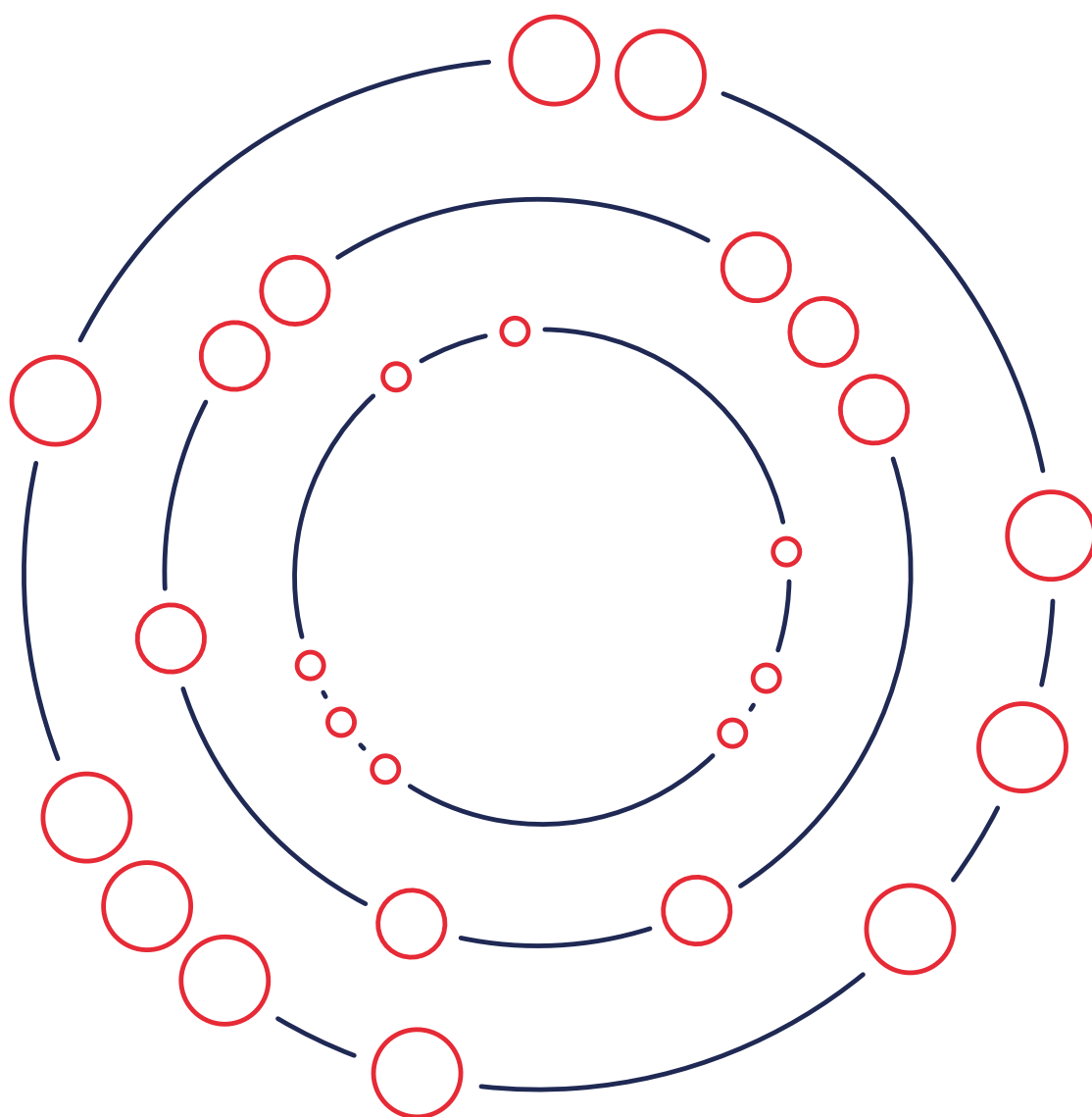

WHO Data quality assessment of national and partner monitoring data and system implementation tool

