

# The One Health Electronic Platform in Burkina Faso

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## Summary

MEASURE Evaluation—funded by the United States Agency for International Development (USAID)—began its work in Burkina Faso in March 2018 under the global health security agenda. In the aftermath of Ebola and other highly pathogenic infectious diseases and zoonoses that have plagued West Africa, USAID's priority was to strengthen the Burkina Faso electronic health information system to include routine data on priority zoonoses that could affect humans, animals, and the environment.

A result of this multisectoral coalition is the One Health electronic platform, which provides real-time data on unusual events and suspected cases to central-level directorates, laboratories, and the Center for Health Emergency Response Operations (CORUS). The national One Health steering committee insures the piloting of the electronic platform. Furthermore, Burkina Faso's electronic health management information system—ENDOS—is integrated with the One Health platform. The areas of intervention of the MEASURE Evaluation project are the Center-South and Central Plateau Regions, where end users have been trained on the use of the One Health electronic platform and are able to notify suspected cases in real time.

## Introduction

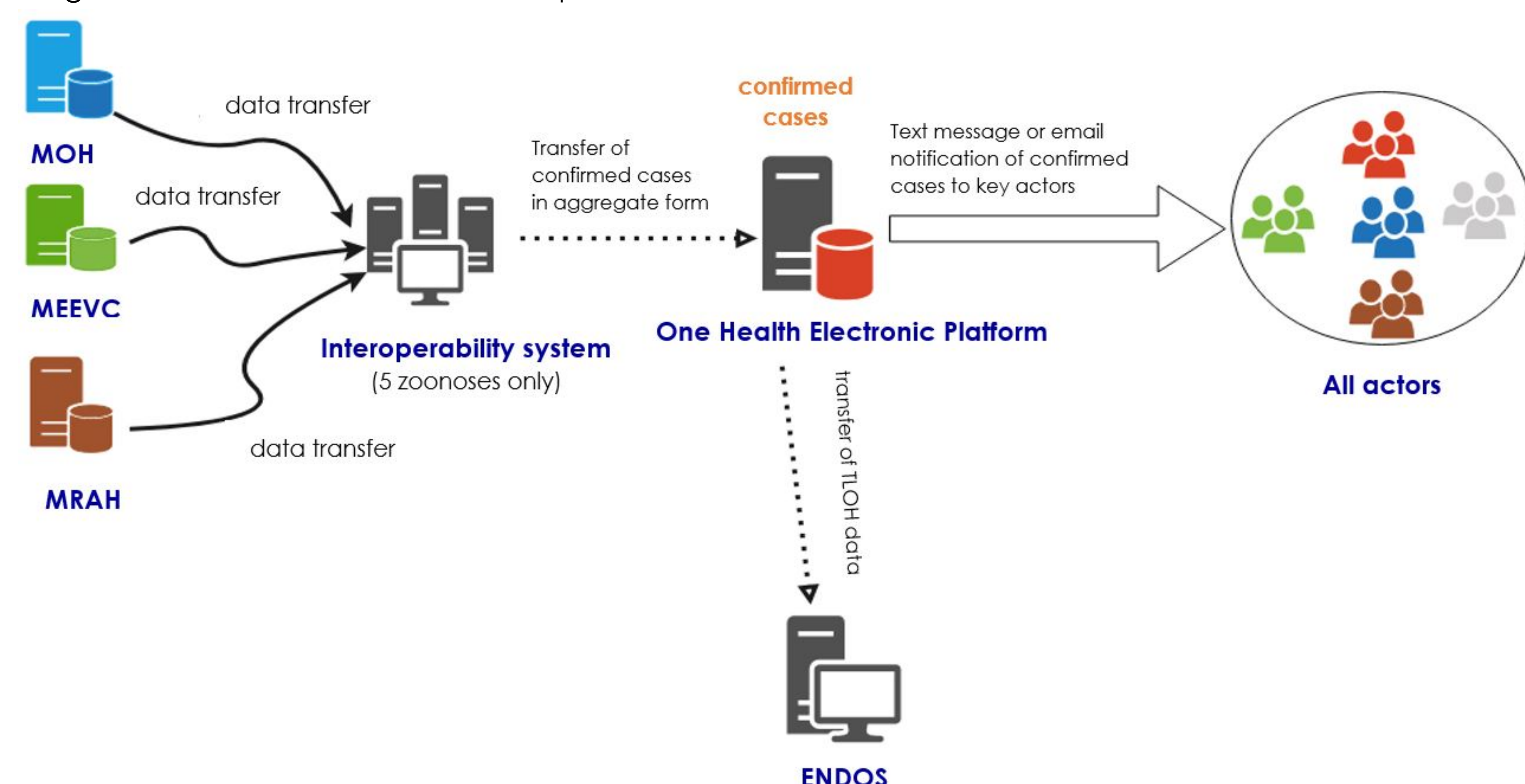
When MEASURE Evaluation began working in Burkina Faso, the project team visited all institutions that might be interested in getting involved in One Health. The team was successful in bringing together the Ministry of Health (MOH), the Ministry of Livestock and Fisheries (MRAH), and the Ministry of the Environment (MEEVCC); each ministry's Directorate for Information Systems, the directorates in charge of human and animal health surveillance (the DPSP and DSA, respectively), the Directorate for Fauna and Wildlife (DFRC), and the General Directorate for Veterinary Services (DGSV); national labs; and many other implementing partners.

