

IMPROVING ACCESS TO CARE

BIRTH FACILITIES AND MATERNITY WAITING HOMES IN TIMOR-LESTE



Photo: Birth Centre, Manufahi District

by

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Additional reports:

This research is being conducted as part of a PhD and ethics approval was obtained from both the Ministry of Health, Timor-Leste and the Human Research Ethics Committee at Menzies School of Health Research in Darwin, Australia. As this is a preliminary field report, a more in-depth analysis will follow in the form of a thesis and a film designed to facilitate the feedback of findings. While a brief overview of the qualitative findings appear here, a more thorough analysis will be conducted at a later stage. For additional information or subsequent reports that arise from this research please contact the corresponding author.

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ABBREVIATIONS

- CCF – Christian Children’s Fund
- HAI – Health Alliance International
- IUFD – Inter-Uterine Fetal Death
- MCH – Maternal and Child Health
- MDM – Médicos do Mundo
- MoH – Ministry of Health (Democratic Republic of Timor-Leste)
- NGO – Non-Government Organisation
- UN – United Nations
- UNFPA – United Nations Population Fund
- UNICEF – United Nations Children’s Fund
- WHO – World Health Organization

SUMARIO EXEKUTIVU

Strategia uma hien tur ahi hahu desenvolve hanesan projektu pilotu ida iha Timor-Leste iha 2005. Ninia objektivu atu hasae utilizasaun fasilidade saude ba tur ahi (partu), spesialmente ba inan sira nebe iha areas rurais no areas remotas. Objektivu final husi uma hein tur ahi atu reduz taxa mortalidade maternal no neonatal nebe observa iha nasaun ne'e tomak. Relatoriu ida ne'e hato hanesan availiasaun ba strategia uma hein tur ahi iha Timor-Leste husi 2005-2007.

Investigasaun ne'e uza metodu aproximasaun mistura. Ida ne'e kompostu husi 106 entrevistas kualitativas iha 8 distritus. Entrevistas sira ne'e explora tan sa maka strategia suksesu ou la suksesu, no tan sa inan balun hili atu tur ahi fasilidade i balun lakohi. Analiz kuantitativa konaba numeru partus, mate, referal, no utilizador sira nia residencia halao iha maternidade rua nebe funsiona mais de fulan nen, nomeadamente iha Lospalos ho Same.

Rezultadu hatudu katak

- Strategia original konaba uma hein tur ahi ne'e la hetan suksesu iha Timor-Leste, apezar de ninia konseptu halao dadauk hela pilotu iha distritu rua no mos autoridade local iha distritu hat hahu experimenta dadauk ona. Ne'e tan laiha maternidade ida nebe estebelesidu maka funsiona hanesan uma hein. Maibe, idea uma hein tur ahi hetan adpatasaun tuir kontekstu lokal no transforma an ba estebelesementu maternidade ho tipo oin rua: provizaun akmodasaun post-partum iha Lospalos ho fasilidade tur ahi nebe independente iha Same, Laleia ho Bazartete. Estbelementu maternidade iha Cailaco no Atabae la konsege halo avaliasaun tan sira dedauk funsiona, mesmo konstrusaun kompleta tiha ona iha tinan ida ona, no fulan nen tutuir malu.
- Estebelesementu maternidade, hetan apoiu transporte no promove ba comunidade iha relasaun ho aumenta ida modestu ba partu iha fasilidade iha Same, maibe laiha korelasaun nebe maka bele observa iha Lospalos. Kontrario ho objektivu strategia uma hein tur ahi, inan sira iha probabilidade boot atu la mai iha maternidade antes de procesu tur ahi hahu, no inan sira nebe maka mai iha probabilidade hela besik 5km nia laran.
- Estebelsementu maternidade laiha relasaun ho reduzaun mortalidade fetus intra-uterina or mortalidade neonatal nebe kauza maioria husi menus de kuidadu emergencia obstetrika iha facilidades no problemas saude publikas. Estabelesmentu maternidade iha relasaun ho aumentu iha frekuensia referal nian, indika katak aumenta asesu ba kuidadu emergencia obstetrika. Tan koleksaun data rotina nebe inadekuadu, ida ne'e difisil tebes atu halo konkluzau katak referais sira nebe fo rezultadu hadiak rezultadu husi pregnancya.
- Inan sira no familia sira nebe uza maternidade satisfoitu ho servisu nebe maka oferese, aprecia hetan spasu bodik ba inan no familia sira. Feto sira iha probabilidade liu uza maternidade wainhira sira hela besik, iha asesu ba

transporte, iha historia partu uluk ladiak, foin atu partu premeira vez, ou sira ka sira nia laen sira iha servisu.

- Feto sira nebe toman tiha tur ahi iha uma, iha labarik seluk iha uma no konsidera partu hanesan procesu normal nebe la persiza kuidadu hospital nian. Feto sira senti susar tebes atu ba to fasilidade partu nia ho razaun oioin. Por exemplu, sira la hetene data exacta wainhira maka sira atu tur ahi, partu lalais liu hanesan inan sira multipara; laiha transporte publiku ka privada ba sira nia hela fatin (aldeia), transporte ba fasilidade saude nebe limitadu, tempu udan la permite atu halo viagem ba maternidade tan dalan at.

Atu fornese servisu kuidadu maternidade ida ekitavel ba inan kiak sira iha areas rurais no remotas sei kontinua sai hanesan dezafiu boot. Tan estebelesementu maternidade la kovre inan sira nebe hela ho distancia 25km dook husi fatin maternidade, tan ne'e importante tebes atu refosa tan fasilidade CHCs no Health Post sira nebe nia rekursu sei menus hela. Importante tebes ba inan sira nia asesu ba maternidade hetan difikuldade tan distancia atu bele kontinua hetan servisu outreach nian. Inan hotu-hotu persiza iha asesu ba husi parteira ka ema nebe ajuda partu ho skill iha tempu partu, no mos referal ba fasilidade CHC ka hospital nebe iha kapacidade ba kuidadu emergencia obstetrika. Atu atinji ida ne'e, iha rekomendasuan lima nebe alista tuir nia ordem de prioridade:

REKOMENDASOENS

1. **Aumenta rekursus ida adekuaudu iha CHC no Health Post sira nebe existe tiha ona.** Rekursus nebe falta maka parteira, motor, radio ou telefone no ekipamentu and suply basiku (Appendix 1). Prioridade tenki fo liu ba koverura kompleta ba populasaun, parteira sira tenki iha ekipadu ho halao servisu outreach, atende partu iha uma, halao referal la bele demora. Parteira hotu-hotu, iha fatin nebe deit sira servisu ba, sira tenki kontinua hetan treinamentu nebe foku ba kuidadu feto/inan nian, oinsa atu kuieñese no halo referal komplikasaun no teknikas kuidadu emergencia obstetrika nian.
2. **Apoi ba maternidade eixistente nebe hari'i tiha ona.** Estebelesementu maternidade iha Atabae no Cailaco dezeiña hanesan uma hei tur ahi, maibe, toma en konsidersaun experiencia husi distritu seluk, vale apena atu kontinua aproximasaun ida fleksivel ba ninia implementasaun. It hare hanesan maternidade iha Atabae util tebes ba forneselementu servisu akomodasaun, aumesmu tempo estelesementu maternidade iha Cailaco serve diak liu hanesan centru partu. Wainhira sira komesa funsiona ona, follow up avaliasaun tenki halo iha fatin rua ne'e.
3. **Hadiak kuidade emergencia obstetrika baziku iha centro distritu hotu.** Treinamentu ba kuidadu emergencia obstetrika tenki inklui pratika no surpervizaun nebe lao dadauk no tenki fo ba doutor no parteira sira hotu. Prioridade tenki fo makas liu centro distritu sira nebe dook husi kuidade

emergencia obstetrika komprehensivu. Tenki halao audit ba mortalidade maternal hanesan parte ida husi pratika hadia kualidade rotina iha nivel distritu, no foku iha mortalidade nebe akontese iha fasilidade saude no sira nebe iha comunidade.

