



Improving Care for Children Under Five and Pregnant Women Presenting with Fever in Malawi: Reference Sheet for Improvement Indicators

Introduction

Since March 2018, the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project has collaborated with the USAID Organized Network of Services for Everyone (ONSE) Project and ONSE's supported health facilities to help them apply quality improvement (QI) methods to improve care for children under five years of age and pregnant women presenting with fever in ten health centers of Machinga District, Malawi. ASSIST's efforts included: training on QI for ONSE's ten malaria coordinators and health care providers from participating facilities, coaching of facility improvement teams, measurement of progress and facilitation of shared learning.

Having QI teams track and review data over time based on a set of clear indicators is crucial to improving the quality of health services. This document presents a list and descriptions of indicators that can be used by QI teams to improve the quality of malaria services for febrile children under five and pregnant women attending antenatal care (ANC) clinics, controlling for misuse of anti-malaria drugs.

This indicator guidance is divided into two sections: Section A provides the data management plan, which includes a list and description of malaria-related improvement indicators. Also, Section A consists of a suggested plan for the data collection, analysis, review, documentation, and presentation, as well as a discussion of data quality issues and the estimated cost of data collection. This guidance will help QI teams ensure data quality and consistency in measurement and interpretation. The indicators are based on the National Malaria Control Program (NMCP) indicators in the Malaria Strategic Plan 2017-2022 to track interventions implemented by the Ministry of Health and its partners in Malawi. Section B provides an overview of the composition of a QI team.

Section A: Data Management Plan

Malaria Improvement Indicators

The first six improvement indicators are proposed for QI teams to track their progress toward improving malaria services for children under five years of age and pregnant women presenting with fever at health facilities. Indicator #7 is developed to help the teams to improve adherence to NMCP treatment guidelines.

1. Proportion of children under five presenting with fever for whom a malaria Rapid Diagnostic Test (mRDT) was performed
2. Proportion of children under five presenting with fever for whom a microscopy test was performed
3. Proportion of pregnant women receiving one, two, three or more doses of intermittent preventive treatment (IPTp) sulphadoxine-pyrimethamine (SP) for malaria during pregnancy
4. Proportion of febrile children under five with a positive test result who are treated with Artemether-lumefantrine (AL)

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5. Proportion of febrile children under five with a positive malaria test result who are administered AL in the correct dose-per-weight
6. Proportion of febrile children under five with a malaria positive test result who receive the first dose of AL at the health facility
7. Ratio of AL treatments dispensed to number of positive confirmed malaria cases

Definition and Calculation of Improvement Indicators

Table 1 shows the definition for each indicator, how it is calculated, and its justification.

Table 1. Definition and Calculation of Improvement Indicators

Indicator 1: Proportion of children under five presenting with fever for whom an mRDT was performed
Definition: The indicator identifies children under five with fever or suspected malaria who are tested by mRDT
Unit of Measure: Percentage
Method of Calculation:
Numerator: Number of children under five presenting with fever (≥ 37.5 °C) in the health facility for whom an mRDT was performed
Denominator: Total number of children under five presenting with fever (≥ 37.5 °C) in the health facility
Disaggregation: by sex (M/F)
Justification: NMCP guidelines recommend a malaria test for all patients with fever or history of fever (≥ 37.5 °C) or suspected malaria.
Indicator 2: Proportion of children under five presenting with fever for whom microscopy was performed
Definition: The indicator identifies patients under five years old with fever or suspected malaria that are tested by microscopy
Unit of Measure: Percentage
Method of Calculation:
Numerator: Number of under-five children presenting with fever (≥ 37.5 °C) in the health facility for whom microscopy was performed
Denominator: Total number of children under five presenting with fever in the health facility
Disaggregation: by sex (M/F)
Justification: NMCP guidelines recommend a malaria test for all patients with history of fever or current fever (≥ 37.5 °C)
Indicator 3: Proportion of pregnant women receiving one, two, three or more doses of IPTp- SP for malaria during pregnancy
Definition: The indicator identifies the coverage of pregnant women with one, two, three or more doses of IPTp-SP from malaria received at the ANC visit
Unit of Measure: Percentage
Method of Calculation:
Numerator: Number of pregnant women who received 1, 2, 3 or more doses of IPTp-SP during the ANC visit in a given period (i.e., a week)
Denominator: Total number of women attending ANC visit on a given period (i.e., a week)
Disaggregation: The number pregnancies 1) first pregnancy, 2) second pregnancy, 3) third pregnancy, 4) fourth or more pregnancies
Justification: The NMCP recommends that every pregnant woman receive at least three or more doses of IPTp-SP during pregnancy
Indicator 4: Proportion of febrile children under five with a positive test result who are treated with AL
Definition: The NMCP guidelines recommend AL as the first line treatment for all febrile children under five with a positive mRDT or microscopy
Unit of Measure: Percentage

