

Enhancing Data Quality & Timeliness to Accelerate Progress Toward HIV Epidemic Control

The Challenge

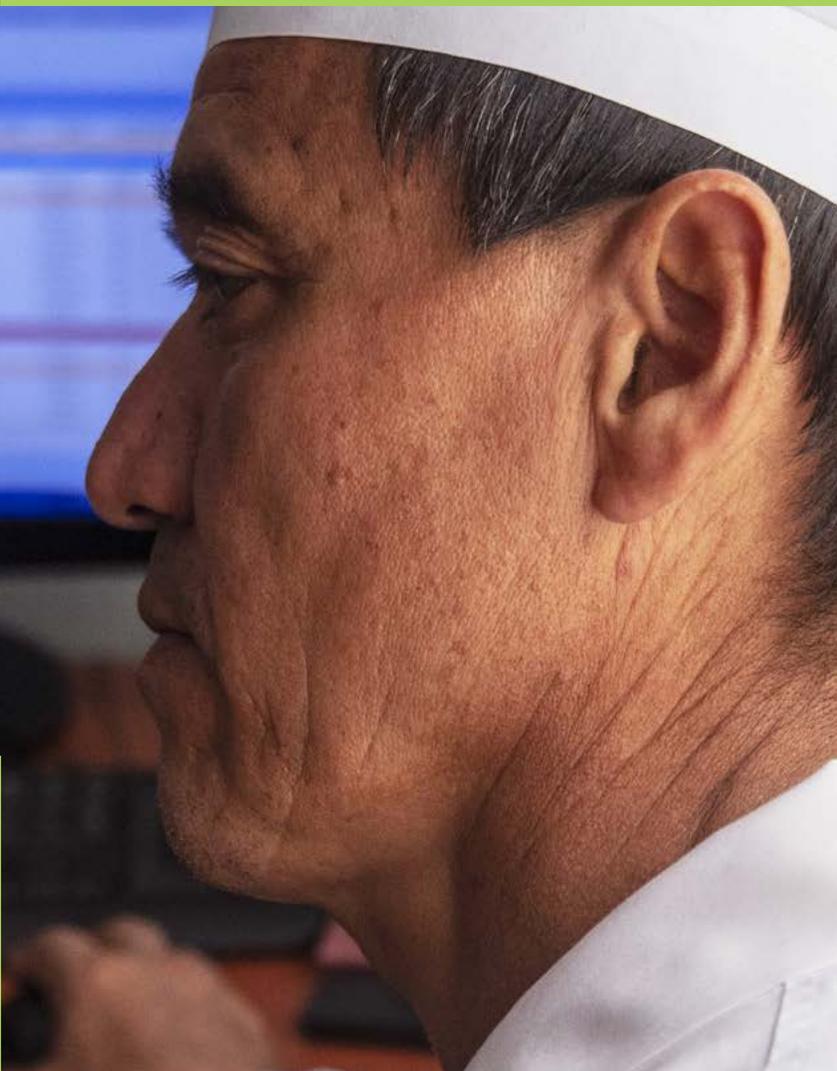
As countries push to achieve the 95-95-95 targets and control the HIV epidemic, data quality and timeliness are more important than ever. Without accurate, complete, and timely data, health workers and managers miss opportunities to use data to improve programs. Similarly, without reliable, appropriately disaggregated data, ministries of health are unable to target limited resources and interventions to the populations and geographic areas that need them most.

The causes of poor data quality are complex. Often, health workers are overburdened by the array of charts, registers, and forms they must complete and the disparate reporting requirements that compel them to collect similar data in multiple formats. Redundant data collection tasks consume time and energy that health workers could otherwise devote to providing care and using data to improve service quality and coverage. An emphasis on reporting, rather than data use, reduces health workers' sense

of ownership over data and tends to have a negative effect on the quality and completeness of data collected.

The evolving context of differentiated service delivery and the drive toward epidemic control present a further challenge: health workers are now expected to report more granular data from a wider range of service delivery settings—many outside the walls of traditional clinics and hospitals. This, combined with the imperative of achieving greater efficiencies in an era of plateauing resources, has heightened the demand for real-time, high-quality data to inform timely decisions and course corrections.

An integrated approach is needed to streamline data collection and reporting systems and move toward electronic systems whenever possible to increase data quality and timeliness at all levels of the health system.



Technical Approach

ICAP approaches data quality and timeliness as key elements of a broader framework that supports data producers and users at all health-system levels to continuously improve HIV services and programs (see Figure 1).

