Timor-Leste: a primary health care case study in the context of the COVID-19 pandemic

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Executive summary

The global vision of primary health care (PHC) was first set out in the Declaration of Alma-Ata in 1978 and re-conceptualized in 2018 through the Astana Declaration. The latter Declaration focuses on three critical components: primary care, multisectoral collaboration, and community engagement (1–4). Since 2002, Timor-Leste’s health system has mobilized PHC approaches to bring health care closer to communities (5–9). The COVID-19 pandemic, however, had a negative impact on the country’s social determinants of health and its capacities to achieve the targets set out in the Sustainable Development Goals (SDGs), while also triggering an economic downturn.

As of 27 October 2021, Timor-Leste had registered 19 785 confirmed cases; this included 19 608 recovered cases, 56 active cases and 121 deaths (10). This case study examines the country’s PHC system in the context of the COVID-19 pandemic between March 2020 and October 2021.

Timor-Leste established independent structures to prevent and mitigate the COVID-19 outbreak. The government and donors earmarked extra funds from their budgets for the COVID-19 response and developed policies and guidelines to maintain essential health services. A combination of PHC and public health measures were implemented through public institutions and health facilities. Since April 2020, the country imposed national movement restrictions and mandatory quarantines; established COVID-19 treatment centres; conducted primary care activities based on ‘T3’ (test, treat and trace); enhanced multisectoral cooperation; engaged communities; and rolled out a COVID-19 vaccination programme.

Timor-Leste’s COVID-19 reverse transcription polymerase chain reaction (RT-PCR) testing capacities expanded enormously during the period under review, from the six PCR machines available in 2019 to 17 PCR machines as of October 2021 through ongoing support from development partners. An additional 465 professionals were recruited and trained for surveillance and case management. The quality of infection prevention and control (IPC) was strengthened in all territories, together with other public health and social measures to reduce the transmission of COVID-19.

MoH structures and health facilities continued to deliver essential health services. Alternative mechanisms were employed via United Nations (UN) procurement and donations from partners to replenish depleted stocks of medicines, consumables and personal protective equipment (PPE).

About 13 709 confirmed cases of COVID-19 were transferred to dedicated treatment centres in the capital, Dili, to ensure the localization of all resources. However, with the increase in cases over time, a number of asymptomatic, mild and moderate cases were managed in the municipalities through their dedicated COVID-19 treatment centres and self-isolation.
Executive summary

Timor-Leste’s Strategic Development Plan (SDP) 2011–2030 (11) and its National Health Sector Strategic Plan (NHSSP) 2011–2030 (9) emphasize the importance of integrated intersectoral policies to achieve both national development goals and the SDGs. Mechanisms were established under the ICCM-SR to coordinate multisectoral work and mobilize resources from different ministries, nongovernmental organizations (NGOs) and development partners. There was also a well-established network of private health organizations that were supported by the ICCM-SR and that were active in providing services during the COVID-19 pandemic.

Finally, the government established various strategies to engage communities in health care. This includes the Integrated Community Health Services (SiSCa) with its Six Tables programme of health activities at the village level, which comprises: 1) family health registration; 2) nutritional assistance; 3) maternal and child health (MCH) assistance; 4) hygiene and sanitation services; 5) curative services; and 6) health promotion (7). Other strategies included Saude na Familia (SnF, or the Family Health Programme), with its emphasis on domiciliary primary care visits and Promotor Saude Familia (PSF, or community health volunteers) working in the country’s smallest hamlets.
Introduction and national context

Background

In 2018, PHC was re-conceptualized in the Astana Declaration, which focused on three critical components: 1) primary care; 2) multisectoral collaboration and 3) community engagement (3, 4). There was concern, however, that the Astana approach to PHC might overlook a major disease outbreak (12). Kraef and Kallestrup identified a number of threats for the achievement of PHC as envisioned in the Astana Declaration in a 2019 article (13). They included insecurity, conflicts and disease outbreaks, lack of sustained health system components, approaches that did not adequately address community needs, and a lack of emphasis on gender equity. This case study examines the country’s PHC system in the context of the COVID-19 pandemic between March 2020 and October 2021.

On 31 December 2019, WHO was alerted to cases of pneumonia that had an unknown origin in Wuhan, China (14). The virus and its diseases were named novel coronavirus (SARS-CoV-2) and COVID-19 (15, 16). COVID-19 spread rapidly around the world, with WHO declaring an international Public Health Emergency of International Concern (PHEIC) in January 2020 (17, 18). The COVID-19 pandemic has come to define global and national policy priorities, while gaps in PHC implementation have weakened countries’ abilities to detect and respond to the outbreak, and to keep essential health services functioning (19).

Timor-Leste reported its first case of COVID-19 on 21 March 2020. The MoH and development partners responded quickly to the situation (20). As of 27 October 2021, the country had registered 19,785 confirmed cases: the vast majority of those infected (19,608) had recovered. In all, there were 56 active cases at that time, with a total of 121 deaths (see Fig. 1) (10).

