Imunizasaun Proteje Labarik

Report of study:

Understanding the Socio-cultural Dynamics of Urban Communities and Health System Factors Influencing Childhood Immunization in Dili, Timor-Leste

May 2012

The Threshold Project on Immunization supports the Democratic Republic of Timor-Leste and its Ministry of Health to immunize all infants from vaccine-preventable diseases. The project is made possible by the generous support of the American people through the Millennium Challenge Corporation (MCC) and the United States Agency for International Development (USAID)

List of abbreviations

BCG	: Bacillus Calmette-Guerin
CHC	: Community Health Center
DHS	: Demographic Health Survey
DHS	: District Health Service
DPT	: Diphtheria, Pertussis and Tetanus
RDTL	: Democratic Republic of Timor-Leste
EPI	: Expanded Program on Immunization
F-FDTL	: National Defense Force of Timor-Leste
FGD	: Focus Group Discussion
HMIS	: Health Management Information System
HP	: Health Post
IDI	: In-Depth Interview
IMR	: Infant Mortality Rate
IPL	: *Imunizasaun Proteje Labarik*
LISIO	: *Livrinho Saude Inan no Oan* (Mother and Child Health Book)
MCHIP	: Maternal and Child Health Integrated Program
MCC	: Millennium Challenge Cooperation
MDG	: Millennium Development Goals
MNCH	: Maternal, Newborn and Child Health
MOH	: Ministry of Health
MNH	: Maternal and Newborn Health
NHGV	: National Hospital Guido Valadares
NGO	: Non-Governmental Organization
NRHS	: National Reproductive Health Strategy
PHC	: Primary Health Care
PSF	: *Promotor Saúde Familia* (Community Health Workers)
SISCa	: *Serviço Integrado da Saúde Communitária* (Community-based integrated services)
U5MR	: Under Five Mortality Rate
UN Agencies	: United Nations Agencies
UNICEF	: United Nations Children's Fund
USAID	: United States Agency for International Development
WHO	: World Health Organization

Table of Contents

List of Figures

List of Tables

List of Appendixes

Acknowledgements

The team wishes to express sincere gratitude to the "*Imunizasaun Proteje Labarik* (IPL)"Chief of Party for this great opportunity, constant guidance and encouragement during the research. Our deepest appreciation is expressed to IPL staff and institutional supporters (the Millennium Challenge Corporation, USAID, John Snow Inc.); and to data collectors for their invaluable time and effort devoted to carrying out this study. Gratefully, we also would like to acknowledge the contributions of health workers, caregivers and community leaders for their hospitality and willingness to share their experiences, beliefs and opinions with the team. Finally, the team extends its highest appreciation to the personnel from the Ministry of Health (MOH), the Dili District Health Services (DHS), and the Expanded Program on Immunization (EPI) at the national level for their in depth contributions for the study.

The IPL program is funded by Millennium Challenge Corporation (MCC) through United States Agency for International Development (USAID) for the MOH Timor-Leste. The program is managed by Maternal and Child Health Integrated Program (MCHIP) through John Snow, Inc. under Cooperative Agreement # GHS-A-00-08-00002-000.

Disclaimer

Executive summary

Since its independence in 2002, the Government of the Democratic Republic of Timor-Leste (RDTL) has shown a strong commitment to development and good governance that has resulted in many improvements in health. Despite the progress and achievements related to some of the Millennium Development Goals (MDGs), particularly MDG-4 (reduce the under-five mortality rate by two-thirds between 1990 and 2015), the challenges posed by the socio-cultural dynamics and the health system itself are evident and pose threats to the progress and achievements made so far. These include a shortage of health workers, poor parental attitudes and knowledge, family characteristics, inadequate communication, poor infrastructure, including access to water, electricity and information, poor working environments and insufficient equipment.

Funded by the Millennium Challenge Cooperation (MCC), through USAID and the Maternal and Child Health Integrated Program (MCHIP), *Imunizasaun Proteje Labarik* (IPL or Immunization Protects Children) provides technical support to the Ministry of Health (MOH) of Timor-Leste. The project aims to increase the national average of DPT-3 and measles immunization coverage rates to 81.5%, mainly by providing comprehensive assistance to improve the effectiveness, quality and accessibility of child immunizations in seven districts. The referred districts are Ainaro, Baucau, Dili, Ermera, Liquica, Manufahi and Viqueque.

Dili district is the country's most populous. Coverage rates are lower in Dili than in many other districts despite most residents having good physical access to services, media and education. For this reason, IPL, Dili District Health Services (DHS) and the MOH conducted mixed-methods, cross-sectional study in March to April 2012 in the 26 most densely populated sub-divisions of Dili district. The study aimed to identify the socio-cultural and health system factors that contribute to low immunization coverage in urban Dili, which would serve as the basis for making recommendations on how to improve immunization services and their promotion. The study involved 61 in-depth interviews (IDIs) with the health staff, caregivers, community leaders; and 83 immunization encounters observed at 11 vaccination sites. The team also

conducted 11 FGDs (Focus Group Discussions) with 70 caregivers of eligible children of 6 to 23 months. The responses from the interviews and group discussions enabled the team to analyze key respondents' knowledge and attitudes, experiences, perceptions and expressions about the immunization services and their benefits to children.

The study identified a correlation between socio-cultural and health system factors that contributed to the quality of care and immunization services in the district. These factors included inadequate health services, health workers' attitudes, caregivers' knowledge and attitudes, healthcare seeking behaviors and inadequate information. Most of the health facilities have a shortage of health workers, and many existing staff must try to balance multiple responsibilities: they not only provide care for children, but also care for pregnant women; must complete administration work; and carry out outreach and sweeping activities. Also, some facilities provide antigens only a few days in a week and see a limited numbers of patients per day. Another factor is difficulty in accessing healthcare due to geography and weather conditions that prevent the caregivers from seeking healthcare.

In addition, lack of outreach in urban Dili limits the health facilities' ability to immunize more children. These highlighted factors point to the need for improvement of access to health care services, provision of more health information for caregivers and better coordination between Dili DHS, Community Health Centers (CHCs), community leaders and *Promotor Saúde Familia* (PSF or Community Health Volunteers). Another finding related to health workers' attitudes was inadequate communication and information to the caregivers regarding type of vaccines given to the children and the next scheduled date for vaccination. On the other hand, health workers' inappropriate attitudes and handling of caregivers hampered caregivers' desire to bring their children to be immunized. Such attitudes were reflected in screaming, anger, being unfriendly and using abusive words.

Knowledge and attitudes of caregivers are often influenced by the health services and relationships with the health workers. An interesting finding was that caregivers of fully immunized children were mostly well motivated, had good knowledge of benefits of

immunization and received support from the family members. Caregivers of partially and un-immunized children either missed opportunities to take their children to be vaccinated, had conflicting priorities, were afraid/shy, misunderstood the schedule, came late, had illnesses, lived far from services, had previous bad experiences, lost their card/LISIO (*Livrinho Saude Inan* no Oan or Mother and Child Health Book), had a home delivery, had false beliefs/perceptions and/or were less motivated.

The research findings will be presented to Dili DHS and its different stakeholders to find appropriate solutions to overcome the challenges in order to improve immunization coverage. However, the following recommendations could guide to improve immunization services in the Dili district (details are presented in the page #27):

1. Provide operational support from the MOH and Dili DHS: Utilize the findings from IPL's 2011 baseline assessment in Dili and the findings from this study for advocacy with the MOH, Dili DHS and EPI (Expanded Program on Immunization) Working Group for better EPI implementation.
2. Immunization services strengthening.
3. Strengthen multi-sectoral partnerships with key stakeholders.
4. Carry out addition research on child health and immunization to further clarify some of this study's findings.

The team expects that the implementation of its recommendations will improve immunization services and programs in the Dili district.

