

"Experience of -Innovative Strategies for Enhancing Health Service Delivery in Timor-Leste Through Digital Health Technologies"

dr. Joaquim de Jesus Vaz, Lic.Med.GB PG Ep.MF

DIGITAL HEALTH

mobile health
(mHealth)
applications

advanced
telemedicine,
wearable
devices,

and the
ultimate
evolution of
artificial
intelligence (AI)

electronic
health records
(EHRs)

health
information
technology
(Health IT),

robotic process
automation
(RPA).



DIGITAL HEALTH

Search

Advanced

User Guide

Search results

[Save](#)
[Email](#)
[Send to](#)
[Display options](#)

> Stud Health Technol Inform. 2020 Nov 23:275:67-71. doi: 10.3233/SHTI200696.

What is Digital Health? Review of Definitions

Farhad Fatehi ^{1 2}, Mahnaz Samadbeik ³, Azar Kazemi ⁴

Affiliations + expand

PMID: 33227742 DOI: 10.3233/SHTI200696

Abstract

Digital technologies are transforming the health sector all over the world, however various aspects of this emerging field of science is yet to be properly understood. Ambiguity in the definition of digital health is a hurdle for research, policy, and practice in this field. With the aim of achieving a consensus in the definition of digital health, we undertook a quantitative analysis and term mapping of the published definitions of digital health. After inspecting 1527 records, we analyzed 95 unique definitions of digital health, from both scholar and general sources. The findings showed that digital health, as has been used in the literature, is more concerned about the provision of healthcare rather than the use of technology. Wellbeing of people, both at population and individual levels, have been more emphasized than the care of patients suffering from diseases. Also, the use of data and information for the care of patients was highlighted. A dominant concept in digital health appeared to be mobile health (mHealth), which is related to other concepts such as telehealth, eHealth, and

FULL TEXT LINKS



ACTIONS

Cite

Collections

SHARE



PAGE NAVIGATION

< Title & authors

Abstract

PREV RESULT
4 of 76,315

**SUSTAINABLE
DEVELOPMENT
GOALS**



**NO
POVERTY**



**ZERO
HUNGER**



**GOOD HEALTH
AND WELL-BEING**

**INDUSTRY, INNOVATION
AND INFRASTRUCTURE**



**QUALITY
EDUCATION**



**GENDER
EQUALITY**



**CLEAN WATER
AND SANITATION**



**AFFORDABLE AND
CLEAN ENERGY**



**DECENT WORK AND
ECONOMIC GROWTH**



**REDUCED
INEQUALITIES**



**SUSTAINABLE CITIES
AND COMMUNITIES**



**RESPONSIBLE
CONSUMPTION
AND PRODUCTION**



**CLIMATE
ACTION**



**LIFE
BELOW WATER**



**LIFE
ON LAND**



**PEACE, JUSTICE AND
STRONG INSTITUTIONS**



**PARTNERSHIPS
FOR THE GOALS**

Simon Lin Linwood¹, editors.

Brisbane (AU): Exon Publications; 2022 Apr 29.

Affiliations + expand

PMID: 35605064 Bookshelf ID: NBK580629 DOI: 10.36255/exon-publications-digital-health

[Free Books & Documents](#)

Excerpt

Digital health has undergone an astounding transformation since the beginning of the COVID-19 pandemic. Almost all fields of medicine have adopted digital technologies to deliver patient care. Rapid advances in artificial intelligence, Big Data, augmented reality, Internet of Medical Things, connected devices, robotics, and algorithms will revolutionize digital health in almost all fields of medicine in the future. With the widespread use of smartphones, downloadable or internet-based applications (apps) will play a major role in the diagnosis of diseases, and monitoring and management of patients. However, the implementation of digital health is not without challenges and concerns. These include security and privacy of patient data, lack of a universal legal and regulatory framework, accountability, data ownership, and health inequity, among others. Despite these challenges and concerns, it is undeniable that digital health has revolutionized patient care and will continue to do so. The chapters of this book are examples of such revolution, challenges, and concerns. A multidisciplinary team of clinicians and researchers provide a balanced discussion of the benefits and challenges of digital health in ophthalmology, oncology, chronic obstructive respiratory diseases, transfusion medicine, stroke, opioid crisis, and the care of elderly. Also, there are chapters addressing the concerns of health inequity, and the risks and security of patient-generated data. This is a timely book not only for clinicians, but also for everyone who is interested in transformation of health care to digital health care.