Between April 2020 and October 2021, a state of emergency had been declared 15 times in Timor-Leste, strict stay-at-home orders were imposed and international borders were closed (21). These strict stay-at-home orders proved to be important – as they formed the backdrop to the relatively low case numbers in 2020 and curbed infections in 2021 (10, 22). Flooding caused by the Seroja cyclone in April 2021, however, worsened the situation, and a state of calamity was declared (23).
Introduction and national context

Methodology

To examine PHC in the context of the COVID-19 pandemic, the research team adopted a health policy and system research (HPSR) approach. This combined: 1) desk reviews of articles, documents, information from online sources, mass media and social media; and 2) the collection of quantitative data from the ICCM-SR and the MoH reporting database and documents. Data extraction, synthesis, and analysis were guided by the three PHC components in the Astana framework.

Figure 1. COVID-19 curve in Timor-Leste by month (1 March 2020 to 31 October 2021)

Source: WHO, 2022 (24)
Country history and PHC development
Timor-Leste is a small country with a population of 1.3 million. The country’s health outcomes have improved substantially in the 20 years since it gained independence in 2002, with significant reductions in child and maternal mortality and in major communicable diseases, and a 10-year increase in life expectancy to 68.6 years (25).

Political commitment and leadership
Health and education have been high priorities since independence. Article 57 of the Constitution guarantees the fundamental right of all Timorese citizens to access free health care (26), and the country’s health system was designed to prioritize PHC (5). In 2011, the NHSSP 2011–2030 was launched to guide health sector development (9), while the Basic Services Package (BSP) was developed for health care facilities in 2007 and later re-conceptualized in 2016 (27). In 2008, the MoH launched SISCa to expand access to health services in village communities (7). Since 2015, SnF has emphasized domiciliary visits to increase primary care access to household members (see Fig. 2) (7, 8).

Figure 2. Timeline of key primary health care laws, policies and strategies

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>2002</td>
<td>RDTL Constitution (article 57: free health care)</td>
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<tr>
<td>2004</td>
<td>Basic Service Package and Health Sector Strategic Plan (for health facilities)</td>
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<tr>
<td>2007</td>
<td>NHSSP (2011–2030)</td>
</tr>
<tr>
<td>2008</td>
<td>Health System Law (Confirmed Timor-Leste health system based on PHC)</td>
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<tr>
<td>2011</td>
<td>SISCa</td>
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<tr>
<td>2015</td>
<td>SnF</td>
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Source: The authors

Governance and structure
The MoH is mandated to design, direct, manage and coordinate all health care and pharmaceutical policies and activities. The current structure of the MoH comprises five cabinets, 10 autonomous institutions, and two general directorates with nine national directorates (Fig. 3). Each municipality has a health management team headed by a director. At the time of writing, there were 456 SISCa, 302 health posts, 72 community health centres (CHCs), five regional hospitals, and one national hospital delivering primary, secondary and tertiary care services. The MoH has signed agreements with hospitals in neighbouring countries for the referral of subspecialized cases that cannot be treated within Timor-Leste.
Figure 3. Structure of Ministry of Health, Timor-Leste, 2021

- Cabinet for Planning, Monitoring & Cooperation
- Cabinet for Quality Control
- Cabinet for Inspection and Audit
- Cabinet for Register and Licence
- Unit for Legal and Protection

- Hospitals (6)
- National Health Institute
- National Laboratory
- SAMES (Central Pharmacy)
- Ambulance Services

Source: The authors
Funding and allocation of resources
The main source of funding for the health sector is the general state budget. The 2021 Health Sector Budget stood at about US$ 86 million to cover costs for new health posts, disease control, family health, medical emergencies, nutrition services and epidemiological surveillance (28). According to Timor-Leste’s National Health Accounts, current health expenditure (CHE) amounted to US$ 108 million in 2017, with development partners contributing 22.4% of CHE, and out-of-pocket expenditure on health contributing 8.3% (29). More than 70% of health spending was for curative care (29).

Engagement of communities and other stakeholders
Timor-Leste’s health system was established through collaboration, cooperation and coordination (6, 30, 31). The Cabinet for Planning, Monitoring, and Cooperation (CPMC) was established to manage cooperation with partners and stakeholders (32). SISCa, the SnF and PSF were introduced in 2008 and 2015 to engage the community in health activities (6–8).

How primary care and essential public health functions are responding to COVID-19
Scaling up and managing critical emergency services
The government established an independent structure to support the MoH response to the COVID-19 pandemic. This is composed of an inter-ministerial commission for political decisions and two technical groups: the Emergency Fund (33, 34) and the ICCM-SR (35). Services were organized into nine technical pillars (see Fig. 4 and Annex 1) based on WHO guidelines for the delivery of the COVID-19 emergency response through health care facilities (36, 37).

By July 2020, a state of emergency had been declared 15 times and strict stay-at-home orders had been imposed. Timor-Leste rolled-out its COVID-19 vaccination campaign after receiving its first batch of the Oxford–AstraZeneca (OAZ) vaccine on 5 April 2021 (22, 38). By 14 July 2021, the country had received 451 580 doses of OAZ and Sinovac from the COVAX Facility as well as from the governments of Australia and China (39, 40). By 27 October 2021, 72.1% of the adult population had received their first dose, and 46.9% had received their second dose of a COVID-19 vaccine (20, 24).
Figure 4. Structure for the prevention and mitigation of the COVID-19 outbreak in Timor-Leste

How primary care and essential public health functions are responding to COVID-19

Source: The authors
Governance and leadership for the COVID-19 response

The ICCM-SR is led by the Prime Minister and supported by current and former members of the government, military officials and MoH senior staff. Three main adaptations were made as part of the pandemic response: 1) the introduction of triage in health facilities; 2) the establishment of COVID-19 quarantine and treatment centres; and 3) the contracting of additional professionals to support work on the nine technical pillars.

