



Evaluation of COVAX Facility and AMC and COVAX Pillar Delivery Efforts

Côte d'Ivoire Case Study Final Report

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Gavi, WHO, UNICEF, CEPI

Prepared by
RTI International

3040 E. Cornwallis Road, PO Box 12194
Research Triangle Park, NC 27709 USA
www.rti.org

With Itad Ltd. (UK) and Genesis Analytics (S. Africa)



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LIST OF ACRONYMS

AEFI	Adverse events following immunization
AMP	Agence de Médecine Préventive
CDC	Centers for Disease Control and Prevention
CDS	COVID-19 Delivery Support
COVAX	COVID-19 Vaccines Global Access
CoVDP	COVID-19 Vaccine Delivery Partnership
CRD	Country Readiness and Delivery
CSO	Civil society organization
DCPEV	Direction de Coordination du Programme Élargi de Vaccination
DHIS 2	District Health Information System 2
EPI	Expanded Program on Immunization
FENOS-CI	Fédération Nationale des Organisations de Sante de Côte d'Ivoire
Gavi	Global Alliance for Vaccines and Immunization (GAVI, the Vaccine Alliance)
GDP	Gross domestic product
GHS	Global health security
HPV	Human papillomavirus
HSS (Index)	Healthcare System Strength (Index)
ICSO	International civil society organization
IMT	Integration mapping tool
INHP	L'Institut National d'Hygiène Publique
MOH	Ministry of Health
NVDP	National COVID-19 Vaccination and Deployment Plan
PHC	Primary healthcare
PCU	Project Coordination Unit
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization

EXECUTIVE SUMMARY

Background on Côte d'Ivoire and COVAX

Côte d'Ivoire, a lower-middle income francophone country, has been politically and socially stable since its civil war ended in 2011 but faces humanitarian challenges. The country's first COVID-19 case was reported on March 11, 2020, and by December 2023 Côte d'Ivoire had experienced four epidemic waves, with 88,384 confirmed cases and 835 deaths. The nation's response included strict lockdown measures followed by entry into the COVID-19 Vaccines Global Access (COVAX) facility.

The country established an inter-agency taskforce, composed of government ministries and key stakeholders such as the Vaccine Alliance (Gavi), the United Nations Children's Emergency Fund (UNICEF), the World Health Organization, the United States Agency for International Development and the World Bank. This structure played a pivotal role in orchestrating the country's vaccination strategy and ensuring the implementation of its response plan.

With the support of COVAX and other partners, Côte d'Ivoire developed a National COVID-19 Vaccination and Deployment Plan, which prioritized health care workers and the elderly. The country received its first vaccine doses from COVAX in February 2021.

COVAX support received in on Côte d'Ivoire

COVAX provided about US\$15 million for vaccine distribution and operational costs of COVID-19 vaccination in Côte d'Ivoire. Major components of COVAX support were:

- Funding for early planning of vaccination and capacity building, amounting to US\$375,202. This was critical in laying the groundwork for Côte d'Ivoire's vaccine deployment. It was used to support planning and coordination, strengthen the cold chain and logistics, and provide workforce training.
- Funding under COVID-19 Delivery Support 3, amounting to US\$13,849,727. This not only intensified ongoing vaccination activities but assisted in integrating these into the existing primary health care system. The funding aimed to reinforce operations across the board and 19% was dedicated to technical assistance.

Outcomes and challenges of COVAX delivery in Côte d'Ivoire

Côte d'Ivoire received 31,081,830 vaccine doses. Most (62%) of these vaccines were received through the COVAX initiative, enabling the country to achieve a vaccine coverage of 64.3% of the target population by December 2023. For the total population, the country achieved 46.1% vaccine coverage, falling short of the 70% target. The COVAX initiative enabled early vaccine access, enhancement of cold chain infrastructure, and a successful vaccination campaign targeting diverse population groups.

The country grappled with vaccine hesitancy and misinformation, especially after AstraZeneca vaccinations were halted in European countries. Strategic communication campaigns that leveraged influential figures like footballers, social media content creators, and U-reporters who engaged on UNICEF-created platforms, were effective in mitigating these challenges.

The COVAX initiative also faced logistical challenges, including the management of vaccines received close to their expiry date and delayed disbursement of funding. Nevertheless, Côte d'Ivoire's political commitment and the active engagement of the Expanded Program on Immunization (EPI) and other partners facilitated the successful vaccine rollout.

Broader lessons or insights

Côte d'Ivoire's experience with COVAX highlights the critical balance between preparedness, rapid response, and equity in achieving vaccination goals. Strong global and local collaborations were central to addressing the pandemic's challenges. As the COVAX engagement concludes, insights for sustaining the enhancements to the EPI and further improving data management and integration of services are fundamental. Côte d'Ivoire's COVID-19 response illustrates the country's adaptability and commitment to public health. It offers insights for future initiatives to strengthen health systems and improve preparedness, among them continuation of the increased training and capacity building of health work.

BACKGROUND AND COUNTRY CONTEXT

This country case study is one of six contributing to the *Evaluation of COVAX Facility and AMC and COVAX Pillar Delivery Efforts*, with the aim of providing illustrative examples of COVAX's implementation in context and demonstrating how its implementation achieved results amidst evolving global and local contextual factors.^a **Appendix A** outlines the methods for this case study.

Côte d'Ivoire, classified in 2022 as a lower-middle income country by the World Bank, has a population of about 28 million.¹ While French is its official language, the country also uses local indigenous languages such as Baoulé, Dioula, Dan, Anyin, and Cebaara Senufo.² Following the end of the civil war in 2011, Côte d'Ivoire has maintained political and social stability in a region marked by fragility and insecurity. However, the country faces a humanitarian challenge in the northern region, bordering Burkina Faso, due to an influx of refugees mainly fleeing jihadist violence in the neighboring country.¹

Côte d'Ivoire confirmed its first case of COVID-19 on March 11, 2020, coinciding with the World Health Organization (WHO) declaration that COVID-19 constituted a global pandemic. Between 2020 and 2023, Côte d'Ivoire experienced four epidemic waves with 88,384 recorded cases of COVID-19 and 835 recorded deaths.^{3,4}

Country response to COVID-19

The government of Côte d'Ivoire declared a COVID-19 state of emergency on March 23, 2020, closing restaurants and limiting travel between Abidjan and other regions. Safety measures were enforced and a nationwide lockdown was imposed. In May 2020, the National Security Council lifted some restrictions and reopened schools with protective measures in place.⁵

In the year following the confirmation of the first COVID-19 case, the country recorded 34,935 cases and 200 deaths. This prompted it to join the COVID-19 Vaccines Global Access (COVAX) facility and implement a robust response plan.³ Côte d'Ivoire set up a taskforce with several

COVID-19 and COVAX characteristics

COVID-19

- Infection rate: 0.3%
- Mortality Rate: Case fatality rate 0.9%
- Government Stringency Index average [pre-2021]: 47.5
- Government Stringency Index average [post-2021]: 17.85

COVAX

- CoVDP focus: Yes

^a COVAX, the vaccines pillar of the Access to COVID-19 Tools Accelerator (ACT-A), was launched at the end of April 2020 under immense pressure during the COVID-19 pandemic to deliver vaccines worldwide, introducing an unprecedented market mechanism at a global scale. COVAX was co-led by the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi, the Vaccine Alliance (Gavi), UNICEF, and the World Health Organization (WHO). COVAX represents a partnership of 193 countries coordinating resources to secure access to a portfolio of COVID-19 vaccine candidates, aimed to provide participating countries with early access to vaccine doses sufficient to vaccinate up to half of their populations.

subcommittees—technical, communication, logistics, resource mobilization, monitoring, and management of adverse events following immunization (AEFI).

