

Literature review on maternal and child health for Timor-Leste

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**Specialist
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Strategic input on health to the Australian Government

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REQUEST:

Summarise current literature on global best practices for improving maternal and child health (MCH) in low and middle income countries (LMIC), including girls' health, to inform DFAT investments in Timor-Leste

Literature review on maternal and child health for Timor-Leste

Executive summary

Timor-Leste, like many other developing countries, has made significant advances in reducing preventable maternal and child deaths. Nevertheless, fertility rates and maternal, newborn and under five mortality rates remain among the highest in the region, with rural areas particularly at risk. Continued progress in improving health will require expanding coverage of essential health interventions to all women, newborns, children and adolescents.

The prime interventions for improving women's and children's health in low and middle income countries are complementary and mutually reinforcing. Interventions that improve the health of adolescent girls will also contribute to better newborn and child health. Five interventions should be universally available:

- Access to family planning methods so that couples can control the number and timing of births. This reduces the number of high risk pregnancies to adolescent and older women and improves the health of the current and last born child.
- Four antenatal visits during pregnancy enables women to receive effective preventive care such as tetanus vaccination, micronutrient supplementation, and, if required, intermittent preventive treatment for malaria, as well as being monitored for risks of complications.
- Women should give birth with skilled and equipped birth attendants who can manage the major complications which cause maternal and newborn mortality during labour and for 24 hours after birth.
- Women and newborns should be seen by a healthcare worker four times in the first six weeks.
- Most infant and child deaths can be avoided through exclusive breastfeeding for the first six months and continued breastfeeding until age two with complementary feedings of local foods; handwashing, safe drinking water and hygienic disposal of faeces; routine immunisations plus new vaccines targeting diarrhoeal diseases and pneumonia; appropriate treatment of non-severe diarrhoea, pneumonia and malaria; and micronutrient supplementation.

Maternal and child health services need to be embedded in a wider health system. Introducing new interventions should be done in a manner which strengthens the entire health system. Similarly, introducing interventions requires thinking about all of the components of the health system. Evidence gathered from implementing maternal and child health interventions is pointing to new system-level approaches to delivering health care. These include but are not limited to: how healthcare workers are supported to change their practices; redefining scope of practice to bring more service delivery closer to the community, including by empowering community health workers to deliver services; and reducing financial barriers to access health care.

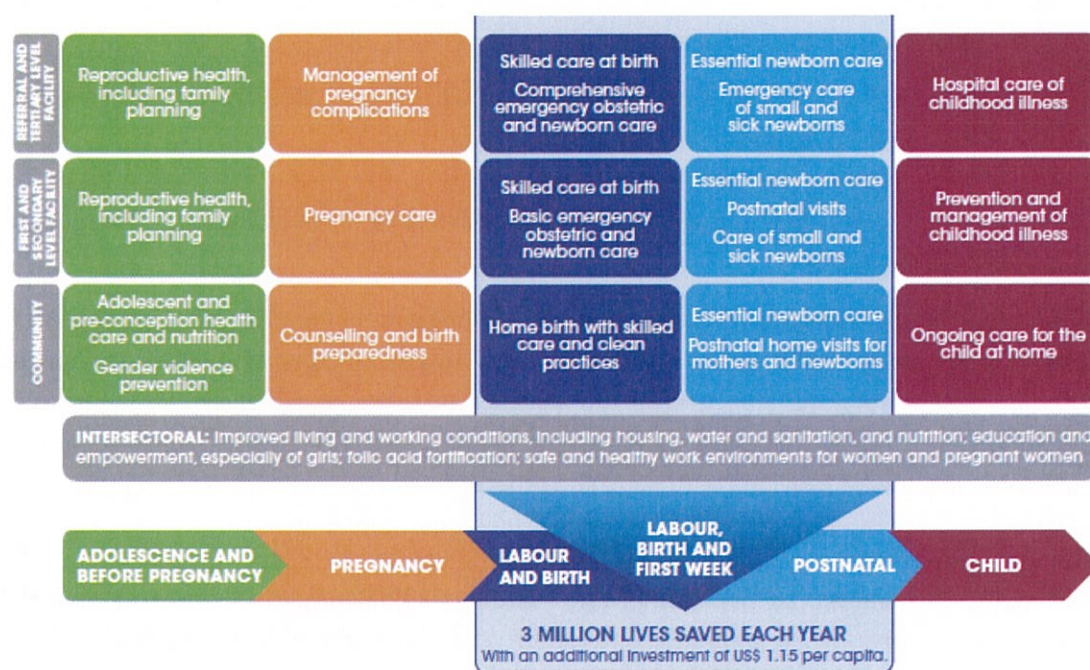
childhood immunisations and many women and children are under-nourished. More details about Timor-Leste health indicators, including data sources are in Annex 1.