From 2020 to the time of writing in October 2021, those working on Pillar 1 (coordination, planning and monitoring) held regular meetings spanning state institutions, development partners and civil society organizations to mobilize resources and coordinate the COVID-19 response. The plans and strategies of the ICCM-SR were guided by research conducted by the Risk Analysis and Study Team (RAST), WHO, MSHR, Maluk Timor, Cruz Vermelha Timor-Leste (CVTL, the Timor-Leste Red Cross) and the Asian Development Bank (ADB). The plans and strategies were then presented to the Council Minister and National Parliament for decisions on the declaration of states of emergency, preventive public health measures and mitigating the negative impact of stay-at-home orders (35, 41–45).

**Test:** In March 2020, COVID-19 RT-PCR testing was introduced to the country with the support of WHO, MSHR, the Australian Department of Foreign Affairs and Trade (DFAT) and the Global Fund. As of 27 October 2021, 17 PCR testing machines were available in hospitals and municipal health centres, and 213 000 COVID-19 samples had been tested (22). Selected samples were sent to the Doherty Institute in Australia for whole genome sequencing (WGS). At the time of writing, Timor-Leste still had low levels of testing in the municipalities and this, coupled with low vaccine coverage beyond Dili, posed a major risk to the population (46).

**Treat:** All confirmed cases of COVID-19 were admitted to designated isolation and treatment facilities in Vera Cruz, Tasitolu or Tibar, to isolation hotels, or confined to home isolation in Dili and the municipalities (47). These facilities received 45 ventilators and essential equipment from government and development partners. As of 27 October 2021, 19 785 positive cases had been admitted to these centres (10).

**Trace:** Surveillance epidemiology (Pillar 3) was strengthened by increasing staff numbers and mentoring with the support of WHO, MSHR, the Australian Medical Assistance Team (AUSMAT) and other development partners. The surveillance team, as per the national guidelines, was working on further investigation and contact tracing across territories (45, 46).

**Point of entry and quarantine:** Under Pillar 4, all passengers entering the country were screened and placed under quarantine for 14 days. By 19 October 2021, 19 860 people had been placed in quarantine (22). Quarantine effectively prevented the spread of variants of concern (Alpha was detected on 27 December 2020 and Delta was detected on 21 April 2021).
IPC and protection of health care workers: To support Pillar 6 on IPC, development partners introduced triage for health facilities and distributed PPE. The National Health Institution (NHI), WHO, Maluk Timor, the United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA) and MSHR provided training on IPC protocols in hospitals and primary care facilities (48). There were, however, challenges for IPC implementation because of stock-outs of PPE, lack of running water and soap, and problems in ensuring strict adherence to IPC protocols.

Health promotion and digitalization

Under Pillar 2 on risk communication and community involvement, the focus was on educating people to wear masks, to maintain physical distancing and to ensure the regular washing of hands with soap. Television, radio, newspaper and social media were used to disseminate information (20). When surveyed by CVTL in 2020, 98.75% of respondents said they received a variety of information on COVID-19 (43). The country’s health management information systems – such as the Timor-Leste Health Management Information System (TLHIS) of the MoH, the Laboratory Information Management System (LIMS), mSupply (SAMES) and the Training Information Management System (TIMS) of the NHI – and dashboards were utilized to support COVID-19 activities (22, 35, 49). There was also limited utilization of telehealth by individual practitioners.

Continuing essential services

Governance and delivery of essential care services

During the period under review, the MoH delegated planning, coordination and the delivery of health care services to the municipal health services (MHS) and autonomous institutions (30, 50, 51). Secondary and tertiary care was delivered through hospitals with minimal interruption, even though some staff members became infected (6, 7, 27, 48, 52, 53).

In June 2021 SAMES (the Central Pharmacy) reported that 20% of essential medicines were out of stock (54). Yet SAMES and health facilities have experienced stock-outs of essential medicines before. A study dating back to 2011 reports that only 60% of the stock of essential medicines was available in CHCs (55). Alternative mechanisms have been sought (e.g., through UN procurement, donations from partners) to replenish depleted stocks of medicines, consumables and PPE.

Health workforce recruitment, education and accreditation

Timor-Leste has 5000 health care workers (HCWs) registered with the MoH. This workforce is comprised of 35 medical specialists, 889 general practitioners, 1497 nurses, 618 midwives, 648 allied health professionals (AHPs) and 1224 supporting professionals (50). However, the availability of HCWs in the villages is still far from the goal set out in the NHSSP 2011–2030 of one doctor, two nurses and two midwives per 1000 population (9).
As of March 2021, the MoH had contracted an additional 465 professionals: 43 medics, 233 nurses, 29 midwives, 46 AHPs and 107 supporting professionals. The majority were assigned to work in treatment centres, on quarantine measures and on contact tracing (56).