Technical assistance and capacity building approaches are carefully tailored to country needs and priorities in order to promote sustainable improvements in patient- and clinic-level data, aggregate program data, and episodic population-level data collected through surveys. Innovative software and data systems that allow for electronic capture of primary data are deployed whenever possible to improve both the quality and timeliness of data.

At the national level, ICAP supports ministries of health to design integrated, user-friendly monitoring and evaluation systems and tools that capture the data elements needed to satisfy national and PEPFAR reporting requirements. “Backward design” of data tools supports streamlining and simplification by ensuring that each data element collected can be mapped back to a specific program monitoring and evaluation priority or need. National data quality assessment (DQA) plans, standard operating procedures,

and mentorship and training programs help country programs establish and adhere to a harmonized, standards-based approach to the monitoring and assessment of data quality. Strengthening of national health management information systems, including through deployment, expansion, enhancement, and integration of the District Health Information System 2 (DHIS2) platform, ensures that data are aggregated seamlessly from the source to the national level.

At subnational levels, ICAP engages district and regional health managers in continuous assessment and promotion of data quality, including through focused, theme-driven data reviews, integration of routine DQA into district health teams’ supervision and mentoring visits, and production of data visualizations that highlight key gaps in

program data. Electronic health management information systems (HMIS), such as the national DHIS2, are configured to perform automated logic checks and to detect and flag inconsistencies in aggregate data (e.g., between reporting periods or data sources).

At the point of service, ICAP site support teams provide on-the-job training and mentorship to facility- and community-based health workers on the correct use of national tools—both electronic and paper-based—to collect and report HIV and health data. Through regular DQA, health workers are engaged in critical review of the data they produce and receive immediate feedback on practical steps they can take to improve data accuracy and completeness. Detailed

data quality action plans are then put in place and monitored as part of routine mentorship and supportive supervision visits. Wherever possible, ICAP promotes point-of-service electronic tools (including electronic medical records systems) to ensure that health workers capture complete data on all required client assessments.

