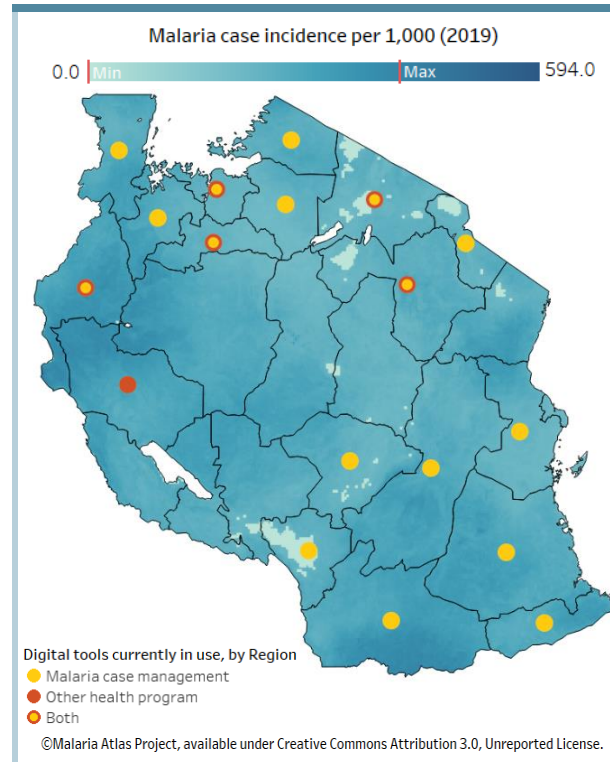# MAINLAND TANZANIA

Executive Summary

Tanzania has a high malaria burden, with an estimated 6.7 million cases reported in 2019.[1] Subnationally, malaria prevalence rates among children under 5 years old vary significantly, ranging from less than 1 percent in the highlands of Arusha to 24 percent in the Lake and Western Zones. In response, the National Malaria Control Programme (NMCP) has stratified the country based on local malaria burden and deployed interventions to meet the different needs in each stratum.[2]

The nationally recognized cadre of community health workers (CHWs) provide limited malaria services along with a package of essential health interventions. They are not supported by national community health systems or tools. There are additional cadres of CHWs funded by external donors and specific programs. These CHWs provide more extensive services and use a variety of digital health tools. Current government efforts are underway to develop one standardized digital system to be used at the community level.

Within the national health information system (HIS) architecture, there are robust and integrated data systems. However, at the facility and community levels, the tools and systems are more fragmented and inconsistent. Efforts are needed to support implementation and integration of malaria data across all system levels and build skills in data use and feedback among different levels.

Malaria case incidence per 1,000 (2019)

0.0 Min   Max   594.0

Digital tools currently in use, by Region
- Malaria case management
- Other health program
- Both

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MALARIA
Incidence per 1,000 people in 2015[2]
113

PEOPLE
Community health workers (CHWs)

53,000 CHWs[3]
9.8 per 10,000 people

GOVERNANCE
National Digital Health Strategy[4]

YES

SYSTEMS
Digital Health Index[5]

SCORE: 2

Recommended Actions

PEOPLE
CHWs and other decision-makers

Enhance mechanism for recruiting community-owned resource persons (CORPs) in malaria services.
Support the National Malaria Control Programme (NMCP) in developing guidelines for recruiting qualified CORPs (see page 4) and outlining key responsibilities. Establish CORPs database in prioritized geographies.

Support the development of on-the-job training, mentorship, and support for CHW digital tools.
Establish functional mechanism to provide routine digital health solution support to CHWs. Develop and establish CHWs' digital health training and mentorship guide. Support the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) to develop tools for CHW supportive supervision and assessment of quality of care provided by CHWs.

Support extension of data dissemination and use toolkits to the community level.
Engage with the MOHCDGEC in the current development of data dissemination and use toolkits to extend these to CHWs. Support facility and community peer learning and sharing of best practices on data dissemination and use based on these toolkits and MOHCDGEC guidelines.

GOVERNANCE
Strategies and policies

Enhance leadership and governance for digital health for CHWs.
Engage community leaders, implementing partners, and government officials to strengthen governance structure to oversee and coordinate community-level digital health solutions.

Support expansion of guidelines on CHW roles to include malaria case detection and treatment.
Enhance advocacy efforts and develop guidelines to allow for case management at the community level and in nontraditional health care delivery facilities, such as accredited drug-dispensing outlets.

Strengthen data review and use guidelines at the community level.
Support the MOHCDGEC as it begins to review and use health data at the community level. Enhance information feedback mechanisms to improve data collection, use, and quality at the facility and community levels.

Strengthen data privacy and security guidelines for community health.
Support MOHCDGEC efforts to implement guidelines and regulations for digital data privacy, security, and sharing.

SYSTEMS
Processes and digital tools

Harmonize data sources to reduce duplicity and improve data collection efficiency.
Support the MOHCDGEC as it develops integrated community-level data collection and management tools. Support harmonization of community- and facility-level data elements, indicators, and information systems used by vertical programs. Develop a common data dictionary to support harmonization efforts across systems.