The MoH aimed to empower and protect HCWs during the pandemic through the provision of good knowledge, PPE and vaccines, as well as the adoption of regular eight-hour shifts, accompanied by mentoring. In 2020, 1319 HCWs were trained on COVID-19 issues: 374 medics, 403 nurses, 205 midwives and 337 AHPs (57). In 2020, the government also introduced an extra financial subsidy for HCWs and prioritized them for vaccination.

The urgent need to implement IPC and upskill the workforce highlights an ongoing challenge: the need for more uniform and better-regulated education for health professionals. There are, at the time of writing, six higher institutions providing pre-service health and medical education. While the NHI provides in-service training and continued medical education, there is no standardized teaching curriculum developed that bridges the gap between pre-services and in-services institutions (50, 58, 59). A standardized curriculum on public emergency preparedness, PHC and intersectionality could better equip graduates.

Managing referral systems to ensure appropriate distribution of service load

**Governance and service delivery**

Timor-Leste’s system of patient referral and ambulance services is coordinated under the auspices of the National Directorate for Ambulance and Referral Services (NDARS) (32). As of October 2021, there were 27 ambulance units, with 24 units for regular ambulance services and three dedicated units for COVID-19. Three ambulances were placed in Vera-Cruz (at the COVID-19 treatment centre) to transport patients from temporary isolation, quarantine and municipalities.

The management of the referral and transportation of COVID-19 patients comes under Timor-Leste’s Rapid Response Detachment (RRD) and Pillar 7 (case management) (35). Under the guidance of the national structure, the Pillar-7 unit in each municipality organizes referral services. In practice, however, the challenges to these services included difficult road conditions, an increased workload, and a lack of PPE and staff.

**Delegating and distributing the workload**

COVID-19 isolation and treatment centres and RT-PCR testing were established in all regional hospitals, while IPC, surveillance (contact tracing) and public health interventions were strengthened in municipalities. Regular coordination meetings between MHS, civil society organizations, community leaders, religious group and the private sector were organized to share information, mobilize local resources and develop local plans.
Intra- and interservice coordination
Current intra-service coordination is supported by both formal and informal operating protocols that guide intra-service referrals and communication across the essential programmes defined for primary care and hospitals (9, 27). However, this requires an integrated health information system that supports patient tracking, as well as strengthened protocols for IPC and the referral of suspected cases of COVID-19 (27). Experiences in the National Guido Valadares Hospital, with the closure of the haemodialysis unit, reflect weak intra-service coordination and the urgent need to establish COVID-19 emergency preparedness in hospitals (24, 60–62).

The inter-service relationships between health posts, CHCs and hospitals have been well established during both normal and emergency periods. Given the regular stock-outs of essential medicines in primary care facilities, the MHS has allowed CHCs to help and share medicines among their facilities (54, 55).

How multisectoral policy and action are responding to COVID-19

Integrating health priorities and targets into cross-sectoral policy

In 2011, the government launched its 20-year SDP 2011–2030 (11) and its NHSSP 2011–2030 (9) to guide overall country and health sector development (63, 64). In 2015, the country’s Parliament adopted the SDGs (2015–2030) to be achieved by all government ministries and sectors. In 2016, the Unit of Planning and Monitoring Activities (UPMA) was established to harmonize efforts based on joint indicators and shared budgets across ministries (65). The MoH established the CPMC to coordinate and monitor progress (32).

Impact of the COVID-19 pandemic on progress towards the SDG targets and on broader determinants for health

The COVID-19 pandemic has weakened Timor-Leste’s development efforts. The UN’s Sustainable Development Report 2021 (65) summarized the country’s mixed progress toward the SDGs as follows:

• on track for SDGs 4, 11 and 16 (Quality Education, Sustainable Cities and Communities, and Peace, Justice and Strong Institutions)
• a moderate improvement in progress towards SDGs 3, 6, 7, 14 and 17 (Good Health and Well-Being, Clean Water and Sanitation, Affordable and Clean Energy, Life Below Water, and Partnerships)
• stagnation of progress towards SDGs 2, 5, 9 and 15 (Zero Hunger, Gender Equality, Industry, Innovation, and Infrastructure, and Life on Land)
• decreasing progress towards SDGs 1 and 8 (No Poverty, Decent Work and Economic Growth)

• information unavailable for progress towards SDGs 10, 12 and 13 (Reduced Inequalities, Responsible Consumption and Production, Climate Action).

The pandemic had caused the economy to contract by 7.6% as of the end of November 2020 (20).

Stay-at-home orders prevented people from working, leaving them without money to buy food and meet other essential needs (66). School closures forced students and teachers to organize online learning. However, many students were left out of the online learning process because they did not have access to the internet, a phone or a computer (67).

Nevertheless, the government provided various subsidies to help alleviate some of the economic and social impact. These included US$ 200 for families to cover their basic needs and electricity; cash to employees and employers; internet credits, tuition fees and cash for university students; and other forms of transfers to support economic recovery (67, 68).

Enhancing multisectoral collaboration

The government has created many fora since 2002 to coordinate partners, including meetings between development partners, annual coordination meetings between the MoH and development partners and institutional coordination meetings. The CPMC and the Cabinet for Licencing and Registering Health Care Activities (CLRHA) are responsible for the coordination and supervision of development partners and the private sector. There is a well-established network of private for-profit and not-for-profit health clinics and organizations that provide services across the territory (42, 69–79).