Copyright© 2022 Exon Publications.

[PubMed Disclaimer](#)

ACTIONS

“ Cite

🔖 Collections

SHARE



PAGE NAVIGATION

< Title & authors

Excerpt

Sections

Similar articles

Publication types

Related information

LinkOut - more resources

NEXT RE:
2 of 76,

HOW ABOUT TIMOR LESTE????

SDG3 – Good Health and Well-Being

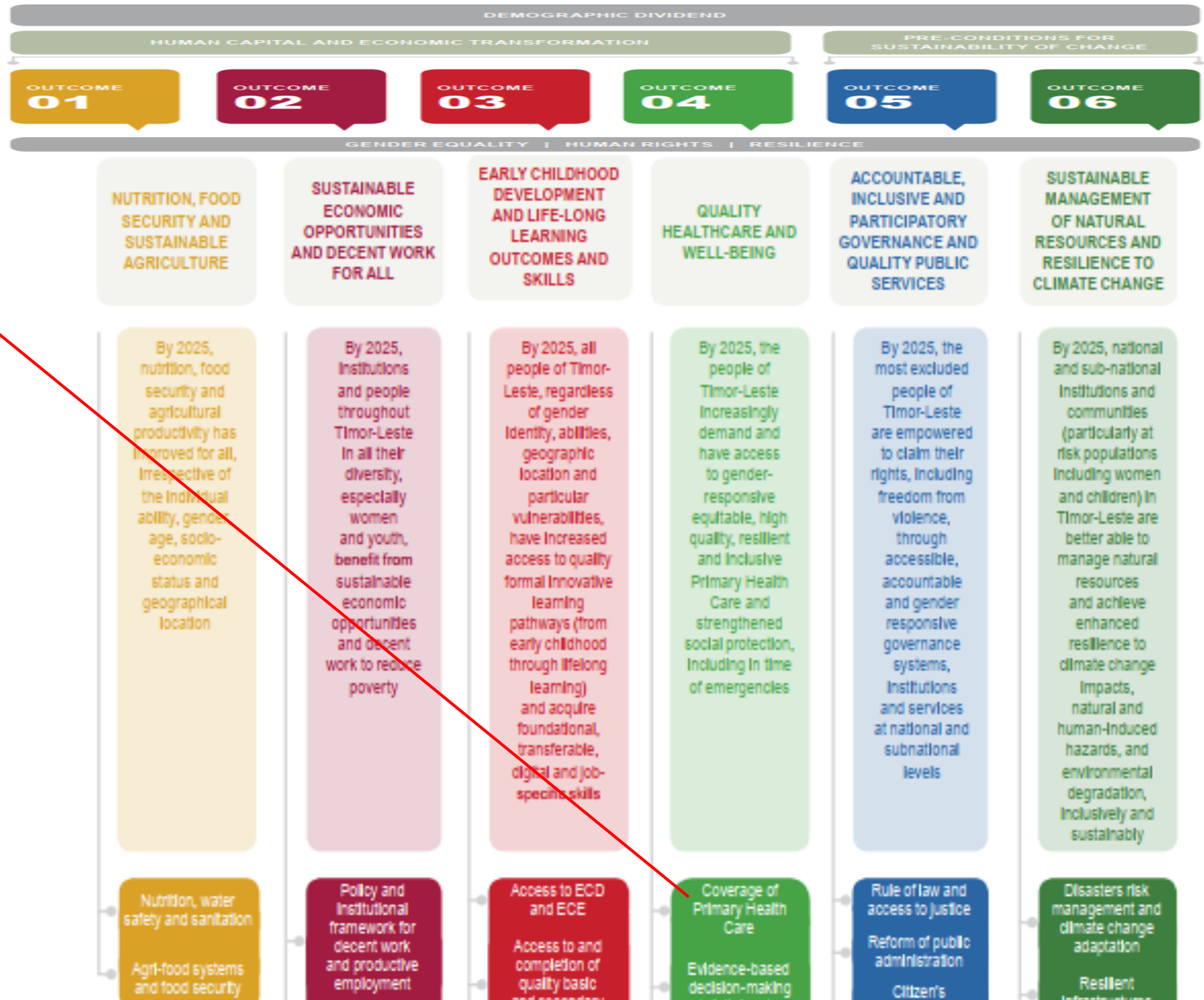
Maternal mortality ratio (per 100,000 live births)	203.9 2020	●	↑
Neonatal mortality rate (per 1,000 live births)	21.7 2022	●	↗
Mortality rate, under-5 (per 1,000 live births)	48.6 2022	●	↗
Incidence of tuberculosis (per 100,000 population)	498.0 2022	●	→
New HIV infections (per 1,000 uninfected population)	0.1 2022	●	↑
Age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged 30–70 years (%)	20.0 2019	●	↓
Age-standardized death rate attributable to household air pollution and ambient air pollution (per 100,000 population)	186 2019	●	●
Traffic deaths (per 100,000 population)	12.0 2021	●	↗
Life expectancy at birth (years)	67.7 2021	●	→
Adolescent fertility rate (births per 1,000 females aged 15 to 19)	41.9 2015	●	●
Births attended by skilled health personnel (%)	56.7 2016	●	●
Surviving infants who received 2 WHO-recommended vaccines (%)	79 2022	●	↗
Universal health coverage (UHC) index of service coverage (worst 0–100 best)	52 2021	●	→