Method of Calculation:
Numerator: Number of children under five with a positive mRDT or microscopy test who are treated with AL
Denominator: Total number of children under five with a positive mRDT or microscopy
Disaggregation: by sex (M/F)
Justification: According to NMCP guidelines, the AL treatment should be given to patients who are confirmed positive for malaria by mRDT or microscopy
Indicator 5: Proportion of febrile children under five with a positive malaria test result who are administered AL in the correct dose-per-weight
Definition: The indicator defines the effective prescription of AL to confirmed positive under five years of age patients according to NMCP guidelines
Unit of Measure: Percentage
Method of Calculation:
Numerator: Number of children with fever under five who had their weight taken at the health facility on the day they received AL
Denominator: Total number of children under five with fever and a positive mRDT or microscopy
Disaggregated by: by sex (M/F)
Justification: According to NMCP guidelines, the AL treatment should be given to children under age five based on their weight
Indicator 6: Proportion of febrile children under five with a positive test result who receive the first dose of AL at the health facility
Definition: The indicator defines the effective use of AL to children under five who tested positive for malaria according to NMCP guidelines
Unit of Measure: Percentage
Method of Calculation:
Numerator: Number of children under five with fever and a positive mRDT/microscopy test who took the first dose of AL at the health facility
Denominator: Total number children under five with fever and a positive mRDT/microscopy test
Disaggregated by: by sex (M/F)
Justification: According to NMCP guidelines, the first dose of AL treatment should be given especially to children under five as directly observed therapy (DOT).
Indicator 7: Ratio of AL treatments dispensed to number of positive confirmed malaria cases
Definition: The indicator defines the effective use of AL to children under five who tested positive for malaria according to NMCP guidelines
Unit of Measure: Ratio
Method of Calculation:
Numerator: Number of AL treatments dispensed to children under five
Denominator: Number of children under five confirmed malaria positive with mRDT or microscopy
Disaggregated by: by sex (M/F)
Justification: According to NMCP guidelines, the AL treatment should be given to patients who are confirmed malaria positive by mRDT or microscopy

Data Collection Plan

Table 2 provides the data sources and the frequency with which data collection should occur for each indicator.

Table 2. Data Sources and Frequency of Data Collection per Indicator

Indicator	Data Source	Frequency of Data Collection
1. Proportion of children under five presenting with fever for whom a malaria mRDT was performed	OPD mRDT registers	Every month

2. Proportion of children under five presenting with fever for whom microscopy was performed	OPD and laboratory registers	Every month
3. Proportion of pregnant women receiving one, two, three or more doses of IPTp SP for malaria during pregnancy	ANC register	Every week
4. Proportion of febrile children under five with a positive test result who are treated with AL	AL, mRDT and laboratory registers	Every month
5. Proportion of febrile children under five with a positive malaria test result who are administered AL in the correct dose-per-weight	AL register	Every month
6. Proportion of febrile children under five with a malaria positive test result who receive the first dose of AL at the health facility	AL register (where a column has been improvised for DOT)	Every month
7. Ratio of AL treatments dispensed to number of positive confirmed malaria cases	AL, mRDT and laboratory registers	Every month

Sampling Procedures

For each applicable process of care, 20 charts should be selected for review at each health facility. If the number of records is equal to or less than 20, all available records should be selected. **Box 1** shows an example of the steps to follow to select charts to gather data on ANC patients. A similar process needs to be followed for other processes of malaria care.