1. Introduction

The newly independent country of Democratic Republic of Timor-Leste (DRTL) has achieved enormous progress in nation building including a strengthen health sector. There has been good progress and improvement in some key MDGs, including MDG-4 which aims to reduce under-five mortality rate (U5MR) by two-thirds between 1990 and 2015. The government of DRTL and the Ministry of Health (MOH) are committed to improving the well-being of Timorese people, especially the poor and the disadvantaged population, through immunization and other priority programs. There have been improvements in child health key indicators in Timor-Leste, for example, access to health care services has improved, immunization coverage has increased and the child mortality rate has decreased in the last decade (IPL 2012). Many development partners, including United Nations (UN) agencies and international and local Non-Governmental Organizations (NGOs) have shown their strong commitments in assisting the MOH in improving different aspects of child health.

The Demographic Health Survey (DHS) in 2003 indicated an Infant Mortality Rate (IMR) of 60 per 1,000 live births per year, U5MR was 83 per 1,000 live births per year, and immunization coverage was 62% for BCG and 40% for measles. The latest data show an IMR of 44 per 1,000 live births per year and U5MR of 64 per 1,000 live births per year (TLDHS 2009-10); while the coverage levels for BCG, DPT-HepB1, DPT-HepB3 and measles in 2010 were 56.2%, 67.1% and 54.7% respectively (HMIS, the Ministry of Health 2010). District immunization data indicate that densely populated Dili district, in spite of good access to health care services, has lower immunization coverage than some rural districts.

Despite the progress and achievements related to MDG-4, the challenges posed by the socio-cultural dynamics and the health system itself are evident and threaten the progress and achievements made so far. These include a shortage of health workers, poor community participation in health system, poor parental attitudes and knowledge, family characteristics, inadequate communication, poor infrastructure, including access to water,

electricity and information, poor working environments and insufficient equipment.

Funded by the MCC, through USAID and the MCHIP, IPL or Immunization Protects Children provides technical support to the MOH. It aims to increase the national average of DPT-3 and measles coverage rates to 81.5%, mainly by providing comprehensive assistance to improve the effectiveness, quality and accessibility of child immunizations in the seven districts with the most under-immunized children, namely; Ainaro, Baucau, Dili, Ermera, Liquica, Manufahi and Viqueque.

The Basic Services Package (BSP) and the National Immunization Strategy (2007) highlighted a reasonable range of best practice interventions and an essential package for child survival in Timor-Leste. One of the interventions is through immunization of children, which should be done according to the standard national guidelines. The health facilities should promote integrated services delivery to prevent missed opportunities (Ministry of Health 2007-1, Ministry of Health 2007-2, p. 10). It has been documented that in Timor-Leste health care-seeking behavior is affected because of the influence of cultural practices, traditional beliefs, lack of education and knowledge, traditional gender concepts and understanding in decision making, acceptability as well as accessibility and affordability of health care (Zwi et al. 2009).

Given the low immunization coverage in Dili district, a strategy to improve immunization services must be designed and implemented in an acceptable cultural manner. This study sought to understand relevant socio-cultural and health systems factors and to provide appropriate recommendations and alternatives to improve immunization services in Dili district. The study team believes that improving immunization services is an important part of improving the general health and wellbeing of the children and of reducing under-five morbidity and mortality.

2. Objectives

The objective of this study was to identify the key factors that contribute to low immunization coverage in urban Dili, pose solutions for how the Dili DHS and partners can plan more effectively, and implement strategies that improve immunization services and community mobilization in Dili, thereby increasing coverage and reducing drop-out rates. The study sought to:

1. Determine deficiencies/insufficiencies within the health services, which contribute to sub-optimal vaccination coverage in Dili.
2. Gain a greater understanding of parents' knowledge and attitudes toward vaccinations and the health system and how these contribute to sub-optimal vaccination coverage in Dili.
3. Understand socio-economic conditions and how they affect utilization of immunization services.
4. Develop recommendations for how modifications in service availability, provider practices, community mobilization, and/or health promotion could improve vaccination coverage in Dili.

3. Methodologies

3.1 Type of study: This was a cross-sectional mixed study of quantitative and quantitative which combining three mainly qualitative approaches: observations, In-depth Interviews (IDIs) and Focus Group Discussions (FGDs). Details on the methods were as follows:

3.1.1. Observations

Data was drawn from 11 observation sites in urban Dili. The urban areas were randomly selected based on the highest, medium and low immunization coverage categories; they included five CHCs, three SISCA, one Health Post (HP), the National Hospital Guido Valadares (NHGV) and one private clinic. In total, 83 vaccination encounters were

observed in health facilities and during SISCA activities and assessed using a checklist.

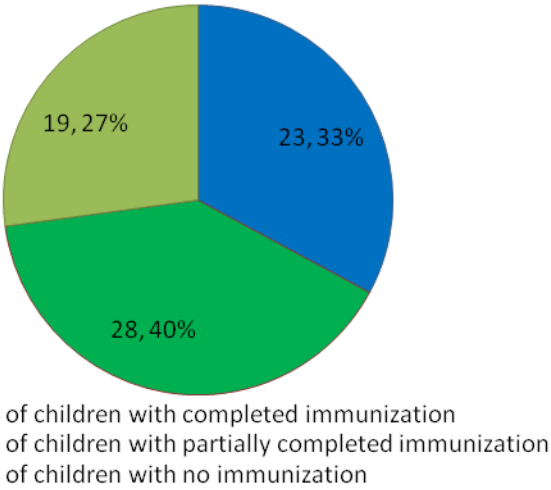
3.1.2. In-depth Interviews (IDIs) and exit interviews

IDI with key informants were used by the team to collect information for this study. The participants were randomly selected based on the identified categories of: vaccinators, facility directors and caregivers at exit observations. Individual interviews with service users were conducted using semi-structured interview guidelines. A total of 18 health staff (11 vaccinators, 7 facility directors) and 37 caregivers were interviewed at the observation sites. Detail lists of participants are shown in Appendix 1. Also, six community leaders were consulted.

3.1.3. Focus Group Discussions (FGDs)

FGDs were conducted with family members of children aged 6-23 months from various categories of suco based on their immunization status. The participants for group discussions (mothers, fathers and grandmothers) were selected through household screening interviews on the basis of their children's immunization status, suco's coverage and type of caregivers (Appendix 2). At each random household approached, the team asked screening questions to see if there were eligible children for the respective categories. The team used several study instruments: an enrolment questionnaire, FGD screening tool, job aid for screening caregivers and recruitment sheet. The team conducted 11 FGDs as described in Appendix 2. FGD size ranged from two to nine people and lasted from 1 to 1.5 hours. In total, 70 households were identified with eligible children of 6 to 23 months (Figure 1). The immunization