TIMOR LESTE- HEALTH PROFILE

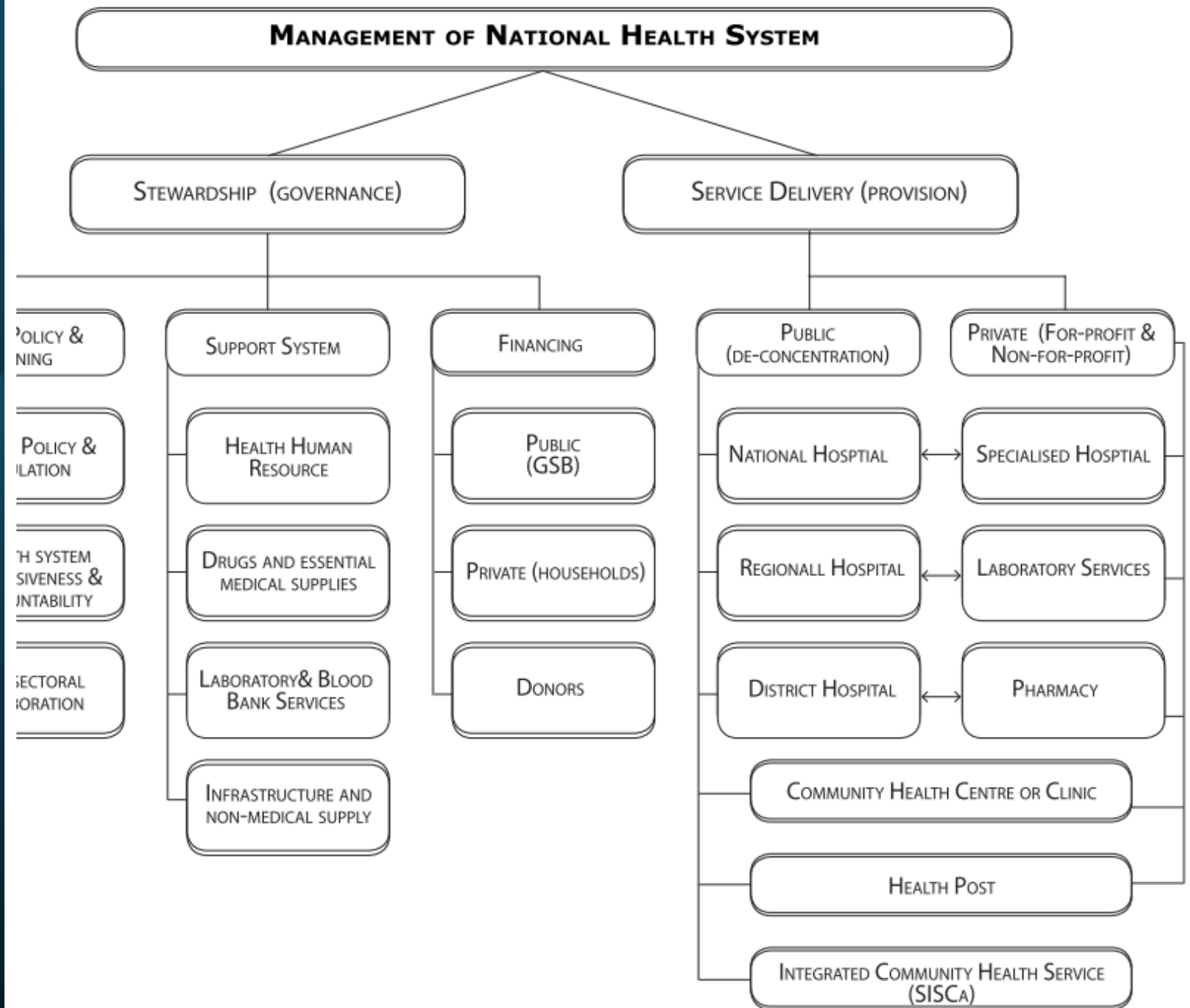
TIMOR-LESTE POLICY ON DIGITAL HEALTH

Evidence-based decision making and digital system

INCOME AND MULTI-DIMENSIONAL POVERTY REDUCTION, SOCIAL COHESION AND RESILIENCE SHOCKS



Health SYSTEM,



HEALTH INFRASTRUCTURE

- 1 NATIONAL HOSPITAL (TOP REFERRAL)
- 5 REFERRAL HOSPITAL
- 73 COMMUNITY HEALTH CENTERS
- 322 HEALTH POST





Health services

- Maternal and child health(Immunization program)
- Communicable disease control program
- Non-communicable diseases control program
- Health education and promotion

CURRENT DIGITAL HEALTH

1 mobile app for health promotion and education for pregnant women – Liga-Inan

Digital system on health information systems and surveillance - empowered demographic health information system(DHS)

Mobile apps for supply management

LIGA INAN

Connecting pregnant women & their midwives

o.int/bitstream/handle/10665/365567/9789240065239-eng.pdf

pdf

4 / 8 | 100% + | [Icons]

responsible for monitoring implementation of the programme, advocacy, managing the health facilities, and ensuring current and new health workers are oriented and up to date on the programme.

COVID-19 adaptations

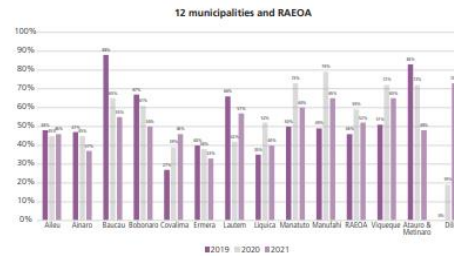
During the pandemic, fear of getting infected, uncertainty about service availability and mandatory confinement during the lockdown period reduced care-seeking at health facilities. Essential services were disrupted because of priorities shifting to COVID-19 work. The Liga Inan Program was leveraged to facilitate continuous health messages to registered women and communication between women and health workers through text messages and direct calls. Health workers used Liga Inan to:

- send text messages to pregnant women ensuring them of the safety of attending ANC and to continue planning for birth with skilled health personnel;
- stay engaged with pregnant and postpartum women;
- share information on the importance of COVID-19 vaccines for pregnant and lactating women;
- collaborate with their peers during the pandemic.



mandatory quarantine for all positive COVID-19 patients (Esperansa Assunção, District Public Health Officer, MCH Department, Timor-Leste Ministry of Health, personal communication, 2022). During 2021, the number of pregnant women enrolled increased in four municipalities compared to 2020, while the number decreased in nine municipalities. In five of these nine municipalities with decreases in 2021, the reported number of enrollments was nonetheless higher than 2019.

Fig. 2. Percentage of pregnant women enrolled in the Liga Inan Program in 2019, 2020 and 2021.



Source: HAMNASA, unpublished data, 2022.

Figure 3 demonstrates a decrease in health facility births in five municipalities in 2020 during the peak of the pandemic compared to the same period in 2019. Three municipalities also reported a decline in enrollments into Liga Inan. A further decrease was observed in 2021 in eight municipalities, although five municipalities reported an improvement in health facility births.

Fig. 3. Number of pregnant women who gave birth at a health facility in 2019, 2020 and 2021.

Women received 1 or more ANC

Recognized 2 or more danger signs during pregnancy

Gave birth with a skill birth attendant

Gave birth at health facility

Received postpartum care within 2 days

Liga Inan is using mobile phones to connect expectant mothers with health providers in Timor-Leste to improve the likelihood of a healthy pregnancy, birth and post natal period.

Officially launched in March 2013, Liga Inan is implemented by Hamutuk Nasaun Saudavel (HAMNASA, formerly Health Alliance International or HAI) and Catalpa International, in partnership with the Ministry of Health. The pilot of the Liga Inan program was funded by USAID's Child Survival and Health Grants Program, with the Australian Government now funding the further development and expansion of Liga Inan across Timor-Leste.

Liga Inan cuts across geographic barriers to directly connect women to better health care in a country with high maternal and neonatal mortality.

Health providers use a mobile phone to register expectant mothers, track their progress, know when they go into labour and make arrangements for attending the delivery. Mothers continue to receive support through the first six weeks of the newborn's life.

Liga Inan also sends automated promotional health information via SMS to all registered pregnant mothers throughout their pregnancy and for six months after delivery to help them make better decisions about their pregnancy and link them with regular pre and post-natal care.


Liga Inan recognises that a simple message can often make the biggest difference.

Sources :

<https://www.ligainan.org/>,

<https://iris.who.int/bitstream/handle/10665/365567/9789240065239-eng.pdf>

Mobile apps for supply

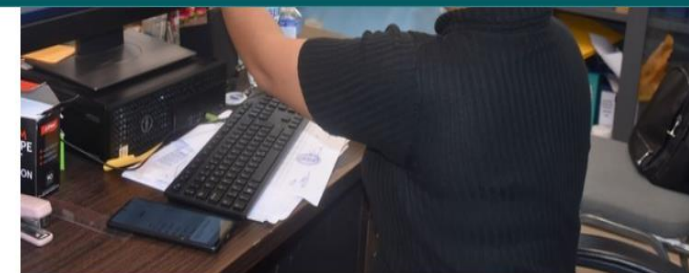


**Simple.
Powerful.
Pharmaceutical
Management.**

Whether you run a pharmaceutical distribution warehouse, or are a manufacturer needing dozens of connected users, or a small dispensary, mSupply is a valuable partner.

upscale health services in Timor-Leste

23 December 2022



Domingas da Costa Compos, Director of Quality Control, National Laboratory demonstrating how mSupply system works in her office in Dili. © UNFPA Timor-Leste.

Dili, December 23, 2022 -- Despite internet and connectivity challenges, the mSupply, an electronic logistics management information system, has helped Timor-Leste Medical and Pharmaceutical Supply Agency (SAMES) and the National Hospital (HNGV) to manage over USD 10 million in medical supplies stock by facilitating procurement, storage, ordering and distribution.