4. **Hadiak fasilidade ba partu normal iha CHC sub-distritu.** Kria fatin spesialida ba inan sira, labarik no familia sira nebe separadu husi sala internamentu pasiente hanesan incentivu importante ida ba partu iha fasilidade, nune mos disponibilidade transportes. Wainhira se implementa karik, fasilidade ba fatin partu nebe independente tenki integradu ho centru de saude, nos mos iha continuidade servisu ba kuidadu ante natal duke separa programa sira ne'e. Fasilidade partu nebe Independente, no servisu akomodasaun ne'e karun, maibe, dala barak liu inan sira hela besik 5km nia laran mak uza liu. Ita la bele implementa ida ne'e ho halo lakon fali servisu outreach nian ou asistencia ba inan sira iha areas remotas.
5. **Uma hein tur ahi so bele konsidera wainhira servisu partu nian nebe adekudu no desentralizadu establese ona.** Uma hein tur ahi, hanesan defini iha literatura internasional, so bele reduz risku mortalidade perinatal ba inan sira isin rua ho risku aas (Chandramohan et al 1995). Tan ne'e, se karik uma hein tur ahi atu establese iha tempo lengo prazu sira tenki hari'i besik CHC nebe maka iha kuidadu emergencia obstetrika komprehensiva, ida ne'e so bele ba inan sira no familia sira nebe persiza nivel de kuidadu ida ne'e.

EXECUTIVE SUMMARY

The maternity waiting home strategy was developed as a pilot project in Timor-Leste in 2005. The aim was to increase the utilisation of health facilities for birth, particularly for women living in rural and remote areas. The ultimate goal of maternity waiting homes was to reduce the high maternal and neonatal mortality rates observed throughout the country. This report provides an evaluation of the maternity waiting home strategy in Timor-Leste from 2005 to 2007.

A mixed methods approach was used for this investigation. It consisted of 106 qualitative interviews in eight districts. These interviews explored why the strategy was or was not successful, and why some women chose to birth in a facility and others did not. A quantitative analysis of the number of births, deaths, referrals and user's area of residence was conducted for two maternity establishments that have been functioning for longer than six months, namely Lospalos and Same.

The findings show that:

- The original maternity waiting home strategy has not been successful in Timor-Leste, despite the concept being piloted in two districts and being taken up by local authorities in four districts. This is because no maternity establishments are functioning as waiting homes. Instead, the maternity waiting home idea has been adapted to the local context and transformed into two different types of maternity establishments: accommodation services in Lospalos and stand-alone birth facilities in Same, Laleia and Bazartete. The maternity establishments in Cailaco and Atabae could not be evaluated as they are not yet functioning, despite construction being completed for one year and for six months, respectively.
- Maternity establishments, backed by transport and promoted to the community, are associated with a modest increase in facility births in Same, but no such correlation is observed in Lospalos. Contrary to the objectives of the maternity waiting home strategy, women are not likely to attend a maternity establishment prior to labour and the women who do attend are most likely to live within 5km.
- Maternity establishments are not associated with a reduction in the number of inter-uterine fetal deaths or neonatal deaths, mainly due to a lack of emergency obstetric care at the facilities and ongoing public health problems. Maternity establishments are associated with an increase in the frequency of referral, indicating a possible increase in access to emergency obstetric care. Due to inadequate routine data collection it is difficult to conclude whether these referrals result in improved pregnancy outcomes.
- Women and families who used the maternity establishments were very satisfied with the service, and appreciated having a space just for mothers and families. Women were more likely to use the maternity establishment if they lived close by, had access to transport, had a bad birth outcome in the past, were first time mothers, or they or their husband had a secure job.

- Women who gave birth at home usually had other children at home and saw birth as a normal process not requiring hospital care. Women found it difficult to get to a facility for birth for various reasons. For example they did not know the exact date when they would deliver; the birth came on too quickly especially for multiparous women; there was no public or private transport to the village; there was limited transport at the health facility; the rainy season would not allow this because the roads were washed away.

Providing equitable maternity care services for poorer women in rural and remote areas is an ongoing challenge. As maternity establishments are much less likely to cater to women who live more than 25km away, it is important to strengthen currently under-resourced health posts and sub-district health centres. It is essential that women who are having difficulties attending maternity establishments have access to outreach services. *All* women need access to both a skilled attendant at birth and timely referral to a district health centre capable of emergency obstetric care. In order to achieve this, five recommendations are listed in order of priority:

RECOMMENDATIONS

1. **Adequately resource existing health posts and lower-level health centres.** Important resources currently missing are midwives, motorbikes, radio or telephone communication and basic supplies and equipment (Appendix 1). Priority should be given to attaining complete population coverage, and equipping midwives to provide outreach services, attend home births, and conduct timely referrals. All midwives, regardless of where they are posted, should receive ongoing training on women-centred care, how to recognize and refer complications and basic emergency obstetric care techniques.
2. **Support existing maternity establishments that have already been built.** The establishments in Atabae and Cailaco are designed to be maternity waiting homes, however, considering the experience from other districts it is useful to keep a flexible approach to implementation. It appears that the establishment in Atabae would be most useful for providing accommodation services, while the establishment in Cailaco would be more suited to a birth centre. Once they begin to function, follow up evaluations should be conducted at both sites.
3. **Improve basic emergency obstetric care in all district centres.** Emergency obstetric care training must include ongoing practice and supervision and should be provided to both doctors and midwives. Priority needs to be given to district centres that are furthest from comprehensive emergency obstetric care. Maternal death audits should be implemented as part of routine quality improvement practices at the district level, and should include both facility deaths and those that occur in the community.

4. **Improve facilities for normal births at sub-district health centres.** Having a special area for mothers, babies and families separate from general inpatients is an important incentive for birthing in a facility, as is the availability of transport. Whenever implemented, stand-alone birth facilities must be integrated with a health centre and there should be continuity of care with antenatal services rather than separating these programs. Stand-alone birth facilities and accommodation services are expensive, however, and are most often used by women who live within 5km. They should not be implemented at the expense of outreach or assistance for women in remote areas.

5. **Maternity waiting homes should only be considered once adequate, decentralized birthing services have been established.** Maternity waiting homes, as defined in the international literature, can only reduce the risk of perinatal death for high risk pregnancies (Chandramohan et al 1995). Therefore, if maternity waiting homes are established in the long-term they should be situated near district health centres which have comprehensive emergency obstetric care, and should only be for women and families who require that level of care.



Photo: *Casa das Mães*, Lautem District

BACKGROUND

Timor-Leste is a beautiful and rugged 15,000km² half island in the Timor Sea, which is divided into 13 districts, 67 sub-districts, 498 *sucos* (villages) and 2336 *aldeias* (hamlets) (MoH 2002a). It has a long history of occupation and resistance, by Portugal, Japan, and most recently Indonesia. The wide-spread destruction of infrastructure in 1999, and repeated low-level conflict and population displacement in recent times has continued to hamper development of and access to health services.

In addition to the mountainous terrain, lack of public health infrastructure, and poor road conditions, the vast majority of the one million inhabitants of Timor-Leste live in rural villages and 42% live below the poverty line (MoH 2002a). These factors combine to impose significant barriers to accessing health care services, particularly for poorer people living in rural and remote areas.



Photo: Traditional House, Bobonaro

Since 2002 the Ministry of Health has aimed to develop a decentralized health system that is culturally appropriate and includes community participation in decision making (MoH 2002b). The Ministry of Health and donors have made significant progress in the development of 174 health posts, 65 health centres and six hospitals, however, considerable challenges remain in adequately equipping and staffing peripheral health facilities and ensuring quality of care and complete coverage of the population (MoH 2007b). In addition to addressing major infectious diseases, the top priority for the Ministry of Health is to reduce the persistently high rates of maternal and infant mortality (Table 1) by increasing the rate of skilled attendance and facility births (MoH 2002a; 2002b; 2007a; 2007b).

Indicator	Value
Fertility Rate	6.7
Antenatal Care Coverage (1 st Visit)	68.3%
Antenatal Care Coverage (4 th Visit)	36.1%
Skilled Attendance at Birth	27.2%
Post-Natal Care Coverage	19.7%
Maternal Mortality Ratio	660/100,000
Infant Mortality Rate	88/1,000

Table 1: Maternal Health Indicators, Timor-Leste (MoH 2006)

As part of the overall system of developing maternity care services in Timor-Leste, the strategy of maternity waiting homes was developed by the Ministry of Health in May 2005 (MoH 2005a). The aim of maternity waiting homes was to increase the utilisation of health facilities for birth, particularly for women living in rural and remote areas, and therefore reduce maternal and neonatal mortality (MoH 2005b). The World Health Organization (WHO 1996, pg 1) defines maternity waiting homes as ‘residential facilities, located near a qualified medical facility, where women defined as “high risk” can await their delivery and be transferred to a nearby medical facility shortly before delivery, or earlier should complications arise’. Maternity waiting homes, therefore, are houses built

to accommodate pregnant women and their families who live far from a health centre and would otherwise have difficulty accessing a health facility. Maternity waiting homes were not designed to be birthing facilities, and the strategy is different from a birth house or a birth centre in that women are required to come to the maternity waiting home one or two weeks before delivery. They are expected to wait in these accommodation facilities until they are ready to birth in the nearby health centre.