Figure 1: Households Identified with Eligible Children

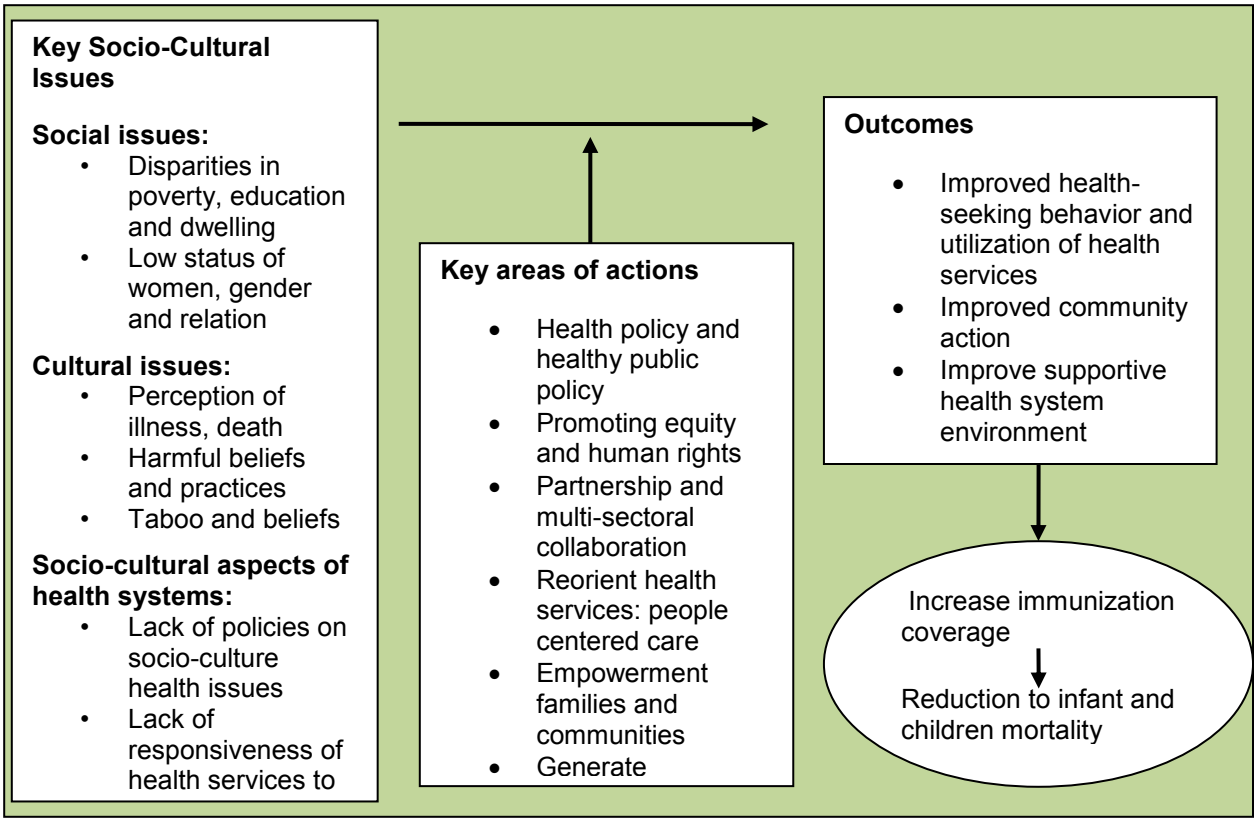


status of children was measured as follows:

- No immunization: if the child had no immunizations at all, she/he was in the no immunization category.
- Fully immunized: if the child had all of the immunizations she/he is eligible for at his/her age, she/he is in the fully immunized group.
- Partially immunized: if the child had some, but not all, of the immunizations she/he is eligible for at his/her age, she/he is in the partially immunized group.

3.2. Conceptual framework: This study followed the key recommended areas of actions of the strategic framework (Figure 2) for addressing socio-cultural and health systems aspects (adopted from WHO 2009) for analyzing the findings of this study:

Figure 2: Strategic Framework



3.3. Ethical consideration: The study design and instruments were approved by the Research and Development Cabinet of the MOH, Timor-Leste and the Essex IRB, used by JSI, USA.

3.4. Sensitization meeting: IPL held a joint meeting with Dili DHS and CHC staff regarding the upcoming study on 2 February 2012. The study plans was described, and IPL guaranteed to individual staff and facilities that they were not being evaluated. The participants discussed how the upcoming elections, which started in mid-March, might affect the study. Although the MOH staff felt that the study could proceed during the election months, everyone agreed that it would be best to try to complete the home visits and interviews with community leaders before the first elections. The Director of the Dili DHS sent a letter regarding the study to all CHC directors and also provided a letter for the interviewers screening mothers for FGDs to explain the study and ask for collaboration.

3.5. Instruments: Questionnaires were developed for each method prior to the study. These included an observation guide and checklist, IDI guides and consent forms for community leaders and health staff, exit interview for caregivers, and FGD guides and consent forms. Other supporting tools were an FGD screening tool, a job aid for screening caregivers, a discussion guide and recruitment sheet for FGDs. Tools and questions were field tested before being finalized and, throughout the fieldwork, were modified as needed to accommodate all comments from the team members.

3.6. Sampling: From 26 urban sucos of Dili district, 11 were randomly selected by coverage levels. These 11 areas included two were randomly selected from the high-coverage category, four from the medium category and five from the low-coverage category for IDIs and FGDs (Appendix 1, 2). There were a total of 214 participants observed and consulted (Table 1). Finally, the consent form was explained by the team to respondents, who agreed to participate in the study voluntarily. None of the 214 persons asked to participate in the study refused to participate.

Table 1: Study Sample

Methods and respondents	No. of participants
Observation sites : Immunization encounter observed	
Mothers	69
Fathers	3
Mothers and fathers	4
Other caregivers	7
Sub-total:	83
IDIs	
Health staff	18
Community leaders	6
Exit interview with caregivers	37
Sub-total:	61
FGDs	
Mothers	52
Fathers	10
Grandmothers	8
Sub-total:	70
TOTAL	**214**

3.7. Recruitment and training: This study was carried out by a team of five researchers, nine data collectors which consist of several IPL and MOH staffs under guidance of a Principal Researcher. The study was undertaken in Dili district from March to April 2012. The data collectors were recruited specifically for the research. They received four days of intensive training on the national immunization strategy, national health system and basic qualitative research methods, including interviewing skills, conducting screening and other interviews with key respondents, note taking, data analysis, client confidentiality and informed consent.

3.8. Data collection and quality monitoring: The information collected was analyzed and formed the basis for the study findings and recommendations. The data were collected over period of three weeks. Each team of two members conducted screening interviews for FGDs and IDIs and observations at the identified households and health facilities. One researcher conducted the IDIs and FGDs while the other researcher was taking notes on the discussions. To avoid making respondents uncomfortable, the IDIs with health staff, caregivers and community leaders were not tape-recorded. On the other hand, FGDs were tape-recorded with informed consent for further thematic analysis. All the data were recorded without names and locations to maintain the confidentiality of the participants. Moreover, the data were reviewed daily by the team to cross-check for validity and clarifications of any missing information. Every method applied in the study could reflect on a health system establishment, exploring issues arising related to immunization services and discovering participants' perspectives.

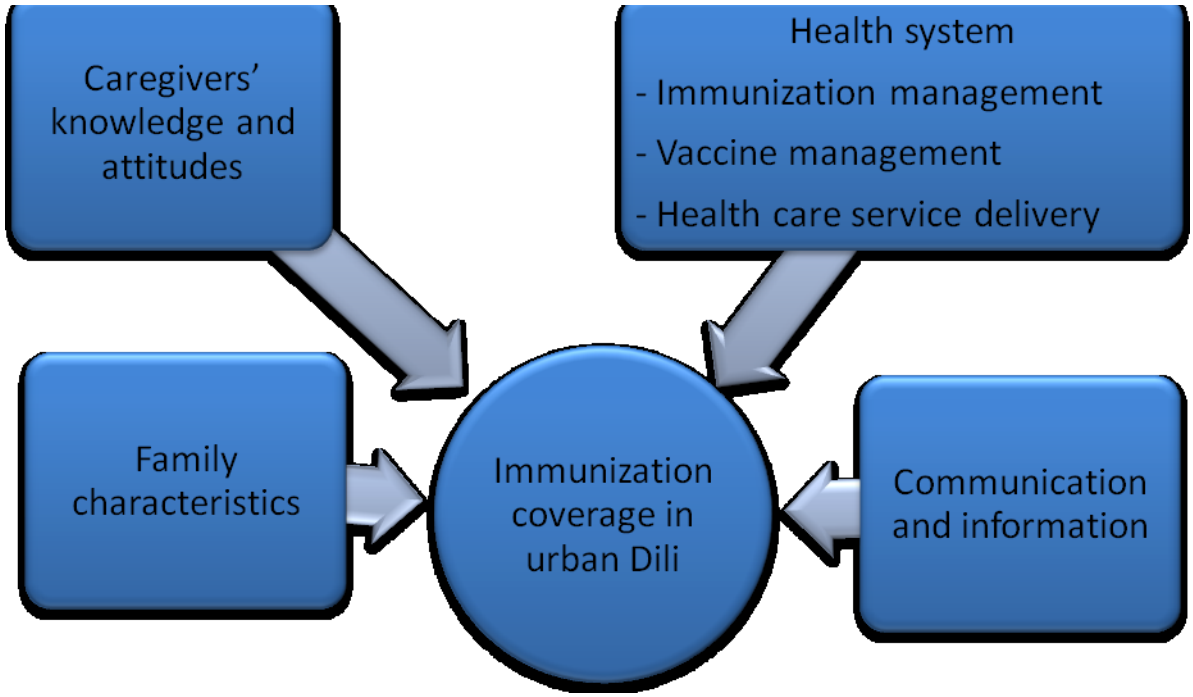
The key guiding question used for the interview was:
"What are the key factors that contribute to low vaccination coverage in urban Dili, and how can the Dili DHS and partners more effectively plan and implement strategies that improve immunization services and community mobilization in Dili and thereby increase coverage and lower drop-out rates?"