A technical subcommittee was responsible for developing and revising key documents, such as the National COVID-19 Vaccination and Deployment Plan (NVDP). COVAX provided financial and technical support for these activities and funded implementing partners like Agence de Médecine Préventive (AMP) to provide technical assistance. The vaccination delivery plan initially employed a phased approach aimed at specific target populations. The first phase prioritized vaccinating health care workers, defense and security personnel, and teachers (jointly comprising 3% of the population), while the second phase focused on individuals aged 50 and older and those with chronic illnesses (17% of the population).⁶

The COVID-19 vaccination program leveraged existing health facilities, administering vaccines at two to four facilities per district. These facilities were situated in high-traffic areas or in localities with a significant number of COVID-19 cases. In all 113 health districts, the program mounted monthly intensification periods, each lasting 10 to 15 days and utilizing community outreach and mobile units. In addition, there were two fixed mass vaccination sites in Abidjan that operated continuously.⁷ By March 2022, these activities had provided vaccines to about 20 million individuals aged 12 and older. A total of 222,180 doses were allocated for pregnant and lactating women. Among these, 13,534 pregnant women received two COVID-19 vaccine doses, while 138,494 pregnant women received a single dose.

Table 1. Summary of COVID-19 vaccination strategies as of June 2022⁷

Vaccination period	Timing and duration	Delivery strategies	Location
Intensification period	Monthly, for 10–15 days	Fixed site: health facilities	All facilities in all 113 health districts
		Outreach: temporary outpost sites	All 113 health districts
		Mobile strategy: medical caravans (integrated with other health services)	All 113 health districts
Systematic period	Monthly, between intensification periods	Fixed site: health facilities	At least two to four facilities per district in all 113 districts
		Outreach: temporary outpost sites	Occasionally in all 113 health districts
Continuous	Ongoing	Fixed site: mass vaccination/high-volume sites	Only in Abidjan. Two sites

By December 2023, vaccination coverage for the primary series in Côte d'Ivoire was 46.1% of the total population. Focusing specifically on the target population (individuals aged 12 and above), the country achieved a 64.3% vaccine coverage rate; for individuals with chronic illnesses, coverage of 43%, and health worker coverage was 64.5%. The coverage rate was comparable to that of neighboring countries like Guinea (44.1%) and Ghana (34.0%), but below the rates of Cabo Verde (62.8%), Sierra Leone (65.8%), and Liberia (80.2%)¹⁰. Most COVID-19 vaccines were obtained through COVAX (62% of total doses), followed by the African Vaccine

Acquisition Trust (27%). Vaccines included Pfizer-BioNTech (33%), Sinopharm (27%), Johnson & Johnson (23%), and AstraZeneca (17%).⁷

Due to a decline in COVID-19 cases, Côte d'Ivoire's National Security Council lifted the state of emergency on April 12, 2023, and proposed to integrate COVID-19 activities into routine health care services. This led to the development of the COVID-19 Vaccine Integration Mapping Tool (IMT), a collaborative effort involving United Nations International Children's Emergency Fund (UNICEF), Gavi, the Vaccine Alliance (Gavi), and WHO, which sought to align COVID-19 vaccination with vital health system components.¹⁰

The response to the COVID-19 pandemic in Côte d'Ivoire was influenced by political dynamics, societal structures, and demographic characteristics. High-level coordination between political leaders, notably the President and Prime Minister, and key institutions like the Direction de Coordination du Programme Élargi de Vaccination (DCPEV) and L'Institut National d'Hygiène Publique (INHP), was pivotal to the pandemic response. Strong global collaborations, involving stakeholders such as GAVI, UNICEF, WHO, United States Agency for International Development (USAID), and the World Bank, played a significant role in addressing the challenges posed by COVID-19 in Côte d'Ivoire. The active participation of local stakeholders, like civil society organizations (CSOs), religious leaders, bloggers, Voix des Jeunes, journalists, and U-Report communities,^b was also critical.

Social factors—such as misinformation and vaccine hesitancy—significantly influenced public engagement with the vaccination program.⁹ Hesitancy was fueled by widespread rumors and concerns stemming from European countries' suspension of AstraZeneca vaccination following rare side effects. This led to a strategizing of the vaccine delivery approach, with an increased focus on communication to combat misinformation and improve the public perception of vaccines. The vaccination program leveraged U-reporters dispersed throughout the country to conduct short digital surveys to grasp public perceptions of vaccines and tailor communication campaigns to influence these perceptions. These strategies, coupled with the availability of vaccines such as Pfizer-BioNTech and Johnson & Johnson, led to a positive change in public attitudes to vaccination.

Due to the enforcement of lockdown measures, the country faced significant reductions in employment, hours worked, income, and food consumption in the early months of the COVID-19 outbreak, particularly in urban areas.¹²

Côte d'Ivoire's health sector at a glance

The health system in Côte d'Ivoire is structured on three levels: the central (Ministry of Health [MOH]), regional, and district levels. This structure encompasses more than 4,000 public and private health facilities.¹¹ The nation faces a critical shortage of health personnel, with only 1.8 doctors and 7.26 nurses or midwives per 10,000 individuals.¹²

^b U-report, a social media platform developed by UNICEF in collaboration with the Côte d'Ivoire government, allows young individuals (U-reporters) to share their opinions and concerns through short surveys via SMS, WhatsApp, and Facebook.

