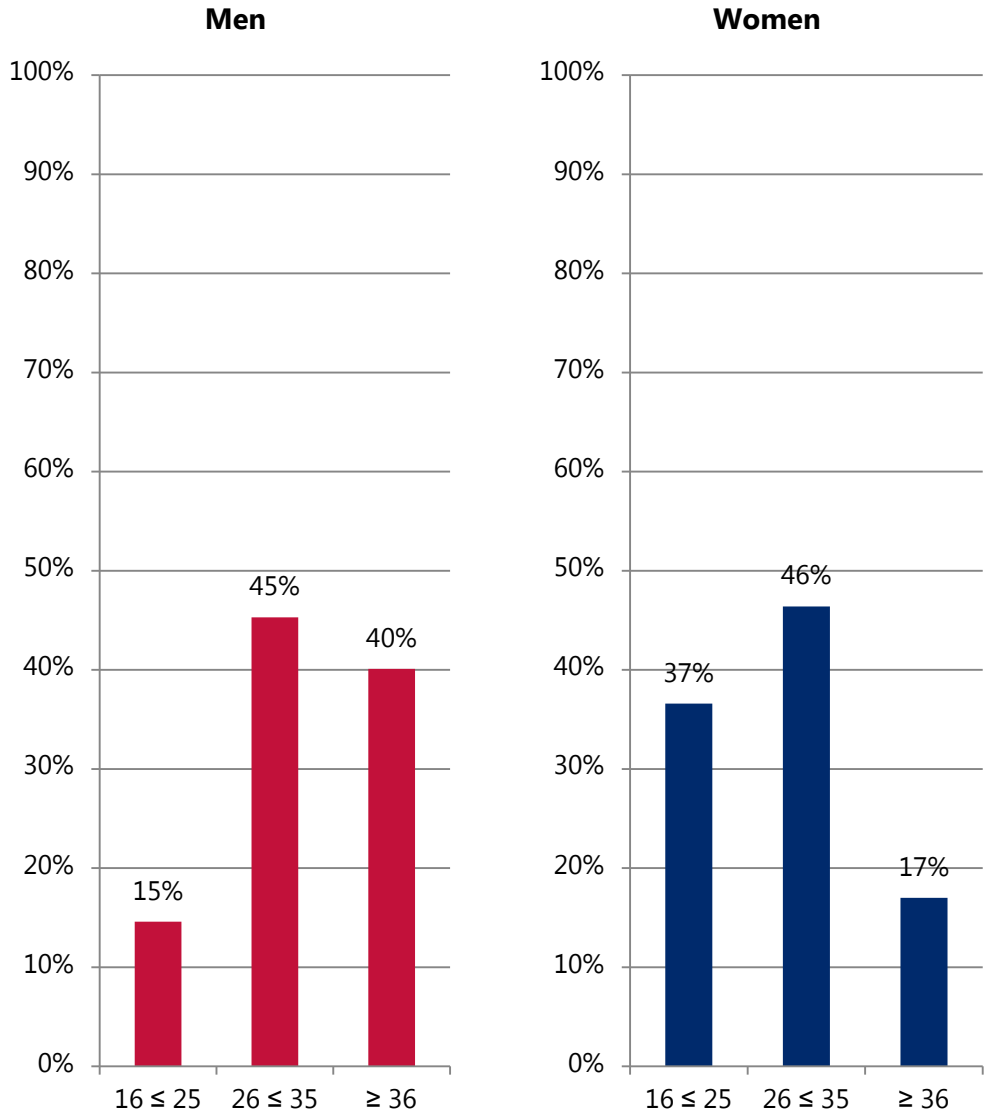
Father and children. *Photo: Emily Epsten in the Special Administrative Region of Oecusse Ambeno, July 2014.*

Age

While the majority of men and women in the sample fall within the age range of 26 to 35 years, a higher proportion of men were 36 years or older, while a higher proportion of women were 16 to 25 years of age.

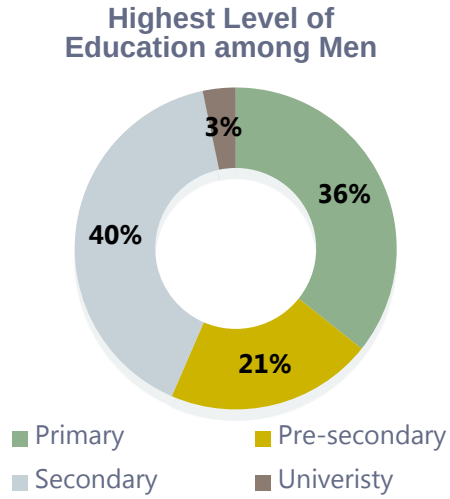
Median age of men by district:
Oecusse 36 years
Manatuto 33 years
Ermera 34 years

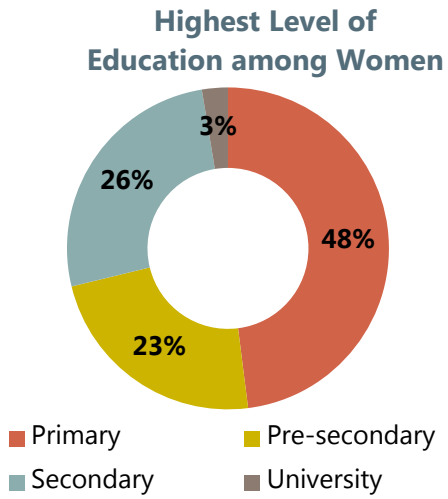
Median age of women by district:
Oecusse 29 years
Manatuto 28 years
Ermera 29 years



Education and Literacy

Approximately 70% of men reported having some level of schooling compared to 59% of women. About 34% of men and 48% of women identified themselves as unable to read or write at all.





Oecusse

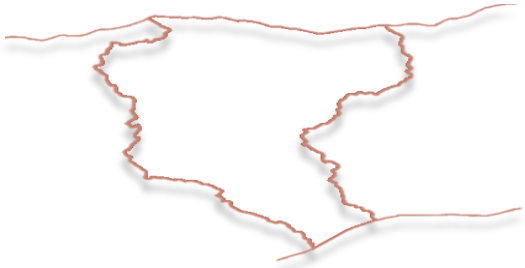
Population 70,351

46% of men *self-reported as unable to read or write*

49% of women *self-reported as unable to read or write*

Manatuto

Population 45,893



22% of men *self-reported as unable to read or write*

25% of women *self-reported as unable to read or write*

Ermera

Population 127,525

34% of men *self-reported as unable to read or write*

52% of women *self-reported as unable to read or write*

Socioeconomic Characteristics

Household socioeconomic conditions are strongly linked to the vulnerability of its members and are important risk factors for health outcomes. Socioeconomic conditions are based on factors such as income level, occupation, and rural-urban residence. Information on economic conditions can also be assessed via household proxies such as the type of flooring, cooking fuels, access to clean water, and improved sanitation facilities.

Individuals who are socioeconomically better off often have higher health status and rates of health care utilization and lower mortality and morbidity levels than their poorer counterparts.

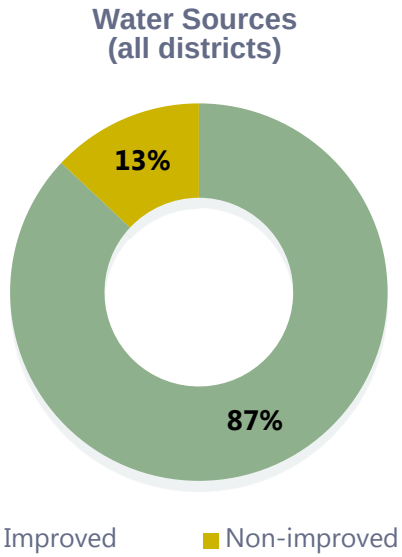
Socioeconomic conditions can impede or facilitate birth preparedness and complication readiness of household members.

Photo accessed at: https://www.flickr.com/photos/un_photo/sets/72157626194186743/. September 23, 2015.

Water and Sanitation Facilities

Clean water and good sanitation are critical to prevent water-related and diarrheal diseases. These intestinal diseases can impede the absorption of nutrients, and have a negative effect on pregnancy outcomes and the health of the mother and fetus.

To determine improved versus non-improved sources, the survey used the same classifications as those in the *Timor-Leste Demographic and Health Survey 2009-10.*

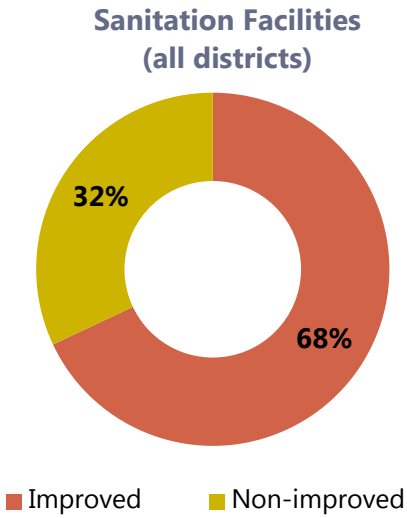


Improved water sources:

- *Piped into dwelling/plot*
- *Public tap/standpipe*
- *Tube well or borehole*
- *Protected dug well*
- *Protected spring*
- *Rainwater*
- *Bottled water*

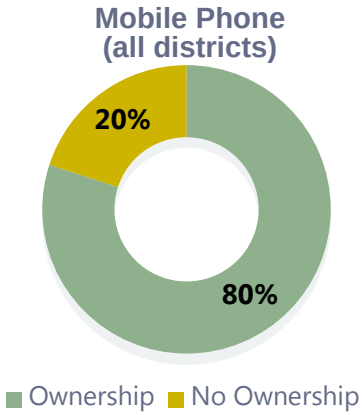
Improved sanitation facilities:

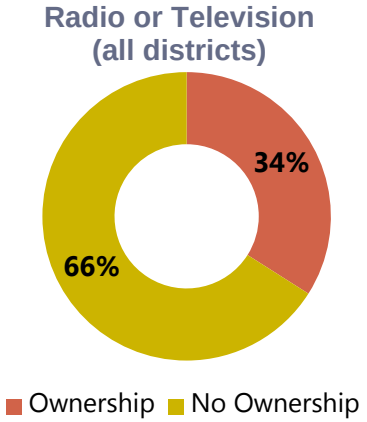
- *Flush/pour to piped sewer system*
- *Flush/pour to septic tank*
- *Flush/pour to pit latrine*
- *Ventilated improved pit latrine*
- *Pit latrine with slab*
- *Composting toilet*

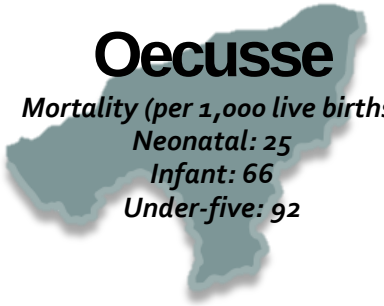


Household Durable Goods

Household ownership of goods such as radio, television, and phones are means by which individuals can receive information to raise awareness or improve knowledge, and are methods of communication in cases of emergencies.