3.9. Data entry and analysis: The qualitative methods applied in the study provided a broad summary of the events at observation sites and the diverse sample provided the opportunity to learn about the range of opinions, feelings and experiences that participants have about immunization and health care services (Liamputtong & Ezzy 2005, p. 71). The observations and IDIs were analyzed using both quantitative and qualitative approaches, while FGDs were recorded and transcribed for further thematic analysis. The team used key guiding questions to learn the respondents' understanding, impressions of the health system its benefits, changes that they observed or experienced and their suggestions on how the immunization program can be improved. The team also explored how health workers carried out the vaccination and the utilization of health care

services in the health facilities.

Themes and sub-themes were derived from the dataset and codes presented in the study. After cross-checking for validity and credibility through daily meetings and discussions, the team identified four themes as major factors contributing to low immunization coverage in Dili district (Rwashana AS, Williams DW, Neema S 2009) (Figure 3).

Figure 3: Thematic Map



3.10. Literature review: Prior to conducting this study, different published and unpublished reports were reviewed, including from the Demographic Health Surveys (DHS) 2003 and 2010, the Health Sector Strategic Plan 2008-2012, the National Immunization Strategy 2007, Basic Service Package (BSP) for Primary Health Care and Hospitals, National Heath Strategic Plan 2011-2030, IPL baseline assessment report 2012, lessons learned from other countries and reviews of the immunization program.

4. Results and discussions

Health and well-being are influenced by a wide range of factors, known as determinant of health: individual factors (lifestyle and behavior, knowledge, attitudes and beliefs), environmental factors (physical, chemical and biological environment); social environment (cultural, language, religious and beliefs) and socio-economic factors (for example education and employment) (Dahlgren & Whitehead 1991).

4.1. Socio-cultural determinant factors

The conceptual framework includes a wide range of key socio-cultural issues, key areas of actions and outcomes to increase immunization coverage, which eventually reduces infant and children mortality (Figure 2). The study found that socio-cultural factors contributed to low immunization coverage in Dili district despite most families' good physical access to health care services. The study indicates that family characteristics (large family size, low income, unemployment, low education level, migration, family roles) and caregivers' knowledge/attitudes (perceived benefit of vaccines, perceived disease threat, previous bad experiences, fear of side effects) affect immunization coverage and drop-out in Dili district.

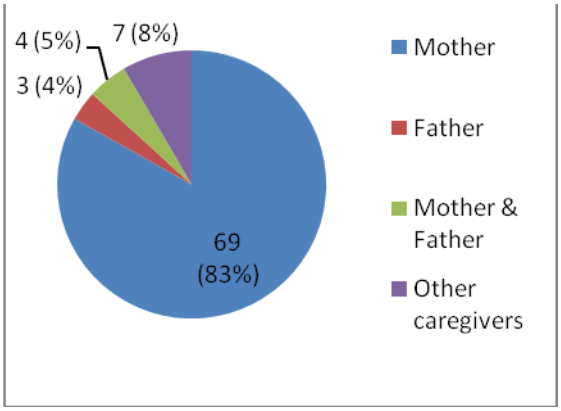
4.1.1. Family characteristics

In total, six suco chiefs and 70 FGD participants (52 mothers, 10 fathers and 8 grandmothers) were interviewed or consulted to discover the characteristics of the children's families. All 52 mothers who participated in the group discussion were classified as housewives with large families (maximum of 12 children), except for one who is attending the university and one working as public servant. The other participants never attended school or had limited education and were unemployed or had temporary work (in farming, small business, construction and/or other manual labor). Parents' education and socio-economic factors had an impact on children's immunization status. This condition was similar to a study in Bangladesh, which found that parents with limited education and unemployed were less likely to make healthy choices and take up

health promoting behaviors for their children to be fully immunized (Perry et al. 1998).

In Dili, differences in socio-economic status did not affect the likelihood of mothers of fully and partial-immunized children bringing their children for immunization or other medical consultations. For example, some mothers were willing to pay up to USD $3.00 for transportation or USD $30.00 for consultations in private clinics in order to get their children vaccinated or treated for illness. There were 5 private clinics that requested payment for the vaccines, while the others were government clinics that provided free access to vaccines. Moreover, the 2010 DHS report and another Bangladesh study indicate that children of mothers from the highest socio-economic group were usually completely immunized compared to those mothers with lower socio-economic status (National Statistics Directorate 2010, Rahman & Obaida-Nasrin 2010).

Figure 4: Type of Caregivers Who Brought Their Children for Vaccination



Better off caregivers in urban Dili are more aware of vaccination and its benefit for their children than those caregivers in more densely populated areas of Dili (DHS 2010). It is reported that more urban caregivers had more access to information and communication from various sources such as health facilities, neighbors, SISCa, media and community leaders. However, caregivers in less densely of Dili were less likely to access health information due to distance, geography, weather conditions and unavailability of health care services near to their community.

"Yes… we must take our children immunized… for complete immunization… we must … despite our children got fever… if they told us to get our children immunized completely… we must go" one caregiver cited.

Caregivers often missed opportunities to take their children or grandchildren for immunization. For both employed and unemployed mothers, cultural gatherings, migration and employment or domestic duties contributed to their children not seeking immunizations. The situation was even worst when there was no vaccine offered when they visited a health facility. Indeed, the immunizations should be offered everyday at all health facilities, in outreach programs, and perhaps at school or night clinics. Observations clearly show that most mothers (83%), rather than fathers and grandmothers, were responsible to take their children for immunization (figure 4). Fathers devote most of their time to earning money for the family, and grandmothers only influenced the decision to bring the grand children for immunization.

4.1.2. Caregivers' knowledge and attitude

Another condition that reflects socio-cultural status is caregivers' knowledge and attitudes that result in low immunization coverage. Themes and sub-themes raised from FGDs indicate that caregivers of fully-immunized children have excellent basic knowledge and understanding of immunization. During the discussions they frequently mentioned the benefits of immunization, although few could explain how vaccination works and few were familiar with the vaccination schedule. Caregivers of children with full immunization received more support from their husbands and family members, showed more motivation and prioritized their children's health needs so they would make the time to take their children for immunization. Furthermore, family roles were found to be very influential in decision making for care of both mothers and their children. For instance, many husbands' parents are involved in the decision about when and where to seek help. From the group discussions and observations (figure 4), it was interesting to note that fathers rarely take their children for immunization.

One powerful finding from responses by caregivers with partial and un-immunized children was that they did not complete their children's vaccinations because of negative experiences from the previous health care services. Those who had a previous bad experience with one child would not take a new child for vaccination. Few mothers claimed that they were shocked at the tone health workers used to address them. They

were shouted at when they came late or if they had lost their LISIO book (*Livrinho Saude Inan no Oan* or Mother and Child Health Book). They were afraid to take their children if they had missed an appointment. They would rather avoid going back than face the verbal interrogation. Others had bad experiences leading them to be afraid of side effects (fever, crying, stayed up late), or wasting a visit because vaccine was not available. These are the main reasons that hamper their desire to bring their children back for immunization and the decision of some to seek private clinics.

On the other hand, mothers of children with no immunizations had inadequate understanding of the purpose of immunization and had low levels of interest or motivation to bring their children for immunization. Surprisingly, a few caregivers even claimed they were too lazy or lived too far away to have their children vaccinated. Some of these caregivers truly perceived that immunizations were harmful for their children, and they did not believe that vaccination could prevent diseases. Complications after previous vaccinations also contributed to low interest of these caregivers to have their children immunized. They also feared being publically humiliated if they ever brought their children for immunization.