Maternity waiting homes have become an increasingly popular strategy in many low and middle-income countries since they were incorporated as an option in the Safe Motherhood Program (WHO 1986; 1996). After their development in Latin America and Africa by foreign health professionals in the 1950s and 1960s, Non-government Organisations (NGOs), United Nations (UN) agencies and Ministries of Health have recently supported maternity waiting homes in Mongolia, Timor-Leste, Sri Lanka, Nepal, Laos, Maldives, Nicaragua, Gambia, Eritrea, Morocco, Lesotho, and elsewhere. Despite their widespread implementation, there has been little evaluation of the strategy. For example whether maternity waiting homes are meeting their objective of improving access to birthing facilities and reducing maternal and neonatal mortality is not yet known.

The Ministry of Health has aimed to pilot maternity waiting homes in five districts from 2005, with the potential long-term objective of implementing them in every sub-district. The planned pilot districts were Lautem, Manufahi, Manatuto, Ermera and Bobonaro. Maternity waiting homes are a large investment for the health sector, in terms of human and financial resources if implemented on a broad scale. This report aims to evaluate the maternity waiting home strategy in Timor-Leste from 2005 to 2007. The objectives of this research are to:

1. determine whether maternity waiting homes are increasing the number of births in a health facility, and for whom access is improved;
2. assess whether maternity waiting homes improve access to emergency obstetric care and reduce the number of inter-uterine fetal deaths (IUFDs) and neonatal deaths;
3. understand decision-making processes and explore the reasons why women decide whether or not to birth in a health facility;
4. discuss the implications of this strategy for the maternal health system;
5. recommend ways to improve access to maternity care for all women in Timor-Leste.

METHODS

A mixed methods approach using qualitative interviews and quantitative data analysis was employed in order to understand how maternity waiting homes and birth facilities were being used and the factors that influence people's decisions to seek care during pregnancy and birth. The research was conducted over four field trips, consisting of four weeks in the period from 7 October to 25 November 2006 and four months in the period from 23 July to 5 December 2007.



Photo: Group Discussion, Bobonaro District

Qualitative research consisted of 106 semi-structured, in-depth interviews and group discussions with a range of key informants from the community (women, husbands, grandmothers and community leaders), government health staff (midwives, nurses, doctors, health centre managers, district health directors, maternal and child health (MCH) officers and policy makers), and representatives from NGOs (international and local NGOs as well as UN agencies). Notes were taken during each interview, and interviews that were tape recorded were transcribed. Signed or verbal consent was obtained from each participant.

Most informants, for example health staff and NGO representatives, were purposively selected based on their involvement in maternal health and their knowledge of the maternity waiting home strategy. Interviews were not distributed evenly across all districts and do not constitute a representative sample (Table 2). An opportunistic sampling technique was used for participants from the community. The aim was to sample for variation, and to look for consistent or contrasting themes emerging in the interviews with women in different circumstances. For example interviews were conducted with primiparous and grand-multiparous women, women using health facilities and those who gave birth at home, women who lived close to a facility and those who lived in isolated villages, young mothers and older women.

Interviews were carried out in eight of Timor-Leste's 13 districts: Bobonaro, Liquica, Manatuto, Manufahi, Dili, Lautem, Aileu and Ermera. These districts were chosen because they had either implemented or planned to implement a maternity waiting home (Appendix 2).

District	Community	Government Health Staff	Non-Government Organisation	Total
Aileu	0	4	0	4
Bobonaro	7	13	1	21
Dili	2	11	12	25
Ermera	1	3	0	4
Lautem	6	4	1	11
Liquiça	4	4	0	8
Manatuto	0	4	0	4
Manufahi	12	15	2	29
Total	32	58	16	106

Table 2: Number of Interviews by District and Type of Participant

Quantitative data was collected in each of the districts that had a functioning maternity establishment, including Bobonaro, Liquica, Manatuto, Manufahi, Aileu and Lautem. Statistics that appear in this report were collected directly from the birth register at the sub-district health centres. Specific data collected from each birth registration book includes number of facility births, number of assisted home births, referrals, IUFDs, neonatal deaths and maternal deaths. Other quantitative data was collected in each

district from the administrator's office, the health service, the police department and UN police contingents, and included village (*suco*) and hamlet (*aldeia*) location and population, and target population figures for the delivery of MCH services. The number of births by area of residence was calculated by turning area of residence into a kilometre distance from the health facility and then grouping distances into four categories.

FINDINGS

Quality of routinely collected data

The quality of routine data collection in the birth registration books at health centres varied widely both within and between districts. Some health centres record births with the family and dukun at home, while others do not. There was some indication that maternal deaths are not being recorded accurately. In at least two districts there was reliable but unconfirmed anecdotal evidence of recent maternal deaths but these did not appear in either the health centre's birth registration book nor the district health information system

Implementation

While the concept of maternity waiting homes has been promoted widely in Timor-Leste since 2005, and the strategy has been initiated in more than three districts, there are currently no maternity waiting homes functioning in the country. Instead, in each sub-district in which the maternity waiting home strategy has been implemented it has been adapted to meet the needs of the sub-district health system and the local population. In each site maternity waiting homes have been independently transformed into birth or post-partum facilities where women also have the option to wait.

Category	Accommodation Services		Stand-alone Birth Facilities	
Type	Maternity Waiting Home	House for Mothers (<i>Casa das Mães</i>)	Birth Centre	Birth House
Definition	Accommodation for high risk or remote women and families prior to delivery at a nearby facility with at least basic emergency obstetric care	Accommodation and post-partum care for all women birthing at the health centre	A separate building that provides accommodation pre- and post-delivery as well as medical birthing facilities	A separate building that provides medical as well as some traditional birthing facilities. Not modelled on the maternity waiting home concept
Sub-district (District)	None functioning	Lospalos (Lautem)	Same (Manufahi), Bazartete (Liquiça) Laleia (Manatuto)	Remixio (Aileu) Maubara (Liquiça)

Table 3: Category, Type, Definition and Location of Maternity Establishments in Timor-Leste

The six maternity establishments that have been modelled on the maternity waiting home concept fall into two broad categories: accommodation services (Lospalos) and stand-alone birth facilities (Same, Laleia and Bazartete) (Table 3). The two facilities that

have been built in Atabae and Cailaco (Bobonaro district) have been finished for six months and one year respectively, however, neither has begun to function as both are still waiting for equipment, the provision of which requires funding from external donors or the national government. Although their service plans are consistent with a maternity waiting home, it is yet to be seen into which category they will actually fit. There is an additional model being implemented that falls within the category of stand-alone birth facility, however these birth houses are not modelled on the maternity waiting home concept. Separate evaluations of the birth houses in Maubara and Remixio are being conducted by the implementing agency Health Alliance International (HAI 2008).

Support

NGOs and local government have provided the funding to build every maternity establishment that has a link to the maternity waiting home concept. The type of NGOs that have sponsored maternity establishments in Timor-Leste range from health organisations (HAI in Remixio and Maubara, Médicos do Mundo (MDM) in Lospalos) to religious organisations (Santa Rafaela in Bazartete, Christian Children's Fund (CCF) in Laleia), to government agencies outside of the health sector (government of Monaco in Same, local governments in Atabae and Cailaco). Thus maternity waiting homes, and maternity establishments in general, appear to be an attractive strategy for donors and they have received substantial external support for infrastructure.

While the Ministry of Health has contributed little to construction, they have been supportive of the maternity waiting home strategy. The role of the Ministry of Health has been to seek external funding (as in Same and Lospalos) and to promote the concept of maternity waiting homes which was then taken up and adapted at the sub-district level (such as occurred in Cailaco, Atabae, Barzartete and Laleia). Because the maternity establishments are integrated within the district health system, the Ministry of Health is responsible for providing staff and birthing equipment, and midwives and auxiliary staff are in charge of the day to day running and maintenance of the facilities.