Prior to the COVID-19 outbreak, the Expanded Program on Immunization (EPI) within the MOH was fully operational at both the central and peripheral levels. The EPI also had a recent history of introducing new vaccines, including the rotavirus vaccine in 2018, and the hepatitis B birth dose (DN Hep B) and the human papillomavirus (HPV) vaccines in 2019. Between 2015 and 2020, efforts were made to strengthen the cold chain at all levels of the health system through the acquisition of new equipment. This initiative enhanced the storage capacity for vaccines and other medical supplies at the central, regional, district and health center levels.⁹

Key Country Characteristics

Population

- Total population: 28,160,542 (2022)¹³
- Urban population: 52.6%¹³
- Population > 50 years: 6.5%⁶
- Population >12 years: 70%⁶
- Health care workers: 0.4%⁶

Health care system strength

- Health expenditure: 3.21% of GDP¹³
- Health expenditure per capita: US\$73.65¹³
- Routine vaccine coverage 2019: 79% for DTP3 and 71% for measles¹⁴

Global health security

- Global Health Security (GHS) Index score: 35.5¹⁵
- Major epidemics since 2000: Yellow Fever in 2001, 2005, and 2010; Cholera in 2003; Dengue in 2017

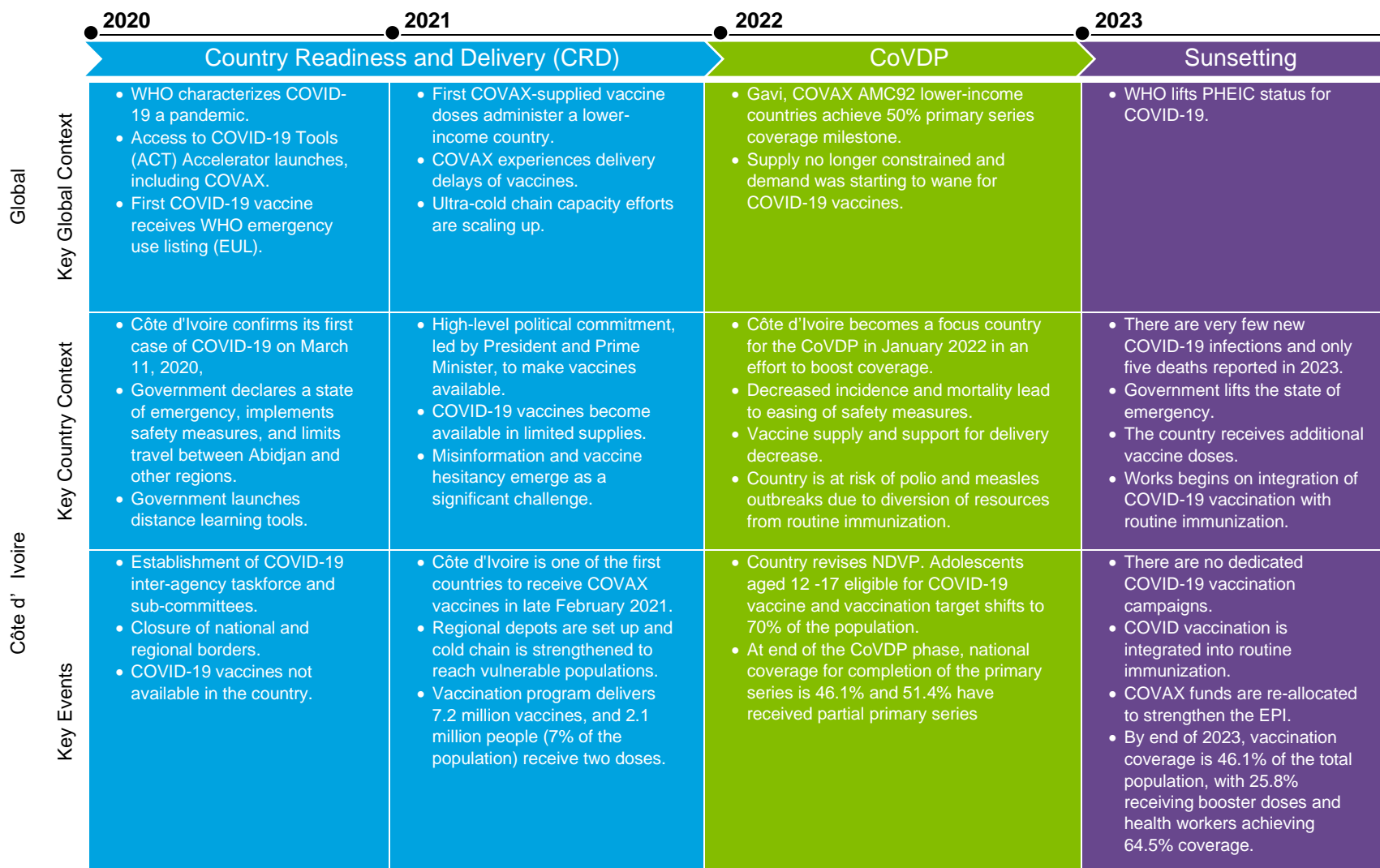
Socioeconomic indicators

- World Bank classification: Lower-middle income country¹³
- Francophone: Yes
- Conflict-prone: No

OVERVIEW OF COVAX ENGAGEMENT IN CÔTE D'IVOIRE

COVAX and its partners in Côte d'Ivoire collaborated across workstreams to ensure that COVID-19 vaccines were delivered from the center to the periphery of the health system, targeted population groups were vaccinated, and COVID-19 vaccination was integrated into the existing primary health care system. Broadly, the engagement of COVAX in Côte d'Ivoire unfolded in three main phases: the Country Readiness and Delivery (CRD) phase, followed by the focused COVID-19 Vaccine Delivery Partnership (CoVDP) phase, and the Alliance phase (Figure 1).

Figure 1. Country timeline



Country Readiness and Delivery (CRD) phase

During the CRD phase in Côte d'Ivoire, a technical committee was responsible for developing the NVDP and delineating the roles and responsibilities of each subcommittee and implementing partner. The NVDP, along with other key documents, underwent review and validation by the interagency taskforce, comprising government ministries, technical and financial partners like GAVI, Alliance partners, and CSOs. This phase was fundamental in assessing the country's preparedness to receive and administer COVID-19 vaccinations.

Funds for the execution of vaccination, as outlined in the NVDP, were mobilized through collaborative efforts among COVAX and other partners, including the World Bank, African Union, African Development Bank, the Economic Community of West African States, and USAID. These resources were strategically allocated to various needs: procuring vaccines, bolstering Côte d'Ivoire's cold chain infrastructure, and covering operational costs of vaccination campaigns.

Prior to the pandemic, it was noted that 110 out of 113 districts lacked adequate storage capacity for preserving tuberculosis vaccines and other routine vaccines. The country utilized the funding from COVAX and other partners to enhance its cold chain capacity by procuring essential equipment, as outlined in the **Table 2**.

Table 2. Cold chain equipment procured in 2021⁹

Cold chain procurement

Item	Quantity
TCW 2000AC refrigerators	1,100
TFW 3000AC refrigerators	237
Cold rooms	27
30kVA generators for cold rooms	10
BK-VC 2.6 – CF coolers	3,000
RCW 25 coolers	1,000
RCW 12 coolers	2,500
Refrigerated vehicles	3
Truck	1
4x4 vehicle	1

A portion of funding was allocated to risk communication and community mobilization aimed at mitigating vaccine hesitancy and fostering an environment conducive to vaccination. The U-report digital communication system developed by UNICEF reached more than 2 million people and was an outstanding element in the communication and community engagement sphere.