Women who recalled a bad experience in a health facility, for example during childbirth, were less likely to return to a health clinic for post-natal check-up or for vaccination. The latest statistic in 2010 shows that 78% of women in Timor-Leste who gave birth at home are less likely to have their children immunized (National Statistics Directorate 2010, pp. 119). Mothers of who had inadequate prenatal care less likely to have fully immunized children. Women said that if they delivered at home they were scared of being shouted at by the health worker for birthing at home, so they did not seek treatment or vaccination for their children afterwards. Hence, mothers in this category were afraid to start bringing their children in for immunization. Table 2 illustrates the reasons for child having fully, partial and no immunizations which compiled from FGDs.

Table 2: Summary of Socio-cultural Factors

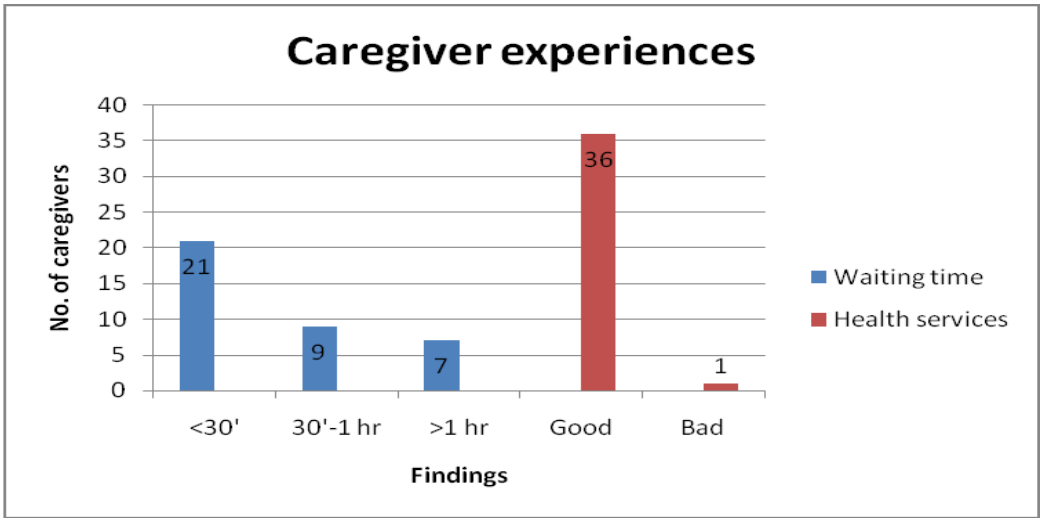
Socio-cultural factors attributed to immunization status	Categories of children		
	Fully immunized	Partial immunized	No immunized
Understand the benefits	√	√	
Motivated	√		
Collaboration with husband	√		
Conflicting priorities (working parents)		√	
Afraid, shy		√	
Misunderstood schedule & came late		√	
Children got ill		√	
Raining & distance		√	
Bad experiences		√	√
Perception that child to weak for vaccination			√
False beliefs (vaccination doesn't prevent diseases)			√
Lost card & no LISIO		√	
Lack of interest or motivation			√
Home delivery			√

4.2. Health system factors

4.2.1. Health workers' views and attitudes

Health workers' attitudes and behavior towards clients was a key determinant of the willingness of caregivers to take their children for immunization or continue with immunization once started. At 11 observed immunization sessions, the team and caregivers confirmed that health workers were friendly as well as respectful to mothers and their children, although we recognize that the team presence could influence demonstrated behavior. In addition, in exit interviews nearly all mothers (97%) were satisfied with the services provided even though many needed to wait for more than 30 minutes (Figure 5).

Figure 5: Exit Interviews with Caregivers at 11 Observed Sessions



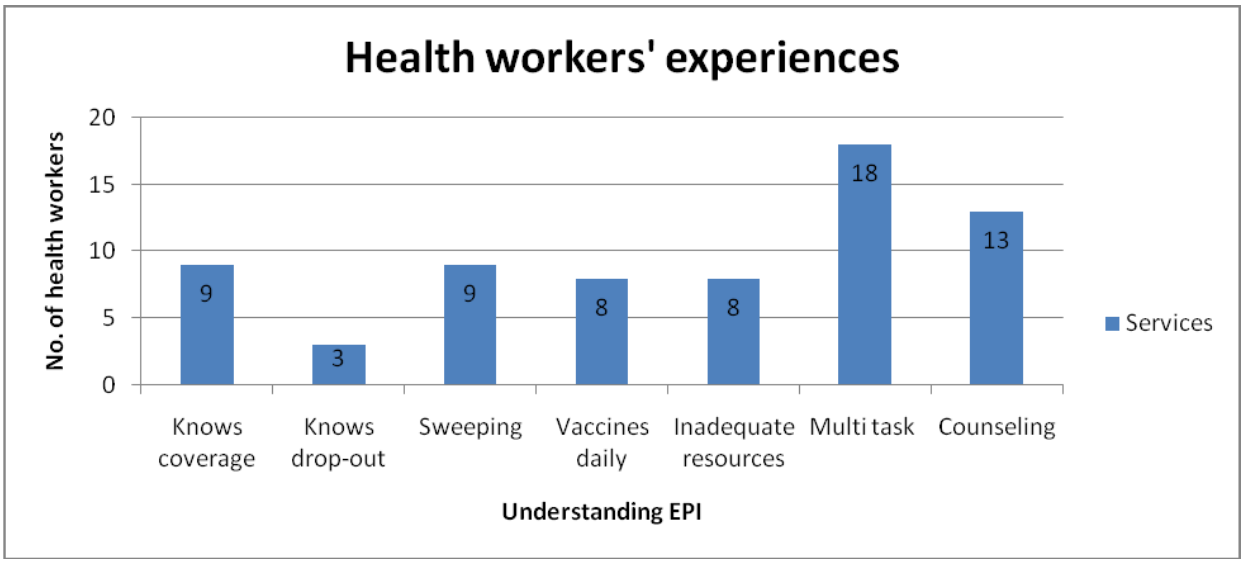
In addition, the team was able to observe 83 individual immunization encounters. Findings included few missed opportunities to vaccinate during these encounters: two children who were ill were not vaccinated, and some children in five private clinics were vaccinated and pay the cost for vaccine (Figure 7). Vaccinators' counseling of clients was reasonable but deficient: 78% received information on side effects, 89% were advised on when to return, but only 16% were given a chance to ask questions (Figure 7). These are consistent with responses from caregivers during IDIs and FGDs, which claimed that most of them received information about the side effects (fever, swelling at the injection site, diarrhea) and date for next immunization (for example in one month) but they had never been informed about type of vaccines provided to the children. These data show that although health workers provide counseling for caregivers, information and communication to the caregivers should be improved.

"If that is the case…it's better for you not to bring your children here…sometimes you came regularly in a month, sometimes you never came…so it's better not to bring your children back again…We felt very sad," one caregiver mentioned

Most health workers have multiple tasks in the clinic, as illustrated in Figure 6. The data

suggest that, from a total of 18 health workers interviewed about their understanding on EPI; 9 and 3 of them were aware of the immunization coverage and drop-out rates in their health facilities respectively. Half of them (9) declared that they were not only providing immunization services, but also involved in sweeping activities, outreach programs and care for pregnant women. All 18 declared that their multi-task functions at the peripheral level contributed to the poor quality of immunization services due to the shortage of health workers. Nevertheless, 13 of them claimed that they always provided counseling to the caregivers.