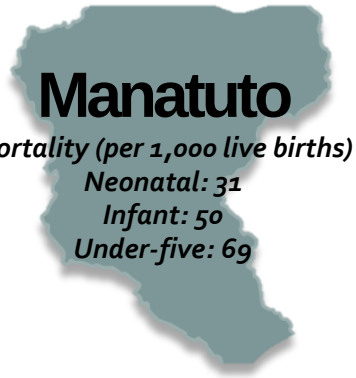






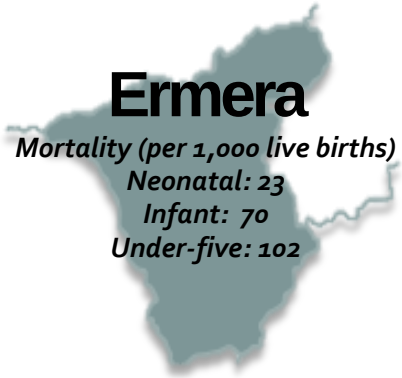
Oecusse

Mortality (per 1,000 live births)
Neonatal: 25
Infant: 66
Under-five: 92



Manatuto

Mortality (per 1,000 live births)
Neonatal: 31
Infant: 50
Under-five: 69



Ermera

Mortality (per 1,000 live births)
Neonatal: 23
Infant: 70
Under-five: 102

Oecusse Ownership:
63% *mobile phone*
11% *radio*
19% *television*

Manatuto Ownership:
78% *mobile phone*
19% *radio*
28% *television*

Ermera Ownership:
84% *mobile phone*
25% *radio*
8% *television*

Key Findings

The First Delay: Deciding to Seek Care

The first delay has to do with delays related to **recognizing danger signs and deciding to seek care**.

As the majority of maternal deaths occur during labor or the first 24 hours postpartum, recognizing a life-threatening condition is not always easy. Many complications cannot be predicted or prevented and medical knowledge is needed to diagnose and act upon complications. However, by the time most problems are identified, it is often too late.

*The **first delay** refers to delays that occur when a woman or her family does not recognize key complications during pregnancy or delivery, or does not understand the importance of seeking care when one or more complication develops.*

Factors that contribute to this delay include low educational levels, low status of women, poor understanding of complications and risk factors, misunderstanding about when interventions are needed, and traditional or cultural beliefs.

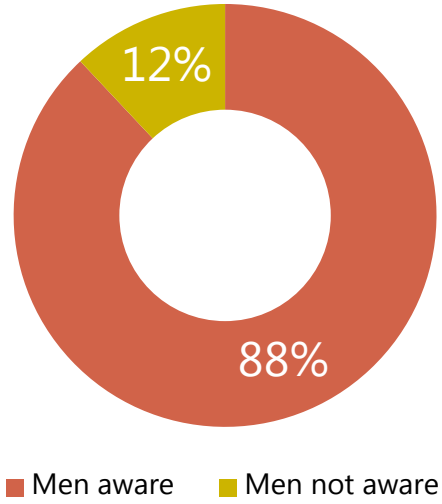
Woman and newborn. *Photo: TL-HIP staff in Pualaka, Manatuto municipality.*

Awareness of Unforeseen Problems

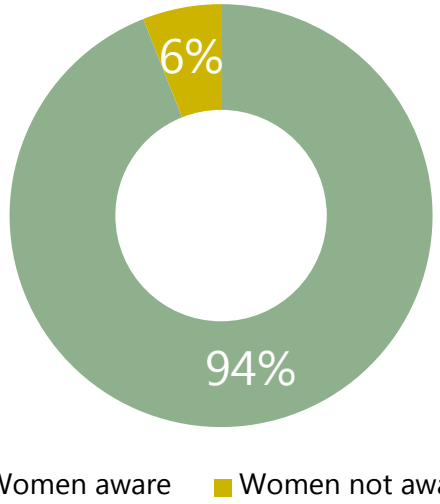
A high proportion of both men and women were aware that unforeseen problems could occur during any of the three childbearing stages.

"I was thinking about my previous deliveries with my two kids. I just gave birth at home (before), so with this delivery I thought it was fine to have at home too."

Near-miss woman, *Manatuto*



Among men who were aware that unforeseen problems could occur, only ***73%*** *thought a women could die from these problems.*



Among women who were aware that unforeseen problems could occur, only ***69%*** *thought a women could die from these problems.*

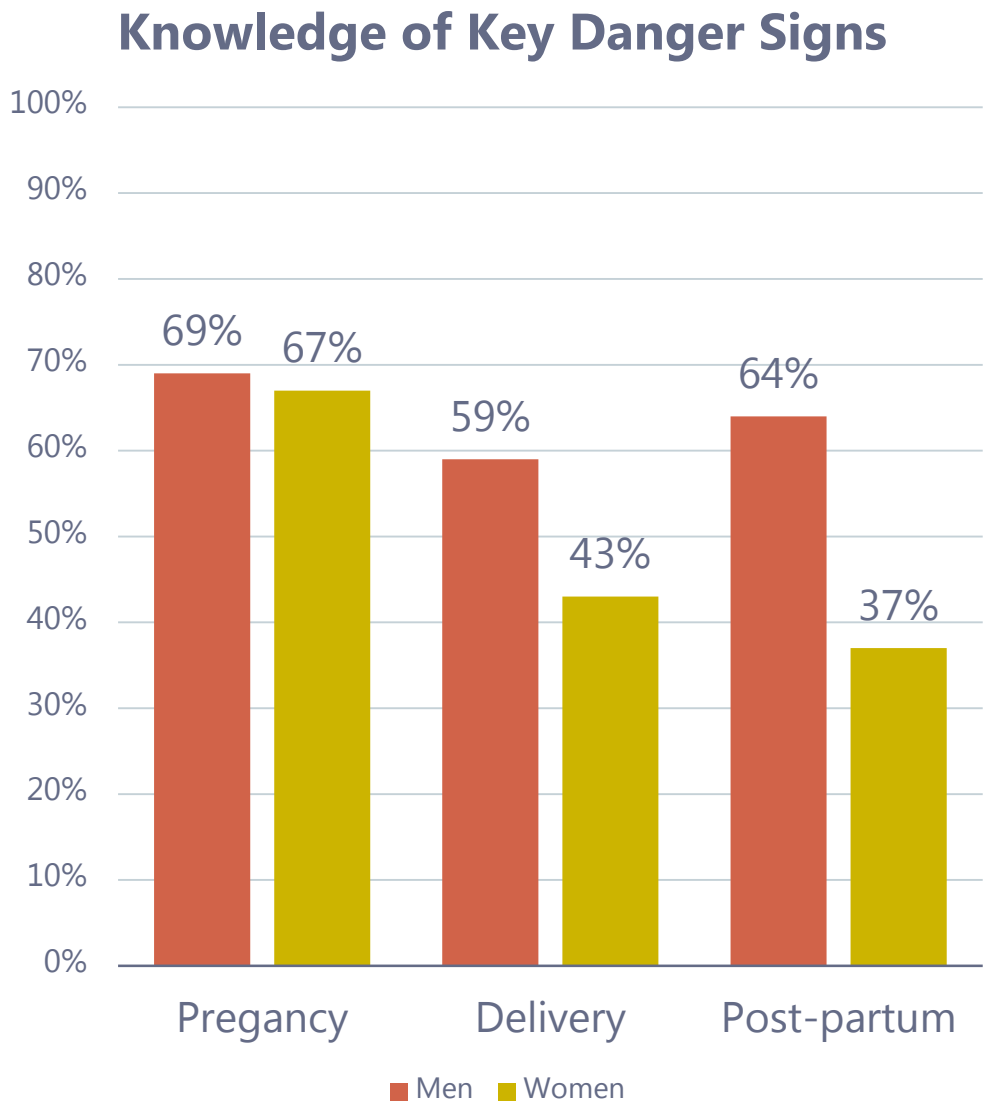
Knowledge of Danger Signs During Childbearing Stages

Men had slightly higher knowledge levels of key danger signs during delivery and postpartum than women.

Two-thirds of men and women were able to cite at least one of the three key danger signs during pregnancy.

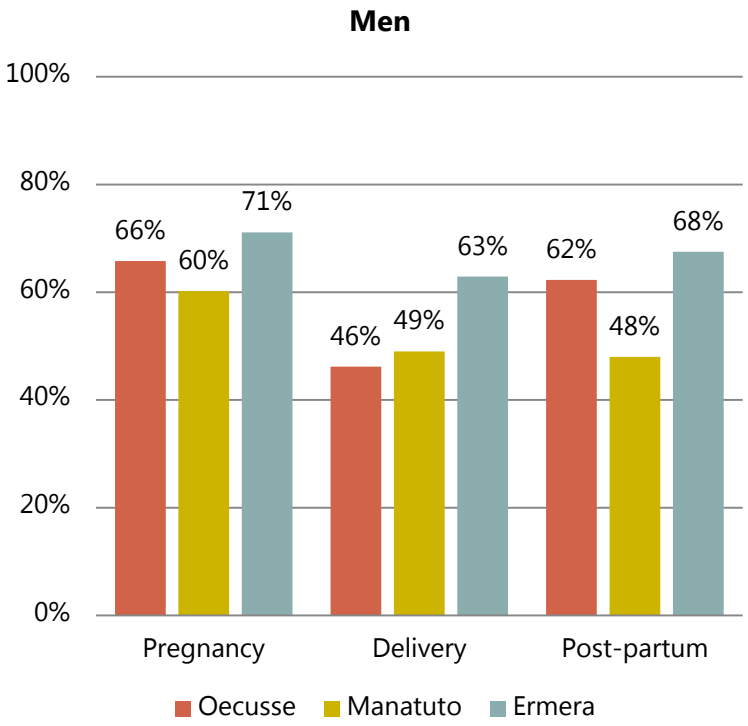
*"Women still lack knowledge on risk factors during delivery and sometimes they already have bleeding but they **treat it as normal**." **Midwife**, Manatuto*