In February 2021, Côte d'Ivoire became the second African country and first French-speaking country to receive a shipment of AstraZeneca vaccines through COVAX.¹⁶ The 504,000 doses enabled the country to launch its vaccination campaign on March 1, 2021 in Abidjan and key urban areas with the aim of vaccinating priority population groups comprising 20% of the population. However, the phased approach was abandoned after six weeks due to low vaccine acceptance rates among targeted populations, and all individuals aged 18 and older (56% of the

population) became eligible for vaccination. Vaccine hesitancy was a significant challenge, particularly among health and education professionals.⁹ By the end of 2021, 7.2 million vaccine doses had been administered and about 2.1 million people (7% of the total population) had received two doses.⁷

COVID-19 Vaccine Delivery Partnership (CoVDP) phase

To increase vaccine coverage, Côte d'Ivoire was included among the 34 COVID-19 Vaccine Delivery Partnership (CoVDP) priority countries in January 2022.⁸ The country revised the NVDP in April 2022 to extend vaccine eligibility to adolescents aged 12 to 17, set the coverage target at 70% of the population, and recommend a third booster dose.⁹ During this phase, the country's taskforce was expanded to include more government ministries (Women-Family-Children, Communication, Transport, Tourism, Defense, Justice, and Social Protection), allowing for a more inclusive and effective decision-making process.

The vaccination campaign shifted its emphasis towards risk communication and proactive community engagement during this phase. CSOs, including the Fédération Nationale Organisation de Santé (FENOS-CI), collaborated with prominent artists and influential cultural figures to bolster vaccine uptake, and young social media content creators played a part. A famous footballer advocated for the vaccine and participated in media interviews, public events, and awareness campaigns. They also met with members of the government to commit to promoting vaccination within the football community and among the public. In addition to strengthening communication and awareness-raising activities, CoVDP saw the setting up of outposts for vaccination, the use of mobile clinics and motorbikes to reach remote areas, and the intensification of vaccination campaigns. It became mandatory for health facility workers to receive vaccinations as a precautionary measure to minimize their risk of infection. This approach increased the uptake and coverage of vaccination in the country.

When the CoVDP phase ended in May 2023, the coverage rate for completion of the primary series was 46.1% of the total population^c and 51.4% of the population had received part of the primary series.¹⁹

Alliance phase

The final phase of COVAX support to Côte d'Ivoire was characterized by the planned integration of COVID-19 vaccination into the primary health care system and routine immunization schedules. This was because the incidence of COVID-19 had declined and the standalone COVID-19 vaccination program had disrupted essential health services increasing the risk of outbreaks of diseases such as measles and polio. Vaccine coverage had fallen from 71% to 62% for measles and from 92% to 85% for the Bacille Calmette-Guérin vaccine. Incorporation of COVID-19 vaccination into routine immunization promised more sustainable service delivery.

The integration process was guided by the IMT developed in early 2023. The tool was a collaborative effort by COVAX partners and was designed to align with the WHO health systems strengthening framework. It encompasses the health workforce, information systems, essential medicines, financing, leadership, governance, communication, and intersectoral collaboration. A

^c While the WHO dashboard reports a vaccination coverage of 46.1% for Côte d'Ivoire, another study by the U.S. Center for Disease Control and Prevention showed a coverage of 44.3% of the total population for completion of the primary series by the end of 2023.¹⁰

case study showcased the effectiveness of the IMT in transforming immunization practices and its potential for wider use.¹⁰

Resources were reallocated to support the EPI to integrate COVID-19 vaccination and intensify routine immunization. This period marked a significant step towards strengthening general health infrastructure and ensuring sustained resilience in the face of COVID-19 and other health threats.

FINDINGS ON COVAX SUPPORT IN CÔTE D'IVOIRE

This section describes the structures that underpinned COVAX's support to on Côte d'Ivoire, planning processes and equity considerations, the resources provided at different times, and the complementary roles of Alliance partners and the country stakeholders. These findings are based on multiple sources of evidence, integrating the perspectives and experiences of a range of partners. Data collection methods included desk reviews and key informant interviews (KIIs), with the findings reflecting areas of convergence across stakeholder input and supporting documentation. A validation session was held with stakeholders to ensure alignment and consensus. This statement has been added to the CCS reports. This section is structured by evaluation question (EQ).

Country-level support provided through COVAX

EQ 3: Was the implementation framework for the COVAX Delivery Pillar appropriate to achieve overarching objectives?

The COVAX initiative's support to Côte d'Ivoire's pandemic response was multilayered and combined financial support with technical guidance. It played a significant role in the development and refinement of a national implementation framework for vaccine delivery.

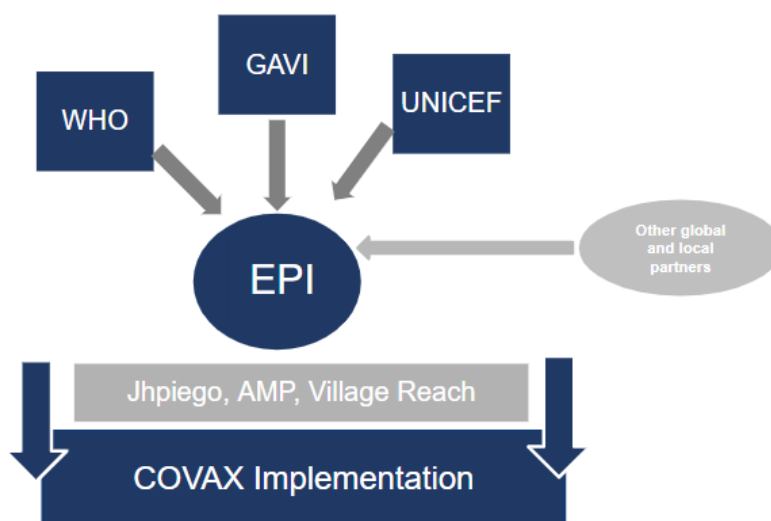
Sub-EQ 3.1: To what extent did core delivery partners and delivery modalities respond to identified needs and priorities of (1) priority population groups, (2) national governments, and (3) COVAX stakeholders?

Finding 1: GAVI, UNICEF, and WHO, acting jointly as part of the COVAX initiative, displayed responsiveness to the country's pressing needs and priorities, such as the supply of vaccines, upgrading of cold chain equipment, and transportation for vaccinating vulnerable populations in all regions of Côte d'Ivoire. Their flexible support system enhanced the country's pandemic response. A host of international and local organizations, including the World Bank, Joint United Nations Programme on HIV/AIDS, implementing partners, and CSOs, also aligned their support with the country's health priorities and operational realities.