Figure 6: Health Workers Experiences



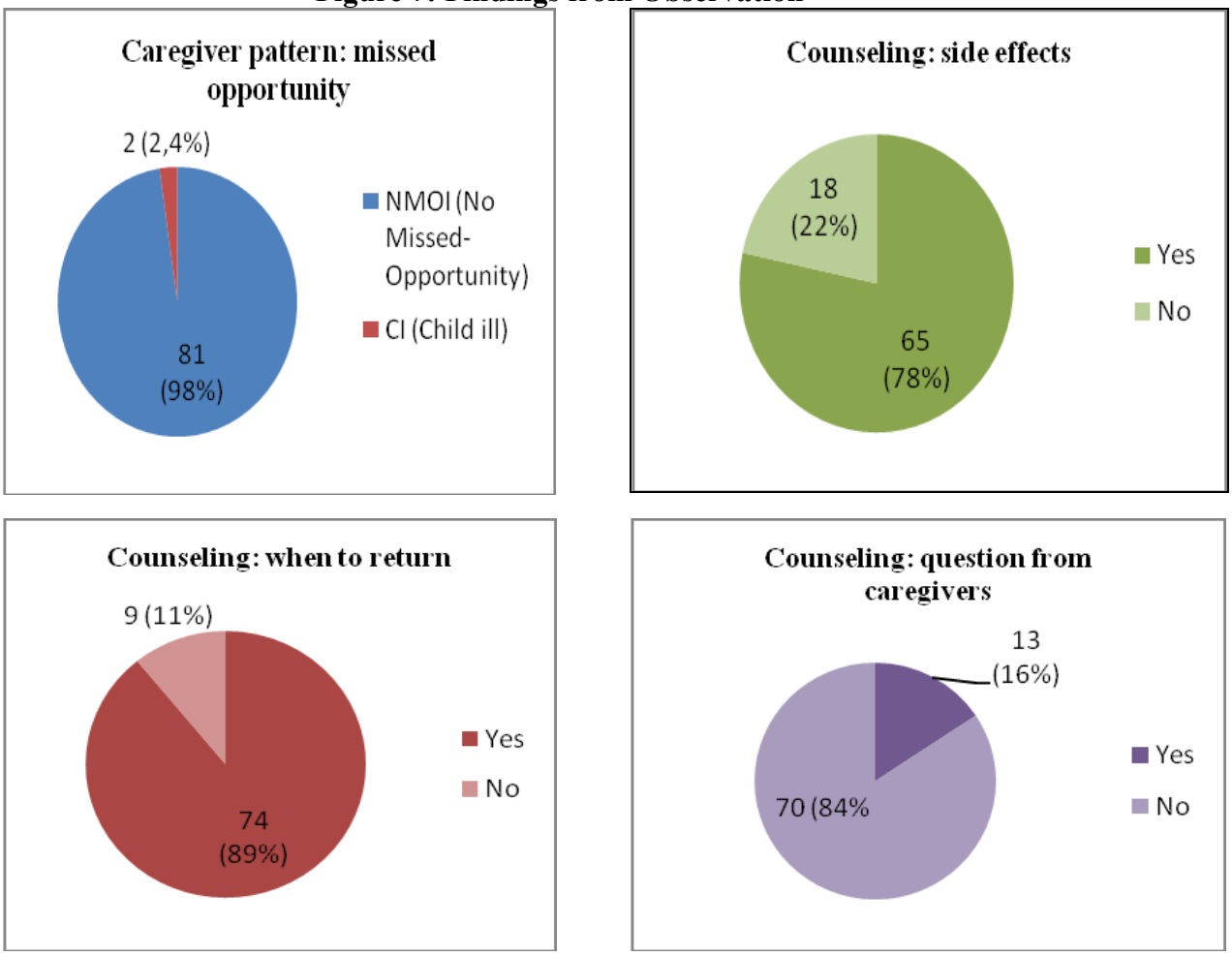
4.2.2. Inadequate service provision

Factors relating to health systems and infrastructure undoubtedly influence appropriate care-seeking and thus immunization outcomes. The study found that many health facilities, particularly in hard-to-reach areas of Dili, lack a regular schedule and sufficient health workers, transport and communication which are essential for minimum standard of care.

Despite the national BSP recommendation that vaccinations should be made available at CHCs everyday for eligible children, the study found, in fact, that health facilities limited the number of caregivers who could obtain any health care service, including immunization for the children. From 11 observation sites; most of the health facilities visited would attend a maximum of 50 patients in the morning and then re-open again for registration in the afternoon. The situation worsens with unavailability of supplies (stock-outs) which impede caregivers from receiving services. The frequent stock-outs lead to drop-outs and missed opportunities for vaccination. Stock-outs make immunization services, and even curative care, difficult to achieve. The IPL baseline study indicates that this situation occurs not only in Dili, but also in other districts and is a major reason for low immunization coverage in Timor-Leste (IPL 2012). Health workers encouraged frustrated parents to continue to bring their children back for immunization after they had missed work, travelled long distances, spent money for transportation and waited for a long time only to find that their child could not be vaccinated that day.

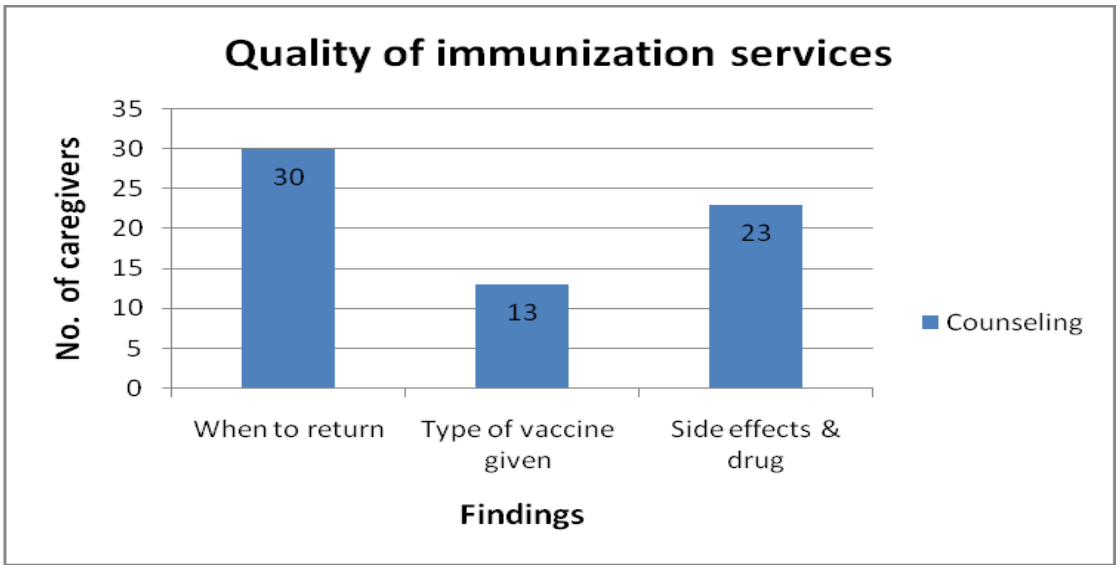
"Yes… sometimes the SISCa program was conducted in the suco… but sometimes it did not follow the schedule… that's why our council of suco did not inform us… sometimes they said on the 15th of the month… but sometimes on the 17th…" one of the Chefe Suco mentioned.

Figure 7: Findings from Observation



Data from exit interviews show that of 37 caregivers who had received counseling from health workers, 30 (81%) had been told when to return, 23 (62%) had received information about the side effects and how to deal with them, and 13 (35%) did not know the type of vaccines given to their children (Figure 8). However, data from observation sites (Figure 7) give a different result; in 78% of 83 vaccination encounters, health workers explained the side effects of vaccination, and only 11% and 16% talked about the next visit and asked questions to the caregivers respectively. This finding was also highlighted in the group discussions when caregivers expressed that they often misunderstood the schedule to bring their children back for vaccination, which caused missed opportunities and drop-outs.

Figure 8: Exit Interviews with Caregivers



Furthermore, as shown in the Health Management Information System (HMIS) report for 2010, immunization coverage in Dili is lower than national coverage. The coverage of DPT-Hep1 was 72.3%; DPT-Hep3 was 67.1%, indicating a drop-out of 7%; while the BCG coverage was only 56.2% (Ministry of Health 2010). The reasons included caregivers not knowing how many times they should bring back their children to complete their immunizations, child illnesses and mothers too busy with job responsibilities. Another reason could explain the lower BCG coverage is likely due to most of the health facilities offering BCG only few days a week and to vaccinators not wanting to open the BCG vial in order to reduce vaccine wastage.