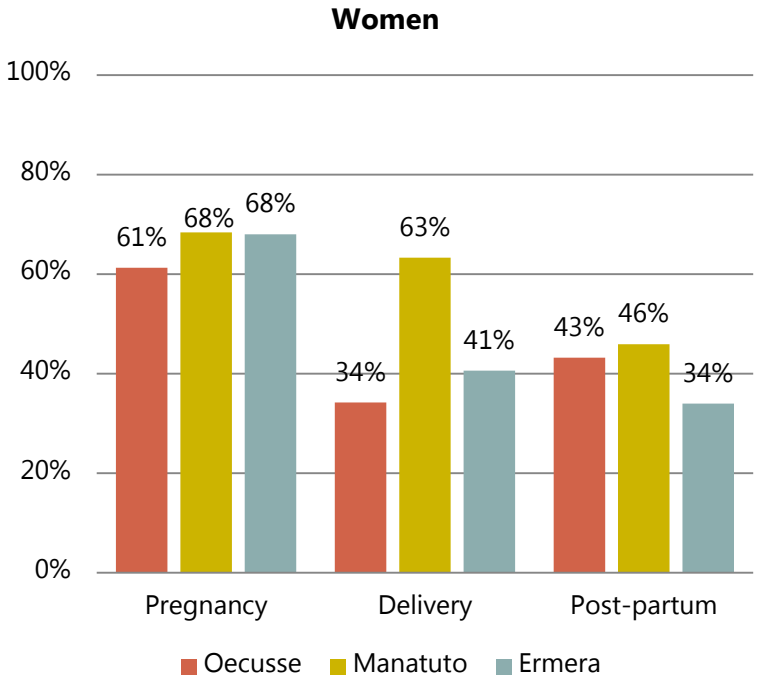
However, about 40% of men were unable to cite two of the four key danger signs during delivery, and 36% of men were unable to cite at least one of the key danger signs during postpartum.



Among both men and women, there were differences in knowledge levels between districts. Further, the distribution of knowledge levels at each childbearing stage was not the same across districts between men and women.

Men in Ermera generally had higher knowledge of at least one key danger sign during pregnancy and postpartum and at least two key danger signs during delivery.





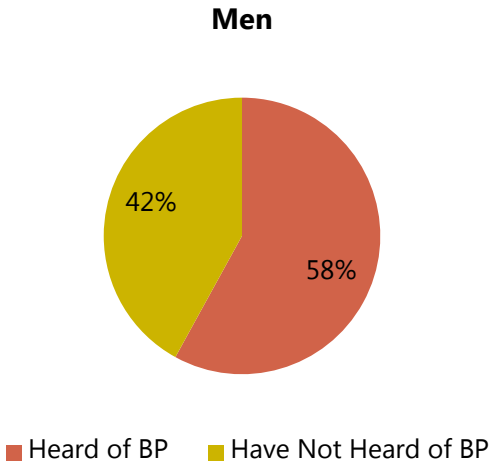
Women in Oecusse had substantially lower knowledge of at least two of four key danger signs during delivery, but women in Ermera had proportionately lower knowledge of at least one key danger sign during postpartum.

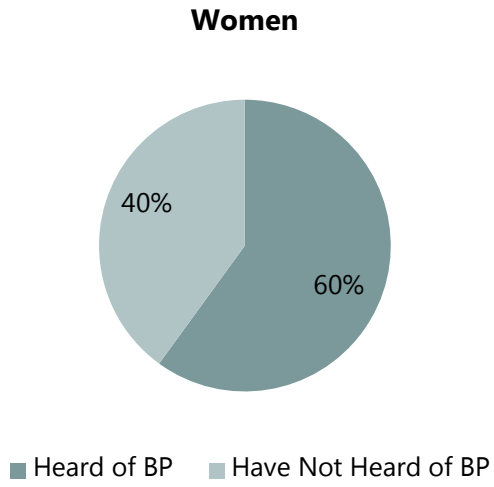
There were also substantial gender differences in knowledge. For example, twice as many men as women in Ermera knew of at least one key danger sign during the postpartum period.

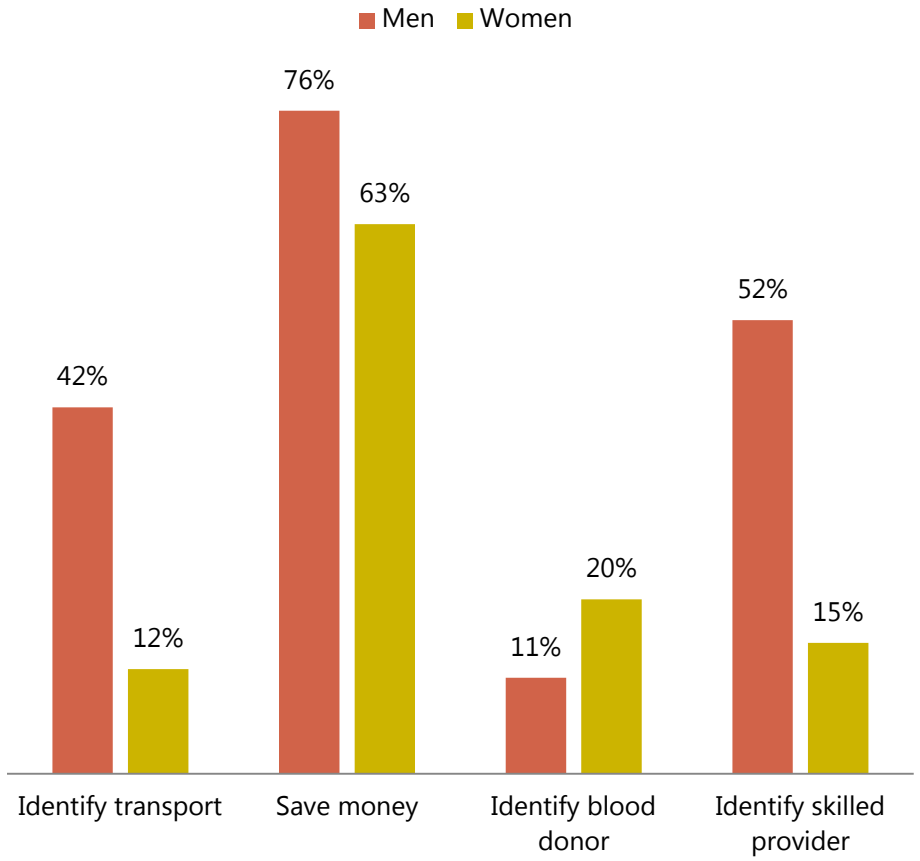
Knowledge of Birth Preparedness

Although a little more than half of men and women heard of birth preparedness previously, there are some variations between men and women on which of the four components they heard about.

More than three times as many men heard about identifying transport and identifying a skilled provider.







Attitudes about Birth Preparedness

Woman and baby. *Photo by TL-HIP staff in Pualaka, Manatuto municipality.*

Cultural or traditional perceptions may discourage actions that prepare for birth complications that may occur.

Results from the interviews suggest that preparations for birth should largely be limited to materials and supplies needed for a normal birth: clothes for the baby, food, a clean house, hot water, and oils for traditional ceremonies.

> *"As per culture (women) **should not make preparations** before 7 or 8 months."*
>
> ***TBA,***
> *Ermera*

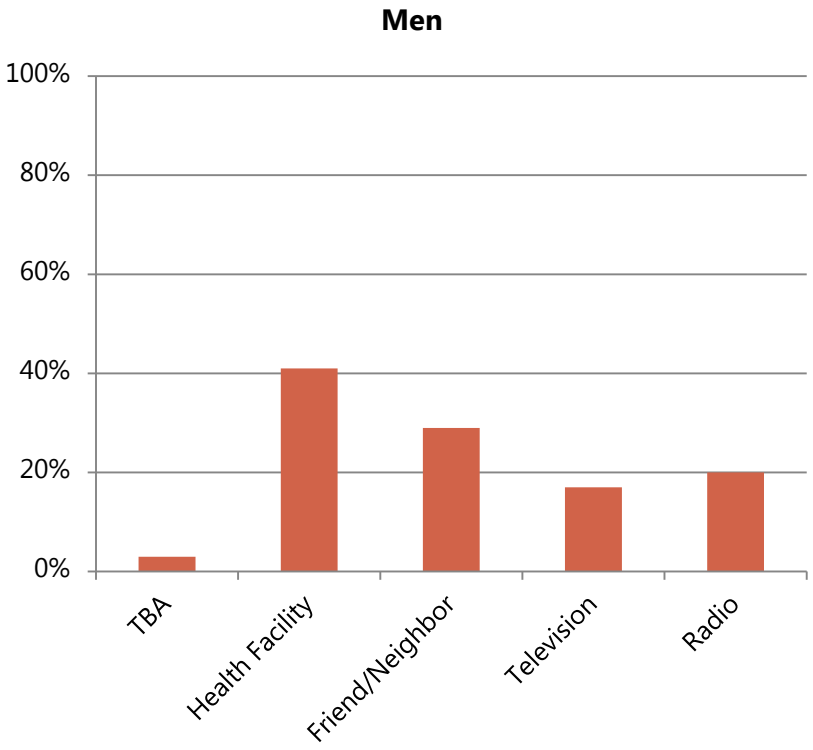
Making preparations too far in advance or planning for complications was considered to be "inviting" complications, and might harm the baby or the mother. The emphasis is on assuming a "normal" delivery and only addressing complications when and if they arise.