Support enhancement of community digital health systems for case management and surveillance.
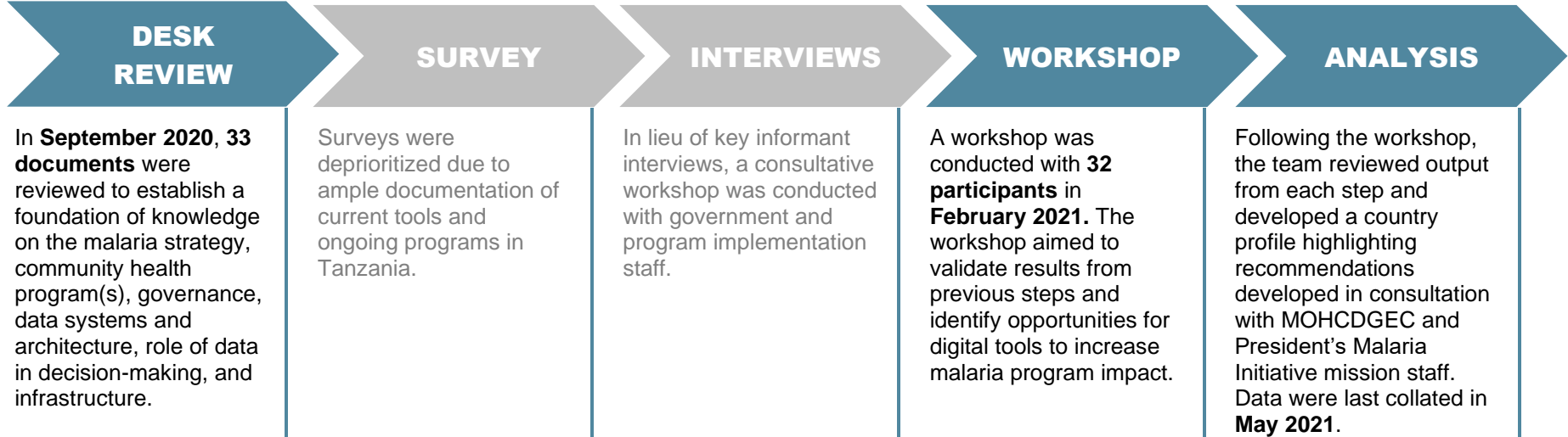Support enhancement of existing community digital health tools, starting with a process to clearly and systematically define functional requirements of tools to include malaria case management and surveillance. Support implementation and adoption of digital health tools and efforts to integrate the community digital health data system with the national HIS for seamless data exchange.

Provide technical and operational support for the Malaria Composite Database (MCD).
Support efforts to host the MCD on the national server and integrate it with the existing national HIS. Enhance MCD visualization and analytic capabilities.

Methodology

PATH conducted a desk review, consultative workshop, and an analysis in Tanzania to develop the content and recommendations in this document. The survey that was initially planned was not completed due to the ample amount of available information and documentation of current tools and ongoing programs. Due to time constraints on the NMCP and the MOHCDGEC staff, interviews were replaced with consultative workshops with focused group discussions to validate information and prioritize recommendations.

DESK REVIEW	SURVEY	INTERVIEWS	WORKSHOP	ANALYSIS
In **September 2020**, **33 documents** were reviewed to establish a foundation of knowledge on the malaria strategy, community health program(s), governance, data systems and architecture, role of data in decision-making, and infrastructure.	Surveys were deprioritized due to ample documentation of current tools and ongoing programs in Tanzania.	In lieu of key informant interviews, a consultative workshop was conducted with government and program implementation staff.	A workshop was conducted with **32 participants** in **February 2021.** The workshop aimed to validate results from previous steps and identify opportunities for digital tools to increase malaria program impact.	Following the workshop, the team reviewed output from each step and developed a country profile highlighting recommendations developed in consultation with MOHCDGEC and President's Malaria Initiative mission staff. Data were last collated in **May 2021**.

Information collected through the methods described above was categorized according to key components within three domains: people, governance, and systems. These domains and their underlying components were informed by an existing maturity model and adapted to incorporate malaria-specific content. The components include personnel, training, and technical support ("People"); policies, strategies, and governance structures, as well as their implementation ("Governance"); and digital tool structures and data flow, functionalities, and use ("Systems"). Together, these components describe the *desired state* for CHW use of digital tools for malaria case management, a state in which community health programs can leverage digital tools to generate and use data that improve malaria programming with the ultimate aim to decrease the local malaria burden.

PEOPLE

People highlights the community health workers, supervisors, information technology support staff, and other decision-makers that contribute to effective use of digital tools and data in malaria community health programs.

GOVERNANCE

Governance describes the national strategies and policies that provide the framework for community health programs' use of digital tools for malaria and their implementation.

SYSTEMS

Systems describes the processes and digital tools that enable community health platforms to effectively use digital technology and data to strengthen malaria and other health programs.