"I wanted to take my child … but my wife was afraid… (Coughing)… because of the previous bad experience when we came here… but when we received milk, my second and third child received immunization here… and then we got home… my child got very high fever all day and night… I am afraid of my child getting sick… I was the one afraid" one father cited.

From observation sites, the study found that waiting time and venue (small, crowded and dirty) were not issues for most caregivers as long as their children

received the immunization. Another contributing factor identified during FGDs was access to health services, which remain limited to families in some areas because they live further from facilities and have no access to outreach. Unexpectedly, the team found that some rural families in Dili district had never been exposed to outreach programs conducted by the Ministry of Health. Geography and walking distance, especially during the rainy season, are obstacles to bringing children to be vaccinated, even in Dili. Respondents, from community leaders and caregivers, expressed their wishes to have more health programs and immunization, in particular more accessible to their community.

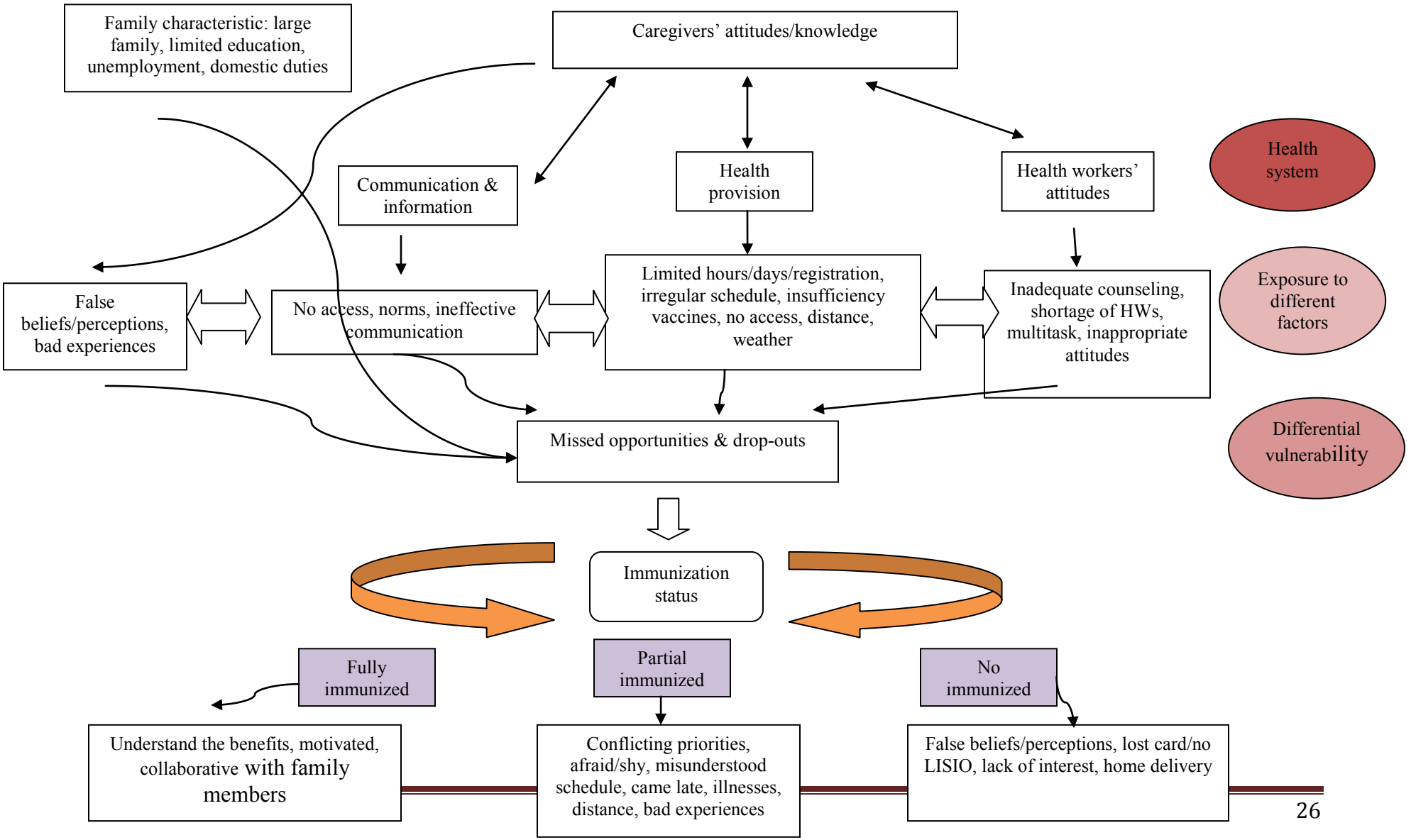
4.2.3. Quality of immunization services including counseling and health education

Information and communication should play an important role in disseminating information on health and health care services to the population. A number of sub-themes that emerged from the analysis of the qualitative data could help explain unimmunized and partial immunized children's lower access to information and communication. Most respondents in less densely populated areas of Dili reported that they would not know where and when to obtain the immunization information or services due to lack of outreach programs. Besides, effective communication between caregivers and health workers was viewed as a strong influence on caregivers' behaviors. The view was consistent with community leaders' views, which emphasized that some caregivers had inadequate information and communication about the immunization services. The caregivers in particular think that information currently available is not sufficient. Furthermore, there is a lack of accessibility, acceptability and affordability to information and services in some part of Dili. These decrease motivation to take up safe, healthy actions, which can impact the individual's perception on barriers

> *"To me… in reality and based on my experiences when I took my children for immunization… when they finished vaccination, they have never explained what type of the vaccine given to my child and what was the benefit of vaccination. Was it vaccine preventable diseases? They did not explain. They only vaccinated my child and just told me to come back next month… that's it" one mother said.*

and benefit of immunization. Therefore, good communication between caregivers and health workers could be seen as the key for successfully transferring key information on immunization. The main sources of information on immunization and support reported by the respondents were from their peers, their own experiences, mass media and print materials (such as pamphlets and posters).

Figure 9: Summary Map of the Findings



5. Data collection and analysis at all levels

The data collection, analysis and interpretation about immunization coverage and drop-out are still big obstacles encountered by health workers. Most health facilities have inadequate data of eligible children to be immunized and lack of monitoring information on immunization limits the ability of health facility staffs to identify and intervene with families whose children are under-immunized.

6. Recommendations

Progress towards various interventions to improve the existing coverage of immunization in Dili district could make a difference to common health problems countered by children in Timor-Leste. The following are the recommendations to improve immunization services in the Dili district:

1. Operational support from the MOH and DHS Dili:

- The findings from IPL's 2011 baseline assessment in Dili and the findings from this study should be used to advocate with the MOH, Dili DHS and EPI Working Group to provide needed operational support needed to facilitate immunization services achieving higher coverage and lower drop-out rates.
- There is a need for more health workers at the Primary Health Care (PHC) level equipped with necessary vaccines and functioning medical equipment.
- Ensure the basic equipment, drugs and supplies are available in all health facilities in order to reduce drop-out and missed opportunities and increase access to health care services
- Outreach efforts need to be intensified in coordination with other programs (MNH), particularly in remote areas of Dili district to guarantee effective and efficient use of resources.
- Adequate funding for outreach programs and regular supportive supervision.
- Strengthen data collection and analysis and improve information-sharing between the MOH, DHS and facility staff.

2. Immunization system strengthening:

- Identify vulnerable groups and areas in order to provide adequate health services to the most needed (for example via sweeping activities) as key strategy to motivating caregivers to complete the series of immunizations their children need.
- Regular outreach (SISCAs) program, well publicized, fixed location and day, with support from community leaders, DHS and NGOs.
- Implement annual EPI micro-planning and regular review.
- Every facility, SISCa and outreach in Dili should offer every antigen every day; achieving this objective may require additional staff and vaccine as well as supervision and monitoring by facility directors and DHS staff.
- Open registration in all health facilities without limitation number for caregivers to obtain any health care services as highlighted in the Basic Services Package (BSP).
- Improve information and communication which is focused on practical concerns including given vaccinations, provide essential information on side effects, upcoming vaccinations, type of vaccination; and health workers attitudes and practices towards clients respectively.
- Disseminate immunization messages and information to increase demand for immunization services using mass media to promote immunization and active follow-up by PSFs.
- Determine urban and peri-urban information needs for defining and setting priorities in health for outreach programs.