Costs

Maternity establishments cost approximately US\$10,000 to \$15,000 to rehabilitate an old building, most often former doctor's quarters adjacent to the health centre, and \$40,000 to \$50,000 to build new. While rehabilitation is one quarter of the cost, there may be substantial disadvantages in this approach as the buildings tend to be much smaller, roofs deteriorate and foundations and walls are less stable due to previous damage inflicted after the 1999 referendum.

The monthly costs of running a maternity establishment are difficult to estimate as human resources and equipment are borrowed from the health centre. Some idea can be obtained from the *Casa das Mães* (House for Mothers) in Lospalos while it was being managed by MDM: the average monthly budget was US\$2,745 which included staff salaries, food, hygiene products, generator costs and communication (MoH 2005c). Despite the additional burden of running a whole new facility and the costs associated with cleaners, security, food and equipment, district health centres have not yet received an additional budget to facilitate the maintenance of maternity establishments.

When preparing a centralized strategy which attempts to gather women from remote areas to wait for up to a month, the costs of this must be considered. If the strategy of 'waiting' was successful and attracted many women from remote areas, it would be expensive to feed and accommodate them for an extended period of time: \$3.50 per person per day, or \$105 per person per month for food. Because of the high fertility rate, increased number of referrals, limited human and financial resources and lack of space, if a maternity establishment were to attract women from throughout the district the demand would rapidly outstrip the capacity of facilities as currently constructed.

Births, Deaths and Referrals

As maternity waiting homes have been consistently transformed into other maternity establishments, it is important to understand why this is occurring and what implications this has for the maternity waiting home strategy at the national policy level and for other districts. Thus, this report proceeds with an analysis of each maternity establishment that was based on the maternity waiting home concept. Cailaco and Atabae were excluded from the quantitative analysis because they were not functioning at the time of the research. The birth centres in Bazartete and Laleia were also excluded because they had been functioning for less than three months at the time the research was conducted and the very low number of births did not allow for a meaningful analysis. Time series data sets for Same and Lospalos are therefore reported here.

Birth data from Same shows an increase in the frequency of referrals since the birth centre opened in February 2007 (Figure 1). There have been 23 referrals to Dili since the birth centre opened, compared with 14 referrals for the eight months immediately prior to it opening. Due to inconsistent and incomplete routine data collection it was impossible to ascertain the reason for most referrals or whether they were appropriate. The higher frequency of referral is not a result of a higher number of births. Rather, it reflects the lack of capacity for emergency obstetric care in the district centre and the heightened sensitivity and caution by midwives and doctors to try and ensure no deaths occur in the birth centre.

There were six perinatal deaths (IUFDs plus neonatal deaths) since the birth centre opened and five in the eight months immediately prior to it opening, therefore there is no trend in the number of reported deaths (Figure 1). Two perinatal deaths occurred during assisted home births (both in June 2006) and the other 15 occurred for women who attended the health centre. The small number of perinatal deaths preclude any clear statistical trends from emerging. The lack of a noticeable reduction in perinatal deaths does indicate that while skilled birth attendance and health facilities are important, they cannot compensate for lack of emergency obstetric care, poor public health infrastructure and widespread poverty. There were no maternal deaths recorded in the district information system for Manufahi, thus it was impossible to assess whether the birth centre was preventing maternal deaths.

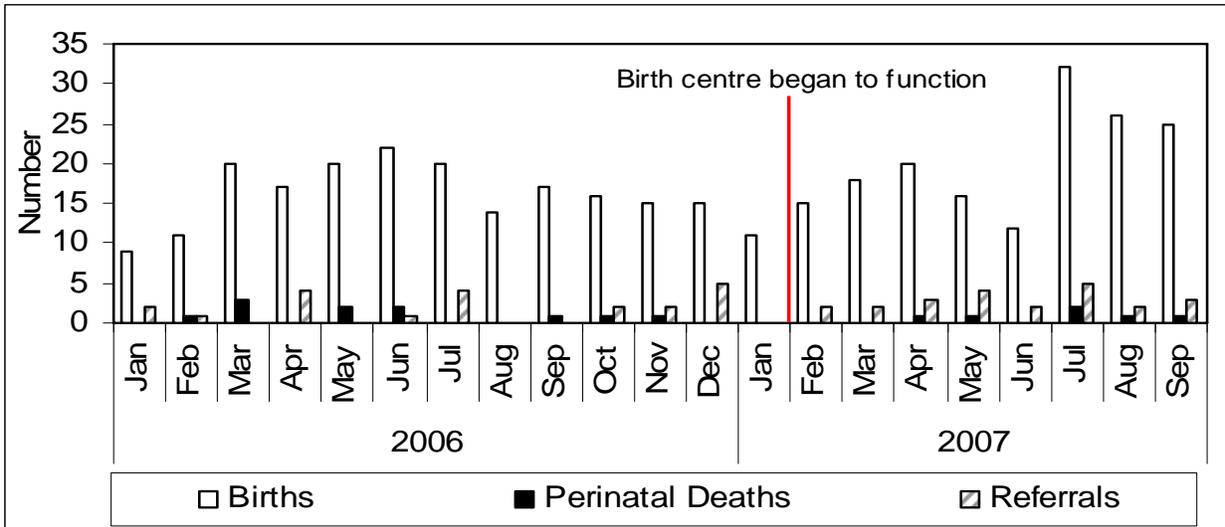


Figure 1: Number of Births, Deaths and Referrals, Health Centre/Birth Centre and Assisted Home Births, Same Sub-district, 2006-2007

The number of facility births in Same was already higher than assisted home deliveries, and an additional increase in the number of facility births began in July 2007, five months after the birth centre opened (Figure 2). Health centre staff attributed this increase to multiple influences. These were the establishment of the birth centre, the additional ambulance which functioned from April 2007, and a health promotion film about birth, which was shown throughout the whole district during June and July 2007.

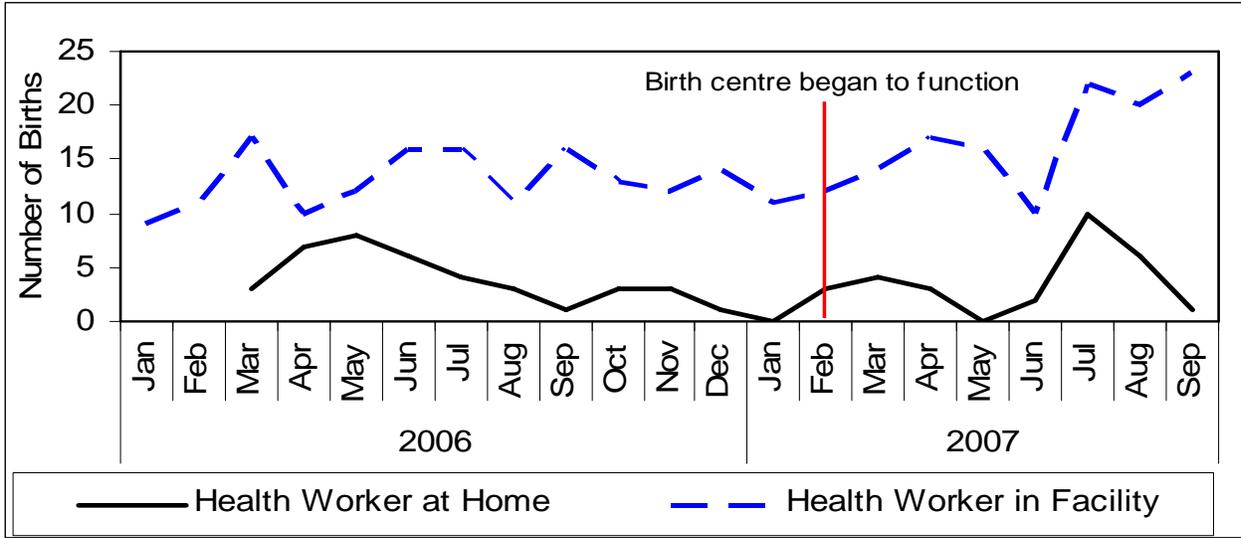


Figure 2: Number of Births by Place of Delivery, Same Sub-district, 2006-2007

Consistent with data from Same, there is a correlation between the opening of the Casa das Mães in Lospalos and a higher number of referrals to Baucau hospital (Figure 3). There were 63 referrals in the first year the Casa das Mães opened and only 25 in the year prior to it opening. Again, the higher number of referrals reflects the lack of capacity for emergency obstetric care in Lautem district. While the higher number of referrals may indicate improved access to emergency obstetric care in Baucau, referrals are costly, and the data does not indicate a reduction in the number of perinatal deaths (Figure 3).