In response to the COVID-19 outbreak, the ICCM-SR was established in 2020 and is led by the Prime Minister to coordinate the efforts of ministries, sectors, civil society organizations, community leaders and development partners to work collectively against the threat of COVID-19 (35). The Task Force for the Prevention and Mitigation of the COVID-19 Outbreak (TFPMCO) is responsible for coordinating the delivery of PHC and public health services through its nine technical pillars (see Annex 1) (80).

The Rapid Response Detachment (RRD) works closely with the military and police forces, the Ministry of Social Solidarity, the Ministry of Public Works, and the Ministry of Transportation and Telecommunication to strengthen infrastructure, provide logistics support, enhance public obedience, and provide social and funeral services. The Public Information Unit (PIU) works closely with the Ministry of Education, the Secretary of State for Communication, civil society organizations and mass media institutions to disseminate information and manage risk communication.
The UN country team in Timor-Leste has developed a multisectoral response plan to assist the government response to COVID-19 (81). In addition, DFAT, the Japan International Cooperation Agency (JICA); the United States Agency for International Development (USAID); the governments of China, Cuba, New Zealand, Portugal and the Republic of Korea; and NGOs have provided support to the nine technical pillars (see Annex 1) (41, 42, 49, 73, 75, 82, 83). A solidarity movement organized by youth and voluntary groups also helped to mobilize foods and other basic essential to support populations that were vulnerable as a result of the pandemic and the Seroja cyclone (84–86).

The financial structures that support multisectoral policy

In 2020, the government established the COVID-19 Emergency Fund, amounting to a total of US$ 333.3 million. The Fund was allocated as follows: US$ 310.3 million for prevention and mitigation; US$ 5 million for increased food production and food security; and US$ 18 million to help people meet their basic needs and access services. The Fund was established with a legal mandate to mobilize financial resources under the leadership of the Ministry of Finance from state funding, development partners and international funding agencies (33, 34, 87).

Development partners have been an important source of funding and technical support throughout the pandemic. In total, by the end of October 2021, development partners had reported to committing over US$ 40 million (87). WHO has also mobilized funds from bilateral donors to support the COVID-19 response.

How communities are responding to COVID-19

PHC is defined as essential health care based on practical, scientifically sound, and socially acceptable methods and technology, that is made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination (1). Following WHO’s definition, communities are also defined as being composed of users of health services, untrained community participants, private sector communities and civil society organizations (88).

Leveraging community resources and social accountability

The MoH has established various structures to engage communities in health care. At the central level, the CPCM and CRLHA register coordinate and monitor the activities of communities and private sector actors that engage in and provide support for health activities (37). The MHS have established regular health coordination meetings with stakeholders, including communities (users), the private sector, civil society organizations and religious groups to share information and develop health plans for both normal and emergency situations.
SISCa was launched in 2008 to mobilize community resources and engage communities to deliver six so-called Tables of health care activities:

- **Table 1**: family health registration
- **Table 2**: nutritional assistance
- **Table 3**: MCH assistance
- **Table 4**: hygiene and sanitation services
- **Table 5**: curative services
- **Table 6**: health promotion

SISCa relies on community volunteers for each Table, and on community leaders and HCWs for the organization of its monthly integrated activities. Community members identify the venues, mobilize their own communities and provide locally available logistics to support SISCa activities. Engaging community leaders in monitoring health activities, presenting data on health services after conducting SISCa activities to community leaders, and making available health indicators in village halls are important mechanisms to improve social accountability.

SnF was launched in 2015 to bring primary care services to individuals and households. A team composed of a primary care doctor, a nurse, midwives and an AHP carry out domiciliary visits to individual households to conduct health examinations and the electronic registration of health information. The SnF structure has been utilized to support contact tracing and the COVID-19 vaccination programme.

### The development and sustainability of community engagement in the health system

Recent years have seen increasing numbers of youth volunteer organizations focusing on health promotion and prevention activities. These organizations have established links with government, private clinics and NGOs for the planning and delivery of their activities. Knu Habelar Siensia (KHS), for example, organizes free and basic training on tuberculosis (TB) for volunteers and is currently assisting TB nurses in the conduct of TB promotion, directly observed treatment (DOT), and TB active case finding. Movimento Tasi Mos (MTM) is a group of volunteers that focuses on the protection of the environment by cleaning beaches and other public places. SABEH, a group of voluntary medical doctors, nurses and AHPs provides primary care assistance to vulnerable communities. These organizations expanded their activities during the pandemic in 2020 and 2021 to support COVID-19 prevention and mitigation.

Family members often provided care for patients discharged from hospitals who need continued medical assistance at home. These patients included those affected by strokes, heart attacks, mental health problems and other chronic conditions.
There is an opportunity to train family members in the basic health skills needed to care for sick people, to identify any danger signs, to provide rehabilitation care for patients with chronic conditions, and to provide support and comfort for patients who are terminally ill.

**Leveraging community resources for routine and emergency services**

Given limited ambulatory services, the local initiative TraKom (community transport) was established to transport community members who need urgent medical attention. Villages pay for TraKom either through a community-managed fund or by paying a negotiated fee (89). Community leaders and health providers conduct joint ‘micro planning’ on a quarterly basis to prepare village health plans according to targets (90). These initiatives may be worth replicating in other villages and municipalities.