3. Multi-sectoral partnership with key stakeholders should be strengthened:

- Coordinate with other stakeholders like the UN (United Nations) agencies and local and international NGOs (Non-Governmental Organizations) to address the relevant issues and prioritize health problems.
- Engage with the private and professional organizations, community-based organizations and community leaders to address the challenges in addressing low immunization coverage in Dili district.

4. StrengtheningMOH's roles through support from programs like IPL:

- Continue technical and financial support for the implementation of immunization strategies in covered districts.
- Facilitate planning and implementing the recommendations from this study.

5. Child health and immunization services research.Future research is recommended to identify specific issues and needs in immunization services Additional evidence would help immunization programs and services in decision-making.

The team expects that the implementation of its recommendations will improve immunization services and programs in Dili district.

7. Conclusion

The study highlighted the socio-cultural contexts and health system factors which affect the low immunization coverage in the Dili district. By using three main qualitative methods (observations, IDIs with exit caregivers, health workers, and community leaders and FGDs), the team was able to obtain broad views on the immunization services. The study identified a correlation between socio-cultural and health system factors that contribute to the quality of care and immunization services in Dili. These factors include inadequate health systems, health workers' attitudes, caregivers' knowledge and attitudes, healthcare seeking behaviors and inadequate information. Another factor is difficulty in accessing healthcare, which prevents the caregivers from seeking healthcare and bringing their children to be immunized. This highlights the need for improved coordination. The health service needs to review access, including outreach services, SISCa and introduce a remote coverage strategy, at the same time reviewing how they disseminate information broadly and at the point of service delivery. Community and stakeholder participation and political commitment are essential for improvements in immunization services and coverage to be achieved.

8. Supporting factors

This study was successfully conducted with full support from the IPL Chief of Party and administrative officers; adequate skills of data collectors and good coordination with the community leaders and PSFs, DHS letter and support from MOH.

9. Challenges encountered

The challenges encountered during the study, among others were heavy rains, floods, the presidential campaign and election, which impacted the screening process, data collection and participation in FGDs.

References

Bates, A.S, Fitzgerald, J.F, Dittus, R.S, Wolinsky, F.D 1994, *Risk factors for under immunization in poor urban infant*s. JAMA, October 12, Vol. 272, No.14.

Dahlgren, G, Whitehead, M 1991. *Policies and strategies to promote social equity in health*, Stockholm: Institute for Futures Studies, Duckett S.J. 2000, The Australian Health Care System. South Melbourne: Oxford University Press.

Ghei, KAgarwal, S, Subramanyam, M.A, Subramanian, S.V 2010, *Association between child immunization and availability of health infrastructure in slums in India*, the Archives of Paediarics& Adolescent Medicine, Vol. 164, No. 3, pp. 243-249.

ImmunizasaunProtejeLabarik (IPL) 2012, *Baseline assessment report*, USAID, April.

Liamputtong, P &Ezzy, D 2005, Qualitative Research Methods, 2nd edn, Oxford University Press Melbourne.

Ministry of Health 2010, *Annual Health Statistic Report 2010*, Health Management Information System, Ministry of Health Timor-Leste.

Ministerio da Saude 2007-1, *StrategiImunisasiNasional,* Ministerio da Saude, World Health Organization, UNICEF.

Ministry of Health 2007-2, *Basic Services Package for Primary Health Care and Hospitals, achieving the MDGs by improved service delivery*, Ministry of Health, May, p.10.

Ministry of Health 2004, *National Reproductive Health Strategy 2004-2015*, Ministry of Health, United Nations Population Fund, World Health Organization.

Ministry of Health 2003, *Demographic Health and Survey*, Democratic Republic of Timor-Leste.

National Statistics Directorate 2010, *Timor-Leste Demographic and Health Survey 2009-2010*, Ministry of Finance, Democratic Republic of Timor-Leste, December, pp. 132-136.

National Statistics Directorate 2006, *Census of population and housing 2004 Atlas, Ministry of Finance and Planning*, UNFPA, September, p.61.

Partapuri, T, Steinglass, R, Sequeira, J 2012, *Integrated delivery of health services during outreach visits: A literature review of program experience through a routine immunization lens*, JSI/IMMUNIZATIONbasics Projects, JSI research and training institute Inc, Arlington, Virginia, Maternal and Child Health Integrated Program, John Snow Inc, Washington, DC.

Perry, H, Weierbach, R, Hossain, I, Islam, R 1998, *Childhood immunization coverage in Zone 3 of Dhaka city: the challenge of reaching impoverished households in urban Bangladesh*, Bulletin of the World Health Organization, Vol. 76, No. 6, pp. 565-573.

Rahman, M &Obaida-Nasrin, S 2010, *Factors affecting acceptance of complete immunization coverage of children under five years in rural Bangladesh*, Department of Population Science and Human Resource Development, University of Rajshahi, Bangladesh, March-April, Vol. 52, No.2.

Rwashana, A.S, Williams, D.W, Neema, S 2009, 'System dynamics approach to immunization healthcare issues in developing countries: a case study of Uganda', *Informatics Journal*, 15(2):95–107, accessed 15 May 2012, <http://dx.doi.org/10.1177/1460458209102971>.

World Health Organization, "Epidemiology of the unimmunized child: Findings from Grey Literature,"*IMMUNIZATIONbasics Project, Arlington, VA, USA*, accessed 25 February

2012,<http://www.who.int/immunization/sage/ImmBasics_Epid_unimm_Final_v2.pdf>.

Zwi, AB, Blignault, I, Glazebrook, D, Correia, V, Bateman, CR, Ferreira, E, Pinto, BM 2009, *Timor-Leste Health Care- seeking Behavior Study*, the Ministry of Health, Democratic Republic of Timor-Leste.

Appendix 1: List of Individuals Consulted at the Study Sites

LIST OF INDIVIDUALS INTERVIEWED	NUMBER OF RESPONDENTS
IDI with community leaders	6
IDI with health workers	18
IDI with caregivers	37

Appendix 2: List of Focus Group Discussions

No.	Name of Suco	Suco status by immunization coverage	Type of participants for FGD	Number of participants
1	Vilaverde	Low coverage	Mothers of no immunized children	5
2	Kuluhun	Medium coverage	Mothers of no immunized children	4
3	LahaneOcidental	Low coverage	Mothers of partially immunized children	6
4	BairoPite	Medium coverage	Mothers of partially immunized	6
5	Metiaut	High coverage	Mothers of partially immunized	8
6	Vilaverde	Low coverage	Mothers of fully immunized children	6
7	Hera	Medium coverage	Mothers of fully immunized children	9
8	Sabuli	High coverage	Mothers of fully immunized children	8
9	LahaneOcidental	Low coverage	Fathers of no immunized children	2
10	BairoPite	Medium coverage	Fathers of partially immunized children	8
11	Bemori	Low coverage	Grandmothers of no immunizations or partially immunized children	8
TOTAL PARTICIPANTS: 70				

Appendix 3: Composition of the Research Team

NO	NAME	POSITION
1	Dr. Telma Joana Corte Real de Oliveira, MIPH/MHM	Co-Principal Investigator
2	Joaquim Pinto, SKM	Researcher
3	Cezaltina Soares Amaral	Data collector
4	Saturnina Fernandes Sarmento	Data collector
5	Carolina da Conceicao Soares	Data collector
6	Sergio de Jesus	Data collector
7	Yuliana Ernelia Da Costa Mau	Data collector
8	Juvinal Xavier	Data collector
9	Liliana Moniz Maia	Data collector
10	Manuel Mausiri	Data collector
11	Mateus Da Cunha, MPH	Co-Principal Investigator
12	Jose Lima	Observer/ MOH
13	Dr. Ruhul Amin, MBBS, MPH	Principal Investigator
14	Tanya Wells Brown	Researcher