The mSupply system is part of UNFPA Supplies program -- the world's largest programme for contraceptive procurement and demonstrates UNFPA's commitment to strengthen health-care systems and supply chains in delivering essential reproductive health commodities to women, girls and communities in Timor-Leste.

The UNFPA Supplies partnership in Timor-Leste is funded by Australia's Department of Foreign Affairs and Trade (DFAT).

In Timor-Leste, the implementation of the mSupply system now in phase II of the project, has streamlined supply chain processes and accelerated ordering process for the Government of Timor-Leste to receive and record stock upon arrival.

“My role in using the mSupply system is to authorize requests and verify commodities ordered by hospitals and community health centres. We now do not make requests manually. With mSupply we are now making requests

<https://reliefweb.int/report/timor-leste/upscaling-distribution-health-supplies-timor-leste-through-msupply-digital-system>
<https://timor-leste.unfpa.org/en/news/unfpa-digital-solutions-strengthen-health-systems-and-upscale-health-services-timor-leste>



Dili: The Ministry of Health, in collaboration with the World Health Organization, today launched Timor-Leste's digital initiative – the state-of-the-art Integrated Case-Based Electronic Surveillance System for Tuberculosis, HIV, and Malaria. Built on the District Health Information Software 2 (DHIS2), this platform will gradually replace traditional paper-based data recording systems, ensuring greater efficiency and accuracy in healthcare.

“This digital initiative will allow healthcare workers to focus more on direct patient care and interventions, and reduce their administrative burdens,” said Dr. Arvind Mathur, WHO Representative to Timor-Leste, emphasizing that the Integrated Case-Based Electronic Surveillance System marks a transformative step toward more effective, data-driven healthcare.

The interactive dashboard provides visually intuitive analytics for Tuberculosis, HIV, and Malaria. Real-time reporting for Tuberculosis has now been strengthened, enabling the Ministry of Health to minutely track patients, including their exact residential locations, facilitating proactive contact tracing, monitoring, and follow-ups, thereby improving disease management.

For HIV, the system maps key population groups, including female sex workers (FSWs), men who have sex with men (MSM), and transgender persons (TG), facilitating the initiation of targeted interventions.

In the case of Malaria, the platform can pinpoint the exact location of a patient's residence, enabling health workers to execute targeted activities such as case finding and interventions against mosquito breeding.



South-East Asia

Timor-Leste



Health topics

News

Our work

Emergencies

About us

Home / News / Detail / Timor-Leste launches a digital platform for TB, HIV, and Malaria surveillance

Timor-Leste launches a digital platform for TB, HIV, and Malaria surveillance

22 November 2023 | Highlights | Timor-Leste

Source : <https://www.who.int/timorleste/news/detail/22-11-2023-timor-leste-launches-a-digital-platform-for-tb--hiv--and-malaria-surveillance>



Timor-Leste's health workers use digital tools to assess immunization coverage

28 April 2023 | Highlights | Timor-Leste

In a first, a survey to assess immunization coverage in Timor-Leste is being carried out with the help of digital tools. The Ministry of Health has deployed 64 health workers who are conducting interviews with people using digital questionnaires, and the mobile application directly feeds the data into the Timor-Leste Health Information System (TLHIS), which is the national health management information system.

Real-time monitoring with the use of digital technologies can lead to more efficient data collection and analysis, and Timor-Leste's initiative to digitize the immunization coverage survey is a positive step forward. "Digital tools have the potential to fast-track processes," said Dr. Arvind Mathur, WHO Representative to Timor-Leste. "There will definitely be some challenges in the beginning, but these technologies will go a long way in strengthening the health systems," he

Challenges

1. No specific integrated health policy on digital health technologies
2. The existing digital systems are mainly for health information and surveillance
3. Budget constraints
4. Internet coverage is weak
5. Lack of human resources –in technology and innovation
6. Most of the health facilities are located in the rural