## Methods and Processes

Once the three ministries and other central-level partners were secured, MEASURE Evaluation began designing the One Health electronic platform by choosing the software that would be able to host it. The team chose the District Health Information Software, version 2 (DHIS2) "tracker" module, which allows the tracking of individual patients. The DHIS2 "events" app is also used and helpful to track individual cases. The purpose of the platform is not to focus on data aggregation, but instead to translate notified events into measurable indicators. The DHIS2 tracker module allows data from all levels and players in the health system to be connected, including data from the laboratories (sample transportation and testing). Data are entered both online and offline on tablets through DHIS2 Android applications.

Because this work is a collaboration by three autonomous ministries, three databases (called DHIS2 "instances") had to be created: one for each ministry that would allow them to control their own content and parameters. A fourth database was also developed to serve as the One Health data warehouse, combining data from the other ministries' DHIS2 instances. It independently collects data related to an epidemic or a disease under surveillance (without commands being necessary) across the three ministries' databases.

This fourth database is also programmed to present dashboards, develop data visualization, and send notifications. No data are entered directly in the fourth database; instead, an interoperability layer application enhanced by a custom-made integrated disease surveillance and response algorithm is used to automatically pull relevant data from the three ministries' databases, analyze them, trigger an alert, and update this fourth database's data visuals and dashboard. Each database's data are analyzed by the interoperability layer or mediator, and if data reach or overcome a certain threshold, an alert is automatically sent out to a predefined group of decision makers. Notifications are communicated by text message, email, or private message on the One Health electronic platform.



Initially, certain ministries, such as the MEEVCC, did not perform surveillance on diseases. The MRAH tracked only some zoonoses and animal diseases, and the MOH had only an electronic surveillance system in place for meningitis. As a result, the MEASURE Evaluation team began setting up a data file-collection system for the five priority zoonoses—rabies, anthrax, brucellosis, highly-pathogenic avian flu (HPAI), and dengue—that would be of interest to both the MOH and the MRAH. The MEEVCC does not have the ability to flag suspicious cases based on clinical symptoms, so instead it tracks events based on community definitions. As a result, the MEEVCC has a unique case notification form for three zoonoses: rabies, anthrax, and HPAI. On top of the five priority zoonoses they jointly track, the MOH, MRAH, and MEEVCC also added the diseases that they independently and routinely track to their own platforms: 52 diseases for the MOH, 76 diseases for the MRAH, and 3 diseases for the MEEVCC.

The database generates such visualizations as bar charts, graphs, scatter plots. Data are analyzed using cartographic analysis of cases reported by the three ministries, which enables the mapping of zoonoses to show their distribution across the country. Indicators can be generated by the fourth database and validated by the MOH (7 indicators), MRAH (12 indicators), and MEEVCC (2 indicators); see the table below.

Indicators	MOH	MRAH	MEEVCC
Number of suspicious cases	X		
Number of suspicious sick animals			X
Number of suspicious deceased animals			X
Percentage of events for which a sample was collected	X	X	
Percentage of events for which the sample collected was adequate	X	X	
Percentage of events for which the sample was analyzed (tested)	X		
Percentage of laboratory analysis results received on time	X	X	
Percentage of confirmed cases (sample tests positive)	X	X	
Lethality	X		
Community reaction time		X	
Number of rumors notified by the community		X	
MRAH agent reaction time		X	
Percentage of MRAH agents notified within the standard timeframe		X	
Number of investigation reports		X	
Percentage of investigations led by the DGSV		X	
Sample transportation time		X	
Laboratory reaction time after a request for sample analysis		X	

## Discussion and Conclusion

Each ministry participated actively in the technical development of its own platform by creating a dedicated, tech-savvy team of young information technology (IT) developers within their staff to build the platform with MEASURE Evaluation's guidance and technical assistance (TA). Although the MOH staff was already very familiar with DHIS2, interoperability, and the "rapid Short Message Service" system, the staff from the MRAH and the MEEVCC required more guidance and TA to set up DHIS2, because they had not worked with the software previously. MEASURE Evaluation was involved only in the final stage of system design, to perform a last quality check on the setup of each database. The three ministerial IT teams will be in charge of maintenance and sustainability of their respective platforms. The fourth database will be managed by the technical secretariat of the One Health steering committee (according to an interministerial decree), with TA from the One Health focal points at the three ministries.

A series of workshops allowed each ministry to validate the tools that are being used at the lowest level of the health system for data collection in the system's database. As mentioned, the databases are tailored to the needs of each ministry when it comes to the number and types of diseases they are interested in tracking. Each data collection tool was validated and reviewed before being integrated in the system for each ministry to start using. Although data entry is typically done at the district level in the Burkina Faso health system, in the case of One Health, data are entered on tablets at the community level by facility staff.

MEASURE Evaluation subsequently conducted a series of trainings on the One Health electronic platform for end users in their areas of intervention: first in the Center-South region (Pô, Manga, Kombissiri, and Saponé Districts) and later in the the Central Plateau region (Zorgo, Ziniaré, and Boussé Districts). The regional staff from all three ministries were trained, followed by the provincial/district level staff. Trainings are done in a cascade: the new trained users, with TA from MEASURE Evaluation, train service providers from the three ministries working in health centers, veterinary posts, or forestry posts. The One Health electronic platform now features real-time data from these areas.

MEASURE Evaluation regularly updates actors not yet involved in One Health on the progress of the One Health technical working group (TWG), to encourage their engagement with these activities. The human and animal health laboratories have been involved, and some have even taken the lead on some activities. The Livestock Laboratory is interested in using DHIS2, and although the human health laboratories were not involved in the setup of DHIS2 for different diseases, they have been active in learning how data are entered and how they can be accessed. Finally, even though the environmental laboratory focuses on water quality and data associated with waterborne disease outbreaks, it is an active member of the One Health TWG. MEASURE Evaluation ends in March 2020, and the team is working to ensure that this initiative will be extended by the government or another project to the rest of Burkina Faso.