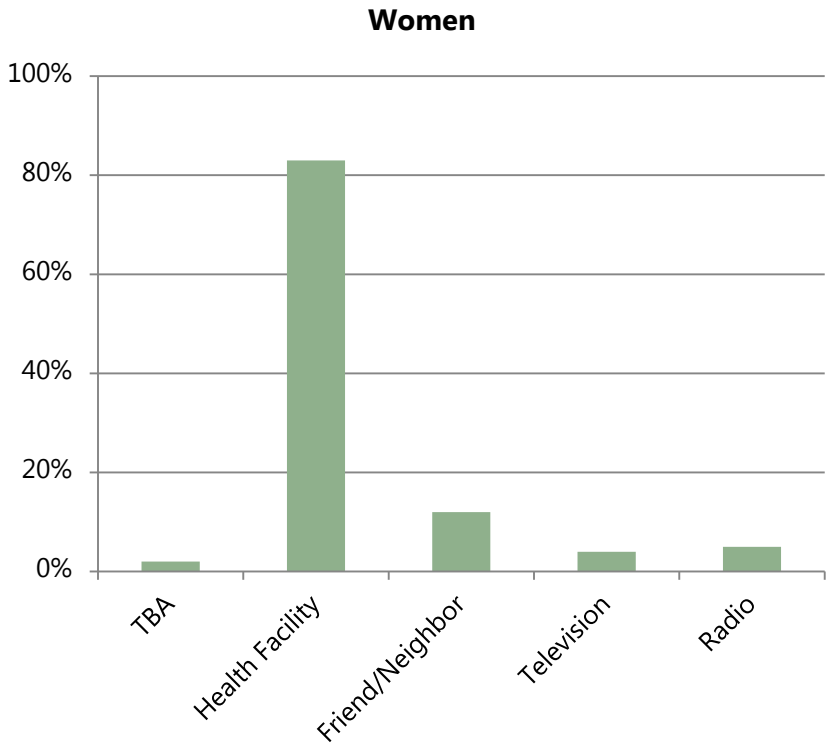
> *"Only go to the hospital…if something unexpected occurs."*
>
> ***Near-miss woman,***
> *Oecusse*

Preferred Sources of Birth Preparedness Information

The results indicated some interesting differences between men and women regarding preferred information sources.

For example, while a higher proportion of both men and women preferred information to come from a health facility, this was substantially higher among women than men. Similarly, more than twice as many men as women preferred friends and neighbors as information sources.





Decision Making

Decision making such as the location for the delivery of the last birth or about problems or complications that occurred at last birth were largely reported to be a joint process involving the woman and her husband alone. However, the interviews provided a different perspective, indicating that there was often much greater familial involvement in decision-making processes.

*"Even if the condition of the woman needs an urgent transfer to the health facility she cannot do anything as she has to **wait for the decision from all the family**."*

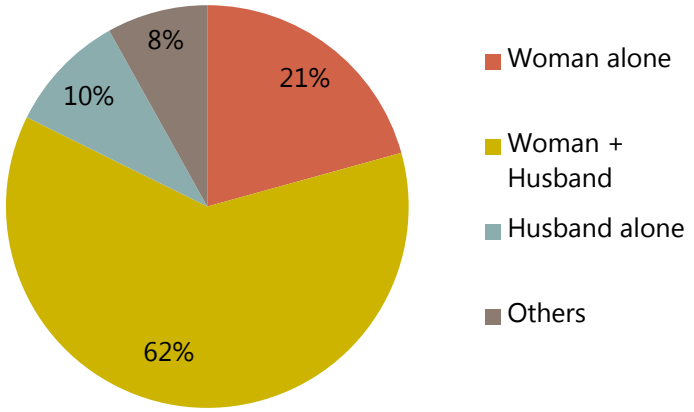
Midwife,
Manatuto

Across interviews, respondents emphasized the importance of familial involvement for any major decisions, including those related to the delivery and care during delivery.

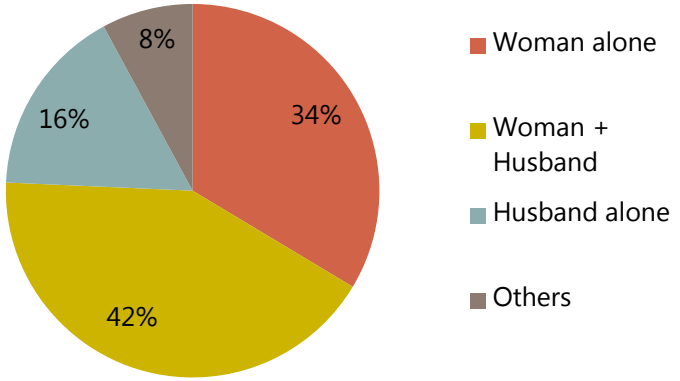
*"It is family tradition that a husband and a wife **cannot make a decision alone** and have to have a discussion with the parents-in-law and follow the traditional activities before being taken to a health facility."*

Male community leader,
Ermera

Decision Making for Last Birth Location



Decision Making for Complications at Last Birth



The Second Delay: Reaching Care

The second delay refers to delays in **reaching an appropriate source of care**.

A lack of access to vehicles, paved roads, or limited public transportation options means that it can take hours or even days to reach a health facility, especially one that is equipped to deal with an emergency. When precious minutes and hours count for many types of emergencies, these conditions may prevent a woman from reaching a facility in time to save her life.

This delay can occur when the mother must travel long distances to reach care but lacks transportation or financial means to pay for transportation.

Factors that contribute to this delay include distance to a source of care, lack of transport, transport costs, poor roads, time and opportunity costs, and security concerns.

Photo accessed at: http://www.palms.org.au/newsletters/roger-bowens-news-from-maliana/ September 23, 2015.

Transportation Ownership

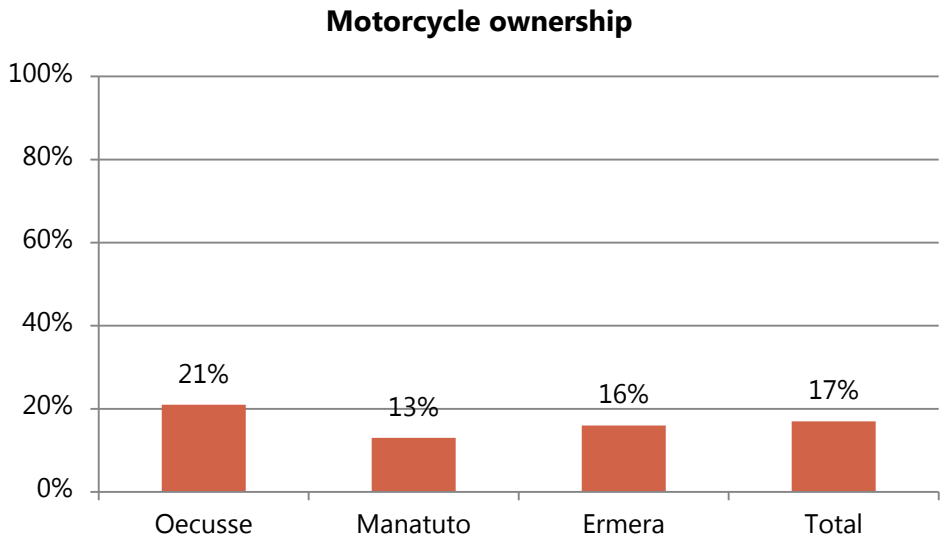
Ownership of transportation is an important indicator of an individual's ability to utilize transportation when needed.

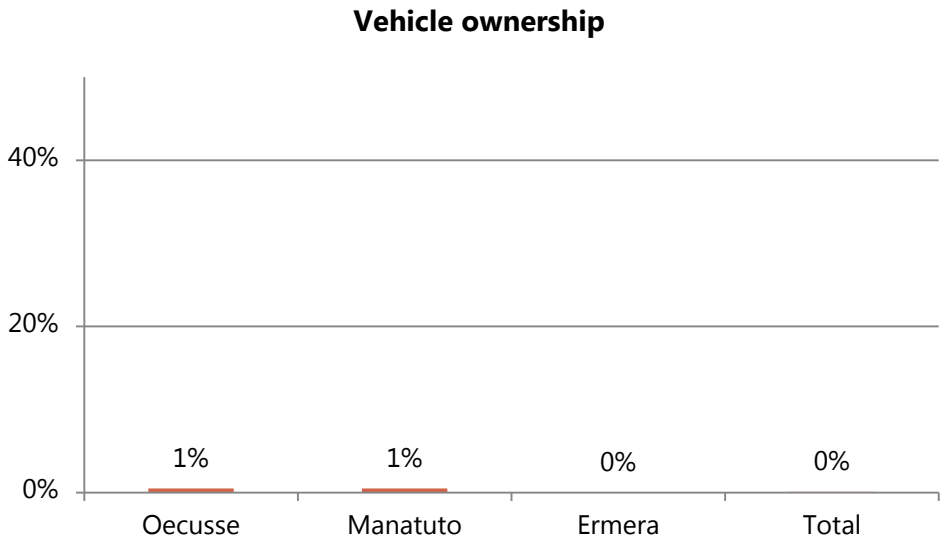
Overall transportation ownership was low for motorcycles and almost non-existent for vehicles.

Almost twice as many households in Oecusse owned a motorcycle than households in Ermera. Vehicle ownership was 1% or less in all districts.

"Transportation is very difficult, especially during the rainy season. Therefore women with bleeding find it very difficult to reach a health facility."