People

Currently, the National Community-Based Health and Social Welfare Program policy guidelines are being revised with the intention of replacing the previous National Community-Based Health Program, which established a formal cadre of paid CHWs formally employed by the government. The revised policy guidelines are intended to reintroduce the use of a volunteer cadre. These CHWs will be nominated by the community, enter a voluntary, nonbinding agreement to provide services, and be provided with performance-based financial and nonfinancial incentives. CHWs will complete a training package of core modules that cover the National Package of Essential Health Interventions, including reproductive, maternal, neonatal, and child health; noncommunicable diseases; communicable diseases (including malaria); and nutrition. The goal of the updated policy guidelines is for CHWs to provide a wide range of general health care services. Currently, CHWs are operating in siloed health programs, with many only providing a subset of needed services. CHWs' role in managing malaria and other febrile illnesses is limited: only CHW supervisors with a clinical background can provide these services.[6] As of 2020, approximately 53,000 CHWs operate in Tanzania for an average of 9.8 per 10,000 people.[3] In some regions, CORPs who are retired or unemployed medical personnel are certified to perform malaria diagnosis, provide prereferral treatment, and refer patients to a health facility, if needed. Currently, CORPs are doing malaria case-based surveillance (mCBS) in Arusha, Kilimanjaro, and Manyara; they have been mapped to conduct malaria community case management (mCCM) in five high-burden regions in Lake and Western Zones.[7,8] The revised CHW policy guidelines will include the use of CORPs and addition of gender-based violence and human rights in the guidelines.

While some implementing partner–supported programs engage CHWs in broader malaria community interventions, nationally endorsed CHW malaria activities only include bednet distribution and social and behavior change communication. CHWs do not currently test for or treat malaria and other febrile illnesses. They also do not engage in active malaria case detection in Tanzania. However, the NMCP has participated in renewed efforts by the MOHCDGEC to further expand the health services provided by CHWs.[2] Recently, the Global Fund to Fight AIDS, Tuberculosis and Malaria approved and funded an NMCP proposal to implement mCCM in high-burden regions and mCBS in low-burden ones.[7]

Community health worker digital readiness

The provision and use of digital health tools for CHWs in Tanzania are essentially limited to partner-supported, program-specific efforts. With many CHWs operating in siloed programs, training and support for community digital health systems vary based on the type of tools employed for different programmatic activities. For example, the United States Agency for International Development (USAID) Boresha Afya program in the Lake/Western Zone has implemented end user training and supportive supervision on Open Smart Register Platform (OpenSRP) to reinforce training and prolong retention of OpenSRP skills, the main community system for this program. However, CHWs in other zones do not benefit from this training and supervision.

53,000 Community health workers in country	Compensation Policy: VOLUNTEER
0 Providing malaria community case management	Compensation Policy: VOLUNTEER

Data-driven decisions at each level of the health system

Data use is strongest at the national level with the centralized HIS. Other systems and tools to support service delivery are more decentralized across different subnational levels. Data use at the community and facility levels is mostly limited to reporting and transmission to higher levels of organization. Limited evidence exists on how data are used and whether there is any feedback on the efficacy of data collection at the community and facility levels.

NATIONAL LEVEL	The NMCP uses data to assess and improve data quality, improve malaria services, and stratify malaria response efforts. The NMCP conducts data review meetings to discuss data and identify low-performing regions using the District Health Information Software 2 (DHIS2) malaria dashboard. These review meetings are done in collaboration with implementing partners, regional health management teams, and council health management teams.*
REGIONAL/ PROVINCIAL/ STATE LEVEL	Data from health facilities are accessed, analyzed, and interpreted to assess disease burden trends, track commodity availability, and detect malaria outbreaks for moderate- and high-transmission areas. Regional health management teams use the Malaria Service and Data Quality Improvement (MSDQI) assessment within the DHIS2 as the primary source to determine which districts are over- or underperforming in data collection and quality. MCD tools provide additional data to malaria focal persons for more granular performance analysis beyond the traditional indicators reported by the DHIS2.
DISTRICT/ SUBNATIONAL LEVEL	Data from health facilities are accessed, analyzed, and interpreted to assess disease burden trends, track commodity availability, and detect malaria outbreaks for moderate- and high-transmission areas. Council health management teams use the MSDQI assessment within the DHIS2 as the primary source to determine which facilities are over- or underperforming in data collection and quality. MCD tools provide additional data to malaria focal persons at the district level for more granular performance analysis beyond the traditional indicators reported by the DHIS2.
HEALTH FACILITY LEVEL	Data use is mostly limited to transmission of aggregate reports and paper registers from CHWs and health facilities to the council and regional levels. Data are not systematically accessed and used by facilities unless they receive feedback from regional health management teams and council health management teams.
COMMUNITY LEVEL	Data use is mostly limited to transfer of paper registers to the health facilities. The malaria dashboard currently used at the national level is expected to be used eventually at the community level.[9]

* Subregional management levels, which could be a district council, city council, or municipal council depending on population size.