GAVI, as a central player in COVAX, was responsible for COVID-19 Delivery Support (CDS) funds. These funds were crucial for covering operational costs and were disbursed in cycles. Côte d'Ivoire benefited from CDS and CDS-3 funds. The first cycle focused primarily on planning and implementing the COVID-19 response, including strengthening cold chain capacity, activating demand generation and communication, providing training to the workforce, and organizing vaccination campaigns. The third phase expanded the scope of support, promoting the integration of COVID-19 with routine immunization and primary healthcare. GAVI utilized the Project Coordination Unit (PCU), which was set up prior to COVID-19, to channel

these funds. However, this unit reportedly delayed access to funds due to its lengthy disbursement process.

Figure 2. COVAX delivery partners supporting Côte d'Ivoire's EPI



UNICEF was instrumental in vaccine procurement and coordinated with the central purchasing unit to ensure the arrival of vaccines in the country. It played an important role in securing the necessary cold chain equipment to store vaccines at regional and district levels. UNICEF also managed risk communication and community mobilization through its network of U-reporters who conducted surveys to understand community perceptions of vaccines and thereby enabled informed decisions on communication strategies. This work was supported by Village Reach. UNICEF, alongside CSOs like the Fédération Nationale des Organisations de Santé de Côte d'Ivoire (FENOS-CI), addressed vaccine hesitancy through community mobilization and advocacy involving influential figures. UNICEF also supported the implementation of vaccination campaigns and contributed to the integration of COVID-19 vaccination into EPI routine immunization.

WHO participated in planning and coordinating vaccination activities and streamlining data collection and management processes. It hired and trained 206 data managers in 103 districts and equipped them with tablets and internet access. This facilitated integration of COVID-19 vaccination forms into DHIS2 and permitted real-time tracking of vaccinations. WHO's technical assistance was crucial in bolstering case management capacity. It supported the Institut Pasteur laboratory by enhancing sample analysis capacity and providing essential IT equipment. Additionally, WHO facilitated the establishment of regional health emergency centers nationwide and conducted comprehensive training of health care staff, including vaccinators and supervisors. WHO also helped strengthen AEFI reporting and management by training focal points at regional and district level to ensure coordinated responses.

Finding 2: The roles of COVAX implementing partners were distinct yet complementary. Village Reach used COVAX funds to focus on operational activities, establishing high-capacity vaccination sites or “vaccinodromes” in Youpougon, which serviced 1,000 people a day. Village Reach also undertook demand generation and managed the response to AEFIs. In all, Village Reach vaccinated about 200,000 people. Agence de Médecine Préventive (AMP), through CDS

funding, assisted with the strategic vaccine deployment plan and building capacity among immunization stakeholders. Jhpiego provided technical assistance for strengthening the collaboration between the EPI and school health programs, revising operational tools to integrate medical check-ups at schools with COVID-19 and HPV vaccination.

Sub-EQ 3.2: To what extent and how were (1) in- and intra- country equity and (2) gender equity considerations integrated into delivery modalities?

Finding 3: As COVAX rolled out its vaccine delivery program in Côte d'Ivoire, it was guided by the core principle of ensuring equitable access for all segments of the population. Initially vaccination centered on health care workers and the elderly but evolved to include the whole population aged 12 years and older. The vaccine was provided free of charge, making it available to all. The following considerations promoted equity in vaccination delivery.

- a. Mobile clinics were deployed to remote areas lacking health care facilities, ensuring that isolation did not prevent access to vaccines. Motorcycles were used specifically in areas inaccessible to other vehicles. The construction and upgrading of nine regional storage depots were key to bringing vaccines closer to the population in need.

“We used mobile strategies to really reach out to everyone, even in areas that are difficult to access.” –COVAX delivery partner

- b. Targeted strategies were put in place to distribute vaccines to vulnerable groups. This involved deploying vaccines to places where members of these groups gathered in large numbers—for example, at venues for pension payment. Special attention was paid to engaging associations for disabled persons to ensure their inclusion in vaccination. Specific vaccination strategies were adopted for occupational groups—for example, farmers because of their relative isolation and mechanics whose social patterns might increase their risk of infection. The principle of equity was also reflected in the prioritization of at-risk individuals and groups, such as those gathering for significant events like the African Cup of Nations football tournament.

“One of the most important things we had to do was to make vaccinations available at all vaccination points of all kinds.” –COVAX delivery partner

- c. Pregnant and breastfeeding women were offered the Pfizer-BioNTech vaccine as a suitable option. The integration of COVID-19 and HPV vaccination campaigns allowed school-going girls and girls out of school to have access to both vaccines.

Sub-EQ 3.3: Were human and financial resource allocations to delivery modalities (1) adequate, (2) defined, (3) coordinated, and (4) agreed?

Finding 4: Côte d'Ivoire received several streams of financial support from GAVI for COVAX delivery. GAVI provided about US\$15 million for vaccine distribution and operational costs in Côte d'Ivoire. The funds were utilized for field implementation of vaccination, payments to personnel, and logistics expenses. **Tables 3 and 4** provide the details.

Table 3. Budget for COVAX technical assistance plan 2020

Programmatic area	Partner	Total (USD)
Planning and coordination	WHO	96,649.52
Vaccines, cold chain, and logistics	UNICEF	59,160.00
Training and supervision	WHO; AMP Afrique	49,726.20
Demand generation and communication	UNICEF; Village Reach	40,839.68
Safety surveillance	WHO	86,390.31
Monitoring and evaluation	WHO	42,436.20

Table 4. CDS-3 approved budget for Côte d'Ivoire

Budget category	Amount approved (USD)	Share of total funding
Operational: reaching high-risk populations	500,441	4%
Operational: reaching adult populations	7,344,800	53%
Operational: integration into routine immunization	6,004,485	43%
Total	13,849,727	100%

The CDS-3 budget approved by GAVI indicates the country received a total of US\$13,849,727, 19% of which (US\$2,649,518) was allocated to technical assistance. Recipients of technical assistance allocations included the EPI, UNICEF, WHO, AMP, and Jhpiego.

Finding 5: In terms of human resources for COVID-19 vaccination, the country relied primarily on its existing health care workforce, which included state-certified midwives, nurses, assistants, and caregivers. It supplemented these workers with volunteers, mobilizing medical students, community members, and community health workers. Recruitment of new health workers at the national level was limited to staff for specific assignments who were allocated, as needed, to various areas.

COVAX funds were allocated to provide training to vaccinators and supervisors. This training, provided mainly by WHO, covered the administration of vaccines, the management of adverse events, waste management, inventory management, and the use of tablets for capturing vaccination data. At the district level, the training extended to district management teams, which included district directors, hospital directors, district department heads, and program coordinators.

In September 2020, UNICEF supported the Ministry of Health's provision of specialized training for 74 health care workers and social workers. This responded to the mental health impacts of the pandemic and delivered COVID-19-adapted psychosocial support to adolescents and youth.

Implementation and adaptation of COVAX support

EQ 4: How well was the COVAX delivery pillar implemented and adapted as needed, in line with overarching objectives?