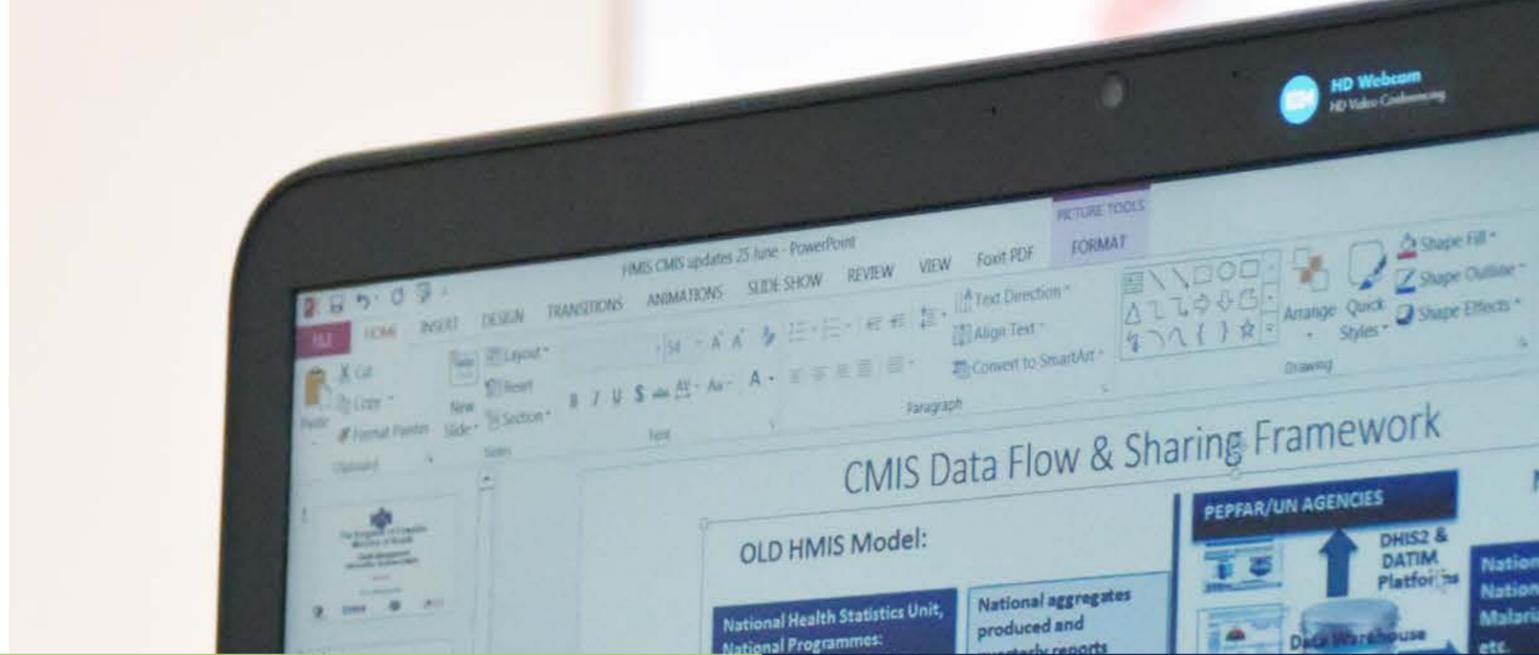


FIGURE 1
ICAP’s Approach to Improving Data Quality and Timeliness Across the Health System





Impact Story

Building an Integrated Health Management Information System from the Ground Up

In Lesotho, health data were historically reported using parallel paper- and electronic-based systems. Each health facility submitted an aggregate, paper-based report on utilization of various services to district or central offices, which then transcribed the data into multiple and often competing electronic reporting systems. There was no easy way to integrate information across platforms or program areas.

“Imagine tracking HIV program performance of over 300 health facilities from paper reports,” explains M’e’ Morongoe Nyakane, a monitoring and evaluation officer at Lesotho’s Ministry of Health. “We were so buried in paperwork, there was no time to verify, interpret, and use the information for program planning and improvement.”

In 2014, with support from the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) through the Centers for Disease Control and Prevention (CDC), ICAP and Lesotho’s Ministry of Health launched an initiative to design and implement a new, integrated national health management information system using DHIS2. As a first step, health data producers and users were consulted across all levels and programs to develop a comprehensive mapping of national health indicators and reporting processes.

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-Mrs. Zakia, Integrated Disease Surveillance and Response Officer, Lesotho Ministry of Health

ICAP then supported the Ministry of Health to design and configure a streamlined system to capture and aggregate all required data while minimizing redundant data entry and verification tasks.

To prepare for the system’s launch, health facilities and district offices without internet connectivity were provided with modems and data plans, and more than 200 tablets were distributed to facilitate data reporting. To ready health workers at all levels to act as the primary stewards of data quality, ICAP trained over 450 health workers and managers at the national, district, and health facility levels. Initial training was followed by sustained mentorship and on-site supervision to ensure that all DHIS2 users gained confidence using the system.

Today, the system is used by all major health programs in Lesotho to report, analyze, and visualize health service data. The system features streamlined data collection tools and custom HIV and TB/HIV program dashboards that put actionable data at the fingertips of Lesotho’s health workers and managers. More than 80 percent of Lesotho’s health facilities now enter monthly HIV program data directly into the DHIS2, which houses more than 50 million records and 66 datasets.

Automated checks to validate that data are consistent and fall into expected ranges are now performed at the point of data entry instead of at higher levels of the health system. This has increased health workers’ sense of ownership over the data they collect. Further, now that district and central officials are no longer required to transcribe or tabulate handwritten reports, they have more time to dedicate to the review and interpretation of the data being reported.

District HMIS officers can use the DHIS2 reporting interface to run custom queries and then provide feedback to facility staff via the built-in messaging feature. Central managers can utilize DHIS2 analytic tools to conduct in-depth reviews of data by time period or geographic area in order to isolate gaps in service delivery.