Second edition



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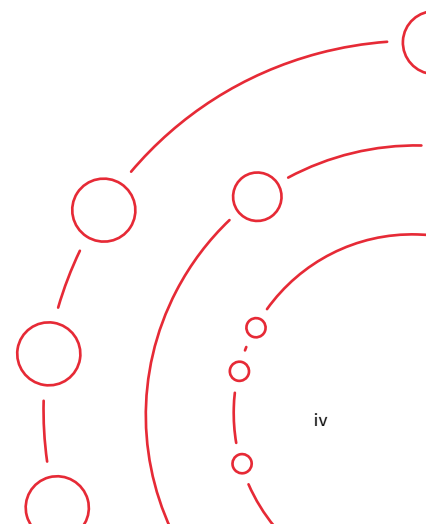
This technical update to the HIV treatment data quality assessment implementation tool is the result of a collaborative effort between the World Health Organization, The Joint United Nations Programme on HIV/ AIDS (UNAIDS), the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (The Global Fund).

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Introduction

This 2023 antiretroviral therapy (ART) data quality assessment technical update is being released as an iterative approach to build on the continued progress of data quality reporting and updating of tools.

This technical brief summarizes key updates to the 2018 **Data quality assessment of national and partner HIV treatment and patient monitoring data and systems implementation tool** focusing on implementing and following up remedial activities after such assessments and guidance on developing data quality improvement strategies (1). It is intended that this technical update is used alongside the 2018 implementation tool to support country implementation of data quality assessments.

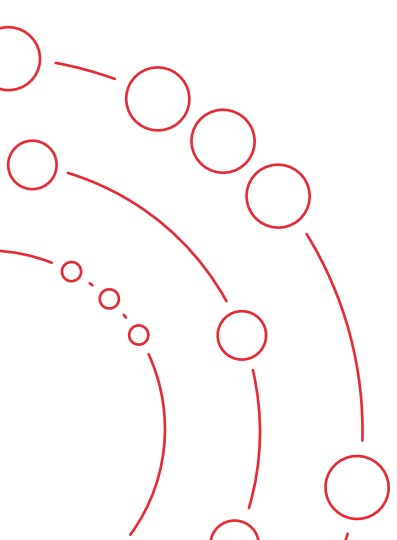
Similarly to the 2018 data quality assessment implementation tool, this technical update is being published as the result of a collaborative effort between WHO, UNAIDS, the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria.

The treatment indicators (individuals receiving ART and newly initiating ART) recommended in the 2018 data quality assessment guidance have not changed.

What's new in data quality assessment for HIV treatment programmes?

This technical brief provides further guidance and recommendations on the following:

- developing a follow-up action plan after conducting data quality assessment to support the implementation of remedial actions;
- disseminating, notifying and reporting data quality assessment results;
- using data quality assessment results to adjust national HIV estimates; and
- implementing data quality improvement activities at the site level that link data quality assessment to broader data quality improvement activities to address data quality issues and strengthen data use.



In this technical brief, a new step has been added to develop an after-action plan for ensuring the accountability of remediation activities before disseminating results (Fig. 1). In addition, further guidance is provided in step 5 on using ART numbers adjusted for data quality assessment for modelling national HIV estimates.

Fig. 1 shows the updated key implementation steps recommended for data quality assessments.

Fig. 1. Implementation steps for national ART data quality assessment



Develop an action plan after data quality assessment for the accountability of remediation activities

When data quality issues are identified, action must be taken to correct the issues.

Data quality issues can be tracked over time to ensure that data quality improvement activities are making a difference. Corrective action plans should include remediation guidance and timeframes for handling data quality issues. Time frames should be reasonable to allow sufficient time to conduct any needed training and to routinize corrective actions.

For example, if a site institutes a new data validation activity requiring site staff to reconcile discrepancies in monthly reports within one week before they are submitted to the next reporting level, the timeline for data quality follow-up should account for the time it takes to orient staff and for them to perform the new duties during at least one reporting period.