Female community leader, *Oecusse*





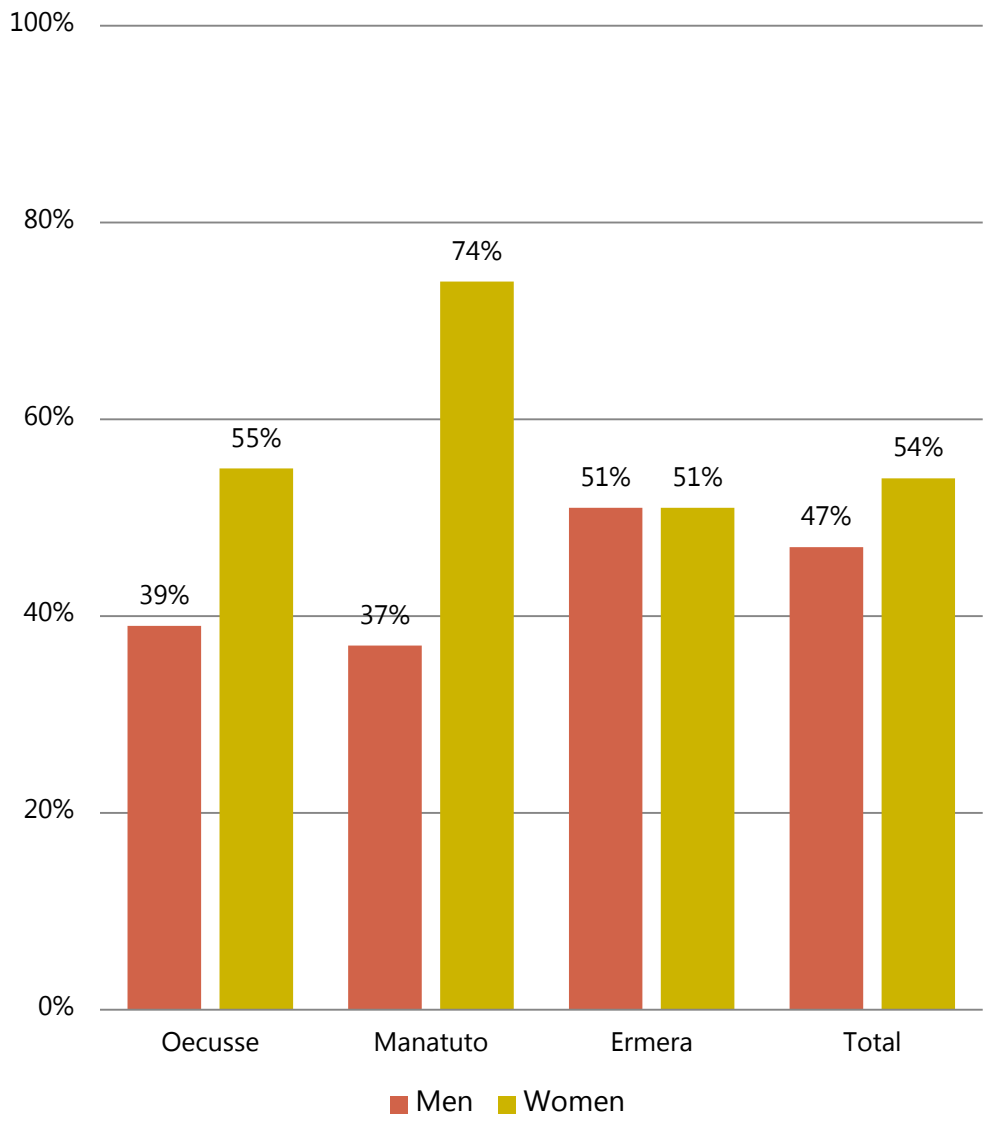
Difficulty Reaching a Health Facility

*"We didn't have money to pay for transport and that **caused a delay** to seek care at the health facility. No one is taking care of my kids, no one is helping me, and the distance from my home to the hospital is far."*

Near-miss woman,
Anatuto

About half of men and women noted they found it difficult to get to a health facility, with some differences between districts.

Twice as many women as men in Manatuto said that reaching a health facility was difficult; almost one-and-a-half times as many women as men in Oecusse cited difficulties.



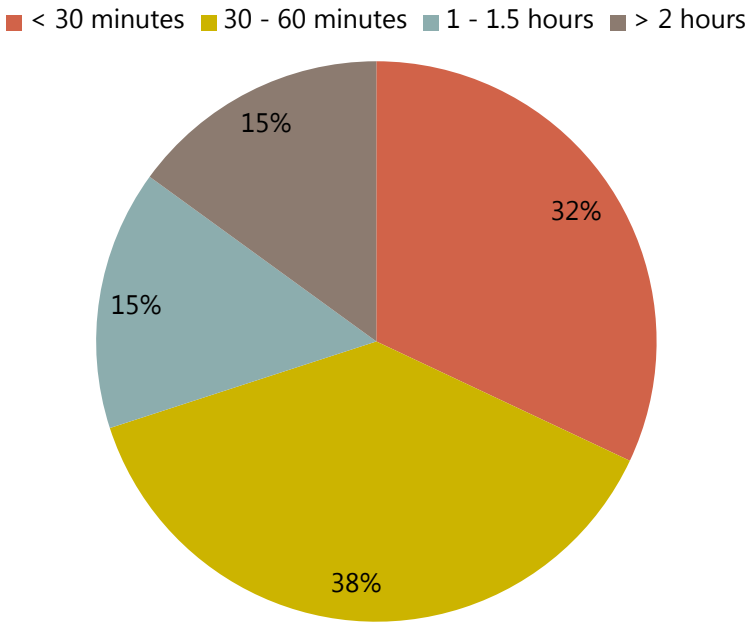
Time to Reach the Nearest Health Facility

The majority of both men and women noted that it took between 30-60 minutes to reach the nearest facility.

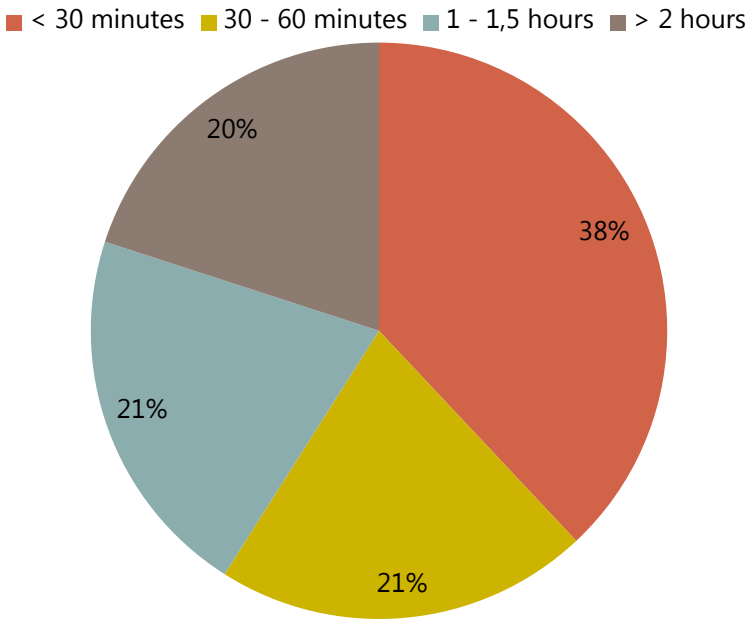
The time cited was largely by foot among men (91%) and women (88%). It should be noted that the nearest health facility cited was almost exclusively a health post. This is the lowest level of health facility available in Timor-Leste and is not equipped to manage most obstetric complications.

Around one-fifth of men and women reported that it usually took two hours or more to reach the nearest health facility.

Men



Women



Financial Barriers

Financial considerations represent a significant barrier to accessing needed medical services. For example, even if transportation is available, the means with which to pay for it often is not.

"The obstacle is a lack of financial support (…) if the transport is available we will take the car. Otherwise we will just walk to rush to the hospital. The road is bad and the transportation is difficult. Sometimes we have money but there is no car available for us to use and it is very difficult."

Near-miss woman,
Oecusse

Since facility ambulances are free, many respondents said they would try to secure this option first. But the few ambulances and facility-based vehicles available must cover a large geographic area for all types of emergencies, so this is often not an option.

As a result, financial resources often determines the course of treatment that a woman receives.

"If the ambulance is not available we look for another type of transportation, but it depends on our finances. If we don't have money we just stay at home and use traditional medicines because we live far from a health facility."

Near-miss relative,
Manatuto

Resources to cover transportation costs are not the only financial concern. Costs related to a woman's stay in a facility, including money for food while there and accommodations for someone to accompany her, are a related concern.

Another concern is maintaining the household while the woman and perhaps her husband is away from the home.

"(Families are) concerned (about) who is going to take care of their kids at home and how they are going to eat."

Near-miss relative,
Manatuto

The Third Delay: Receiving Care

The third delay refers to delays in **receiving appropriate care at a health facility**.

Even if a women makes it to a health facility, she may receive inadequate care and treatment. This is a particular concern in low-resource settings.

This delay can occur at the health facility itself, often due to a lack of trained personnel, understaffing, or a lack of medicine or equipment.

Factors that contribute to this delay include a lack of trained and skilled staff, an insufficient number staff, limited availability of medicine and equipment, general poor conditions of the facility, and poor attitudes and treatment on the part of medical personnel.

CHC in Oesilo, Oecusse municipality. *Photo: TL-HIP staff.*

Perceived Quality of Care

Men and women generally had very positive perceptions of the quality of care received at health facilities.

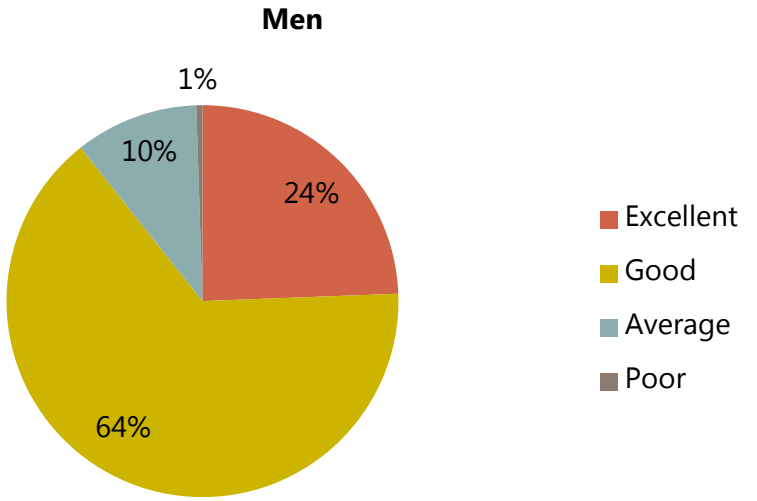
"They (health staff) were polite and provided good assistance during delivery. They gave me good treatment and I got better."

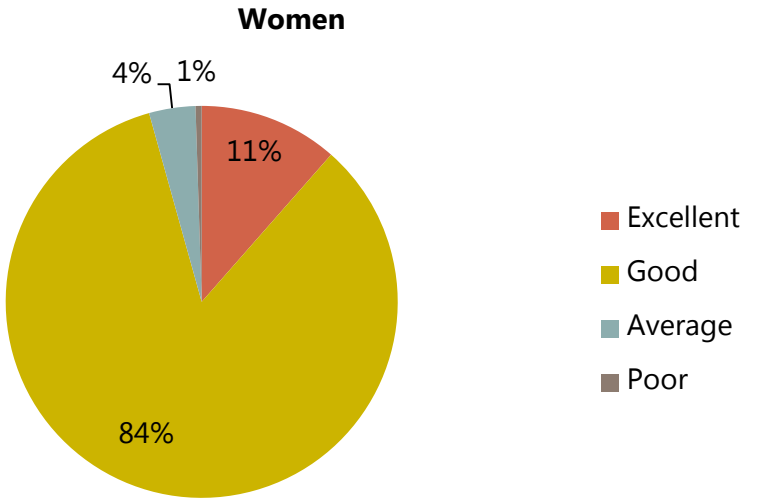
Near-miss woman,
Manatuto

Around 90% of men and 95% of women reported the quality of care at facilities was either good or excellent. Only 1% or less reported facility level of care as poor.