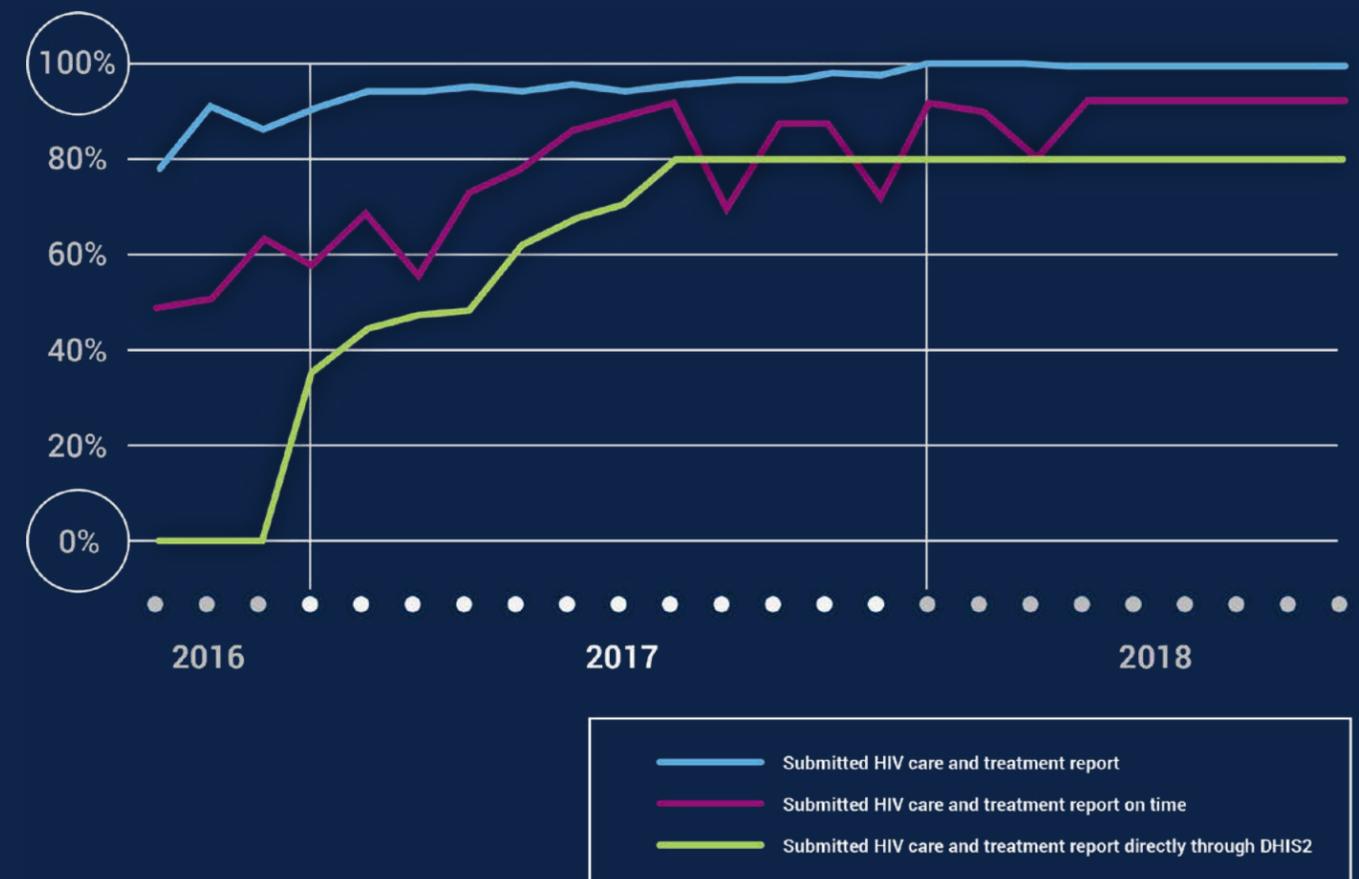
The impact of the new DHIS2 has been remarkable: in the fifteen-month period from October 2016 to January 2018, the completeness of HIV care and treatment data increased from 78 to 100 percent, and the timely submission of monthly reports increased from 49 to 92 percent (see Figure 2).

These improvements in data quality have resulted in new and expanded use of HIV and health data, including to evaluate national TB and HIV program performance, to set Global Fund targets, and to inform the Ministry of Health’s annual joint review.

At the point of service, the impact is being felt not only by health workers focused on HIV, but by health workers across Lesotho’s health programs.

“We are able to use the weekly reports to quickly identify imminent health threats,” remarks Mrs. Zakia, an Integrated Disease Surveillance and Response Officer at the Ministry of Health. “DHIS2 has transformed our work and made it much easier and more effective.”