Governance

	DIGITAL	COMMUNITY HEALTH	MALARIA
Name	*National Digital Health Strategy*	Under development	*National Malaria Strategic Plan*
Current strategy dates	2019–2024		2021–2025
Coordinating body	National Digital Health Steering Committee	MOHCDGEC	National Malaria Steering Committee
Funding strategy	Yes		Planned

Tanzania is a leader in sub-Saharan Africa in the development of robust digital health strategies and roadmaps. The Government of Tanzania released the *Tanzania Digital Health Investment Road Map 2017–2023* and, more recently, the *National Digital Health Strategy 2019–2024*, which together outline its high-priority investments in digital health over the next several years. The MOHCDGEC and the President's Office, Regional Administration and Local Government (PORALG) are focused on continuing to build a digital health governance framework and prioritizing improved data use for better management and accountability of health system performance.[4] One of the strategic initiatives of the *National Digital Health Strategy* is digitizing community-based health services and improving engagement of CHWs in digital solutions to improve delivery of health services and promote community engagement. The *Strategy* only references malaria as part of the prioritized health services, along with other standard health areas.[10] The *Tanzania Digital Health Investment Road Map 2017–2023* is a complementary plan that outlines resources required for implementing digital health initiatives including investment recommendations and a costing plan for these recommendations. Neither malaria nor any other disease area is directly referenced in the investment recommendations. However, many of its recommendations would have a positive effect for health workers across all levels and many different disease areas indirectly.[11] In addition, the MOHCDGEC plans to develop a CHW database to facilitate supervision and human resources management.[12]

A key tenet of the *National Malaria Strategic Plan* is effective malaria knowledge management systems to support data-based decision-making across all levels of the health system. However, currently available malaria knowledge management systems are limited in their ability to extend to community health service delivery. While national surveillance systems have integrated data collection from various information systems, digital data entry and reporting do not occur widely among CHWs. To address the gaps in digital health in malaria service delivery, the NMCP has been involved with the MOHCDGEC in current efforts to expand health services provided at the community level to include digitally supported mCCM and mCBS.

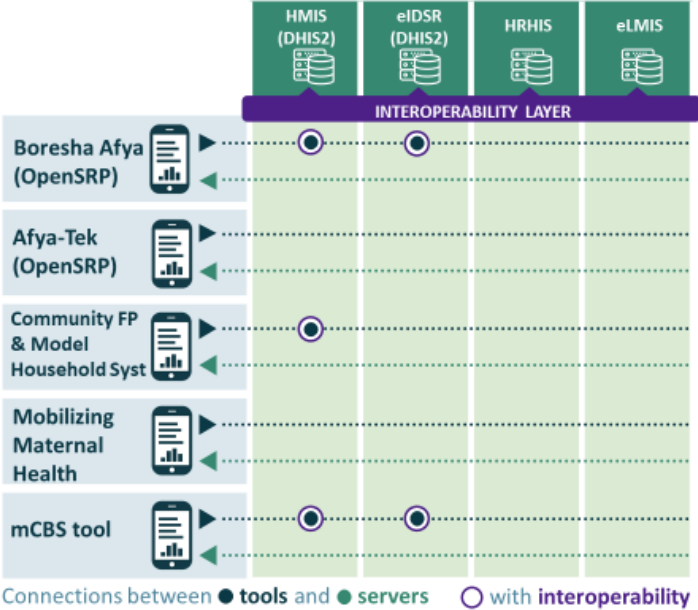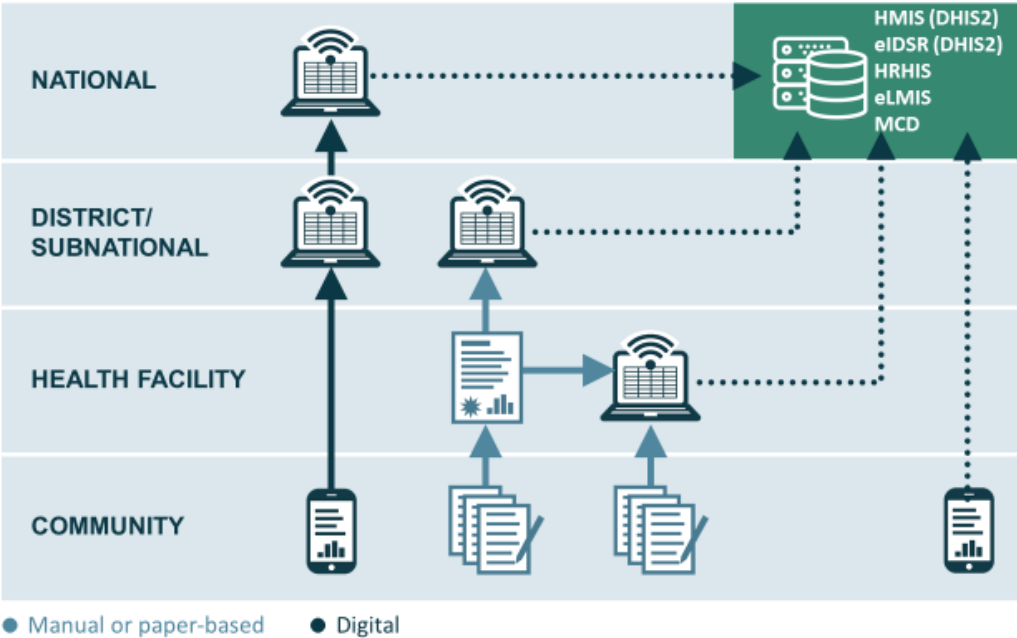|	
GOVERNANCE Policies define digital health and health data governance roles, responsibilities, and structures.	The Information and Communication Technologies (ICT) Unit at the MOHCDGEC oversees policies and guidelines related to digital health and health data, including at the community level. The *Guidelines and Standards for Integrated Health Facility Electronic Management Systems* is an important example of an eHealth initiative overseen by MOHCDGEC and PORALG. However, in general, more robust and functional governance structures are needed to guide digital and eHealth efforts across the health sector.[13]
DATA MANAGEMENT Policies provide specifications for data access, privacy, security, and confidentiality and outline stipulations for data sharing.	The confidentiality of individual health information is governed by the National Health Policy (2003) and National Statistics Act (2015). The *Health Information System Guidelines* published by the MOHCDGEC include guidelines related to confidentiality, security, and storage of health data by facilities and initiatives that fall under the MOHCDGEC purview. However, Tanzania currently lacks a national law to govern health data privacy and security. There have been calls for clear standards and guidance to manage electronic data systems, including data privacy, security, and confidentiality.[14]
STANDARDS AND INTEROPERABILITY Policies describe an enterprise architecture, normative standards – such as health information standards – and digital identity.	In 2013, the Tanzanian e-Government Agency of the President's Office, Public Service Management and Good Governance developed a national EA approach, national EA policy standards and guidelines, and an operations manual. This EA approach was used to define and frame data exchange and interoperability in the development of the Tanzania National Health Information Exchange (TzHIE). The development of the TzHIE was led by the National Digital Health Steering Committee and the ICT Unit at the MOHCDGEC. The TzHIE includes a Health Information Mediator, Health Data Repository, data standards and data quality protocols, and a dashboard.[15] Community information systems are referenced in the national EA, which notes that community-level systems will abide by technology standards and be connected to the national system through the Health Information Mediator.
INFRASTRUCTURE Policies define data hosting and storage (e.g., local or cloud), mobile device management, and telecommunications access.	Currently, Tanzania does not have a regulatory framework to manage data hosting and storage; however, the National ICT Policy (2016) made local hosting and regulation policy objectives. Additionally, the National ICT Policy established the Universal Communications Service Access Fund, which provides subsidies to help bridge the digital divide between urban and rural areas. This effort aims to provide universal access to ICT products and to build a more extensive digital infrastructure.[9]
WORKFORCE Policies describe workforce job structures an descriptions, plans for training, digital literacy expectations, and incentives for digital adoption.	ICT human capital development is a key policy issue in the National ICT Policy. Key initiatives include establishing service ladders for ICT cadres in the national government and ICT programs in college, university, and primary and secondary school curriculums. The National ICT Policy also acknowledges efforts to increase ICT literacy and awareness in the public.[15]