"At the hospital the health staff know how to give care to the mother and baby with a bleeding case."

Near-miss woman,
Manatuto



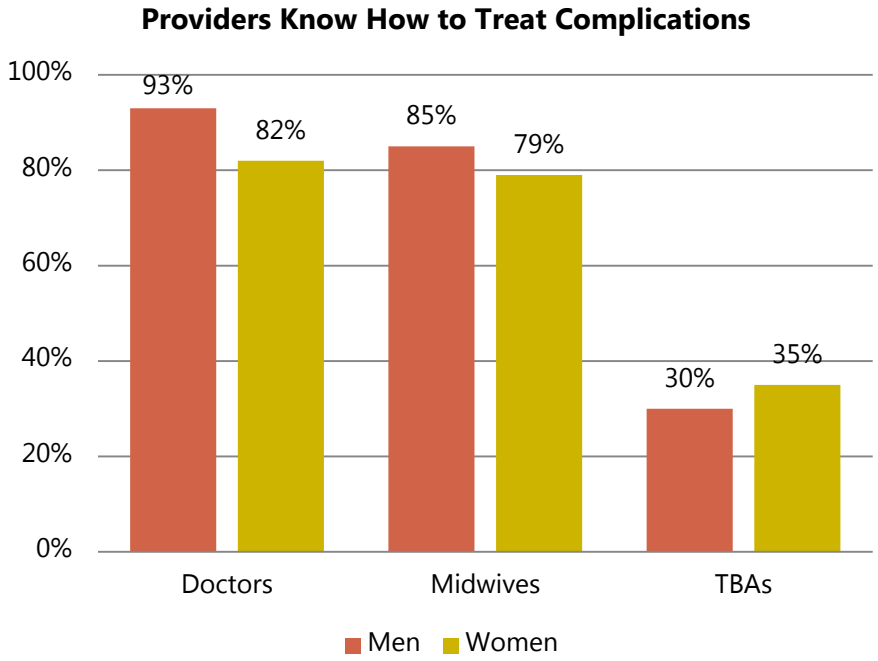


Perception of Care Quality

While several factors influence perceptions of the quality of care at facilities, there were several notable differences between men and women.

For example, half as many women as men thought that the facility has the needed medicines, and four times as many men as women thought there was a short wait.

	Men	Women
Facility always open	66%	77%
Staff responsive	49%	36%
Facility has medicines	67%	35%
Short wait	55%	13%



Respondents had positive perceptions of the ability of key facility-based staff such as doctors and midwives to provide the needed care and treat complications.

Of interest is that only one-third of women and men had the same level of confidence in the ability of TBAs to manage complications.

Health Facility Barriers

Attitudes have an important role in client use of services. While this is often weighed in the decision-making process about whether to seek services, attitudes may also impede the care received while at the facility itself.

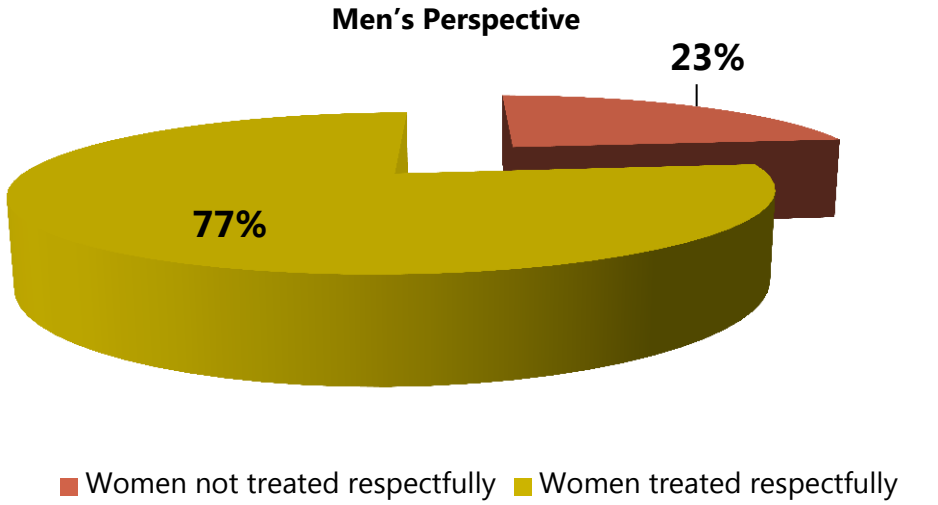
*"……the midwife **just screamed**."*

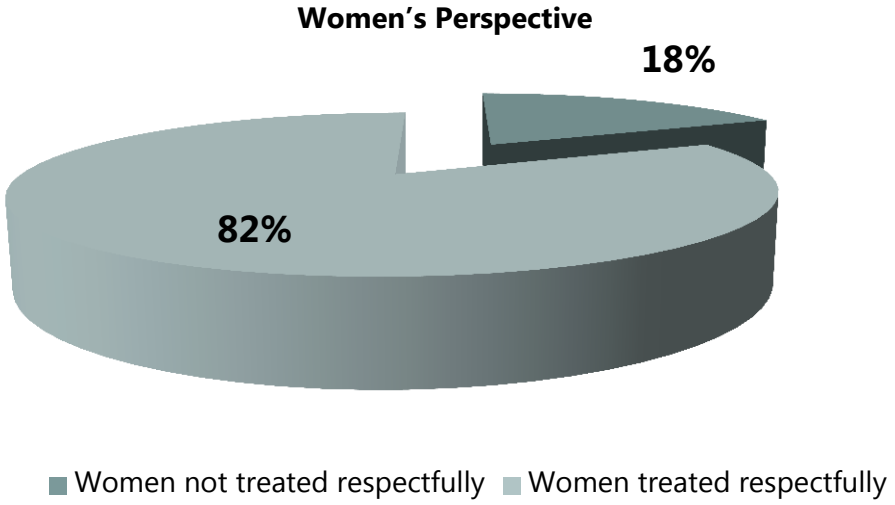
Near-miss woman,
Oecusse

Despite the generally positive perception of facility staff treatment of women, a notable proportion of men and women thought women were not treated respectfully by facility staff.

"Some midwives scream at them (the women) in the hospital and makes the woman feel embarrassed. So they choose to go to a TBA instead."

Female community leader,
Ermera





Information Provided During Antenatal Care Visits

Although antenatal care (ANC) is not part of the care received during obstetric emergencies, it is an important part of facility-based care.

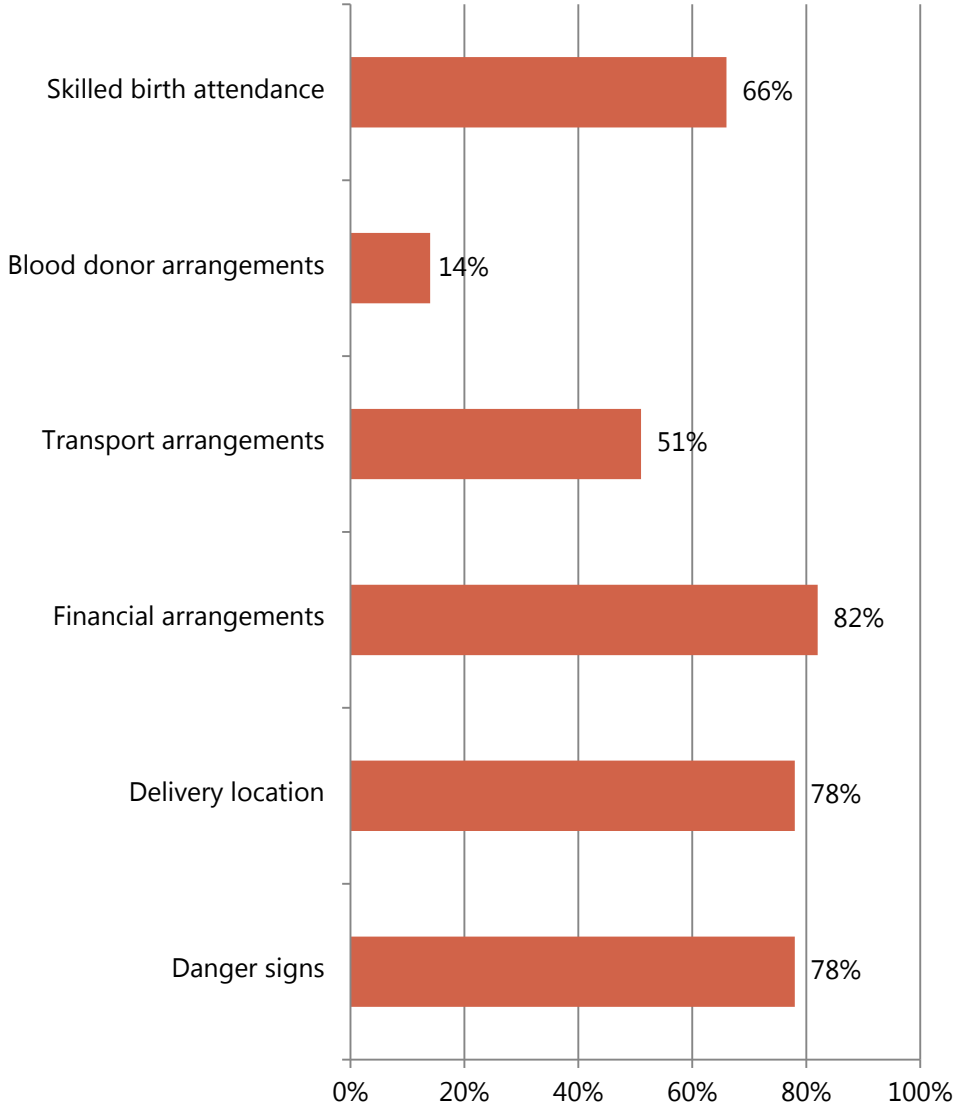
Women were asked about the information received from health care workers at their ANC visits during their last pregnancy.

During their last pregnancy, 70% of women reported completing four or more ANC visits.

The content of information largely focused on financial arrangements, selecting a delivery location, and danger signs.

However, only about half discussed transportation arrangements, which is of interest given that transportation was cited as a significant barrier to care for men and women.