COVAX in Côte d'Ivoire made various adaptations in response to the changing COVID-19 pandemic. This section explores the challenges, successes, and effectiveness of the initiative's approach.

Sub-EQ 4.1: What were the key enablers and barriers relative to successes achieved and challenges encountered?

Finding 6: Key challenges

- a. The COVAX initiative in Côte d'Ivoire encountered challenges that tested the resilience and flexibility of the vaccine delivery system. Initially, Côte d'Ivoire experienced significant challenges around vaccine hesitancy, driven by misinformation and rumors. To address this, strong local and user-centered advocacy and communication efforts were implemented to enhance vaccine sensitization and demand creation. Another pressing issue was the receipt of vaccines near their expiration dates, which necessitated urgent intensification of the vaccination campaign.

“Sometimes vaccines were (received) very close to their expiry date, a month away!” –MOH Côte d'Ivoire

When necessary, the system's capacity to administer vaccines was significantly ramped up, at times exceeding 40,000 doses a day at about 2,895 vaccination sites. This was achieved despite substantial vaccine hesitancy fueled by misinformation and rumors.

- b. The first consignment of COVAX vaccines in February 2021 did not meet demand. However, neighboring countries with a lower vaccine consumption and a high risk of vaccine expiry engaged in dose transfer with countries facing high demand. As a result, Côte d'Ivoire secured additional vaccines from neighboring Niger and Benin in May 2021 and from Mali in June 2021 to cater to the demand between scheduled COVAX consignments.
- c. Furthermore, delays in the disbursement of funds by the GAVI PCU unit presented additional challenges.

“The bottleneck was the disbursement made from this unit (PCU) to the actual implementation of the activities, particularly when we had to send back statements. This means that all the players who worked needed to have their statements in due form, and sometimes this was the problem.” –COVAX delivery partner

At the local level, a mobile device money payment system intended to streamline financial transactions was hindered by outdated databases on the health care workers to be paid.

- d. New vaccination methods and communication mechanisms were conceived and developed for the particular needs of the COVID-19 pandemic. Special measures were needed at a later stage to integrate these into the country's broader health services.

Finding 7: Key successes

- a. Measures taken by various stakeholders as part of the COVAX initiative led to positive outcomes. First, the early supply of vaccines was a significant success attributable to high-level political commitment and effective collaboration between COVAX partners and the government.

“I think it was the dexterity and hard work of the initiative's partners that really made it possible to get the vaccines. There was enormous pressure on the availability of vaccines worldwide. But despite this tension, the country got its first doses (early).” –COVAX delivery partner

- b. Peer-to-peer learning among countries and high-level political discussions also facilitated collaboration and the mobilization of funds essential for the campaign.

“Global solidarity was extraordinary and helped us discover this very rapid financial mobilization mechanism.” –COVAX delivery partner

This collaborative spirit was also evident in the positive responses of Niger, Benin, and Mali to Côte d'Ivoire's appeal for vaccines to overcome shortages between its COVAX consignments in May and June 2021. In addition, the EPI was able to manage vaccine distribution and administration at scale, facilitated by collaborative efforts and a dedicated taskforce.

- c. An effective communication strategy, utilizing an existing network of U-reporters and iconic figures like Footballers, played a role in addressing vaccine hesitancy. Campaigns aimed to dispel misinformation and rumors, which was especially important as the vaccination threshold was lowered to 12 years. Targeted campaigns in educational institutions and public spaces in communities may have been pivotal in increasing vaccine acceptance among the youth.
- d. The UNICEF-supported upgrading of distribution infrastructure to nine regional depots and enhanced cold chain capacity—adequate for Pfizer-BioNTech—represented a significant improvement in the health system's infrastructure and readiness for future needs.

Sub-EQ 4.2: Did adaptations to delivery modalities in response to the changing context enable countries to prepare, introduce, and scale up vaccines in a timely and effective manner?

Finding 8: In Côte d'Ivoire, COVAX support involved strategic and effective adaptations at each phase. During the CRD phase, under the leadership of the EPI, Côte d'Ivoire established a comprehensive taskforce, encompassing representatives from all partner organizations, including WHO and UNICEF. This taskforce was pivotal in determining the country's needs, making funding requests, and ensuring the logistical and data requirements were met. Its actions enabled the country to adapt rapidly to changing circumstances. The acquisition of Pfizer-BioNTech vaccines heavily influenced cold chain requirements and UNICEF-equipped regional depots with ultracold storage capability.

“The taskforce had set up a mechanism to manage this major crisis, and all the partners were always with us. We made decisions together and developed our strategies together.” – MoH Côte d'Ivoire

During the COVDP phase, the delivery strategy intensified demand generation and utilized mobile clinics and motorcycles to vaccinate in areas without health centers, thereby ensuring access for the most vulnerable populations. Special attention was given to pregnant women, with the Pfizer-BioNTech vaccine being the only authorized vaccine for this group by the government of Côte d'Ivoire.

During the alliance phase, the integration of COVID-19 vaccination into routine immunization schedules in March 2023 marked a significant transition. This was accompanied by the reallocation of certain COVAX funds to the EPI. The measures allowed the country to maintain COVID-19 vaccination momentum in the post-pandemic period.

[Sub-EQ 4.3: How well did WHO and UNICEF country offices coordinate and collaborate to support Pillar delivery objectives relative to specific country needs?](#)

Finding 9: The dedicated interagency taskforce, established quickly and comprising representatives of key global and national health organizations under the leadership of the EPI, facilitated microlevel planning, strategic decision-making, and operational logistics. The continued application of this collaborative model suggests that stakeholders found it effective. Partners' roles and responsibilities were well-defined, avoiding overlap and enabling a cohesive response to the pandemic. For instance, UNICEF's management of funds and the delivery of vaccines, combined with WHO's emphasis on capacity building, represented a complementary division of labor.

"Allocations are made to ensure that together, we won't be doing the same things, but that we'll really be complementing the government in implementing vaccination against COVID-19." –COVAX delivery partner

CSOs like the Red Cross Society focused on community mobilization and the provision of protective gear, psychosocial support, and financial aid for people who lost their jobs. However, COVAX's collaboration with CSOs was often described as inadequate and key informants emphasized the need to recognize the key role of CSOs in public communication.

[Sub-EQ 4.4: To what extent did delivery modalities complement existing health systems and routine immunization systems to jointly respond to the needs of priority population groups?](#)

Finding 10: The COVAX initiative in Côte d'Ivoire worked across various work streams to complement the existing health care system. A major workstream was cold chain capacity, which is critical for vaccines like Pfizer-BioNTech with stringent storage requirements. COVAX, through UNICEF, procured and distributed ultracold chain equipment to regional depots across Côte d'Ivoire, significantly enhancing the country's vaccine storage capacities and strengthening the EPI. Another workstream that delivered continued benefits was human resource capacity building, which significantly enhanced capabilities in the country's health workforce.