3. Evidence-based best practices for improving maternal and child health

3.1. Core services and tools effective in contexts similar to Timor-Leste

Maternal and newborn care should not be thought of in isolation but rather as a continuum, linking pre-conception, antenatal, intrapartum, postnatal care and adolescent health care (Figure 1).(5) However, an integrated approach should not detract attention from the high risk during labour and for 24 hours after birth when the risk of maternal and newborn death is the highest.(5)

Figure 1: Continuum of essential MCH interventions



Source: The Lancet Every Newborn Series, Mason E et al. *Lancet*, 2014 (27).

3.1.1. Pre-conception

Access to family planning methods and knowledge enables women and their partners to choose the timing and number of children and is fundamental to improving maternal and child health outcomes. Preventing births in adolescents and increasing the interval between births to two years and enabling couples to avoid unplanned pregnancies when they have achieved their desired family size has a significant impact on reducing maternal, newborn and child health. Adolescent girls and older women are at higher risk of pregnancy complications and young mothers are more likely to be under-nourished increasing the risk of preterm births.(6, 7) Births spaced less than two years apart result in the first child being weened earlier than recommended, leading to higher risk of childhood illnesses.(8) The mother's nutritional status is also likely to be compromised due to births close together leading to a greater risk of preterm births and poorer child health.(7)

Many countries have chosen to pursue the objective of universal facility based births with, at a minimum, essential obstetrics care and emergency obstetric and newborn care is available and a system for referring serious cases to higher level facilities for comprehensive emergency care.

The attention now is on interventions in settings where home-based deliveries without a skilled birth attendant remain common. Many women in poor or isolated areas continue to rely on traditional birth attendants (TBA). The evidence is that with training and close support from qualified birth attendants (including clean birth kits and resuscitation equipment), maternal mortality can be reduced by 24 per cent. However, these outcomes are not as good as with qualified birth attendants and, without training and support, TBAs have no effect on maternal survival.(12)

The provision of an uterotonic drug immediately following birth in the form of oxytocin injections is now commonplace for most health facility births to prevent PPH. Where women are giving birth in a community based setting, with or without a skilled birth attendant, there is international evidence of the efficacy of advanced distribution of misoprostol tablets to women, to be taken during labour to prevent PPH. As misoprostol can be used to induce labour, some countries have been reluctant to approve community-based distribution. However, randomised controlled trials in low income countries have found that CHWs distributed the drugs appropriately and that there was a high level of support for women to receive and to take the tablets in the third stage of labour.(13)

Unsafe abortions and incomplete abortions is one of the four principal causes of maternal mortality in developing countries.(14) Globally the number of abortion-related maternal deaths has been decreasing, but they remain high or are increasing in LMIC where fertility rates are still high.(15) Lowering the maternal mortality rates requires increasing access to contraceptives, safe abortion and quality post-abortion care for women who have had an unsafe or incomplete abortion.(16)

In recognition that many of the obstacles to poor maternal and newborn outcomes can be addressed by the community, with the support of quality health services, WHO has recently updated its guidelines for working individuals, families and communities to support maternal and newborn health.(17) They include interventions directed at the pregnant

Box 1: Relevant recommendations for health promotion to improve maternal and newborn health outcomes (WHO guidelines)

- Healthcare workers should support women and their families to have a birth preparedness and complication readiness plan including the desired place of birth; the preferred birth attendant; the location of the closest facility for birth and in case of complications; funds for any expenses related to birth; supplies and materials necessary to bring to the facility; an identified labour and birth companion; an identified support to look after the home and other children while the woman is away; transport to a facility for birth or in the case of a complication; and identification of compatible blood donors in case of complications.
- Encourage a companion of choice to be present during labour. This companion does not need training.
- Clarity in the role of trained traditional birth attendants to provide support to pregnant women and families.
- Participatory learning circles with women's groups increases knowledge and local solutions in areas, particularly in rural areas with poor access to health services.

woman, her family and the whole community. The recommendations most relevant for the Timor-Leste context and with a higher level of evidence than "very low" are in Box 1.

disadvantaged communities, is the most effective way to increase and sustain high immunisation coverage. (20) Immunisation days can play a health promotion role or be an effective way to respond to an outbreak or drive to eliminate a disease, but they are not a substitute for routine immunisation services.