A Data Quality Issue Tracker can be used to track multiple data quality issues across multiple sites (Web Annex A). This constitutes the site-level action plan for remedial actions following data quality assessment and supports the monitoring and follow-up of data quality improvement activities at all levels (site to district to subnational and national). Fig. 2 highlights the key elements the comprehensive Data Quality Issue Tracker identifies.

Fig. 2. Components of the data quality issue tracker

What is the data quality issue?

Action plan to resolve it

Person responsible for overseeing the remediation effort

Target completion date

Actual completion date

This tool can be a useful reference when programme data are reviewed in future reporting cycles, and it can also provide certified documentation of completed corrective activities if staff signatures are included.

Lost to follow-up

Assessment of the lost-to-follow-up status of clients receiving HIV treatment in facilities that use electronic systems for patient monitoring and tracking using queries to generate a list of patients meeting the lost-to-follow-up definition was included in the 2018 data quality assessment tool as one of three additional data validation activities.

When verifying the lost-to-follow-up status of clients in patient charts to validate the accuracy of electronic medical records data on individuals lost to follow-up, the updated definition for lost to follow-up should be used. **This has been reduced from 90 days to 28 days or more since the last missed appointment, including missed ARV drug refills in either facility or community settings** to account for differentiated service delivery.

Disseminating, notifying and reporting results

A brief report (see Annex I of the 2018 ART data quality assessment implementation tool for a template (1)) to summarize any systematic problems with defining indicators and data recording, reporting and aggregation from the facility to the national level (where relevant), data quality challenges and recommendations to improve the quality of aggregate data reporting and the system that generates the data in the future is recommended.

This report should be shared with all stakeholders in the interorganizational country team led by ministries of health, and including implementing partners and other stakeholders.

In addition, the ministry of health may develop a more formal national report for data quality assessment results and recommendations to improve data quality for the treatment programme. A template for this is provided in Web Annex B to support the dissemination of the updated data on the number of people receiving ART and newly initiating ART (step 7 in Fig. 1).

Use of data quality assessment-adjusted ART numbers

Countries that have implemented a nationally representative data quality assessment and calculated a data quality assessment-based adjustment to national ART numbers can use this result in their annual HIV estimates using the epidemiological model Spectrum AIM (2). This will help to obtain accurate estimates of HIV incidence and other epidemiological indicators.

The adjustment can be incorporated for the year of a data quality assessment and optionally for preceding years.

For Spectrum versions 6.2 and higher (from December 2022 onwards), the procedure is as follows:

- **Step 1:** Enter or update the original ministry of health reported number of people receiving ART into: Spectrum > AIM > Programme Statistics > Adult ART and > Child ART, as usual.
- **Step 2:** At the bottom right of these two data editors (each in turn), activate ADJUST PROGRAMME DATA FOR UNDER/OVER COUNT BASED ON QUALITY ASSESSMENT (see Fig. 2).
- **Step 3:** Click ENTER ADJUSTMENTS and enter the ART SCALING FACTOR TO ENTER IN SPECTRUM calculated in the national adjustment of ART data example Excel spreadsheet (see Web Annex C), cells L31 to Y31 (or adapted to the year of the data quality assessment and extrapolated from preceding years, as appropriate) for adult men, adult women and children in turn.
- **Optionally,** calculation of a data quality assessment-based adjustment may be repeated separately for adult men, adult women and/or children, and the resulting group-specific ART SCALING FACTOR TO ENTER IN SPECTRUM entered into Spectrum.

Spectrum will then calculate and apply in its incidence estimation and calculation of ART coverage these data quality assessment-adjusted ART numbers (Fig. 3).