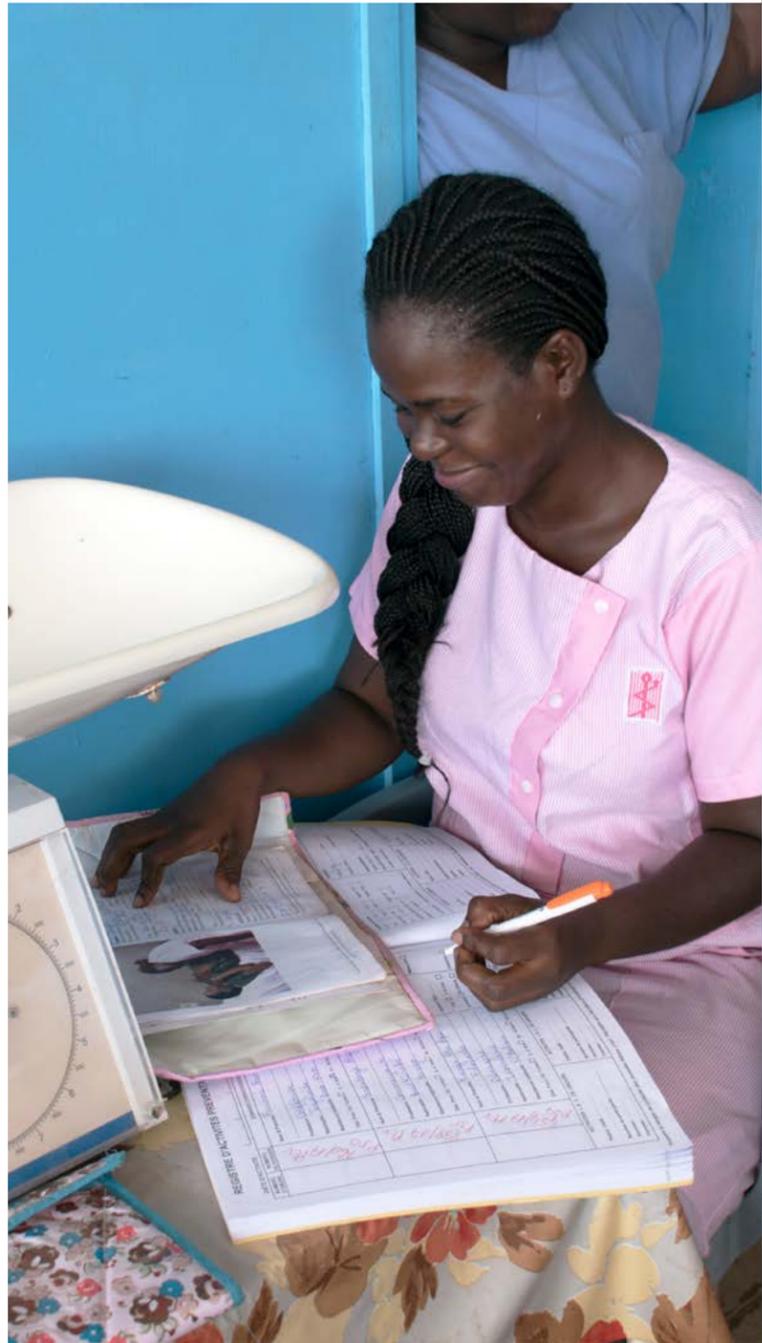
FIGURE 2
Improvements in Completeness and Timeliness of HIV Care and Treatment Reports in Lesotho, October 2016 – September 2018



Considerations for Implementation

For countries to produce health data that are accurate, complete, consistent, and timely, the right tools and systems must be in place and health workers must be trained and have a sense of ownership over the data they are collecting and reporting. Key considerations when working to improve data quality include:

- Data quality should be approached as a component of a broader cycle linking data production and use. When data quality improves, data are more useful to health workers and managers, and when health data are actively used—especially at the point of service—health workers feel more compelled to produce high-quality data.
 - Point-of-service electronic medical record systems can benefit both the quality of care and data quality. By requiring health workers to enter clinical encounter information in real time, electronic medical record systems encourage a standard treatment approach, while automated data checks prompt health workers to provide any data elements that are missing.
 - When using paper-based tools, streamlined and simplified data collection tools and processes can reduce workload at the point of service while supporting improved data accuracy and completeness.
 - Extending aggregate electronic tools and systems like DHIS2 to the facility level can improve both data quality (by minimizing data entry error) and data timeliness, facilitating program decision-making and early course corrections.
 - Data quality assessments are an excellent mechanism for identifying and providing feedback on incomplete, inaccurate, or conflicting data, and for identifying their root causes. The full data cascade should be reviewed, including patient charts and other paper-based records, electronic medical records, and reported data. For example, at the point of service, DQA can compare data in patient files with what appears in registers. DQA can also replicate the process by which data are tabulated from multiple registers to ensure that monthly reports are compiled correctly, and then verify that the tabulated data match those reported in DHIS2.
- Best practice trainings and webinars can help build appreciation for data quality among health workers and managers. Supportive supervision and mentorship are good complements to training because they help health workers integrate a focus on data quality into their daily routines.





ICAP Publications and Resources

Data Quality

DQA Strategic Plan for the PMTCT Program in Cameroon.
New York: ICAP at Columbia University; 2015.

Available at:

<http://icap.columbia.edu/ptb-dqa-cameroon>

Saito S, Howard AA, Chege D, et al. **Monitoring quality at scale: Implementing quality assurance in a diverse, multicountry HIV program.** *AIDS*. 2015;29 Suppl 2(Suppl 2):S129–36.

Available at:

<http://icap.columbia.edu/ptb-quality-at-scale>