Exclusive breast feeding to six months and continued breastfeeding up to two years has a dramatic effect on child mortality. Not breastfeeding is associated with almost six times the risk of death in children 6-11 months and more than two times the risk in children 12-23 months.(19) However, awareness of the importance of breastfeeding is low in most countries.

Regular handwashing, safe drinking water and faeces disposal reduces infections in children.

3.1.3.2. *Treatment of common illnesses*

As most deaths from diarrhoea are due to dehydration, timely interventions are lifesaving. Home administration of oral rehydration solution (ORS) prevents dehydration and death. Despite it being decades since the benefit of this treatment was established, coverage is still low but can be increased through social marketing of ORS packets combined with health education messages. Treatment with zinc and antibiotics for dysentery reduces severity. The use of zinc treatment for diarrhoea or pneumonia is almost negligible in developing countries.(19)

Antibiotics for children with pneumonia without wheezing can be administered safely and effectively by CHWs.

These simple interventions can have a big effect. If there was 90 per cent coverage of breastfeeding promotion, community based zinc or ORS treatment for diarrhoea and case management of pneumonia, 64 per cent of diarrhoea deaths and 74 per cent of pneumonia deaths would be prevented *among the 40 per cent poorest families*.(19)

3.1.3.3. *Nutrition*

Nutrition is frequently neglected as a cause of child mortality (Box 3). The proportion of children who are stunted has declined much slower than other child health indicators. A package of interventions has now been shown to be effective at preventing under-nutrition and treating severe acute malnutrition (SAM). These interventions can be implemented successfully in rural and isolated areas if there are good outreach antenatal and child health services or effective referral by CHWs. These interventions are:

Box 3: Tackling child under-nutrition from Bhutta et al 2013

“Maternal undernutrition contributes to 800,000 neonatal deaths annually through small for gestational age births; stunting, wasting, and micronutrient deficiencies are estimated to underlie nearly 3.1 million child deaths annually. ... The current total of deaths in children younger than 5 years can be reduced by 15% if populations can access ten evidence-based nutrition interventions at 90% coverage.”

During pregnancy:

- Iron and iron-folate supplementation
- Multiple micronutrient supplementation for women with nutrition deficiencies
- Dietary advice and balanced energy protein supplementation for malnourished women
- Universal salt iodisation

For infants and young children:

Global Vaccine Action Plan, all take a systems approach to introducing new interventions to improve maternal and child health. These global strategies and plans utilise WHO's six "building blocks" to describe the functions of a health system: leadership and governance; health service delivery; medical products, vaccines and technologies; health workforce; financing; and monitoring and evaluation (health information system).(20) In recognition of the importance of the community in safeguarding their own health, community demand is usually also included as a health system building block.

In designing new maternal and child health interventions, a health systems approach should be used to ensure that the intervention will strengthen the existing health system and will be robust enough to be sustained after the initial investment.(23)

Recent research into applying a health systems approach to improving health services has advanced knowledge of how to implement essential interventions. Three system level strategies are discussed here because they have been found to be critical in increasing use of maternal and child health services.

The first strategy is to improve the quality of health worker performance. Poor quality care has been recognised as a major system failing, reducing the use of effective healthcare practices and increasing mistrust between patients and healthcare providers. Although the research in what works to improve health worker performance has been known for some time, (24) it is rarely put into practice. Too many new health interventions fail because of an emphasis on training, rather than consistent, supportive supervision, and intrinsic and extrinsic incentives for healthcare workers' to improve.(25)

A second strategy is the use of CHWs to mobilise communities to take part in preventive and treatment activities. CHWs have been shown to provide an important contribution to a health system, giving first line treatment for the major causes of childhood deaths.(7, 19) Implementing a program of community-based services requires integration with all of the other levels of the health system.

A third system wide approach to improving maternal and child health is to identify groups who face significant financial barriers to accessing services or implementing recommended health behaviours such as child feeding. Reduced user fees, vouchers and conditional cash transfers have been found to be cost-effective in improving the health of those at greatest risk of death.(26) As mortality rates reduce in LMICs, special efforts to target the most disadvantaged are necessary to achieve further declines.