Box 1: Steps for selecting ANC charts for chart review

1. Improvement team member (data collector) checks patients' registers to see how many patients received ANC services during the previous month. For example, if the data collector is gathering this data in November, he or she will look at the patient registers to see who received ANC services in October.
2. Data collector counts the total number of patients' records for that month.
3. If the number of records available is less than or equal to 20 (the required sample size), all records will be selected.
4. If the number of records is greater than 20, the data collector will calculate a systematic random sample of records. To do so, he or she will count the total number of ANC records for the month of interest and divide those by the required sample size. For example, if 60 records are found for October, the data collector will divide the total number of records for October (60) by the desired sample size (20) to calculate the sampling interval ($60/20=3$). This means that every third record will be selected for review. If the calculated sampling interval is not a whole number (for example, $70/20 = 3.5$), the rounded down number (3) will be used as the sampling interval.
5. The data collector will randomly pick an October ANC record as a starting point, and then continue to pick every n th record until the sample of 20 is achieved. If, for example, the sampling interval is 3, the data collector will chose a random patient record, review that one to start, and continue to identify every third record (e.g., 3, 6, 9, 12, etc.) until the required 20 records are chosen.

Data Analysis, Documentation, Review, and Presentation

Percentages for each indicator are usually calculated by data clerks and/or lab assistants who are part of the QI team. They are calculated from the records reviewed by using a hand calculator, paper, and a pencil. All data needs to be reviewed by the QI team (see **Section B** for the composition of the QI team) on a weekly/monthly basis (depending on the type of data being collected) and compared with the previously collected values. The data then needs to be documented in the improvement journal. The QI team should present the data, on a regular basis, to all health facility staff and stakeholders visiting the facility using time series charts. Time series charts should include data tables that display numerators, denominators and percentages (see **Box 2** for further resources on creating time series charts). The time series charts should be updated monthly. In addition, the indicators should be reported every month to the ONSE district office and to the district health management information system database.

Box 2: Creating time series charts

Blog on Improving Data Visualization: No more Excel Data Tables. USAID ASSIST Project. This blog provides more information on how to format time series charts:

<https://www.usaidassist.org/blog/improving-data-visualization-no-more-excel-data-tables>

Tips and Tools for Learning Improvement – Time Series Charts: USAID ASSIST Project. This is a set of competency-based materials on different topic areas, including creating time-series charts.

https://www.usaidassist.org/sites/assist/files/tipstool_simpliment_measurementtimeseries_may2017_ada.pdf

Data Quality Issues

The quality of data depends on the completeness and accuracy of the patient information written into the registers by health workers and the accuracy of data extraction for analysis. To address data quality limitations, the QI team will be coached on the collection of quality data and mentored on continuous quality improvement approaches. Data validation will be conducted quarterly by ONSE district officers with district malaria coordinators.

Estimated Cost of Data Collection

Since the facility staff are salaried employees for the Ministry of Health or Christian Health Association of Malawi, there is no extra cost to doing QI work. The QI team's data collection work is part of their job description to improve the quality of malaria services. Any supplies such as stationary, needed will be routine and provided by District Health Office.

Section B: Quality Improvement Team Composition

Although staffing varies between facilities, the QI team is generally composed of representatives from each of the health facility stations that a child under five or a pregnant woman who is suspected of malaria must pass through for care and ideally should also include a patient and/or community representative. These include, for example: 1) the waiting area, 2) the consultation room, 3) the laboratory, 4) the registration desk, 4) the pharmacy, and 5) the Directly Observed Therapy corner. A team is generally comprised of 7 to 12 members (see Box 3 for a resource on creating improvement teams). **Table 3** shows the illustrative cadre of health workers and community members who may be part of QI teams at individual health centers and the district hospital where QI activities for malaria are being implemented.

Box 3: Creating improvement teams resource

Tips and Tools for Learning Improvement – Improvement Teams: USAID ASSIST Project. This is a set of competency-based materials on different topic areas, including creating improvement teams.

https://www.usaidassist.org/sites/assist/files/tipstoolsimpliment_improvement_teams_may2017_ada.pdf

Table 3. Illustrative Composition of a Malaria Quality Improvement Team

Facility Type	QI Team Members
Health Center	<ul style="list-style-type: none"> • Facility in-charge • Health surveillance assistants • Medical assistant • Laboratory assistants/Microscopists • Data clerks • Pharmacy assistants/Drug dispenser • Nurses • Patient/community representative
District Hospital	<ul style="list-style-type: none"> • In-charge under-five (U5) clinic • Clinicians, U5 clinic • Nurses, U5 clinic • Health surveillance assistants, U5 Clinic • Laboratory technologist/Technicians • Pharmacists • Ward in-charge, children's ward • Clinicians, children's ward • Data clerks (under-five clinic and children's ward) • Nurse, ANC clinic • Malaria District Coordinator • Patient/community representative