**Community-based technologies and communication**

In 2014, 65% of the population owned a mobile phone, with the lowest rates of ownership found in Oecuse (52.2%) and the highest in Dili (85.6%) (91). The Liga Inan programme uses mobile texting to send important MCH messages to pregnant mothers on a regular basis (92). Social media platforms have also been widely utilized to provide health information and enable discussions and consultations with medical doctors.

The quality and accessibility of information, however, depends on the availability and quality of Internet access. Community members continue to rely on television, radio and social media to access health information, including COVID-19 prevention measures. A recent survey suggests that a high percentage of the population (97%) was exposed to a variety of information regarding COVID-19, and that 83% accessed their information from television, 55% from radio and 54% from social media (43).

**Conclusions and lessons learned**

The Timor-Leste Health System had adopted PHC approaches to bring health care close to communities before the COVID-19 pandemic began in 2020 (5–9). However, this system is still young and it was not prepared. The government, established an independent structure to mobilize internal and external resources to help prevent and mitigate the outbreak (33–35).

The government earmarked extra funds from its budget for the COVID-19 response and also for other public health programmes. Development partners supported the efforts of the government in mobilizing funding, technical expertise, logistics and vaccines to boost the country’s health system capacities. With the support from WHO and development partners, policies and guidelines
were developed to maintain essential primary, secondary and tertiary health services during the pandemic throughout 2020 and 2021.

Prevention and mitigation strategies were implemented through a combination of national stay-at-home orders; a mandatory 14-day quarantine; scaled-up primary care activities of T3 (test, treat and tracing); the establishment of dedicated COVID-19 treatment centres; enhanced multisectoral cooperation; the engagement of communities; and the quick roll-out of COVID-19 vaccinations with the support of development partners.

**Scaling-up COVID-19 emergency services**

Early detection of confirmed COVID-19 cases was made easier by movement restrictions, coupled with active surveillance, contact tracing and mandatory quarantine. The 14-day mandatory quarantine for international travellers likely contributed to the prevention of widespread community transmission of COVID-19 in 2020, and of the variants of concern in 2021. The country’s RT-PCR testing capacities were hugely increased since their introduction in April 2020 through ongoing support from development partners.

Additional human resources were recruited and trained for surveillance and case management, and the quality of IPC and other public health and social measures to reduce transmission of COVID-19 was strengthened in all territories. Surveillance epidemiology capacities were boosted with the support of development partners and contact tracing was conducted all over the country as a result.

**Maintaining essential health services**

The existing management structures and infrastructures of the MoH continued to deliver essential health services during the pandemic in 2020 and 2021 (32). Municipal health services continued to coordinate and supervise facilities to deliver essential health services through fixed posts (including hospitals) and outreach services (6, 7, 27, 53). Nevertheless, many patients struggled to access health services because of the lack of public transportation, the closure of specialized services and stock-outs of medicines (52). Alternative mechanisms were sought (e.g., UN procurement, donations from partners) to replenish depleted stocks of medicines, consumables and PPE.

**Managing referral services and distributing workloads**

Timor-Leste chose to establish dedicated treatment centres to manage all confirmed cases of COVID-19. This proved important to ensure the localization of resources in one place and to ensure fewer breaches of IPC protocols. However, an increase in cases at the time of writing suggests that this is not a sustainable solution and a number of asymptomatic, mild and moderate cases are now being managed in the municipalities.
Multi-sectoral policy and action

Timor-Leste’s key strategic documents (the SDP 2011–2030 and the NHSSP 2011–2030) emphasize the importance of integrated and inter-sectoral policies to achieve national development goals (9, 11, 93). Since 2002, the country has established many coordination fora and a well-established network of private for-profit and not-for-profit health organizations and voluntary groups that assist in the delivery of health care services (42, 70–79, 84, 85). However, in response to the COVID-19 outbreak, the government established the ICCM-SR to coordinate multi-sectoral partners and donor responses (35).

The COVID-19 pandemic has had a negative impact on social determinants of health and on key sectors, including health, economic, education, agriculture, tourism and basic infrastructure. It has also impacted the country’s capacity to achieve the SDG targets (66). The country’s economic situation has deteriorated as a result of the pandemic, with the economy contracting by 6.8% to 7.6% in 2020 (20, 94).

Despite these challenges, Timor-Leste strengthened its partnerships, cooperation, solidarity and resource mobilization during the period under review. A recent survey reveals that “90% of respondents argue that community relationships became stronger during the COVID-19 pandemic” (44). The government was also quick to develop an economic recovery plan, as well as subsidies to support vulnerable populations (65, 68).

Community responses

Timor-Leste’s health system established various strategies and programmes to engage communities and individuals in health care, such as SISCa, SnF and PSF (6–8). However, the full potential of these strategies has not yet been mobilized in the fight against COVID-19 (30). With proper training and supervision, individuals and family members who are caring for sick relatives at home have the potential to provide home-based primary care, as well as rehabilitative and palliative care – not only during the COVID-19 pandemic but also for future crises. Local community initiatives such as community transport (Trakom) and micro-planning need to embrace, and expand to, other villages within and between municipalities.
References


10. COVID-19 daily country updates. Dili: Centro Integrado de Gestão de Crises (CIGC); 2021.


References


References


52. Durante EE, Pasiente ho Problema Mental 37 halo tratamento iha HGNV. Dili: Suara Timor Lorosae (STL News); 14 October 2020.