Systems

Data flow

Health data flow from health facilities through the council and regional levels before reaching the national level. CHWs collect data on routine community activities predominantly through paper-based register forms using the Mfumo wa Taarifa za Uendeshaji Huduma za Afya (MTUHA) Book No.3. At the end of each month, register data are aggregated in the MTUHA Book No. 10 at the supervising health facility. Some health facilities with ICT infrastructure have the capacity to upload summary data to the national DHIS2 platform, but most facilities do not. In facilities without the ability to upload data to the DHIS2 system, the in-charge health provider subsequently sends the MTUHA Book No.10 to the council health management team, which then enters it into the DHIS2 platform. All community-based data should be compiled before the 5th day of every month, and data entry into the DHIS2 should be done before the 15th day of the month, as per the national health data flow protocol. Community-level aggregated data can be disaggregated to health facilities and CHWs for in-depth analysis. Disease surveillance data collected at the facility level are entered into the DHIS2 and feed into both the electronic Integrated Disease Surveillance and Response (eIDSR) and health management information systems. Reporting into the eIDSR is done weekly, whereas reporting into the health management information system is done monthly.[9]

Passive malaria surveillance is conducted through health management information system facility-based data collection books, which capture malaria indicators (patients who are tested, confirmed and unconfirmed malaria cases, severe malaria cases, and malaria deaths) and programmatic activities, including malaria commodity availability, issuance to clients, and stockouts.[1,16] The NMCP has developed two separate but complementary electronic platforms within the DHIS2 for the storage, analysis, visualization, interpretation, and use of aggregated malaria-related data: the malaria dashboard and the MCD.[2] In addition, to support case-based surveillance in low-transmission areas, the program recently completed development of mCBS software under the DHIS2 platform, but it has yet to be tested and deployed.

To support interoperability, the Health Information Mediator works as a data exchange "middleware" layer in the Tanzania HIS architecture and enables data exchange between systems. Reportedly, nine HISs from national and specialized hospitals and legacy systems have been integrated: Jeeva; MedPro and Care2x; the electronic Logistics Management Information System, the Vaccine Information Management System; DHIS2 and Human Resource HIS; the Health Facility Registry; and Epicor 9. However, there are gaps in the integration of vertical HISs, and efforts are being made to move toward a TzHIE architecture, including data from the DHIS2 malaria dashboard and MCD.[2]

