

# Nigeria

## NAFDAC locates 100% of recalled COVID-19 vaccine batch within 1 hour using Nigeria’s national traceability system built on GS1 standards

### Challenge

Maintaining vaccine integrity is essential to patient safety and confidence. When a specific COVID-19 batch was found to be compromised, NAFDAC needed to quickly locate and remove all distributed doses—without disrupting broader immunisation efforts. The challenge was speed, scale, and precision across Nigeria’s extensive healthcare network.

### Approach

The recall process was triggered by a laboratory alert to NAFDAC’s Director General, who immediately engaged the Traceability Technical Lead. Using the TIS, distribution points for the affected vaccines—each marked with GS1 DataMatrix codes—were identified in less than an hour.

Simultaneously, the Executive Director of the national immunisation programme contacted primary health centres in every state to prepare for a possible recall, ensuring readiness even before laboratory confirmation was complete. This was done to prepare for a potential recall while formal approval by NAFDAC’s Vaccines/Biologics Laboratory was still pending.



**100%**  
of affected doses traced  
and recalled



GS1 DataMatrix enabled  
instant identification



Traceability system  
delivered results  
in <1 hour



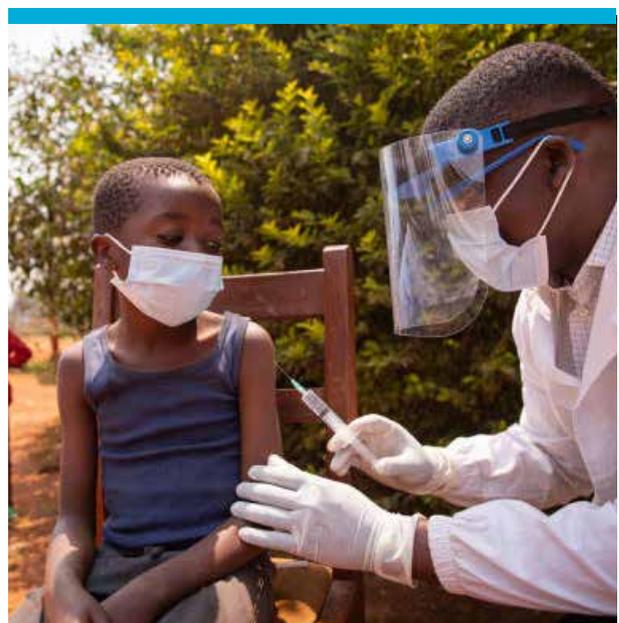
Model for future public  
health emergencies

### Introduction

Ensuring the integrity of vaccine distribution is critical for large-scale immunisation programmes. During the COVID-19 pandemic, Nigeria faced a significant challenge when a compromised vaccine batch had to be immediately recalled. Leveraging its Traceability Information System (TIS), built on GS1 standards, the National Agency for Food and Drug Administration and Control (NAFDAC) successfully identified, traced, and recalled 100% of the affected doses—protecting public health and reinforcing trust in the vaccination programme.

### Implementation

**Identification of distribution points:** Upon receiving the alert, the NAFDAC team used the TIS to pinpoint all distribution points where the affected vaccines, marked with GS1 DataMatrix



codes, had been distributed. This initial traceability step took less than one hour, underscoring the system's effectiveness in real-time public health response.

**Escalation and communication:** The project lead contacted the Executive Director, who, in turn, notified all relevant primary health centres across the country. This proactive communication, conducted before full laboratory approval, ensured local readiness and expedited the response. The escalation and outreach phase was completed within one hour.

**Physical recall and return:** Once the recall was confirmed, vaccines were returned to the National Cold Store in Abuja and to NAFDAC for safe handling and disposal. This full process took approximately one week, taking into account transportation and safe handling requirements.

## Outcome

Nigeria successfully recalled 100% of the compromised vaccine batch. The combination of GS1 standards, national leadership, and digital infrastructure enabled rapid identification, escalation, and retrieval. Strong communication links at every level ensured delays were minimised, protecting both patients and the credibility of the national vaccine rollout.

This achievement highlights Nigeria's TIS as a model for managing recalls and other public health emergencies—demonstrating how trusted data and standards deliver real-world impact.



## Next steps

Since 2024, Nigeria has mandated the use of global GS1 standards for labelling all pharmaceuticals, strengthening traceability nationwide. This policy ensures that each medicinal product is uniquely identifiable, enhancing traceability and accountability throughout the supply chain.

Government investment in the TIS continues to expand its reach and capability. Ongoing stakeholder engagement, awareness campaigns and pilot studies are strengthening this local initiative and reinforcing medicine safety at the national level.

Future efforts will focus on using the system not only for recalls but also for detecting counterfeit products or compromised products before they reach the public. NAFDAC is implementing full Track and Trace in a phased approach. By adopting GS1 global standards and investing in digital infrastructure, Nigeria is building a more resilient and responsive public health system, with pharmaceutical traceability and patient safety at its core.

## About the author



### Professor Mojisola Christianah Adeyeye

Director General, National Agency for Food and Drug Administration and Control (NAFDAC)

Professor Mojisola Adeyeye has led NAFDAC through wide-ranging regulatory and administrative reforms, using a quality management approach that culminated in the agency's attainment of ISO 9001:2015 certification. Under her leadership, NAFDAC strengthened its governance and regulatory systems using the WHO Global Benchmarking Tool and achieved Maturity Level 3.

She directed the agency's strategic move toward greater visibility in product distribution using traceability systems, with COVID-19 vaccines as a pilot. Through this initiative, NAFDAC successfully implemented GS1 standards to track and trace all COVID-19 vaccines in Nigeria, enabling in-country serialisation for unmarked shipments and executing batch recalls within the supply chain.

Professor Adeyeye is the founding Chair of Biopharmaceutical Sciences and a Professor of Pharmaceutics and Drug Product Evaluation at Roosevelt University in Illinois and was previously a Professor of Pharmaceutics at Duquesne University in Pittsburgh. A Senior Fulbright Scholar, AAPS Fellow (2008) and experienced researcher, she holds five patents, has published over 55 peer-reviewed works and has delivered more than 140 scientific presentations. She is also the founder of Elim Pediatric Pharmaceuticals and several non-profit organisations focused on health and social care.

## About the organisation



### National Agency for Food and Drug Administration and Control (NAFDAC), Nigeria

NAFDAC is Nigeria's regulatory authority responsible for the control and regulation of the manufacture, importation, exportation, distribution, advertisement, sale and use of food, drugs, medical devices, cosmetics, chemicals, packaged water and detergents.

Established in 1992, NAFDAC comprises 14 directorates and plays a central role in ensuring the safety, efficacy and quality of regulated products in Nigeria. The agency actively promotes the adoption of global standards and modern regulatory practices to protect public health and improve supply chain transparency.

[www.nafdac.gov.ng](http://www.nafdac.gov.ng)