54. Santana Martins informa dadaun ne’e Aimoruk porcentu 80% deit mak SAMES rai iha Armagén. Dili: Service Autonomus Medicamentos E Equipamento Saude (SAMES); 2021.


60. A patient with haemodialysis already affected and now with condition received oxygenation. Daily Post; 21 March 2021.


77. Dili Medical Center. Dili: Dili Medical Center - DMC (https://www.facebook.com/Dili-Medical-Center-DMC-660085374604470/).


Annex 1: Nine operational pillars for the COVID-19 emergency response in Timor-Leste

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<td>Pillar 1: Coordination, planning, monitoring</td>
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| Head of Partnership Department | - Coordination to promote activity with internal administrative services  
- Coordination with development partners and relevant sectors to promote cooperation and harmonization  
- Promote internal and intersectoral coordination at municipality level to guarantee planning and implementation  
- Develop COVID-19 Contingency Plan  
- Harmonize guidelines and protocols for COVID-19 intervention at CHC and national levels | MoH line directorates, UN agencies, line inter-ministerial, NGOs to support health programmes, specially with each pillar: DFAT, USAID, JICA, Thailand International Cooperation Agency (TICA), Korea International Cooperation Agency (KOICA), Global Fund, European Commission (EC), GAVI, and others | - Timor-Leste COVID-19 Contingency Plan developed  
- Timor-Leste Vaccine Roll-out Plan developed  
- Guidelines, standard operating procedures (SOPs), information sheets developed  
- Partner contributions to COVID-19 prevention and mitigation total 12.5% of COVID-19 Emergency Fund  
- Partner contributions strengthening plans and activities across nine pillars |

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## Pillar 2: Risk communication and community involvement

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| Head of Protocol and Communication Department | • Develop strategy, plan and materials for communicating information on COVID-19 to community  
• Develop plan and strategy to combat misinformation  
• Engage community participation in promotion and prevention activities against COVID-19  
• Establish dashboard  
• Provide information to ICCM-SR  
• Organise material for mass media and social media platforms  
• Establish COVID-19 call centres  
• Pillar 2 established with specific terms of reference (ToRs)  
• Coordinate and work closely with partners to support pillar-2 activities | Secretary of State for Communication, national mass media institutions, WHO, UNICEF, Plan International, CARE International, SHARE-INGO, MERCY CORPS, CVTL, CATALPA and other civil society organizations, churches, community leaders and others | • Information, education and communication (IEC) materials developed and distributed to the municipalities and health facilities (brochures, leaflets, posters and banners)  
• Sensitization activities carried out (information promoted to the community through TV, radio, community announcements using cars with sound system)  
• IPC activities implemented (community housing use tippy tap for hand washing, proper masks and follow social distancing (physical) guidance) |

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| **Pillar 3: Surveillance epidemiology**  
 National Director for Public Health | • Coordinate with relevant services about human resources, places for triage and quarantine, equipment, logistics and finances  
 • Detect, investigate and verify suspected cases reported from the community or by health facilities  
 • Active surveillance and monitoring of trends in cases of COVID-19  
 • Reinforce coordination with relevant programmes in line ministries, agencies and development partners regarding surveillance epidemiology activities  
 • Strengthen surveillance-related scientific survey for contact tracing  
 • Define indicators and statistical information. Report and notify cases immediately  
 • Publish epidemiological information daily via dashboard system | WHO, MSHR, AUSMAT, NHL, National Health Laboratory (NHL), MHS, Maluk Timor, National Police of Timor-Leste (PNLT), Timor-Leste Defence Force (FFDTL), relevant government ministries, NDARS and others | • Pillar 3 established with ToRs  
 • Activity plan developed and implemented through health system and existing mechanisms  
 • Conducted contact tracing and sentinel surveillance across territory  
 • Conducted screening for passengers in all points of entry  
 • Monitoring and investigation of adverse events following immunization (AEFI) that relate to COVID-19 vaccinations  
 • Conducted regular screening in quarantine, isolation and treatment centres  
 • Submitted and published regular COVID-19 information via dashboard  
 • Produced weekly epidemiology brief |

Table continued next page...
## Lead Tasks Members Work Progress as of October 2021

### Pillar 4: Point of entry

**Head of Department Non-CDC**
- Install equipment and people at points of entry to screen and register travellers into and out of the country
- Prepare quarantine facilities
- Disinfect at points of entry
- Conduct temperature tests for all travellers
- Coordinate with partners to support health programmes, particularly at points of entry

**Members**
- Minister of Transportation and Telecommunication; Ministry of Foreign Affairs and Cooperation (MNEC); other government institutions such as FFDTL, PNTL, Immigration, customs; UN agencies, WHO, UNICEF International Organization for Migration (IOM), donors and bilateral agencies

**Work Progress**
- Guidelines and ToRs developed and available for implementation
- Field technical team established
- Point of entry activities implemented according to ToRs
- Passengers screened and transferred to quarantine centres

