

Nigeria

Tracking the distribution of Covid vaccinations

Challenge

The arrival of vaccinations against Covid-19 represented a big step forward in managing the pandemic. Countries around the world have been seeking ways to easily and constantly monitor the amount of vaccine available to citizens, to ensure efficient and fair distribution of these medicines. As a relatively new treatment – with side effects and efficacy still being closely tracked – it is also important to know which batches of which medicines are where, not least in case of recall.

Approach

Nigeria already had a plan to implement pharmaceutical traceability for all drugs by 2024, with part of it involving a series of pilots focused on specific products. Covid-19 vaccines were chosen to be one of those pilots. It means that all batches of vaccines arriving in the country have been scanned on arrival and again later in the distribution chain. This means it is possible to understand exactly which supplies have been received and where they are.

A pilot based in pharmacovigilance

In September 2019, Nigeria's National Agency for Food and Drug Administration and Control (NAFDAC) launched a five-year plan to implement traceability of all pharmaceutical products in the country. Based around scanning of GS1 standard barcodes, the idea is to be able to precisely track every medicine, from arrival in the country to administration.

Four months after the plan was launched, the World Health Organisation announced a novel virus had been detected in Wuhan in China and, three months after that, declared a global pandemic. A year later, the first doses of Covid vaccine would arrive in Nigeria and – with it – the chance to implement a high-profile pilot of the country's traceability plans.

Pilots are a key part of the country's pharmaceutical traceability plan. The arrival of the vaccines, however, offered an early opportunity for a first pilot.

"As a regulatory agency in Nigeria, NAFDAC has the responsibility to ensure that we closely monitor the distribution of these vaccines," says John Olusola Kayode, the agency's assistant chief regulatory officer.

"That's especially for reasons of pharmacovigilance, because safety, efficacy and adverse effects of the vaccines are still being documented. To support our pharmacovigilance efforts, we needed to ensure that in Nigeria we had data to be able to show, real time, where the vaccines have been, where they were going.

"We also needed to be able to use the data to assist the agency in case there were regulatory recalls. Covid-19 vaccines were being distributed for the first time, and it's possible that there could be a need for us to recall one or two batches."

To meet this need, GS1 barcodes are being used. Global location numbers (GLNs) have been registered within the supply chain, which are embedded in a barcode. Scanning this barcode records the location. The barcode containing the GTIN on the vaccine batch is then scanned. This links information on that batch to the location at which it has been scanned.

"Scanning for commissioning event at national level upon arrival of the vaccines and scanning in-country for inspection of the vaccines at sub-national levels was done using the NAFDAC Ports Clearance System," explains John, "while other scanning events were done with a mobile application built on GS1 standards."

Powerful proof of concept

As data began to be collected, NAFDAC started to build a dashboard on which to display it. Now in place, it enables users to see all details of vaccine batches in the country – including manufacturer and expiry dates – and also to track the journey of any batch. "You're able to see, across the country, where the batches are," says John.

There are now moves to introduce a similar set-up for drugs used to treat HIV/AIDS and tuberculosis, as well as anti-malarials. According to

John, the existing Covid-19 dashboard is proving a powerful encouragement for those efforts.

"There is a lot of enthusiasm now with antimalarial commodities, because we are not just telling them we want to conduct a traceability pilot – we are also showing them what the Covid-19 vaccine pilot looked like. They are so happy and excited that with a click of a button they will know where all the batches are.

"Pilots show that traceability is realistic, it's visible, it's practicable, it's doable," he says.

Gaining support

He believes that fostering support and political will is crucial to successfully implementing a traceability project. "The commitment of the director general of NAFDAC was one of the key factors in ensuring there was engagement at the highest levels," says John.

"The importance of stakeholder collaboration throughout the supply chain cannot be overemphasised. You have to let everyone in the chain understand the reason you are doing what you are doing, and the importance of what you are

doing, because you have to get their buy-in. Without their buy-in, you can write regulations and put everything in place but nobody's going to be compliant."

The Covid-19 project has helped build that support, and helped overcome some challenges. Lack of scanners meant that many of those within the vaccine supply chain had to use their personal phones to scan barcodes. That sometimes caused issues, because the cameras on those devices weren't necessarily very powerful.

But following the success of the vaccine pilot, donor agencies have agreed to provide funding. "We have two donors – the World Health Organisation and the United States Agency for International Development – that each agreed us to give 74 scanners, so a total of 148 scanners. We also have funding from The Global Fund to extend our traceability to malaria, tuberculosis and HIV drugs. They have also funded the procurement of a large number of scanners across the supply chain.

"Before the Covid vaccine pilot, much of that funding was not really forthcoming," explains John. "But when the donors saw that this was viable, they saw this was important for them to support."

About the author



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John Olusola Kayode is a microbiologist, data scientist and public health professional with specialty in medical statistics who currently leads the technical team driving the implementation of traceability for pharmaceuticals in Nigeria. He is also part of the team leveraging innovative technologies to improve regulatory outcomes for NAFDAC. John is a seasoned data analyst with competence in development and deployment of data products, IT-related systems and use of field detection devices, some of which are currently deployed for NAFDAC to improve regulatory control, support product traceability and market surveillance.

About the organisation



Nigeria's National Agency for Food and Drug Administration and Control (NAFDAC) regulates and controls the manufacture, importation, exportation, distribution, advertisement, sale and use of food, drugs, cosmetics, medical devices, packaged water, chemicals and detergents. The agency was officially established in October 1992. It is made up of 14 directorates.

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