In the area of data management and surveillance, COVAX supported the integration of COVID-19 vaccine data into the existing health information system through the recruitment of data managers by WHO. This enhanced real-time data availability to inform decision making.

Finding 11: Some innovative vaccination delivery strategies were developed through COVAX. For example, a total of 70 schools and university health services were equipped with refrigerators for onsite vaccination. Jhpiego, as COVAX's implementing partner, trained health service providers in schools and universities to offer medical check-ups along with COVID-19 and HPV vaccination. This improved the administration of HPV and COVID-19 vaccinations and

boosted utilization of school medical services for other health consultations. Coverage for the first dose of HPV vaccine increased from 6% of the eligible population in 2019 to 73% in 2023.¹⁶

Results of COVAX

EQ 6: To what extent have the intended results of the Delivery Pillar been achieved?

Sub-EQ 6.1: To what extent were COVAX Pillar delivery efforts outcomes and goals achieved, and were related targets and timelines appropriate?

Finding 12: COVAX's engagement in Côte d'Ivoire expanded the reach and improved the efficiency of the country's vaccination efforts. By providing COVID-19 vaccines and funding operational costs, COVAX facilitated the rapid setup of vaccination services. The support extended to crucial logistical elements, such as cold chain enhancement and the provision of transportation, notably motorbikes and vehicles for mass vaccination campaigns. Their long-term operational benefit is evident in their continued use by the EPI. **Table 5** summarizes the COVID-19 vaccination coverage in Côte d'Ivoire by population groups as of December 2023.

Table 5. COVID-19 vaccination coverage in priority groups in on Côte d'Ivoire^d

Population group	Estimated number ^{6,9}	Percentage of total population	Vaccine coverage ¹¹
Health workers	112,510	0.4%	64.5%
Older people >50 years	1,841,202	6.5%	Not recorded
Persons >12 years	19,000,000	70%	44.3%

Finding 13: Another legacy of COVAX is the continued functioning of the inter-agency taskforce, which pooled the expertise of the several government ministries, WHO, UNICEF, and other partners, and functioned as a structured decision-making body for COVAX interventions. It also streamlined the process for mobilizing additional donor support.

"Our minister says now, 'Do what you did during COVID. Get together. Work together'" – MOH Côte d'Ivoire

"If one day such a calamity strikes, the country has the capacity, with the example of how to get everyone working together, with a taskforce." –MOH Côte d'Ivoire

COVAX's financial support was flexible and responsive to the changing landscape of the pandemic. As the situation evolved, funds previously allocated to the COVID-19 response were redirected to improve routine EPI activities.

COVAX exemplified global solidarity through the mobilization of resources, setting a precedent for international cooperation in a health crisis. The collaborative nature of COVAX prompted discussions among heads of state and led Côte d'Ivoire to evaluate its performance relative to other countries. Stakeholders highlighted the importance of continuing these discussions in forums like the African Union and African Center for Disease Control to strengthen regional health care capabilities.

^d Gender disaggregated data is not available.

Sub-EQ 6.2: Were equitable results achieved?

Finding 14: The country's commitment to equity manifested through initiatives to ensure vaccine access across socioeconomic strata. Mobile clinics and motorcycles reached areas without health centers, providing access for remote populations. There were special vaccination strategies for groups such as pregnant women and targeted campaigns for people whose income was impacted by COVID-19. However, the guidance from COVAX on equitable vaccine delivery was not clear.

“[COVAX partners] have made it possible to bring vaccination closer to the people who need it, regardless of race, sex or ethnicity, and ensure that everyone has the right to be vaccinated and that this right is respected wherever they are” –COVAX delivery partner

Sub-EQ 6.3: Did delivery modalities strengthen national and local systems and capacities?

Finding 15: COVAX played a pivotal role in bolstering Côte d'Ivoire's health care resilience by investing in infrastructure upgrades and capacity building. The introduction of ultracold chain equipment through UNICEF and the reinforcement of nine regional depots enhanced the country's vaccine storage and management capabilities. The acquisitions made during the pandemic—cold chain equipment, transportation systems, and digital tools—will pay long-term dividends to the health system.

COVAX, through WHO, supported the reactivation and strengthening of AEFI focal points in the health districts. These focal points received training to understand the potential side effects of COVID-19 vaccines and to provide a systemic response. The AEFI mechanism was able to map and manage adverse events quickly, which may have increased community confidence in health services.

“AEFI has been mapped and managed. In my opinion, it was this rapid response that helped build trust between the community and the health workers, because they weren't left out in the cold.” –MOH Côte d'Ivoire

Finding 16: The integration of COVID-19 vaccination into routine EPI vaccination, supported by the reallocation of COVAX funds, also represented a durable contribution to health care resilience.

COVAX facilitated the WHO's training of health care workers on important aspects of pandemic response: the administration of vaccines, the management of adverse events, waste management, inventory control, and the use of tablets for capturing vaccination data. This training, conducted at both district and regional levels, will have enduring benefits. It has enhanced transferable skills, improving the country's ability to address future health challenges.

UNICEF's U-reporters in communities across the country used mobile technology to assess public perceptions of vaccination and this enabled relevant vaccination communication and targeting of messages. The MOH has adopted this survey method for broader health initiatives, enhancing the participation of youth and the role of community engagement in public health education. The use of technology to elicit information was especially valuable during lockdowns when restrictions on movement hindered field research. U-reporters' participation in school vaccination initiatives also transformed communication strategies.

Sub-EQ 6.4: Did unintended consequences arise during the implementation of the COVAX Pillar delivery efforts? Were they directly or indirectly related to the pillar activities, or due to external factors?

Finding 17: Negative unintended outcomes resulting from COVAX

Despite the significant achievements realized through COVAX in Côte d'Ivoire, there were some unintended negative outcomes. These included the creation of an imbalance in resource allocation to COVID-19 vaccination and non-COVID immunization activities respectively. The provision of per diem allowances to staff working specifically on COVID-19 vaccination, without a similar incentive for routine immunization, led to a disparity. Key informants suggest that these factors could have contributed to the downturn in routine immunization coverage between 2019 and 2022. The coverage for the DTP3 vaccine decreased from 79% to 73%, while measles immunization coverage declined from 71% to 62%.¹⁶

The de-escalation of COVID-19 as a global health emergency led to a significant drop in public urgency and interest in receiving COVID-19 vaccinations. This coincided with the arrival of vaccine doses, resulting in a substantial mismatch between supply and demand. Consequently, the country faced the challenge of managing excess vaccine stocks that were at risk of expiring, resulting in vaccine wastage.

