

Data quality audits

Improving the quality of malaria data for effective decision-making

About the Program for the Advancement of Malaria Outcomes

While mortality from malaria has drastically decreased in Zambia over the past decade, over 5 million cases are reported annually. Malaria prevalence varies between and within districts and is endemic across all ten provinces. The Government of the Republic of Zambia (GRZ) has set ambitious timelines to eliminate local malaria infection and disease.¹

The [Program for the Advancement of Malaria Outcomes \(PAMO\)](#) is a flagship malaria program for the U.S. government President's Malaria Initiative (PMI) in Zambia. PAMO helps the GRZ accelerate progress toward eliminating local malaria infection and disease. Implemented by PATH in partnership with Jhpiego and the Broadreach Institute for Training and Education, PAMO supports the GRZ at the national level through the National Malaria Elimination Programme (NMEP) and in four high burden provinces: Luapula, Muchinga, Eastern, and Northern.

PAMO's strategy focuses on:

- Increasing effective coverage of proven malaria interventions in alignment with the National Malaria Elimination Strategic Plan.²
- Strengthening management capacity of provincial and district Ministry of Health personnel to provide oversight and supervision of delivery malaria interventions.
- Strengthening the health management information system at the provincial and district levels to improve data reporting, analysis, and use for decision-making.

IMPACT AT A GLANCE

Data completeness increased from **89% to 100%**

Monthly data accuracy increased from **26% to 54%**

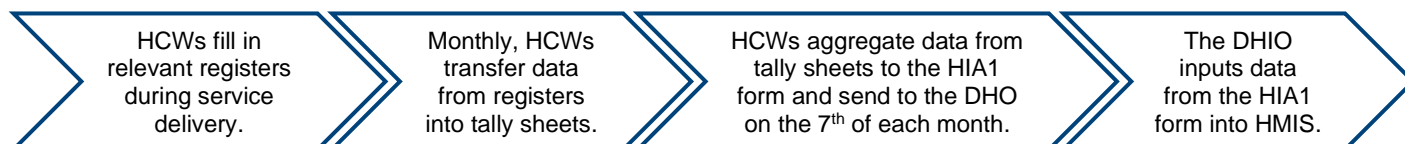
Accuracy of data elements increased from **48% to 63%**

*Data represent aggregate data from facilities in all four PAMO-supported provinces from 2017 to 2019.

Improving data quality

The Zambia National Malaria Elimination Strategic Plan 2017-2021 recognizes that timely, accurate, and complete data are necessary tools to effectively guide programs and support data-driven decisions. PAMO provides training for Ministry of Health staff in using the Health Management Information System (HMIS) and supports bi-annual malaria data reviews of health facility and district-level malaria data. In addition, to measure progress in data quality improvements, PAMO, in conjunction with the MOH, conducts data quality audits (DQAs). During DQAs, the team reviews service delivery data with health care workers (HCWs), identifies challenges, and decides how to address those issues to ensure that data is complete, timely, and accurate.

Figure 1. Steps in the data collection and management process.



The DQA process

The DQA consists of three steps:

1. **Inspection of service delivery registers:** Twice a year, a DQA team (clinician, health information officer, maternal and child health officer, district pharmacist, , and laboratory technologist) visits health facilities to inspect service delivery registers, including those from antenatal care, out- and in-patient departments, and rapid diagnostic test registers. The team recounts and records the number of people tested and treated for malaria, clinical malaria cases, and confirmed malaria in pregnancy in the past six months.
2. **Comparing service delivery register data to HMIS data:** The HMIS data come from the Health Information Aggregation form 1 (HIA1), which contains information from service delivery registers. The DQA team identifies inconsistencies between the registers and HMIS and scores the results.
3. **Identifying areas for improvement:** The DQA team walks the health facility staff through identified errors and provides mentorship to correct them. Together, they make a list of issues to monitor between DQAs.



Winnie Mulenga (second from right), the District Health Information Officer for Kaputa district in Zambia's northern province, works alongside the DQA team to review the facility's data.