CHWs use a variety of tools to collect data and provide services at the community level in Tanzania. The most widely scaled CHW tool is built on the OpenSRP platform and used for the USAID Boresha Afya program. OpenSRP is expected to be managed by the PORALG and MOHCDGEC beginning in 2021, which will enable greater integration with other existing tools. Currently, the University of Dar Es Salaam (UDSM) is developing and piloting a digital mCBS tool built using DHIS2 Tracker. This tool is an extension of the eIDSR system for immediate reporting and notification.
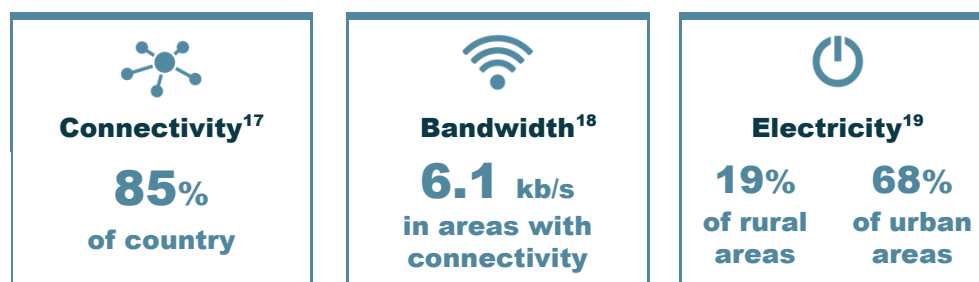
Currently, the only data that flow digitally from the community level are from the Boresha Afya OpenSRP platform and the mCBS tool being piloted. The remaining data flow through paper forms to either the facility or district level for entry into the HMIS and eIDSR through DHIS2. For interoperability, only a few tools are designed to be interoperable with the national HIS systems. Both Boresh Afya's OpenSRP platform and the mCBS tool are designed to be interoperable with DHIS2 and exchange data with the HMIS and eIDSR. However, this functionality is not currently operational.

Abbreviations: DHIS2, District Health Information Software 2; eIDSR, electronic Integrated Disease Surveillance and Response; eLMIS, electronic Logistics Management Information System; FP, family planning; HMIS, Health Management Information System; HRHIS, Human Resource Health Information System; mCBS, malaria case-based surveillance; MCD, Malaria Composite Database; OpenSRP, Open Smart Register Platform.

Digitally enabling infrastructure

Increasing public and private investments in ICT infrastructure and hardware have made digital tools more available and affordable in Tanzania. Mobile options are key aspects of Tanzania's e-government strategy, as they are frequently used to deliver services and engage with the general public via SMS/Unstructured Supplementary Service Data platforms.[20] The Government of Tanzania has developed the National ICT Broadband Backbone to extend fiber-optic infrastructure across the mainland. The Fibre Consortium (which includes Airtel, Tigo, Vodacom, and Zantel) provides coverage in Dar es Salaam, Dodoma, Morogoro, Mwanza, and Arusha. Eight mobile operators serve the market in Tanzania. Airtel, Halotel, Tigo, and Vodacom account for 96 percent of the market. However, Tanzania lags behind other countries in the region in 3G and 4G coverage, as more than half of Tanzanians do not benefit from mobile broadband connectivity. Three million people live in areas without mobile service and 30 million people lack access to cellular internet coverage. Low levels of income and digital literacy limit the demand for ICT and discourage market activity and investment. These trends indicate the need for an enabling regulatory and policy environment, greater investment in infrastructure, and collaboration between mobile operators and government agencies.[21]

Connectivity[17]	Bandwidth[18]	Electricity[19]
85% of country	**6.1** kb/s in areas with connectivity	**19%** of rural areas **68%** of urban areas

Digital health tools in use and functionality

CHWs use a variety of tools to collect data and provide care, decision support and referrals for family planning and maternal and child health. The USAID Boresha Afya program uses OpenSRP as a job aid for care management, a referral system, for digital learning, and for collecting and reporting on client data (including GPS data). The tool is currently deployed in the regions with the highest levels of malaria transmission and provides a range of malaria services. Other programs have implemented tools using OpenSRP, including Afya-Tek. The OpenSRP platform is designed to be interoperable with DHIS2 and exchange data with the HMIS and eIDSR, however the functionality is currently not in use The mCBS DHIS2 Tracker tool for tracking malaria case notifications was built to be interoperable with DHIS2 to feed into the HMIS and eIDSR, however data sharing has not yet started.

USE CASES	Boresha Afya (OpenSRP)	Afya-Tek (OpenSRP)	Community FP and Model HH Systems	Mobilizing Maternal Health	mCBS UDSM tool (DHIS2 Tracker)
Providing malaria community case management	Possible	Possible	Possible	Does not meet	Does not meet
Tracking malaria proactive and reactive case detection	Current	Possible	Possible	Possible	Current
Tracking malaria screening with referral	Possible	Current	Possible	Does not meet	Does not meet
Transmitting messages on malaria to community	Current	Does not meet	Possible	Possible	Does not meet
Training health workers	Current	Possible	Possible	Does not meet	Does not meet
Tracking routine LLIN distribution during ANC or EPI visits	Possible	Possible	Possible	Does not meet	Does not meet

■ = Current use   ▪ = Possible, but not currently in use   □ = Does not meet use case

CASE MANAGEMENT FUNCTIONALITIES	Boresha Afya (OpenSRP)	Afya-Tek (OpenSRP)	Community FP and Model HH Systems	Mobilizing Maternal Health	mCBS UDSM tool (DHIS2 Tracker)
Aggregate case reporting and analytics Tool collects aggregate case data and has data analytic functions in tool or online	Current	Possible	Possible	Does not have	Current
Individual case entry and analytics (*important in low-burden or elimination settings*) Tool collects individual case data and has data analytic functions in tool or online	Current	Current	Possible	Does not have	Current
Case geolocation (*important in low-burden or elimination settings*) Tool allows collection or use of geospatial data for individual cases	Current	Possible	Does not have	Does not have	Current
Interoperability with the HMIS Tool sends information to the official national health information system	Possible	Possible	Current	Does not have	Possible
Off-line capability Tool functions, at least partially, off-line	Possible	Current	Current	Does not have	Does not have