3.3. Health enabling functions by non-health sectors

The survival of mothers and children is a concern of all members of a society and a priority for most governments. While the health sector will provide most of the inputs to prevent and treat, other sectors can play supportive and sometimes leading role in creating an enabling environment for improved health outcomes.

Economic policies Pro-poor economic policies that prioritise socioeconomic development through reduction of poverty, improved water and sanitation systems, increased productivity especially in the agricultural sector and greater opportunities for women's and youth employment are important contributors to reductions in child mortality.(27)

Education - Policies which enable girls to enrol and remain in school, especially post-primary, will lead to delayed marriage and childbearing, longer periods between pregnancy, smaller families and more effective use of health services during pregnancy and labour and for treating the sick child.(28)

Infrastructure – Basic infrastructure such as roads, electricity, and telephone coverage connects isolated communities and health services, increasing access to routine and emergency health care.

Annex 1: MCH context in Timor-Leste

Key health indicators

The most recent information on maternal and child health in Timor-Leste are primarily from the 2009-10 Demographic Health Survey (DHS)(3), the Timor-Leste 2013 Census Summary and recent estimates from UN bodies. A new DHS is planned for 2016-17 and the report from the 2015 Census is expected this year. Based on the available information, it is clear that the country has made major improvements in child mortality and possibly maternal mortality, but the rates are still high compared to other countries in the region. Timor-Leste also continues to have challenges in maternal and child nutrition.

Despite dropping from 7.8 to 5.7 births per woman between 2003 and 2009 (Table 1), the total fertility rate in Timor-Leste is the highest in South-East Asia and the Pacific.(3)

Table 1: Total fertility rate – Timor-Leste

Source	2010-2015 UN statistics (32)	2009-10 TLDHS (2007-2009)	2003 DHS (2001-2003)	2002 MICS (2001-2002)
Total fertility rate	5.9	5.7	7.8	7.4

Also according to the DHS 2009–10, 14 per cent of Timorese women have given birth before reaching age 18 and seven per cent of women age 15-19 have already had a birth or are pregnant with their first child.

Timor-Leste's contraceptive (modern methods) prevalence rate of 22.3 percent is the lowest in the DFAT Indo-Pacific region.(31) The unmet need for contraceptives is 31.5%.(3) The Government of Timor-Leste has set a target of a contraceptive prevalence rate of 40 per cent by 2015. Data collected for the next DHS will give an indication of whether this target was met.

The 2009-10 DHS indicated that 86 per cent of women were having at least one antenatal visit for the last pregnancy. According to the DHS 2009-10 only half (53 per cent) of urban women giving birth in the last five years, delivered at a health facility; in rural areas the figure was only 12 per cent. Thirty per cent of births in the country were delivered by a skilled birth attendant. The 2011-2030 National Strategic Development Plan calls for 65 per cent of Timorese women to have an assisted birth by 2015.

Maternal mortality ratios (MMR) are extremely difficult to measure, especially in small populations such as Timor-Leste, because maternal deaths are rare. The most commonly quoted MMR is from the 2009-10 DHS, 557 per 100,000 live births. Using a standardised estimation method, a collaboration of technical agencies prepared *Trends in maternal mortality 1990 to 2015*. It estimates that Timor-Leste met its Millennium Development Goal target of reducing MMR from 1995 to 2015 by more than 75 percent, and actually reduced it by 80 per cent (Table 2). (1)

Table 2: Trend in MMR in TLS

Year	1990	1995	2000	2005	2010	2015	% change in MMR between 1990 and 2015
MMR	1080	897	694	506	317	215	80.1

MMR estimates have been rounded according to the following scheme: < 100 rounded to nearest 1; 100–999 rounded to nearest 1; and ≥ 1000 rounded to nearest 10.

Although recent estimates are not available, it does appear that deaths to children under five years (child mortality), under one year (infant mortality) and under one month (neonatal mortality) have been

Annex 2: Essential interventions in maternal, newborn and adolescent health

ANTENATAL CARE	
From WHO Recommended Interventions for Improving Maternal and Newborn Health 2009 edition (34)	
Routine care	Additional or specialist care
<p>Confirmation of pregnancy</p> <p>Monitoring of progress of pregnancy and assessment of maternal and foetal well-being</p> <p>Detection of problems complicating pregnancy (e.g., anaemia, hypertensive disorders, bleeding, malpresentations, multiple pregnancy)</p> <p>Respond to other reported complaints.</p> <p>Tetanus immunisation, anaemia prevention and control (iron and folic acid supplementation)</p> <p>Information and counselling on self-care at home, nutrition, safer sex, breastfeeding, family planning, healthy lifestyle</p> <p>Birth planning, advice on danger signs and emergency preparedness</p> <p>Recording and reporting</p> <p>Syphilis testing</p> <p>Antimalarial intermittent preventive treatment (IPT) and promotion of impregnated bednets</p>	<p>Treatment of complications: anaemia, urinary tract infection, vaginal infection</p> <p>Referral to treatment for severe complications of pre-eclampsia or eclampsia, bleeding, infection, other complications</p> <p>Treatment of syphilis</p>