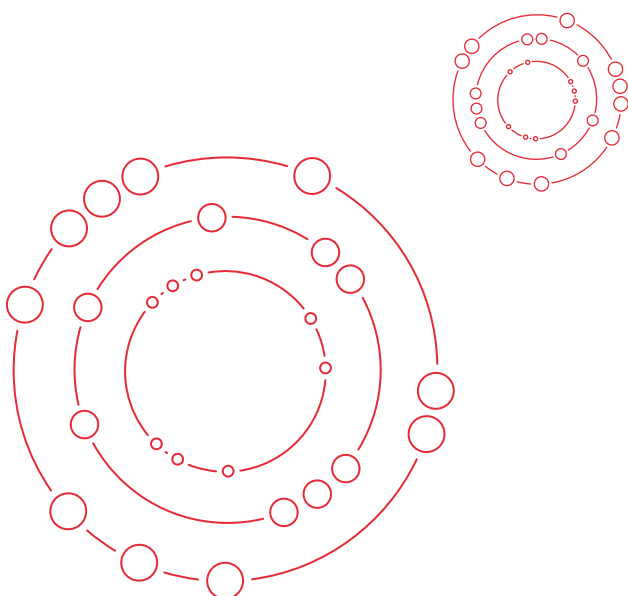


Fig. 3. Screenshot of how to enter and adjust ART programme data and HIV estimates based on data quality assessment results in Spectrum AIM

The screenshot shows the Spectrum AIM interface for 'Adult ART' data entry. It includes a table for 'Number of adults receiving ART' and 'Percent of PLHIV receiving ART' from 2014 to 2021. Below this is a dialog box for 'ART Adjustment Factor' with a table for 2002-2025. Red boxes and labels 'STEP 1', 'STEP 2', and 'STEP 3' highlight specific areas of the interface.

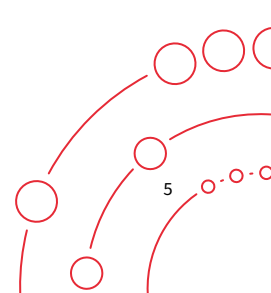
	2014	2015	2016	2017	2018	2019	2020	2021
Number of adults receiving ART								
Male	179,600	210,070	243,455	280,391	328,467	397,144	446,985	469,518
Female	421,937	482,183	552,437	634,353	720,638	818,658	914,260	950,244
Total	601,537	692,253	795,892	914,744	1,049,105	1,215,802	1,361,245	1,419,762
Percent of PLHIV receiving ART								
Male	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Female	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Data quality improvement strategy

Data quality assessments are one activity within a comprehensive data quality improvement strategy. The 2022 WHO consolidated guidelines on HIV person-centred monitoring recommend that countries include routinely scheduled data quality assessments within long-term data quality improvement to strengthen data use and improve HIV treatment outcomes (3). In accordance with these recommendations, this technical update provides further guidance on site-level data quality improvement activities, some of which are the remedial actions recommended after data quality assessment and are further detailed in Table 1.

The objectives of a data quality improvement strategy depend on the level at which the strategy is being developed (Fig. 5). Data quality improvement activities will be context specific and will leverage existing resources and processes.



Data quality improvement refers to systematic, continuous data quality approaches that apply formal methods for improving programme data use. A range of formal methods can be employed, including conducting root cause analyses (fishbone mapping), activating a plan-do-study-act cycle and analysing run charts of indicators of interest (Fig. 4).