There was one maternal death noted in health centre records, which occurred in April 2005.

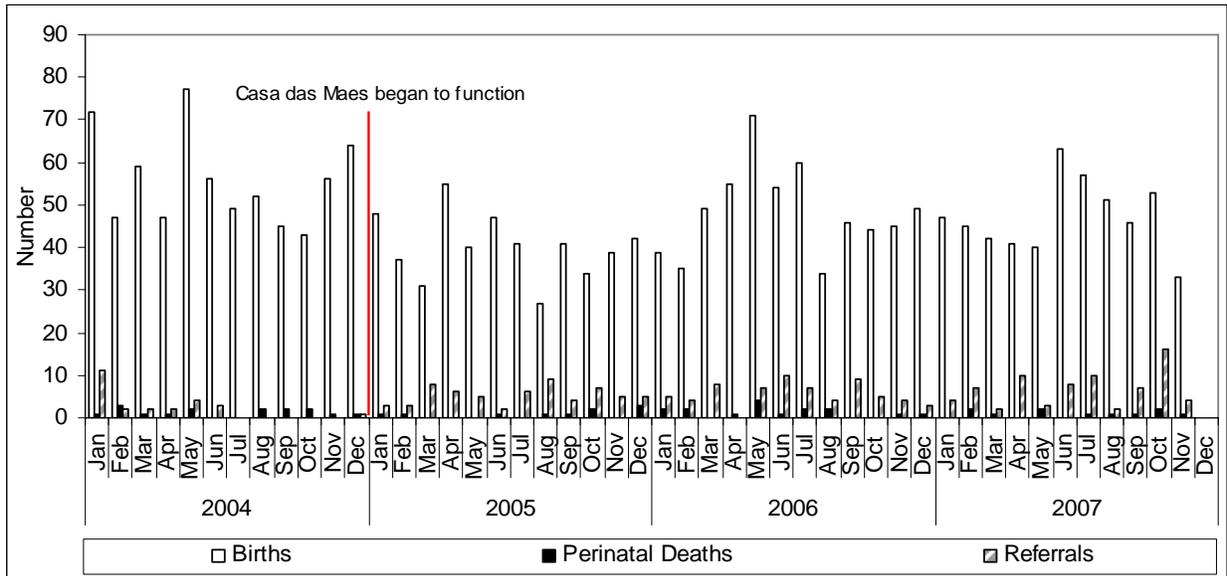


Figure 3: Number of Births, Deaths and Referrals, Health Centre and Assisted Home Births, Lospalos Sub-district, 2004-2007

There is no long-term trend in the number of facility births in Lospalos, and no increase in the number of facility births associated with the opening of the *Casa das Mães* in January 2005 (Figure 4). The peak in the number of facility births from May to July 2006 likely reflects the high number of internally displaced people in Lospalos during the crisis in Dili, which began in late April 2006. There is, however, a noticeable decline in the number of deliveries assisted by a health worker at the woman’s home (Figure 4).

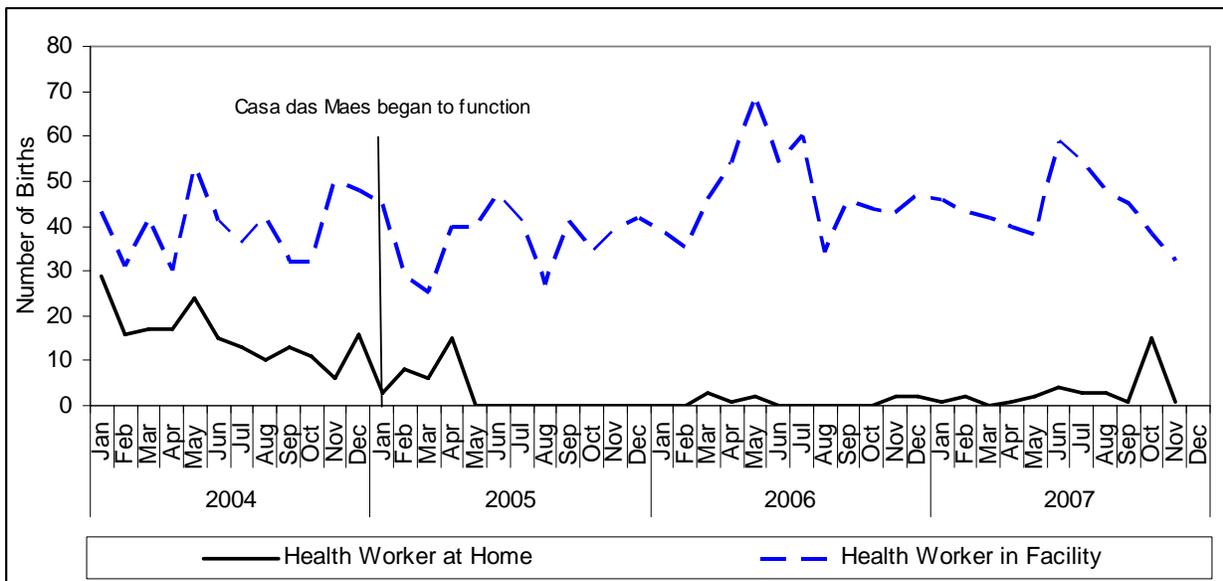


Figure 4: Number of Births by Place of Delivery, Lospalos Sub-district, 2004-2007

In most of the districts included in this study health staff have been very active in lobbying for maternity establishments because attending births in health facilities means

there are more resources at hand during delivery. It also reduces the need for them to attend home births, which is often difficult and time consuming. In some sub-districts health management has changed its policy so that midwives will no longer attend a woman at her home once the maternity establishment has opened.

“When the facility is complete then we will make a rule that the women have to come to the facility and we won’t have to visit them in their house”
 – Midwife, Sub-district health centre

Equity in access to a skilled attendant and facility-based care is an important consideration in evaluating interventions aimed at increasing the number of facility births. There is a need to clarify who has access to these maternity establishments and it is open to doubt whether they are achieving the original objective set out by the maternity waiting home strategy, that is to increase access to care for women who live far from a health centre.

Access for Whom?

An analysis of the number of births by area of residence in Same reveals that since the birth centre opened there has been only a slight increase in the number of facility births for women who live in the immediate area (within 5km of the birth centre). The increase in facility births since July is due almost entirely to an increase in births for women who live 6-25km from the birth centre (Figure 5). Women who live 26-50km or more than 50km remain unlikely to utilize the birth centre, even though there are accommodation and waiting facilities.

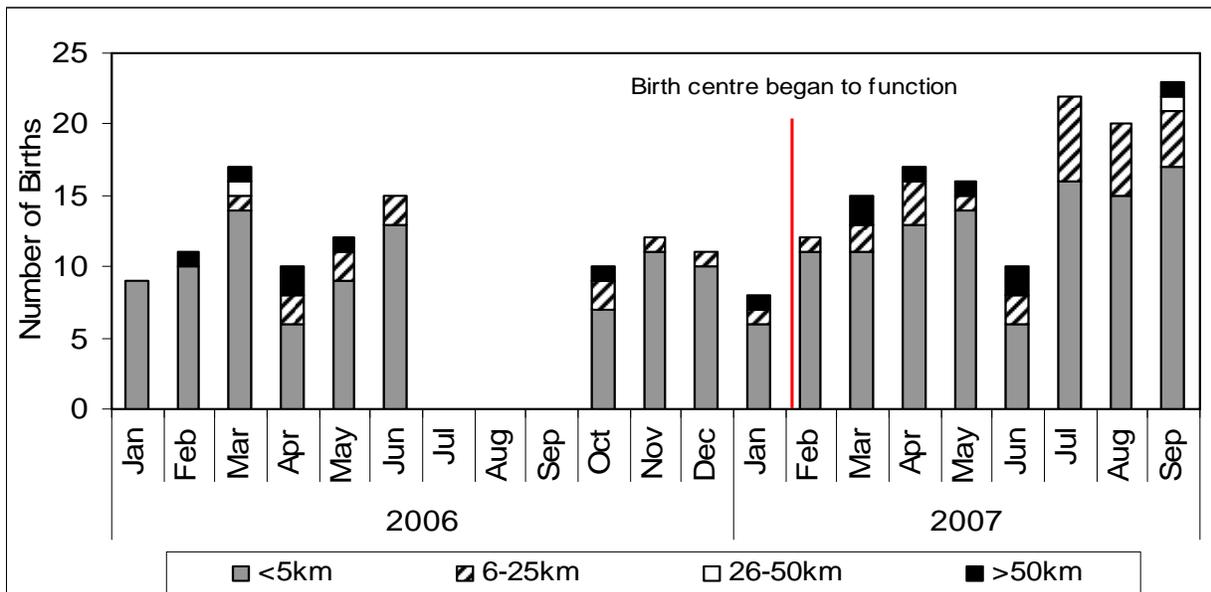


Figure 5: Number of Facility Births by Distance from Same Birth Centre, 2006-2007



Photo: Maternity Ambulance, Manufahi District

The birth centre in Same has a specialized ambulance service which is funded by the United Nations Population Fund (UNFPA). This ambulance is responsible for transporting general patients and emergency obstetric cases as well as picking up and dropping off women and families who use the birth centre. All families using the birth centre during September 2007 who were interviewed said they were transported there after they called the ambulance (except one family who lived 500 meters away).