POSTNATAL CARE FOR MOTHERS AND NEWBORNS

From Highlights of the WHO 2013 Guidelines (36)

For mothers and newborns	For mothers	For newborns
<p>Provide postnatal care in first 24 hours for every birth:</p> <ul style="list-style-type: none"> – Delay facility discharge for at least 24 hours. – Visit women and babies with home births within the first 24 hours. 	<p>Regular assessment of mother's condition during the first 24 hours. of vaginal bleeding, uterine contraction, fundal height, temperature and heart rate (pulse) routinely during the first 24 hours starting from the first hour after birth</p>	<p>Continue to promote early and exclusive breastfeeding (EBF) within delivery settings including antenatal care, at delivery, and in all postnatal care visits.</p>
<p>Provide every mother and baby a total of four postnatal visits on:</p> <ul style="list-style-type: none"> – First day (24 hours) – Day 3 (48–72 hours) – Between days 7–14 – Six weeks 	<p>Subsequent assessments enquiries should continue to be made about general well-being and assessments made regarding the following: urination and urinary incontinence, bowel function, healing of any perineal wound, headache, fatigue, back pain, perineal pain and perineal hygiene, breast pain, uterine tenderness and lochia.</p> <p>Enquires made about breast-feeding</p>	<p>At each of the four postnatal care checkups, newborns should be assessed for key clinical signs of severe illness and referred as needed. There are nine clinical signs that can be assessed by a CHW or a skilled health care worker</p>
<p>Offer home visits by midwives, other skilled providers or well-trained and supervised community health workers (CHWs).</p>	<p>Counselling on danger signs, nutrition, hygiene, postpartum family planning and malaria prevention; antibiotics for women with third or fourth degree tears to prevent wound complications and psychosocial support to reduce risk or severity of postpartum depression.</p>	<p>Consider the use of chlorhexidine for umbilical cord care for babies born at home</p>
<p>Use chlorhexidine after home deliveries in high newborn mortality settings.</p>		
<p>Re-emphasize and support elements of quality postnatal care for mother and newborn, including identification of issues and referrals.</p>		

Annex 4: Every Newborn Strategic Objectives and Principles

Strategic objectives and principles

To achieve the vision and goals, the *Every Newborn* action plan proposes five strategic objectives.



Strategic objective 1

Strengthen and invest in care during labour, birth and the first day and week of life.

A large proportion of maternal and newborn deaths and stillbirths occur within this period, but many deaths and complications can be prevented by ensuring high-quality essential care to every woman and baby during this critical time.



Strategic objective 2

Improve the quality of maternal and newborn care. Substantial gaps in the quality of care exist across the continuum for women's and children's health. Many women and newborns do not receive quality care even when they have contact with a health system before, during and after pregnancy and childbirth. Introducing high-quality care with high-impact, cost-effective interventions for mother and baby together – delivered, in most cases, by the same health providers with midwifery skills at the same time – is key to improvement.



Strategic objective 3

Reach every woman and newborn to reduce inequities. Having access to high-quality health care without suffering financial hardship is a human right. Robust evidence for approaches to ending preventable newborn deaths is available and, if applied, can effectively accelerate the coverage of essential interventions through innovations and in accordance with the principles of universal health coverage.



Strategic objective 4

Harness the power of parents, families and communities. Engaged community leaders and workers and women's groups are critical for better health outcomes for women and newborns. Education and empowerment of parents, families and communities to demand quality care and improve home care practices are crucial.



Strategic objective 5

Count every newborn through measurement, programme-tracking and accountability. Measurement enables managers to improve performance and adapt actions as needed. Assessing outcomes and financial flows with standardized indicators improves accountability. There is a need to improve metrics globally and nationally, especially for birth outcomes and quality of care around the time of birth. Every newborn needs to be registered and newborn and maternal deaths and stillbirths need to be counted.

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