Further, identifying a blood donor was discussed with a few respondents, which may be due to the lack of a formal blood donation system in Timor-Leste.



Discussion

Discussion

Discussion of key findings are framed by the Three Delays model.

*As the **Three Delays model** recognizes the complex and interrelated nature of factors that create barriers to access to high-quality maternal care for women and their families, discussing the results of this framework provides insight for program approaches to improve access to care and care-seeking practices.*

There are a number of factors affecting whether or not a woman will seek, reach, and receive care during an obstetric emergency but the linkage is not always a linear, cause-and-effect relationship. Rather one factor may affect more than one delay point. For example, previous poor experiences with health facility staff due to poor provider attitudes may delay the decision to seek care as well as affect the ability of health staff to deliver adequate care.

At the same time, a delay in one component may not necessarily trigger a delay in another. This is important when considering programmatic implications.

First delay: **Recognition of danger signs and deciding to seek care**	***Second delay:*** **Reaching an appropriate source of care**	***Third delay:*** **Receiving adequate and appropriate treatment**
Low educational levels	Distance to source of care	Lack of equipment and supplies
Lack of knowledge and poor recognition of danger signs	Lack of transport	Insufficient staff
Limited birth preparedness knowledge	Financial costs	Lack of trained staff
Decision-making processes	Other time and opportunity barriers	Poor staff attitudes

Discussion of First Delay Factors

Education

Education affects people's ability to make informed decisions.

Educational attainment for men is fairly low and even lower for women. Self-assessed literacy is also low among 34% of men and 48% of women. This indicates that not only is there a substantial proportion of men and women who are unable to read at all, but some men and women who attended some level of schooling may not have learned to read or write at a basic level.

The low levels of literacy may ***prohibit some men and women from accessing and learning from written materials*** related to birth preparedness and complication readiness (BP/CR). Access to and understanding of this information is an important prerequisite for improving knowledge of key danger signs and evaluating information for applicability to each situation.

Low levels of education may also negatively affect people's ***ability to process information***. Evaluating the relevance of information and selecting information that is most pertinent to an individual's situation is an important process and potentially life-saving process.

Critical thinking skills, especially those gained through higher levels of education, are important but often overlooked. People are ***more likely to adopt behaviors*** if they can relate to and apply learned information to their specific situation or circumstances, thus translating knowledge into practice.

Social networks are an important, but often overlooked, means of transmitting information. Women indicated a preference for receiving BP/CR information via health facilities and men indicated a preference for friends and neighbors. Information from preferred sources is often considered more reliable and trustworthy and thus encourages uptake and implementation of learned information.

Discussion of First Delay Factors

Lack of knowledge

Knowing when medical interventions are needed is essential for prompt decision making during obstetric complications and care seeking.

While 88% of men and 94% of women indicated awareness that unforeseen problems can occur and a relatively high proportion know that women can die from these complications, specific knowledge on key danger signs is lacking.

Less than half of men and women were able to identify a sufficient number of key danger signs during each of the childbearing stages. Not only was knowledge significantly lower for the delivery stage, women in general had much lower levels of knowledge than men.

Not knowing which signs signify complications during the childbearing stages and inability to recognize severity ***contributes to delays in decisive action***. Symptoms may be dismissed as part of the "normal" pregnancy process. Knowledge about a wide array of symptoms may lead to confusion about which ones require immediate attention.

Men and women often reported drawing on previous pregnancy experiences to gauge how the next pregnancy would go. There was a lack of awareness that ***problems can occur in any pregnancy***. Further, there was a lack of understanding that even a normal pregnancy experience can result in complications at the delivery and postpartum stages.

A lack of comprehensive knowledge regarding key danger signs can lead to greater ***reliance on traditional preparation practices to avert complications***. Preparation of foods, rituals, and resolving family discord are assumed to be sufficient to ensure a normal delivery.

Discussion of First Delay Factors

Birth preparedness

Birth preparedness and complication readiness can positively influence knowledge, household practices, and the use of some services.

Birth preparedness and complication readiness (BP/CR) includes four major components: 1) saving money; 2) arranging transport; 3) identifying a blood donor; and 4) identifying a skilled provider.

The impetus behind BP/CR is that planning for the four components can help women and their families plan for normal pregnancies, deliveries, and postpartum periods and deal with obstetric emergencies if they occur.

While a little more than half of men and women were aware of the BP/CR concept, there was ***wide variation in which of the four key components they were aware***. Higher levels of awareness of some components over others could be indicative of individual concerns as well as the emphasis of certain components through information-sharing outlets.

Further, there were ***differences between men and women's*** awareness of different components. This may again be indicative of which of the components each is most interested in or how messages are targeted to different audiences.

As the majority of men and women have a preference for local or traditional birth attendants (TBAs), local delivery options will continue to have an important role. Women and their families will often turn to TBAs for guidance on which preparations are needed for a healthy pregnancy and delivery. ***Traditional beliefs, practices, and customs also play an important role*** in the decisions made or even the uptake of BP/CR planning.

Discussion of First Delay Factors

Decision-making processes

Decision-making processes on important issues often involve wider family influence in the Timorese context.

Who is involved in the decision making process about when and how to seek care is a significant factor in the decision-making process. Parents, in-laws , aunts, friends, and even the wider community members may be consulted during decision making before action is taken or even in the wake of an emergency.

Reliance on familial input in combination with a traditional tendency to ***make decisions only if an emergency occurs*** can contribute to delay cycle. It takes time to gather family and community members and then to discuss and agree upon a course of action.

Related to this is a strong ***traditional belief that emergencies and complications are often the result of internal family discord***. This means that even while an emergency is occurring, the family discord must first be resolved. The belief is that resolution of discord is necessary not only before a decision can be made about a course of action but also to ensure that whatever course of action is taken will be effective.

It is also important to note that during an obstetric complication women may be unconscious or physically unable to participate in the decision making process. This ***diminishes the likelihood that her wishes or preferences will be taken into consideration*** while such discussions are taking place. Further, a traditional "wait and see" approach to take action only if and when a complication occurs may delay the decision-making process and subsequent action.

Discussion of Second Delay Factors

Transportation barriers

A largely rural and difficult terrain, coupled with poor road infrastructure make physical transportation a particular challenge in Timor-Leste.

Household ownership of transportation is particularly low, indicating ***limited personal control over the use of transport***. Ownership of vehicles that could transport women with a complication is almost non-existent. This indicates that women and their families must rely heavily on public transport options, availability of an ambulance from a health facility, or financial means to secure transport.

The distance between communities and health facilities is a particular challenge to accessing health services, as expressed by 47% of men and 54% of women. The lack of sufficient infrastructure and paved roads into many communities is ***often complicated*** during the rainy season as there are few bridges or boats to cross them.

Distance and transportation difficulties ***can figure significantly into the decision-making processes***. Many men and women cited a preference for seeking local options first before attempting to overcome myriad transportation barriers they may face.

Transportation barriers are further complicated by the fact that the nearest facility may only be a health post, ***representing only the first level of entry into the formal health system*** and where care for obstetric emergencies is not available.

Available transportation options may also ***incur significant cost or discomfort***. Public transportation may not be available at the time needed or may take a significant amount of time to reach the final destination.

Discussion of Second Delay Factors

Financial and other barriers

While transportation is a significant factor in the second delay, other financial considerations may also impede the ability of women and their families to reach care when needed.

While health care is free in the public sector, which is also the only significant health provider in Timor-Leste, ***financial considerations were highlighted as a significant concern*** not only in the decision-making process (first delay) but also the ability to pay for transportation.

Financial concerns related to transportation were cited by a significant proportion of men and women as to why local options were considered first. ***Few people were able to save money to cover transportation costs*** if needed. Covering day-to-day living expenses was more important and usually any saved money went to those expenses first.

Many respondents also noted that financial concerns not only weighed on transportation decisions, but were also a concern with respect to ***the time and opportunity costs***. For example, many lived in rural areas with livestock and agricultural responsibilities. There were concerns about who would tend the crops and animals during any absence. This concern extended to child care and household management as well.

Concern about additional costs for feeding or providing for the woman while she is in a facility and accommodations for another person to tend to her needs are yet another barrier.

Discussion of Third Delay Factors

Medical supplies and equipment

Without a sufficient supply of medicines and equipment to manage the specific complication, health facility cannot provide high-quality and appropriate care.

Perceptions of the quality of care received in health facilities was almost universally high among both men and women. About 88% of men and 95% of women rated the services they received at facilities as either good or excellent.

However, the ***lack of available medicine*** often detracted from the quality of care received. Approximately 33% of men and 65% of women cited a lack of supplies at health facilities as a concern.

Factors that contribute to such differences between men and women may be that women are more likely to access health facilities more often for care during pregnancy and for their children. Therefore women may have had greater exposure to an irregular supply of medicine than men.

One particular supply aspect related to BP/CR was ***blood supply***, a relatively non-existent system in Timor-Leste. The lack of a blood supply at health facilities makes identifying a blood donor ahead of time an important preparation process, especially in case of complications such as hemorrhage.

Discussion of Third Delay Factors

Antenatal care

Antenatal care (ANC) visits are an important "teachable moment" for educating women and their families and encouraging the BP/CR planning process.

While adherence to antenatal care cannot fully identify or prevent all potential complications, it plays an important role in helping to achieve a successful labor and delivery process.

ANC visits physically and mentally prepare women for the pregnancy, delivery, and postpartum periods and ensure health of the woman and the fetus during pregnancy.

Compliance with ANC is very high in Timor-Leste, with over 70% completing four ANC visits or more. About 65% of women had their first ANC visit during the first trimester.

Just as important as attending ANC is the ***content and quality of the information received*** and interactions during those visits. For ANC visits to be effective, appropriate messages must be delivered in a manner that is understandable to women and their families.

Although not specifically assessed in this study, ***proper training, appropriate educational materials, and supportive supervision*** are elements that can improve the content and quality of ANC visits, particularly to promote a BP/CR planning process.

Discussion of Third Delay Factors

Staff attitudes

The attitudes and behaviors of staff affect patient care, and ultimately health outcomes. Poor interactions can affect patient interest in seeking services at the facility in the future.

In general, the perceptions of the quality of care received at facilities were extremely positive. Further, there was confidence in the ability of health personnel such as doctors and midwives to treat complications.

Despite this general positive experience, about one-quarter of men and women felt that women were not treated respectfully by staff. Anecdotal evidence that contributed to the impression of disrespectful treatment included staff screaming at patients or other staff members.

