

# Using DHIS 2 to Strengthen Health Systems

DHIS 2 is a software platform that the University of Oslo developed in 2006 to manage health information systems (HIS). The first implementation was in India in 2006 and the first national rollout was in Kenya in 2010. Since then, low- and middle-income countries (LMICs) worldwide have adopted the software. DHIS 2 is flexible, adaptable, and extendable through web application program interfaces (APIs), which are useful for building software applications (apps). It can be customized to suit many purposes for health information management and for nonhealth sectors, too.



An optimally functioning DHIS 2 can host a myriad of health data from many sources and can be used to produce information products that facilitate data use. Deployed within a supportive and organized health information system (HIS), it can result in improved health for people. It is a powerful tool, but its effectiveness depends on many factors indicative of strong HIS: leadership and good management, governance of policies and procedures, and the skills of the people who work with the DHIS 2 tool. That is where MEASURE Evaluation plays its important role in the DHIS 2 landscape.

For more than 20 years, the United States Agency for International Development (USAID) has funded MEASURE Evaluation to help strengthen HIS around the world and to measure, evaluate, and share globally strategies that strengthen HIS in LMICs. To that end, the project has been instrumental in helping these countries establish or strengthen their HIS, many of which use DHIS 2. For example:

- MEASURE Evaluation helps country health professionals—from national health ministries to health facilities in remote settings—design HIS that provide the information they need. Many times, DHIS 2 is a tool in those systems.
- We have expertise in assessing the current HIS landscape in a country and use that information to help plan interventions to strengthen the HIS, including policy and governance guidance for the HIS, which will inform the customization of the DHIS 2 platform.
- At the national level, we help a country's most senior public health officials plan for gathering health data needed in their context, help establish good governance

to regulate the use of health data, and help create standards and guidance for data management and the use of good-quality data for health policy decisions.

- At the district or health facility level, we engage providers who collect the data that go into DHIS 2 to ensure that the data meet their needs and to get provider input on the design of data collection forms. We also build a culture of data use among frontline health workers so that they recognize why data are needed to improve health, how to ensure good data quality (data that are complete, correct, and timely), and how to use data for decisions on health service delivery.
- We provide technical training on entering data in DHIS 2 and on engaging the software's many features for analyzing and visualizing data so that the data are useful. We also provide technical assistance to troubleshoot software issues that may arise.

## Examples of Our Work

**Côte d'Ivoire:** We helped integrate and customize DHIS 2 as the country's routine health information platform, which involved importing historical data into DHIS 2 and integrating the national health statistical report and the disease surveillance data in the platform. We conducted trainings, from the basics on how to manage and use DHIS 2 to more focused training to help users customize the platform to meet local needs. These trainings included data analysis and creation of data dashboards for regional- and district-level health directors. Next steps are scaling up community-level epidemiological surveillance and integrating death notifications as part of civil registration and vital statistics efforts.

We also helped train personnel from government offices, regional health offices, hospitals, health centers, global funders, and nongovernmental organizations on data use for decision making, including identifying indicators for frequency and incidence of data use. DHIS 2 is used at all 17 regional hospital centers and 94 percent of general hospitals (76 of 81). Coverage is 66 percent among faith-based hospitals and 30 percent among urban health centers.

**Burundi:** Here we are working with the health management information systems directorate and the National AIDS Control Program to integrate DHIS 2 in the HIV community-based information and surveillance system in five provinces. We are using assessment findings to develop harmonized routine health indicators and data collection tools for community-level use. Burundi lacked an adequate routine HIS when we began, but now DHIS 2 contains integrated data on HIV, infectious diseases, reproductive health, nutrition, and disease surveillance covering all health regions, health districts, and hospitals.

To overcome the initial lack of indicators and need for skills development among health staff, we conducted trainings for DHIS 2 administrators and helped set parameters for health program indicators. Our next steps are to conduct more training on the software for users and supervisory staff and work to make DHIS 2 interoperable with other databases. We also will scale up the deployment of DHIS 2 to health facilities.

**Guinea:** An example of beginning at the beginning is our work to help Guinea recover from the 2014 Ebola virus outbreak. Even as the disease was only starting to subside, we deployed a technical assistance team embedded in the Directorate of Strategies and Development of Guinea's health ministry. The team pursued an opportunity to promote the ministry's adoption of DHIS 2, demonstrating DHIS 2 functionality and securing approval for adoption of the platform. By the time the team completed their tenure, DHIS 2 had been adopted and we had facilitated discussions with major donors about supporting the budget for its implementation.

We also helped the ministry to establish an HIS technical working group for DHIS 2 rollout and a technical team to oversee implementation. We then trained the technical team to customize DHIS 2 for Guinea and organized the first DHIS 2 training on how to enter data; how to produce charts, tables, maps, and standard reports; and how to perform data analysis in preparation for nationwide DHIS 2 deployment. Internet connectivity is poor in Guinea, but we are working with telecommunication companies and the health ministry to resolve some issues. So far, data recorded in DHIS 2 cover HIV, infectious diseases, maternal and child health/immunization, disease surveillance, service delivery, and a master facility list. Health workers in all national hospitals (3), all regional hospitals

(7), and all district hospitals (30, plus six in Conakry) use DHIS 2. Coverage does not extend to health centers.

**Mali:** Here we worked with the National Directorate of Health, other government agencies, and implementing partners to transition the country's legacy HIS into DHIS 2. We integrated data on HIV, infectious diseases, epidemic surveillance, and logistics management with the new system. Significantly, for the first time, the indicators and surveillance data for Ebola were integrated in the HIS, which will provide good-quality data to ensure that potential Ebola cases are quickly identified so the country can take action. Other customizations have reduced the data collection burden on health workers. Ongoing work will integrate customized tracking for client retention on antiretroviral treatment, electronic registers for maternal health and child immunization programs, and logistics management.

So far, 70 percent of health facilities now use DHIS 2 and 100 percent of health regions and districts use it. As a result, emphasis on data quality has increased in Mali, generating confidence in the data and fostering a culture of data use.

### **The Democratic Republic of the Congo (DRC):**

Working with the World Bank, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the European Union, and the British government's UKaid, we provided technical assistance for DHIS 2 deployment. The project worked with technical experts from the HIS division and the National Malaria Control Program in three provinces to update malaria indicators and migrate the malaria database to DHIS 2, integrating it with the national HIS. The integration of medicine management, HIV data, and epidemiological surveillance is in progress. The process of adding data is not yet complete and health facilities are not yet covered. In addition, the country is contending with poor Internet connectivity, inadequate financing, and lack of tools and equipment.

However, the achievements so far have laid a foundation for capturing health data that are timely and of high quality. We continue to train health facility workers and coach staff on improving data quality, and we are developing a data quality assessment and action plan.

### **For more information**

To learn more about MEASURE Evaluation's work on health information systems, visit our website at:

<https://www.measureevaluation.org/our-work/health-information-systems>

Or visit the **Health Information System Strengthening Resource Center** at:

<https://www.measureevaluation.org/his-strengthening-resource-center>