Fig. 4. Approach to implementing data quality improvement

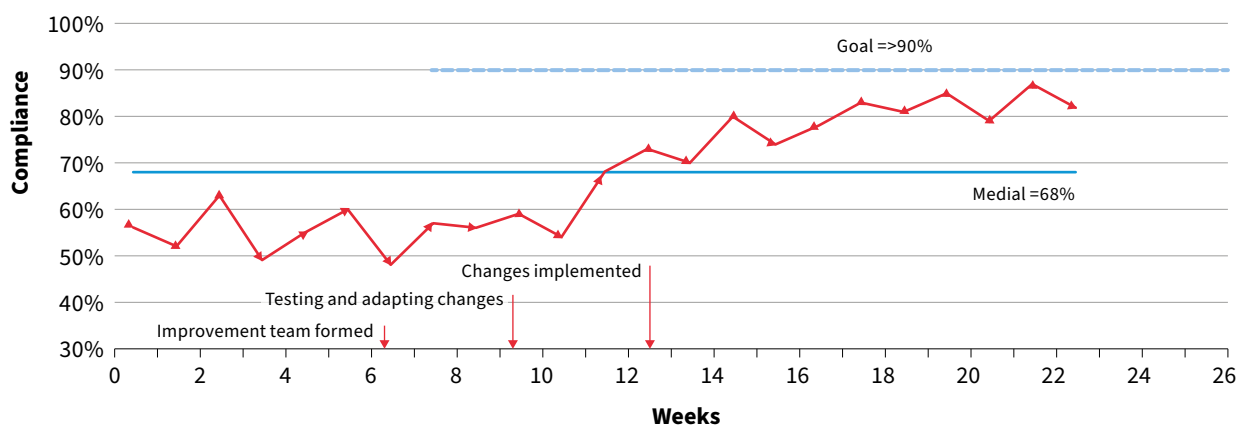


Fig. 5. Objectives of a data quality improvement strategy according to site level

National level	Subnational level	Facility level
<p>Strategy provides an overall vision for data quality improvement and communicates goals and expectations for data quality improvement</p> <p>Align with national monitoring and evaluation frameworks and with service delivery continuous quality improvement plans</p>	<p>Data quality improvement strategy would provide detailed implementation plans to achieve the vision with specific activities, timelines, human resources requirements and other resources</p>	<p>Data quality improvement strategy increases the awareness of site personnel of the importance of data quality</p> <p>Specifies the staff members responsible for implementing, monitoring and updating the strategy and integrates existing standard operating procedures and indicator definition guide</p>

Table 1 summarizes the main elements of a data quality improvement strategy. These cover a range of activities from site level data validation, regular data review meetings, data quality assessments,

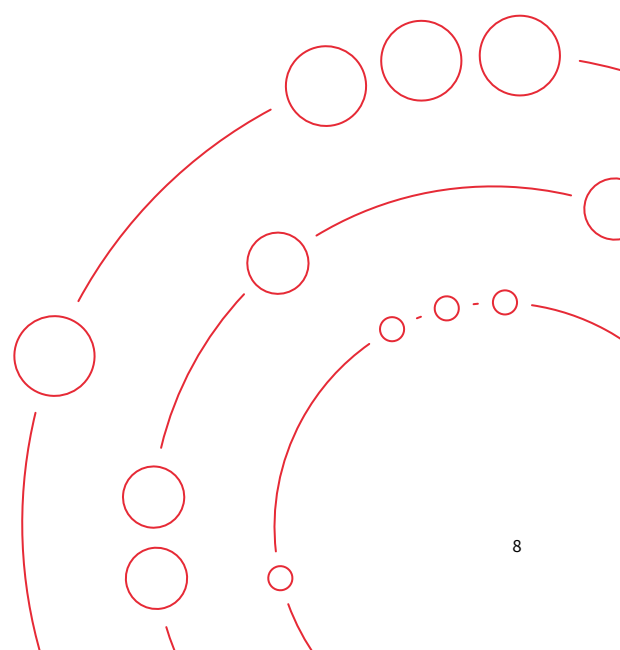
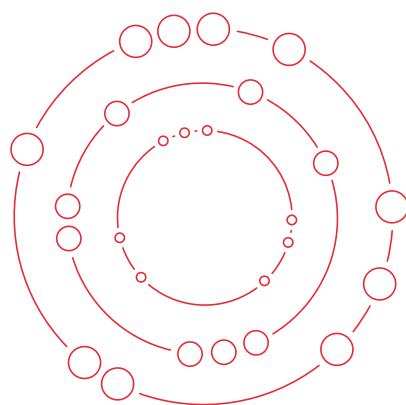
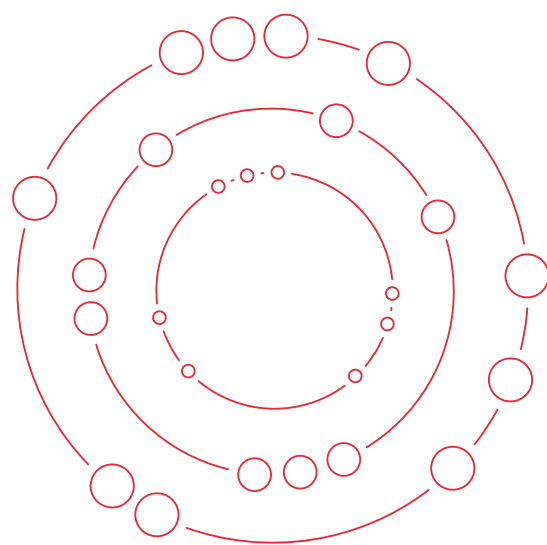
data quality issue tracking, capacity building and mentoring of staff, regularly updating data collection tools and developing a data quality database to monitor results and progress over time.