### Pillar 5: Laboratory

**Executive Director of National Laboratory**
- Coordinate with MSHR and NT-Laboratory for early COVID-19 testing
- Establish conditions to commence diagnostic capacities inside the country
- Equip laboratory with commodities and technical expertise to conduct COVID-19 testing inside the country
- Develop SOPs and train technicians; support expert from Australia to improve diagnostic capacities
- Conduct and increase COVID-19 RT-PCR testing inside the country
- Assist pillar-3 in conducting mass screening and contact tracing
- Provide regular RT-PCR services for people in need for international travel and work services

**Members**
- MSHR, KOICA, JICA, DFAT, USAID, Flemming Fund UK, European Union (EU) and others

**Work Progress**
- Scaled-up national laboratory capacity:
  - COVID-19 RT-PCR diagnostic testing available in NHL and five regional hospitals
  - Increased human resources and capacity-building with support from Menzies, WHO, DFAT, Flemming Fund UK
  - Tested hundreds of thousands of samples

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| **Director of Quality Control Cabinet** | • Strengthen IPC control in all health facilities  
• Coordinate with the National Institute of Health (INS) to train health professionals in IPC  
• Establish triage in health facilities  
• Develop guidelines for IPC  
• Establish IPC in public facilities including schools, places of worship, markets, shops and offices  
• Work with pillar 2 to provide information on IPC  
• Ensure utilization of PPE for health staff and compliance to IPC measures such as mask wearing, social distancing and frequent handwashing | WHO, UNICEF and other international NGOs to implement activities for prevention and mitigation of COVID-19 | • IPC guideline developed and implemented  
• Health professionals trained on IPC and screening facility with PPE established in health facilities  
• Large-scale mobilization of IPC materials including PPE, and hygiene and triage facilities to all health facilities |
| **Pillar 7: Case management** | | | |
| **National Director for Hospital and Pharmacist Services** | • Develop standard treatment guidelines (STG) for diagnostic and clinical management of COVID-19 cases in hospitals and health centres, including mild, moderate, severe and critical cases  
• Ensure all health professionals working in different units including intensive care units (ICU), emergency departments, outpatient departments and COVID-19 training centres are capable of providing health care to COVID-19 patients  
• Ensure availability of specialists in COVID-19 treatment centres | WHO, UNICEF and other international NGOs to implement activities for prevention and mitigation of COVID-19 | • IPC guideline developed and implemented  
• Health professionals trained on IPC and screening facility with PPE established in health facilities  
• Large-scale mobilization of IPC materials including PPE, and hygiene and triage facilities to all health facilities |
### Pillar 8: Operational logistics and financing

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| General Director for Corporate Services | • Ensure the availability of logistical support for COVID-19 treatment and quarantine centres (beds, transportation, power, water, sanitation and cleaning equipment, food cooking facilities, etc).  
• Ensure coordination with line institution and contractors for availability of logistical support  
• Ensure ambulances and other operational vehicles are readily available and operational 24/7, including fuel and maintenance, etc. | FFDTL, PNTL, NDARS, Ministry of Public Works, Ministry of Transportation and Communication, Ministry of Tourism Trade and Industry (MTCI), Ministry of Social Solidarity (MSS), development partners, UN agencies, donors, and all bilateral agencies | • Two COVID-19 treatment centres established in Dili with 750 beds for mild to severe cases  
• Three ambulances allocated for COVID-19 cases from Ambulance Centres and MoH  
• Up to 10 quarantine facilities established in all territories with capacity to host up to 500 people per 14 days  
• Operational vehicles, equipment and other facilities mobilized from line ministries and from development partners  
• Logistics established for vaccination deployment, storage and distribution to all territories, health facilities and vaccination posts |

Table continued next page...
### Lead Tasks Members Work Progress as of October 2021

#### Pillar 9: Essential health services

| National Director for Family Health | • Ensure essential health services continue during the COVID-19 pandemic and while related stay-at-home orders are in place.  
• Ensure continued availability of essential medicines for endemic diseases  
• Ensure the continued availability of laboratory diagnostics, equipment and consumables in health facilities  
• Ensure health professionals continue work to provide routine and regular services  
• Monitor and supervise strengthened health programme activities from national to peripheral level to ensure that all activities are implemented  
• Provide health information for regular recording and reporting of health statistics  
• Work with programme, sector and other relevant partners to provide services | WHO, UNICEF, UNFPA, private clinics, other partners such as: New Zealand Embassy, Chinese Embassy, and Ali Baba Foundation to support pillar 9 in providing materials for COVID-19 response activities | • Pillar-9 guideline and ToRs developed for health facilities  
• Most health facilities remain open and deliver essential health services during pandemic  
• Alternative mechanism identified and mobilized to minimize disruption to the delivery of essential health services |
This case study was developed by the Alliance for Health Policy and Systems Research, an international partnership hosted by the World Health Organization, in collaboration with the WHO Regional Office for South-East Asia (SEARO) and WHO country offices. In 2015, the Alliance commissioned the Primary Health Care Systems (PRIMASYS) case studies in twenty low- and middle-income countries (LMICs) across WHO regions. This case study builds on and expands these previous studies in the context of the COVID-19 pandemic, applying the Astana PHC framework considering integrated health services, multisectoral policy and action and people and communities. This case study aims to advance the science and lay a groundwork for improved policy efforts to advance primary health care in LMICs.