MANAGEMENT & SUPERVISION FUNCTIONALITIES	Boresha Afya (OpenSRP)	Afya-Tek (OpenSRP)	Community FP and Model HH Systems	Mobilizing Maternal Health	mCBS UDSM tool (DHIS2 Tracker)
CHW identification Tool uniquely identifies CHWs	Possible	Possible	Does not have	Does not have	Does not have
CHW catchment location Tool identifies CHW associated position in org unit hierarchy/link to health facility/system	Current	Possible	Does not have	Does not have	Current
CHW performance analytics Tool has analytic functions (data validation, graphs, charts) that support data quality, quality of care, or other performance issues	Possible	Possible	Current	Current	Does not have
Communication Tool allows two-way communication between peer groups, associated health facilities, or supervisors	Current	Possible	Current	Current	Does not have

■ = Current functionality   ■ = Possible, but functionality currently not in use   □ = Does not have functionality

Abbreviations: CHW, community health worker; DHIS2, District Health Information Software 2; FP, family planning; HH, household; HMIS, Health Management Information System; mCBS, malaria case-based surveillance; OpenSRP, Open Smart Register Platform; UDSM, University of Dar es Salaam.

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Abbreviations

ANC	Antenatal care
CHW	Community health worker
CORP	Community-owned resource person
DHIS2	District Health Information Software 2
EA	Enterprise architecture
eIDSR	electronic Infectious Disease Surveillance and Response
eLMIS	electronic Logistics Management Information System
EPI	Expanded Program on Immunization
FP	Family planning
HIS	Health information system
HMIS	Health management information system
HRHIS	Human Resource Health Information System
ICT	Information and communication technology
ITN	Insecticide-treated bed net
LLIN	Long-lasting insecticidal net
mCBS	Malaria case-based surveillance
mCCM	Malaria community case management
MCD	Malaria Composite Database
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MSDQI	Malaria Services and Data Quality Improvement
MTUHA	Mfumo wa Taarifa za Uendeshaji Huduma za Afya
NMCP	National Malaria Control Programme
OpenSRP	Open Smart Register Platform
PMI	U.S. President's Malaria Initiative

PORALG   President's Office, Regional Administration and Local Government

TzHIE   Tanzania National Health Information Exchange

UDSM   University of Dar Es Salaam

USAID   United States Agency for International Development

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Abbreviations: MOHCDGEC, Ministry of Health, Community Development, Gender, Elderly and Children; NMCP, National Malaria Control Programme.

Community digital health tools*

Name of Tool	Type of Digital Health Intervention†	Implementer (Funder)	Scale	Malaria Use Case
USAID Boresha Afya (OpenSRP community health system)	**1.1** Targeted client communication. **1.4** Personal health tracking. **2.1** Client identification and registration. **2.2** Client health records. **2.3** Health care provider decision support. **2.6** Referral coordination. **3.2** Supply chain management. **4.1** Data collection, management, and use. **4.3** Location mapping.	Jhpiego, EngenderHealth (USAID)	Geita, Iringa, Kagera, Kigoma, Lindi, Mara, Morogoro, Mtwara, Mwanza, Njombe, Ruvuma, Shinyanga, and Simiyu Regions	Malaria screening with referral. Communication/messaging on malaria to community. Training of health workers.
Afya-Tek (OpenSRP)	**2.1** Client identification and registration. **2.2** Client health records. **2.3** Health care provider decision support. **2.6** Referral coordination. **2.7** Health worker activity planning and scheduling. **4.1** Data collection, management, and use.	Apotheker Consultancy, D-tree International, MOHCDGEC (Fondation Botnar)	Pwani Region	Malaria screening with referral.
Community FP and model household systems (Logiak)	**2.1** Client identification and registration. **2.2** Client health records. **2.3** Health care provider decision support. **2.6** Referral coordination. **4.1** Data collection, management, and use.	D-tree International, Pathfinder International (USAID)	Arusha, Manyara, Kigoma, and Katavi Regions	Malaria screening with referral (not currently functional).
Mobilizing maternal health	**2.1** Client identification and registration. **2.3** Health care provider decision support. **2.6** Referral coordination. **2.7** Health worker activity planning and scheduling.	Vodafone, Touch Foundation, Pathfinder International (USAID)	Dar es Salaam; Sengerema District; and Mwanza and Shinyanga Regions	Malaria screening with referral (not currently functional).
UDSM Digital System for mCBS (DHIS2 Tracker)	**2.1** Client identification and registration. **2.6** Referral coordination. **4.1** Data collection, management, and use. **4.3** Location mapping	NMCP, UDSM (Global Fund to Fight AIDS, Tuberculosis and Malaria)	Arusha, Manyara, Kilimanjaro, Iringa, and Njombe Regions	Malaria active or reactive case detection.