¹ <https://www.nmec.org.zm/malaria-overivew>

² <https://www.nmec.org.zm/malaria-elimination-strategic-plan>

Measuring DQA results

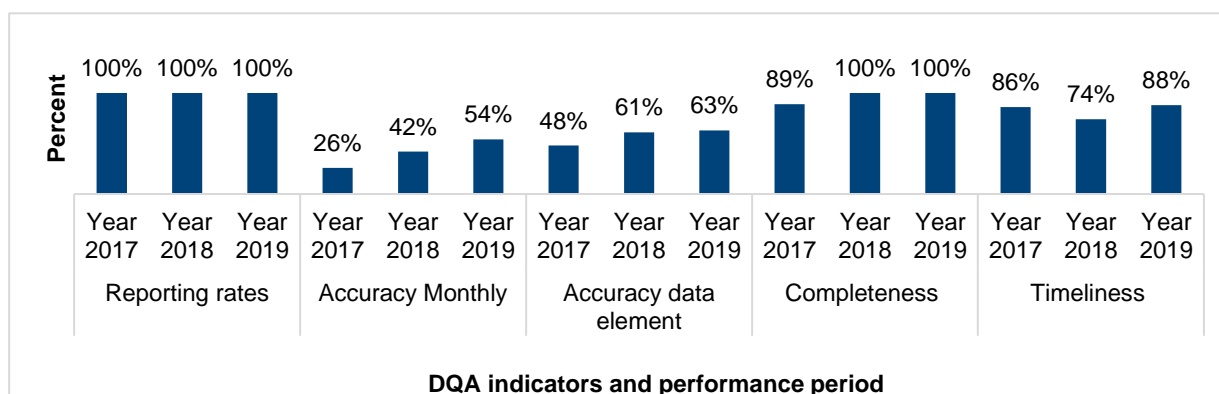
PAMO relies on three indicators to measure health facilities' progress improving malaria data quality: timeliness, completeness, and accuracy. *Timeliness* is defined as the percentage of health facilities in all districts that report their malaria data by the seventh of every month. *Data completeness* refers to the percentage of facilities that have all the required data elements reported every month. *Data accuracy* looks at the percentage of all facilities whose data in the registers matches the data entered into HMIS. Accuracy is further broken down into 'accuracy, month'—whether each month that the health facilities reported, the data in the health delivery registers and HMIS is the same, and 'accuracy, data elements'—whether all the required data elements were accurately reported in that particular month.

Data quality is improving

In 2017, 2018, and 2019, PAMO carried out DQAs in 380 health facilities, representing 45% of all facilities across the four provinces. Data quality is improving; from 2017 to 2019, accuracy month has improved from 26% to 54%, accuracy of data elements improved from 48% to 63%. In 2019, 100% of facilities reported complete data, as compared to 89% in 2017. Although timeliness dropped from 86% in 2017 to 74% in 2018, 2019 saw an increase to 88%, surpassing the 2017 measurement (Figure 2).

“We have noticed a significant improvement in data quality from our health facilities. Clearly, PAMO’s regular support to improve the way we manage data is paying off. During our data review meetings, you can clearly see the effort health care workers are making to improve data quality. Now, as a district, our confidence is very high that the data we are getting is fairly accurate although we need to continue to improve data quality so that we can reach 100% accuracy.”—Dr. Bernard Chimungu, District Health Director, Sinda District.

Figure 2. Data quality audit results in all four PAMO-supported provinces, 2017-2019.



Lessons learned in conducting data quality audits

PAMO has learned three key lessons in conducting DQAs in the four PAMO-supported provinces to improve and measure progress in data quality:

- Immediate identification of problems and subsequent follow-up would further improve data quality:** Following up on problems identified during DQAs would positively reinforce solutions, particularly regarding accuracy of reported data elements and alignment between health registers and HMIS.
- Turnover and insufficient training of new staff in DHIS2 and HMIS affect data quality:** Often staff that were trained in DHIS2/HMIS are transferred to another facility or leave their jobs to continue their studies. The data management orientation and induction processes for new staff could be strengthened, which would clarify data procedures, reduce errors, and improve data quality.
- Inputting data into HMIS delays timeliness of reports:** Delays in data reporting happen when health care workers at facilities are delayed in sending completed HIA1 forms to the DHIO, and when the DHIO falls behind in entering that data into HMIS. To improve timeliness, the MOH should consider training HCWs at the facility level to have access to HMIS so that they input the data directly into the system themselves, and the DHIO could maintain a data quality control role.

For more information, please contact:

Dr. Caroline Phiri-Chibawe

Chief of Party, PAMO

cchibawe@path.org