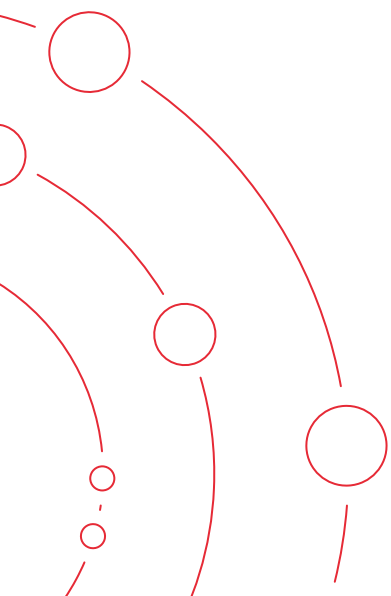
Table 1. Elements of a data quality improvement strategy

Routine site-level data validation activities	<ul style="list-style-type: none"> • Cross-checks with pharmacy or register or appointment book data • Ensuring that lost-to-follow-up data are up to date by reviewing follow-up patient trackers • Electronic medical record checklist, checking programming and flags • Data cleaning • Data completeness monitoring, including labelling patient charts to prompt health-care workers to address incomplete data at consecutive clinic visits
Monthly or quarterly data review meetings	<ul style="list-style-type: none"> • Involve strategic information, programme, finance staff and activity managers • Review reported data for questions of interest • Identify unexpected results • Discuss implications for programming and data quality improvement • Build consensus on how to address data quality issues • Include time frames and sample meeting agendas for joint data reviews with partners • Include processes for documenting follow-up activities
Data quality assessment	<ul style="list-style-type: none"> • Set up schedule by site (such as one data quality assessment every two years) • Establish designated teams • Can be led by site, partners or national teams
Data quality issue tracking	<ul style="list-style-type: none"> • Use a tool to ensure remediation of data quality issues (Web Annex A). • Copies of tracking form are sent to site, subnational, partner and national ministry of health staff
Capacity building and mentoring of health-care workers and site staff engaged in entering and reporting data and updating tools	<ul style="list-style-type: none"> • Orienting and training health-care workers and data clerks • Continual mentorship and supportive supervision • Periodic revision of data collection and reporting tools
Data quality results collected over time in a database to mark progress	<ul style="list-style-type: none"> • Developing a data quality results database can help to track the results of routine data validation activities and quality improvement initiatives at a site level • Results can be reviewed quickly across sites • Progress can be assessed, particularly for sites with data challenges • Considerations for maintaining a data quality database: <ul style="list-style-type: none"> – Integrate opportunities for the automation of data collection tools and the merging of results from all sites – Include quality improvement and remediation plans with specific timelines for follow-up – Assign follow-up points of contact – Prepare frequent reports and analyses to be used in conjunction with programme reviews

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