Name of Tool	Type of Digital Health Intervention†	Implementer (Funder)	Scale	Malaria Use Case
USAID Tulonge Afya (OpenSRP)	**1.2** Untargeted client communication. **1.6** On-demand information services to clients.	FHI 360 (USAID)	National	Communication/messaging on malaria to community.
MCSP Facility and Community Maternal Child Health application	**2.1** Client identification and registration. **2.2** Client health records. **2.3** Health care provider decision support.	D-tree International, Jhpiego (USAID)	Serengeti and Muleba Districts	Malaria screening with referral (not currently functional).
Safe Delivery App	**2.8** Health care provider training.	Ifakara Health Institute, BLUETOWN	Arusha and Dodoma Regions	
Dynamic (ePOCT+)	**2.3** Health care provider decision support. **4.1** Data collection, management, and use.	Ifakara Health Institute, National Institute for Medical Research, PORALG	Dar es Salaam; Morogoro and Mbeya Regions	Malaria screening with referral (not currently functional).
Sauti HIV prevention program (Logiak)	**2.1** Client identification and registration. **2.3** Health care provider decision support. **2.6** Referral coordination. **2.7** Health worker activity planning and scheduling. **4.1** Data collection, management, and use.	Jhpiego (USAID)	Dar es Salaam; Arusha, Dodoma, Iringa, Kilimanjaro, Mbeya, Morogoro, Njombe, Shinyanga, Tabor Regions	Malaria active or reactive case detection (not currently functional). Malaria screening with referral (not currently functional). Communication/messaging to community on malaria (not currently functional).
TAMBUA TB	**1.1** Targeted client communication. **1.4** Personal health tracking. **2.1** Client identification and registration. **2.6** Referral coordination.	National Tuberculosis and Leprosy Programme	National	Malaria screening with referral (not currently functional). Communication/messaging to community on malaria (not currently functional).
Totohealth	**1.1** Targeted client communication.	Health Tanzania, APHFTA, TANZICT, Wazazi Nipendeni (HDIF, UK Aid Direct)	Unknown	Communication/messaging to community on malaria (not currently functional).

*Data that come from the survey have not been independently validated aside from tools featured within the profile.

†See Classification of digital health interventions v1.0, World Health Organization, 2018.

Abbreviations: APHFTA, Association of Private Health Facilities in Tanzania; ePOCT+, electronic point-of-care testing plus; FP, family planning; HDIF, Human Development Innovation Fund; mCBS, malaria case-based surveillance; MCSP, Maternal and Child Survival Program; MOHCDGEC, Ministry of Health, Community Development, Gender, Elderly and Children; NMCP, National Malaria Control Programme; OpenSRP, Open Smart Register Platform; PORALG, President's Office, Regional Administration and Local Government; TANZICT, The Information Society and ICT Sector Development Project; TB, tuberculosis; UDSM, University of Dar Es Salaam; USAID, United States Agency for International Development.

Next-generation digital health tool functionalities for malaria case management

Legend: ■ = Current functionality ▨ = Possible, but functionality currently not in use □ = Does not have functionality

CASE MANAGEMENT FUNCTIONALITIES	Boresha Afya (OpenSRP)	Afya-Tek (OpenSRP)	Community FP and Model HH Systems	Mobilizing Maternal Health	mCBS UDSM tool (DHIS2 Tracker)
Notifications Tool sends and receives notifications	▨	▨	■	□	■
Stock reporting & analytics Tool collects stock data and has analytic functions to support stock and logistics data analysis and decision-making	■	▨	■	□	■
Interoperability with other national health systems Tool sends information to other national systems (iHRIS, LMIS, etc.)	▨	▨	□	□	▨
Referral coordination Tool allows CHW to notify local health facility of referrals and track them	■	■	■	■	■
Scheduling & work planning Tool allows CHW to plan and schedule key activities in the community	▨	▨	■	■	□

■ = Current functionality   ▨ = Possible, but functionality currently not in use   □ = Does not have functionality

Abbreviations: CHW, community health worker; DHIS2, District Health Information Software 2; FP, family planning; iHRIS, integrated human resources information system; LMIS, logistic management information system; mCBS, malaria case-based surveillance; OpenSRP, Open Smart Register Platform; UDSM, University of Dar es Salaam.

MANAGEMENT & SUPERVISION FUNCTIONALITIES	Boresha Afya (OpenSRP)	Afya-Tek (OpenSRP)	Community FP and Model HH Systems	Mobilizing Maternal Health	mCBS UDSM tool (DHIS2 Tracker)
Decision support Tool provides algorithms or checklists to guide CHW service provision	■	▨	■	■	■
Training materials & resources Tool provides access to training materials, policies, or other useful reference documents	■	□	□	□	□

CHW geolocation Tool allows collection or use of CHW geolocation data for monitoring and planning distribution	■	■	□	□	■
Supervision Tool can be used by supervisors to assess CHW skills and capacity	■	■	■	■	□

■ = Current functionality   ■ = Possible, but functionality currently not in use   □ = Does not have functionality

Abbreviations: CHW, community health worker; DHIS2, District Health Information Software 2; FP, family planning; mCBS, malaria case-based surveillance; OpenSRP, Open Smart Register Platform; UDSM, University of Dar Es Salaam.