The ***burden on limited staff*** may affect how they treat patients. Some lower facilities, such as health posts, often have only one person to manage and treat cases. This person may be overwhelmed by the responsibilities and long working hours. Health personnel at lower facility levels may also be frustrated by the ***lack of equipment or supplies*** to properly treat patients requiring care.

Finally, some health personnel may ***lack the knowledge*** to treat certain conditions or manage cases they encounter at the facility. All these circumstances can lead to poor attitudes among health facility staff, and may result in unpleasant interactions with patients.

Recommendations

Recommendations

Health sector building blocks

As maternal health is multidimensional, coordinating the building blocks of the health sector can create more effective programs to increase coverage and improve access to maternal health.

Improving maternal health requires strengthening the entire health system. This strengthens the system's ability to deliver an appropriate package of preventions for maternal care.

- **Improve sector governance.** Ensure that appropriate policies, regulations, and coordination are in place to improve accountability and other regulatory oversights.
- **Strengthen sector infrastructure.** Ensure that appropriate referral systems are linked with providers and that essential medicines and supplies are available.
- **Develop human resources.** Scale-up available skilled attendance, with distribution in areas of most need.
- **Ensure sufficient financing.** Reduce barriers that de-motivate staff such as low salaries by providing appropriate incentives, especially to staff placed in hard-to-reach areas. Consider using community financing schemes to help cover expenses related to reaching and receiving care.
- **Strengthen service delivery.** Ensure the availability, quantity, and quality of care of maternal health services, including family planning, across all levels of the health system.

Recommendations

Cross-sectoral cooperation

In addition to a strong health system, improving maternal health outcomes requires cross-sectoral cooperation at the national level to facilitate long- and short-term system-level changes.

Collaboration and coordination with other ministries can minimize barriers that impede financial, structural, or other access to health services and information. Examples of cross-sectoral ministerial collaboration include:

- **Ministry of Education.** Strengthen literacy efforts and develop educational materials targeting low- to not-literate audiences.
- **Ministry of Development or Ministry of Agriculture and Fisheries.** Build on existing systems of community-based extension workers to provide health education to wider audiences.
- **Ministry of Finance.** Establish community-based financing schemes or revolving funds to assist women and their families to support care-seeking costs.
- **Ministry of Public Works, Transport, and Communication.** Identify particularly challenging geographic areas to target for infrastructure improvements.

Recommendations

Recommendations to address the first delay.

- **Focus on culturally appropriate verbal or visual educational messages.** Written educational materials will be of limited use to the large segment of the population that is cannot read. Use other communication methods to accommodate those with limited literacy.

- **Help people process learned information.** In addition to *providing* health education, it is important to help men and women *evaluate and apply* the information that is most relevant to their situation.

- **Use preferred information sources.** Men and women indicated they liked to receive educational information from different sources. By utilizing those preferred and trusted channels, programs can more effectively reach their intended audience.

- **Focus education messages on key danger signs.** While it is important for women and their families to be aware of any potential problems, key danger signs should be highlighted as those requiring immediate attention.

- **Expand key messages base.** Emphasize that all pregnancies can incur complications and previous experiences cannot be used to gauge subsequent experiences.

- **Intensify efforts to promote birth preparedness and complication readiness.** Emphasize preparation and planning ahead of time to minimize decision-making delays during emergencies.

Recommendations

Recommendations to address the first delay.

- **Strengthen linkages between TBAs and health facilities.** Given the important role of TBAs in delivery preference, finding ways to incorporate TBAs while promoting skilled attendance may facilitate the transition for women and their families.
- **Identify community "champions" to advocate BP/CR.** Calling upon on recognized community leaders to promote BP/CR will encourage uptake of these practices.
- **Identify ways to incorporate non-harmful traditional practices with BP/CR concepts.** Incorporating familiar practices can ease the transition to and uptake of BP/CR.
- **Involve a broader scope of familial and community members in the planning processes.** Involving others in decision making acknowledges traditional practice while emphasizing planning ahead of time.
- **Start the BP/CR process early.** Ongoing planning efforts throughout the course of a pregnancy will facilitate the involvement of family members needed for the decision-making process and will ensure that women's voices and preferences are heard and considered.

Recommendations

Recommendations to address the second delay.

- **Systematically address barriers to reaching care.** Regular plans for facilitating transport from the community to the facility, or encouraging families to save money prior to the event instead of *ad hoc* approaches, can reduce transport delays.

- **Consider alternative MOH-managed community-based transport options.** Placing MOH-managed transportation options (such as motorcycle ambulances) that can serve as alternatives to ambulance vehicles in communities may reduce transportation barriers.

- **Support community-based funds to support transportation and other costs.** A variety of funds can be established or developed to provide transportation support in cases of emergencies and for the care of the woman and her family while she is at the facility.

- **Support other community-based options.** In-kind support systems, such as a roster of volunteers to care for people's children, livestock, and crops during any absence, can be developed. The support can be reciprocated through other volunteer acts as needs arise.

Recommendations

Recommendations to address the third delay.

- **Ensure that facilities meet basic standards.** Regularly evaluating key facility components and integrating plans for improvement into budgeting and planning processes can help ensure that quality standards and equipment are available.
- **Strengthen system to improve supplies.** Regular evaluation of the logistics system can help ensure that medicines are available when needed.
- **Link health facilities with community-based workers such as TBAs to identify all pregnancies in the community.** Enumeration of all pregnant women at the local level will assist with targeted educational efforts and will help health facilities identify high-risk pregnancies.
- **Regularly assess and support the quality and content of ANC visits.** Simple planning checklists can help ensure that key BP/CR topics are covered and planned for during ANC visits. The quality of ANC content must be consistently monitored and supported through mechanisms such as records review and client exit interviews.
- **Develop or integrate BP/CR educational or planning materials.** BP/CR planning processes can be supported by culturally appropriate education materials and tools during community outreach and ANC visits and at other facility-based opportunities.
- **Incorporate sensitivity training.** Equally important to having the proper knowledge about how to treat a case are sensitivity and interpersonal skills. These are not always inherent and should be taught.

Using the Study Results

Dissemination Process

To ensure study results were used, the Ministry of Health (MOH) and National Institute for Health (INS), with technical assistance provided by HIP, engaged in a dissemination process at the national, municipal, and region levels.

The findings of the *Maternal Health Community Study* were presented to the MOH Council of Directors in April 2015.

At that time, the Minister of Health noted that the responsibility for developing strategies to reduce delays in seeking, reaching, and receiving care must be shared by all sectors of government, including health, infrastructure, transport, water and sanitation, agriculture, and social services.

Study results were presented to the municipalities of Ermera and Manatuto and the Special Administrative Region of Oecusse Ambeno.

Health and community leaders from each study site participated in dissemination workshops to determine how the findings could best be used. Data from the MOH Facility Readiness Assessments and coverage data of all technical programs was also presented. These data provide evidence for participants to develop municipal and regional action plans.

Municipal and regional leaders worked with public health officers, staff from health facilities, community leaders, and MOH to determine how to use the study findings.

Community Recommendations

The study results had a direct application to program delivery within a systematic and sustainable process.

*As a result of the workshops, **action plans** were developed for Oecusse, Ermera, and Manatuto. These plans were used to develop the **2016 Annual Implementation Plans** that will be implemented through the **MOH Annual Planning and Budgeting Cycle**.*

The examination of the study results at the dissemination workshops also resulted in several recommendations from the participants.

Recommendations for the Government of Timor-Leste

Invest human and financial resources in multi-sectoral strategies to increase the availability, accessibility, and affordability of maternal health care services.

Recommendations for the Ministry of Health

Use existing polices and mechanisms to increase collaboration between the MOH and the ministries of infrastructure, transport, water and sanitation, education, agriculture, finance, and strategic investment as well as churches and NGOs to mitigate the three delays.

Jose Magno, Director General of the Ministry of Health addressing the Ermera action planning workshop.

Community Recommendations

Recommendations for the health facility to improve the quality of treatment

- Staff training on safe delivery.
- Improve staff communication skills and quality of treatment women receive to encourage return visits if needed.
- Ensure that staff maintain their schedules and provide alternative staffing plans as needed.
- Ensure all facilities are equipped (with medical equipment and supplies, vehicles, etc.) to respond to emergencies

Recommendations for the health provider to promote BP/CR

- Use individual counseling, group discussions, and community events to educate women and their families on danger signs and importance of delivering in a health facility.
- Ensure midwives provide all ANC and PNC services during integrated community health service (*Sistema Integradu Saude Communitaria* - SISCa) events.
- Identify all pregnant women in the community and ensure they have a birth plan, receive ANC/PNC, and deliver with a skilled attendant.
- Ensure strong collaboration with community leaders to better respond to obstetric emergencies.
- Coordinate with community leaders to implement a SISCa schedule to ensure maximum participation.

Recommendations for the community to help women and their families access care

- Enumerate and track pregnant women to identify high-risk pregnancies in collaboration with health facilities.
- Ensure that community leaders and Community Health Volunteers (PSFs – *Promotores Saude Familia)* visit the homes of pregnant women to encourage them to develop a birth plan and use a facility at delivery.
- Assist families who need emergency transport by developing a community transportation plan and identifying ways the community can provide financial support if an ambulance is not available.
- Coordinate with health staff to provide necessary assistance during obstetric emergencies.

Conclusion

Conclusion

Improving the quality and coverage of health care and reducing barriers and facilitators to care requires a combination of strategies within and between sectors and from the community to the national level.

Despite significant progress, the Millennium Development Goal 5 of preventing maternal death and disability has not been achieved in 2015.

At the **community level**, stakeholders, leaders, and community members can use local resources such as opinion leaders to serve as advocates and educators; and can develop local solutions, such as community funds to help women and their families achieve healthy maternal and child outcomes.

At the **national level,** the Ministry of Health can facilitate intra-agency coordination to ensure that the six key building blocks within the health sector are realized. Prioritizing systems strengthening activities that have a more direct influence on maternal health can help focus efforts more effectively.

Interagency coordination between government sector can help identify areas to improve, such as infrastructure, financing, to reduce barriers to accessing and utilizing care.

Achieving significant reductions in poor maternal health outcomes is no small task. Concerted efforts between sectors and across multiple levels are the greatest opportunity for significant and sustained improvements.

Annex

References

More Information

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For more Information

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