Thus, the role of transport for the birth centre in Same is crucial in facilitating access to birth facilities for women who live within 25km of the birth centre, but not for those living more than 25km away.

Since the *Casa das Mães* opened in Lospalos there is no indication that facility-based births have increased for women who live very close or very far from the health centre (Figure 6). Taking into account population numbers, pregnant women who live within 5km of the health centre are three times more likely to give birth in the facility than women who live 6-25km away (45% versus 15%, respectively). This disparity increases dramatically for women in Lautem district who live more than 25km from the health centre, with around 5% of them giving birth in the facility in Lospalos.

“We have mobile clinics, every day we go to the villages. It is difficult to get women to come in. In Lautem district we have 42 villages that we visit each month. We hope they will come, but it is difficult to leave their children and husband at home, and just wait here.” – Coordinator, International NGO

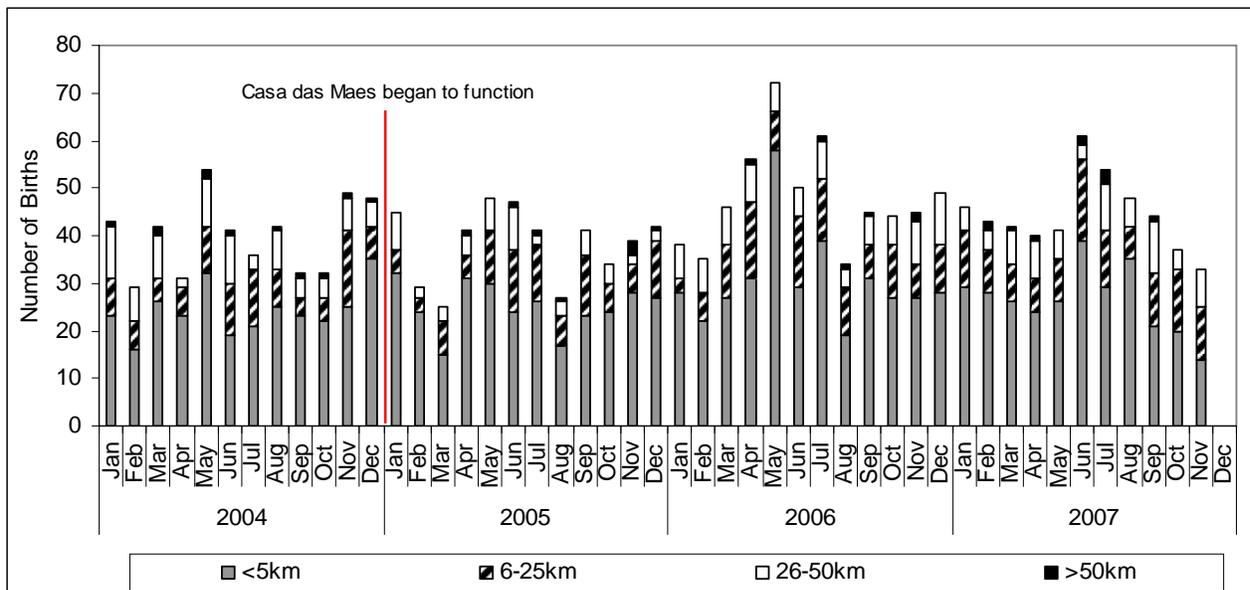


Figure 6: Number of Facility Births by Distance from Lospalos Health Centre, 2004-2007

Women's Perspectives

Some women are more likely to give birth at a facility than other women due to a multitude of contextual factors.

Participants were more likely to attend a facility for birth if they:

- lived close to the facility;
- had access to transport (either public, private or provided by the health sector);
- had a bad birth outcome in the past;
- were first time mothers; or
- their husband had a secure job.

Women and their husbands usually made a joint decision about whether to attend a facility for birth. The advice from the midwife during antenatal care was also influential for women in particular, but also for their husbands. Families most often came to the facility when the woman began to feel labour pains or if the labour was taking too long at home. Only two women who were interviewed during the month of fieldwork in Same came to wait prior to labour. One had lost her last baby and came to the birth centre for this delivery around the time she thought she was due, however she ended up waiting there a month. The other woman had a high level of education and her husband had a government job which allowed flexible work options. Therefore they decided to rent a private house in Same for the last month of pregnancy because they valued midwifery assistance for birth and it was unavailable in their village.



Photo: Mother of 1,
Bobonaro District

Most participants travelled to the birth centre by ambulance, even if they lived within 5km of the facility. When the women started to feel labour pains, a family member either phoned the ambulance, or walked or took their motorbike or public transport to the health centre to call the ambulance, which then picked the woman up from either her house or the nearest road. The role of the ambulance in transporting women and their families both to the birth centre and back home again after birth was viewed as an important service. Most families relied on transport provided by the health centre and this may have been a critical factor in increasing the number of births for women who live 6-25km from the birth centre in Same (Figure 7). Thus the role of transport in relation to maternity establishments may have thus far been underestimated.

Women and their families expressed a high level of satisfaction with the maternity establishments in Same and Lospalos, noting that the facility was complete and there was good care and medicine provided by the midwives. Families said there was a lack of space, as all women shared one room and there was no designated area for families to stay. Having the birth facility in a separate building where women and their babies are not exposed to other patients and infectious diseases was an important factor in their high level of satisfaction.

“Everything is clean, very safe here. The old one, the patient who is sick sleeps together with the one who is delivering...[if] we sleep together with the other people, like we might get malaria or something, or the flu like that. You are delivering and then your baby will also get the same thing” – Mother of 1, Same

Women who do not go to a facility to deliver tend to talk about birth as a normal process rather than frame it in terms of ‘risk’ or ‘safety’. These women have given birth to their other children at home without any problems and they see the hospital as a place where people go if labour is prolonged, if they have a medical risk factor defined by the midwife or doctor, or if they have a complication during birth. The vast majority of women who birth at home have normal births and they like to call the midwife if one is available because midwives generally have a high standing within the community. The status of midwives as skilled professionals is legitimized through the training they receive and reinforced by the resources they command and the care they show to the community.

Other reasons for giving birth at home include women wanting their family around for support as well as to assist with the daily chores of cooking, washing, looking after children, and collecting and heating water. There is also a strong sense of inter-generational continuity, particularly in more rural villages where multiple generations of women come together to provide the support, traditions and ceremonies that their grandmothers provided to them to keep them strong and protect the baby.

“At home if I feel pain my mother or my family will come and help me, but in the hospital when I get pain or get sick no one comes. That is why I decided to deliver my baby at home.” – Mother of 6, Cailaco

Women who birthed at home often said it was because the facility was too far away. Women gave this reason even though they attended antenatal care regularly and lived within several kilometers of a birth facility. While they may not have lived far away in relative terms, women and families did find it difficult to get to a facility for birth because:

- they did not know the exact date when they would deliver
- the birth came on too quickly, especially for multiparous women
- there was no public or private transport to the village
- there was limited transport at the health facility
- it was the rainy season or the roads were washed out

People make rational decisions according to their unique and variable situations. These decisions are based on a complex web of direct and indirect influences that are situated in women’s individual circumstances, health system resources and infrastructure, and the broader ideology and cultural beliefs of society (Appendix 3).

DISCUSSION

In each site maternity waiting homes have been independently transformed into different types of maternity establishments. This is because existing birth facilities were either inadequate or non-existent, or because women were not waiting prior to delivery. Therefore they were adapted to a different role more suited to user needs. Although it is impossible to establish cause and effect, it appears that the birth centre in Same, in conjunction with socialization and transport services, is associated with an increase in facility births for women *who live in the immediate area of the sub-district*. Data from Lospalos also indicates that maternity establishments are not meeting the original objective set out by the maternity waiting home strategy, and are not improving access to care for women in remote areas.

The role of transport in increasing facility births requires further exploration. While transport services were an important incentive for women to use the birth centre in Same, further research should be conducted as to whether this is an efficient use of resources, by how much it increases access, for whom, and at what cost. Having ambulance drivers keep a record of their transfers is crucial for this type of assessment.

To monitor and further assess the quality of care delivered or the impact of maternity establishments, and to evaluate other interventions designed to improve access to care and birth outcomes, improvements should be made to data collection and reporting. First and foremost, staff from all health facilities, from health posts to health centres and hospitals should be trained to collect complete data sets in the birth registration book. Where there is a referral, the reason should be identified and the outcome, once this is known, noted. When there is a death of a woman or baby it must be recorded. Maternal death audits, facilitated in a way that does not lay blame, are an effective tool for quality improvement, and are integral to a maternal health system committed to saving women's lives.

All maternity establishments and birth facilities should record the dates of admission and discharge in addition to the date of birth. Space for this should be added to the birth registration book. Knowing the length of time each woman has stayed will help to assess both costs and the length of time women are waiting pre- and post-delivery.



Photo: Birth Registration Book

The policy shift toward facility-based births that was outlined in the *Basic Services Package* (MoH 2007a) and the reluctance of midwives to attend home births once facilities have been established may prove to be problematic for women who cannot or choose not to deliver at a facility. It means they are left without any care whatsoever. In order to increase the overall number of births with a skilled attendant, it is important that midwives continue to be flexible in their approach and assist births at home if required. They will need their own transport to make this possible. Embarking on a major construction program for maternity establishments could result in health staff placing too

much emphasis on facility births and taking attention away from the primary objective of increasing skilled attendance at birth. A facility-based safe birth strategy needs to be carefully costed and compared with alternatives because once the transition has been made from home birthing to facility-based birth or tertiary care, the trend is difficult to reverse (Koblinsky et al 1999).

In order to improve access to care for women who live in remote areas and particularly those who do not have a secure income, outreach services such as mobile clinics and midwifery assistance for home births are, at this stage, essential. Peripheral health services, however, are vastly under-resourced. Health posts and lower level health centres lack one or more of the fundamentals: water, electricity, transport, communication and midwives. Incoming resources are often allocated to the district centres or sub-districts that already have birth facilities. Thus health posts and sub-district health centres are left without adequate equipment, facilities or resources to attend home births and to refer complicated cases. If this trend continues, there is a real risk that overall levels of skilled attendance at birth will decrease in Timor-Leste and high rates of preventable deaths will continue to occur.

Inequalities in the use of maternal health services are universal, with rural or poor women being less likely to deliver with a skilled attendant than urban or wealthy women (Say and Raine 2007). Contextual factors that contribute to these inequalities in Timor-Leste are complex: individual circumstances, lack of health infrastructure and socio-cultural factors compound upon one another to impose a triple disadvantage for women who are poor and live in remote areas. Access to a skilled birth attendant remains difficult for most rural women in Timor-Leste, predominantly due to lack of midwives in rural areas, transport difficulties for families as well as the health system, and the normalisation of home birth.

The Indonesian model of midwifery care that is decentralised to the village level has shown to be successful in reaching the rural poor. From 1991 to 2002 the biggest increase in skilled attendance at birth was for the poorest 40% of the population and those living in rural areas (Hatt et al 2007). There are currently 260 midwives working in government health facilities in Timor-Leste. With approximately 43,000 births per year (MoH 2006), there is one midwife for every 165 births. This falls within the international recommendation of one midwife per 175 births per year (WHO 2005). Thus, with the current level of human resources, it is theoretically feasible to achieve 100% skilled attendance at birth. The question remains as to how this is best achieved in Timor-Leste, a centralised facility-based approach or a decentralised village-based strategy?

Balancing the two approaches, that is, the facility and strengthening village based care, may be the best long-term solution for providing equitable maternity care services to the whole population. Action must start with the reality that most women are currently giving birth at home, with 73% of women delivering with no assistance from a health professional. With limited resources at the peripheral level, women with the least access to care during pregnancy and birth continue to face the greatest challenges in an emergency.

A focus on improving access to emergency obstetric care is essential. Even where birth facilities are in place, babies continue to die in utero because of common public health

problems such as malaria. Although some complications are detected, early referral to a higher level facility is difficult for families who have little or no income. Problems with too many referrals, and long delays getting adequate treatment are more pronounced in districts that are isolated and do not have the capacity for emergency obstetric care. Birth facilities cannot, in themselves, save women's lives. Maternity establishments are therefore one link in a comprehensive chain of outreach services, health centres, referral and tertiary care. Because of the multiple factors that influence a woman's decision to seek care for birth, no one intervention can address them all, and a wide-reaching, multi-tiered approach to maternity care is required. In order to provide equitable maternity care services that save lives, a phased approach should be implemented which includes, in order of priority:

1. Adequately resource existing health posts and lower-level health centres
2. Support existing maternity establishments that have already been built
3. Improve basic emergency obstetric care in all district centres
4. Improve facilities for normal births at sub-district health centres
5. Maternity waiting homes should only be considered once adequate, decentralised birthing services have been established.

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GLOSSARY OF TERMS

Access – this term encompasses availability, affordability, acceptability and appropriateness. Addressing equity in access must take into account differences in ethnicity, culture, language, geography, socioeconomic status, age, developmental status, disability and gender.

Basic Emergency Obstetric Care – includes five functions that can be carried out by trained professionals at a health facility: administration of antibiotics, oxytocics, and anticonvulsants; manual removal of the placenta; removal of retained products following miscarriage or abortion; assisted vaginal delivery including ability to use a vacuum extractor; and newborn care. Comprehensive emergency obstetric care includes all basic functions, plus caesarean section, safe blood transfusion and care to sick and low birthweight babies, including resuscitation.

Birth Facilities – any designated room or area that has the necessary medical equipment and a skilled attendant to assist births, located within the confines of a health centre, a hospital or a type of maternity establishment.

Birth Registration Book – the book distributed to all districts by the Ministry of Health, with space to record the following information on all births occurring at the home, the health centre or the hospital:

- Date and time of birth*
- Birth data
- Name
- Age
- Place of residence
- Number of pregnancies
- Number of deliveries
- Number of abortions
- Gestational age
- Antepartum haemorrhage
- Obstructed birth
- Hypertension
- Ruptured uterus
- Sepsis/infection
- Post partum haemorrhage
- Other
- Place of birth
- Normal birth
- Breech birth
- Caesarean section
- Fetal distress
- Twins
- Apgar
- IUFD
- Neonatal death
- Weight <2500g
- Weight >2500g
- Sex of baby
- Immunization date
- Problem with the baby
- Vitamin A, Iron
- Family planning
- Referral

*space should be added for date of admission and date of discharge

Fertility Rate – the average number of children that would be born to a woman over her lifetime.

Grand Multiparous – the exact definition of grand multiparity varies, but usually refers to a woman who has delivered more than five children, regardless of whether they were live or stillbirths.

Health Centre – an aggregated term encompassing level two, three and four health centres in both sub-districts and district capitals. Health centres may only have outpatient facilities or may have up to 20 inpatient beds. Services range from simple curative services to basic emergency obstetric care, minor surgical procedures and some laboratory facilities, and excludes comprehensive emergency obstetric care. Ambulance services are only located in district centres.

Health Post – the first level of health care, providing basic services to the population within 4-8km, including mobile clinics, curative consultation, antenatal and postnatal care, immunization, growth monitoring, and health promotion.

Infant Mortality Rate – the number of deaths to children under one year of age per 1,000 live births. Infant mortality encompasses all deaths that occur within the first year of life and excludes fetal death (miscarriages and abortions).

Inter-uterine Fetal Death – the death of a fetus before birth, at a gestational age equal to or more than 20 weeks and/or birth weight of equal to or more than 500 grams.

Maternal Death – the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

Maternal Mortality Ratio – the number of maternal deaths per 100,000 live births.

Neonatal Death – the death of a baby within 28 days of live birth.

Perinatal Death – for the purposes of this report all recorded inter-uterine fetal deaths and neonatal deaths have been aggregated and reported as perinatal deaths. The definition of perinatal deaths here relates to the death of a fetus at a gestational age equal to or more than 20 weeks and within 28 days of live birth.

Poverty Line – the level of income below which a person or family is considered officially to be in poverty. Timor-Leste's national poverty line is US\$0.55 cents/person/day.

Primiparous – relating to a woman who has given birth only once.

Skilled Attendance at Birth – the percentage of all births attended by skilled health personnel. Skilled attendant refers to an accredited health professional – such as midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complication in women and newborns

APPENDIX 1

List of Requirements

Following is a list of requirements mentioned during interviews conducted with health centre staff. While this list does not represent an inventory of needs and is in no order of priority, it was important to pass on this information to those who may be able to assist. Because not all districts, nor every health centre or health post within each district, were visited, further consultation should be undertaken to ensure that additional resources are distributed to areas where they are most needed.

Manufahi

Same Birth Centre	Fatuberliu Health Centre	Alas Health Centre	Betano Health Post	Aidau-Ludo Village
Extra space for the family Food higher in protein (i.e. meat, chicken soup, milk) Space to do laundry Specialist doctor (i.e. obstetrician/gynaecologist) USG (ultrasound) equipment (already have one nurse trained in this, but no equipment) Computer More rooms Higher budget to provide food (the outsourcing of food provision to an external company is not working as well as when food was provided separately to the pregnant women by the birth centre cook)	Midwife Birth facilities	Birth facilities Motorbike upgrade	Water supply Motorbike Communication (mobile phone or radio)	Health post required in village Riātu (the mobile clinic currently uses someone's house and the village head, midwives and people using the service requested a small house in which to conduct consultations).

Bobonaro

Whole District	Maliana Health Centre	Bobonaro Health Centre	Cailaco Maternity Establishment	Atabae Maternity Establishment
<p>Off-road motorbikes for sub-district midwives plus budget for maintenance</p> <p>Ambulances at sub-district health centres</p>	Midwives	Midwives Birth centre	<p>All equipment to enable it to function (chairs, beds, tables, desk, kitchen materials)</p> <p>Midwife</p> <p>Electricity</p> <p>Non-slip flooring in the toilet</p> <p>Drinking water</p> <p>Cleaner/Cook</p> <p>Baby clothes (i.e. hygiene kit)</p>	<p>All equipment to enable it to function (chairs, beds, tables, desk, kitchen materials)</p> <p>Budget to provide food</p> <p>Baby clothes (i.e. hygiene kit)</p>

Manatuto

Whole District	Manatuto Health Centre	Laleia Birth Centre
<p>Electricity in all health facilities at night (only Manatuto health centre has a generator)</p> <p>Oxygen supply for all sub-district health centres</p> <p><i>Ambu bek</i> (equipment to assist breathing for babies after birth)</p> <p>Midwife kits (the type already provided by an NGO, containing stethoscope, torch, gloves, etc).</p>	<p>Two additional rooms (one each for antenatal care, birth and post-partum)</p> <p>Additional ambulance</p>	<p>Generator (births at night currently assisted by candlelight)</p> <p>Table/desk</p> <p>Examination bed</p> <p>Midwife</p> <p>Budget to provide food</p> <p>Cook</p>

Liquica

Whole District	Liquica Health Centre	Bazartete Birth Centre
Fix radio in Liquica so that sub-districts can call in More human resources, especially midwives (i.e. need one nurse and one midwife in all health posts, some are empty)	Additional ambulance Birth centre	All equipment to enable it to function (chairs, beds, tables, desk, kitchen materials) Multifunction car/ambulance Midwife Cleaner

Lautem

Lospalos Health Centre
Repair radio Midwives Additional ambulance Suction equipment for neonates Computer Expertise for maintenance of incubator Gloves Birth bed USG (ultrasound) equipment Gloves Specialist doctor (i.e. obstetrician/gynaecologist)

APPENDIX 2

Map of Maternity Establishments in Timor-Leste

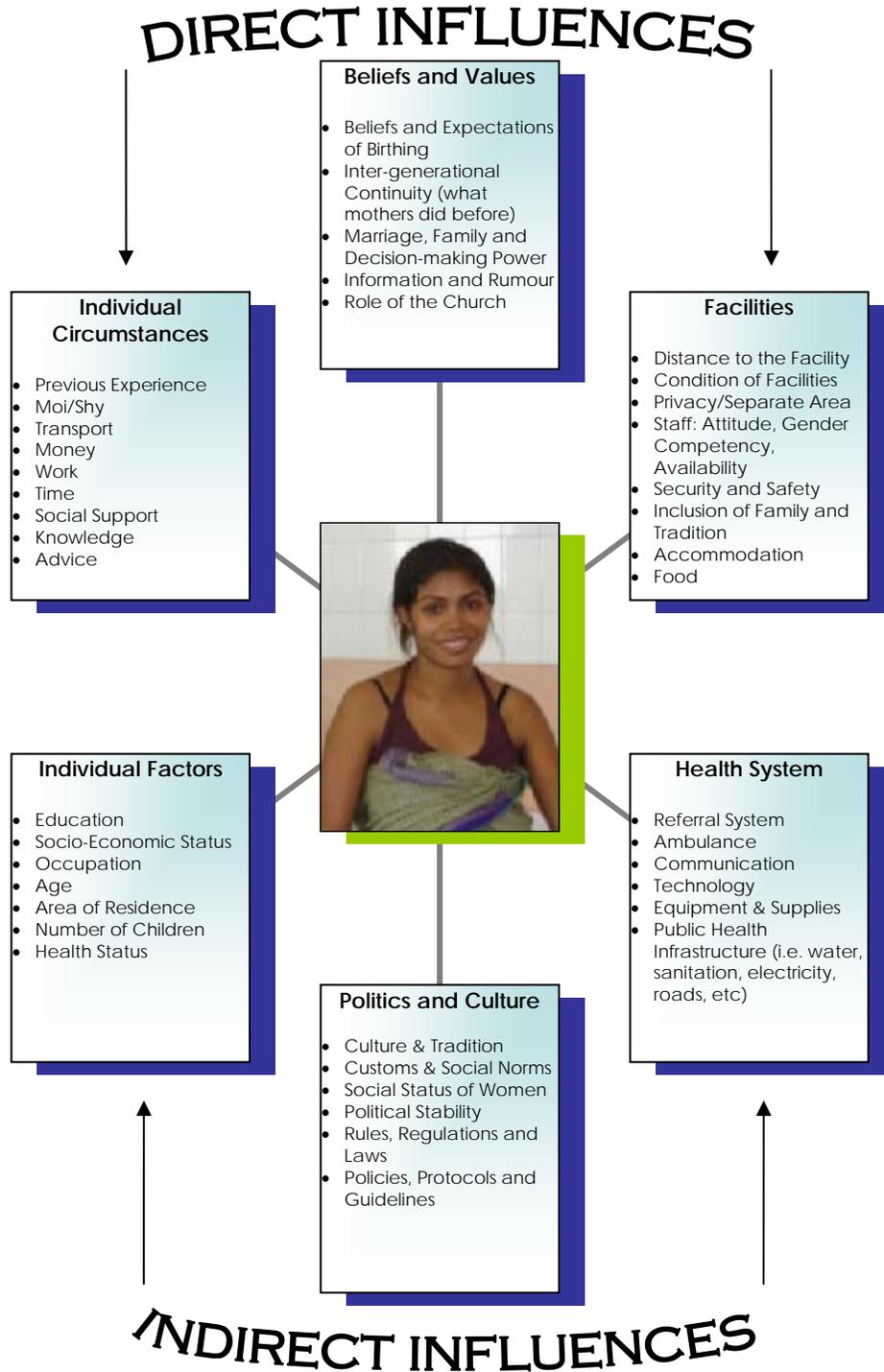


Map No. 4111 Rev. 8 UNITED NATIONS
January 2004

Department of Peacekeeping Operations
Cartographic Section

APPENDIX 3

Factors that influence a woman's decision to seek maternal health care in Timor-Leste¹



¹ Based on interviews conducted as part of this research