“When the WHO declared the end of the epidemic, the routine (COVID-19 vaccination) service took a hit because everyone said the disease is over.” –COVAX delivery partner

The ambition of Côte d'Ivoire's political leadership to secure and rapidly distribute COVID-19 vaccines demonstrated an impressive commitment to public health. However, this eagerness also led to premature decisions that outpaced implementation of strategic plans. An example was the issue encountered in recording COVID-19 vaccination data. Although the technical team had originally intended to input vaccination data and generate certificates using the available digital system (DHIS2), the early arrival of vaccines prompted the country to partner with a private company, SaH Analytics, to collect data and issue vaccination certificates. When COVAX later recruited 206 district data managers to integrate COVID-19 vaccination data into the DHIS2, the existence of two parallel sets of data made it challenging to obtain a comprehensive overview.

Finding 18: Positive unintended outcomes resulting from COVAX

While the COVAX initiative's primary focus was addressing the immediate needs of the COVID-19 pandemic, it inadvertently strengthened aspects of the health system. COVAX implementation requirements intensified lobbying for the training of more health workers, which resulted in a significant increase in health worker graduates from 3,500 to 9,000 a year.

Effective management of AEFI during COVAX implementation markedly increased public confidence in the health care system. The robust response to vaccine safety concerns has paved the way for enduring trust in future vaccination activities and public health initiatives.

COVAX also strengthened school health services. The CDS-3 fund was utilized to provide cold chain equipment at schools and conduct targeted communication campaigns for individuals aged 12 years and older. The support of partners such as Jhpiego in revising tools for integrating COVID-19 and HPV vaccination and providing training for service providers in schools and universities, enabled these institutions to expand their range of services.

BROADER LESSONS OR INSIGHTS

Country-level challenges and priorities

Key lessons for pandemic preparedness

- Sustain improvements within the healthcare system: Maintain the improvements achieved with COVAX support in the areas of cold chain capacity, data management and human resources through better coordination. This includes leveraging digital health frameworks and communication strategies developed for COVID-19 for routine immunization and preparing for future health emergencies.
- Monitor funding utilization: Establish a central repository to track expenditure against activities, enabling real time cost-effectiveness analyses and other assessments. This would facilitate the timely capturing of lessons learnt for decision making and contribute to evidence-based strategies for future pandemics.
- Integrate services: Further integration of COVID-19 vaccination with routine immunization services should be encouraged, using lessons learnt from the successful co-location of services at schools and universities on reducing misinformation and streamlining vaccination activities.
- Strengthen data management: Concerns about central data management should be addressed by continuing to utilize and improve a single reliable source of vaccination data to inform decision making and enable efficient management of vaccines.
- Plan for operational flexibility: The ability to adapt vaccination strategies quickly and manage logistical and operational challenges—such as vaccine expiration and distribution issues—should be codified into a response plan for future health crises. Additionally, planning should extend to collaborating with international organizations to consider potential rapid drops in vaccine demand within forecasting and planning process.
- Ensure parity in payment packages: In the future, ensure the alignment of payment packages for new “crisis” employees with the payment of staff in essential services to sustain employee morale and uphold high performance levels.

Key lessons for future pandemic preparedness

- Build capacity for future epidemics: Strengthen the capacity of district case teams for the detection and management of epidemics by providing training and resources.
- Leverage community mobilization: Utilize community mobilizers and CSOs for routine immunization, building on successful mobilization strategies used during the COVAX initiative.
- Use technology innovatively: Continue the innovative use of technology for data management and vaccine distribution, ensuring that systems are in place for real-time tracking and management of vaccine stocks and vaccination coverage.
- Explore local manufacturing and distribution: Engage in discussions to enhance local manufacturing capabilities and improve distribution networks within the region, reducing dependency on external vaccine supplies.
- Prepare for early integration with existing systems: Align future pandemic responses with the existing healthcare system from the outset to avoid the effort of making adjustments later.

- Continue training and engagement: Ensure the continuation of capacity building for and engagement with health care workers and include disciplines like anthropology to enrich research that will inform decision-making processes in preparation for future emergencies.

Regional and global coordination and planning

- Coordination mechanism: Encourage the replication of the taskforce model at regional and global levels to enhance coordination and collaboration among countries for the management of future health emergencies. Such structures should address the regional manufacturing of vaccines to ensure timely access as well as effective ways for facilitating the transfer of vaccines between countries where there is urgent demand.
- Global solidarity and learning: Through forums like the AU and ACDC, sustain the global solidarity and peer-to-peer learning facilitated by COVAX to strengthen the continent's ability to respond to pandemics.
- Visibility and recognition of auxiliary organizations: Improve the visibility and recognize the contribution of auxiliary organizations like the Red Cross and ensure they continue to be leveraged effectively in response to major health events.

CONCLUSION

Conclusion 1: The COVAX initiative, with its ability to stimulate collaboration among national and international partners, enabled Côte d'Ivoire to make noteworthy strides toward equitable vaccine access. Coverage for completion of the primary series of the COVID-19 vaccine was 46.1% of the total population. This was achieved through innovative strategies to engage hard-to-reach populations, enhanced cold chain infrastructure, and activation of communities.

Conclusion 2: The agility of COVAX and its partners in adapting their approach resulted in significant positive outcomes, such as developing capacity in the health care workforce and enhancing the resilience of the national health system.

Conclusion 3: Despite these accomplishments, Côte d'Ivoire faced obstacles that prevented it from reaching its vaccination target of 70% by December 2023. Challenges included vaccine hesitancy, logistical constraints, and gaps in data collection and management. The nature of the challenges underscored the complexities of conducting a major vaccination campaign.

Moving forward, it is imperative for Côte d'Ivoire to leverage the momentum built and lessons learnt from COVAX to address the above challenges in advance of another major health crisis. Preparation should focus on enhancing data management, overcoming logistical barriers, and reducing vaccine hesitancy through targeted communication strategies. This preparation should additionally extend to collaborating with international organizations to consider potential rapid drops in vaccine demand within forecasting and planning process. Furthermore, fostering regional and global coordination for health emergency preparedness is crucial as Côte d'Ivoire, like the rest of the world, continues to confront public health threats and often has to contend with resource constraints.

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APPENDIX

Appendix A: Methods

The evaluation design was grounded in understanding the intention of COVAX, defined by the theories of change (TOC), and comparing this to its actual implementation and adaptations over time. At a country level we have drawn on this theory-based design to establish the logic and intended strategy for delivery pillar activities in the country. To complement this approach, we have integrated a systems lens to drive an emphasis on context and to narrow the focus on areas of the vaccine delivery system in the country. Within this overarching framework we have followed a mixed-methods approach. This has included supplementary data collection and analyses at the country level, with a focus on key informant interviews (KIIs) and a data/document review to gain a comprehensive understanding of the implementation and results achieved by COVAX in a real-life setting. The country case study (CCS) followed a four-phased approach as outlined below. To guide this, a CCS workbook was developed, which included templates specifying the outputs of each phase of the CCS. The country engagement approach was integrated into each phase of this CCS, with focal points officially appointed from each of the UNICEF and WHO country offices as well as Gavi, and the government. These focal points played a key role in document transfer, consultation on TOCs, workshop coordination, result reviews, validation, lesson sharing, and dissemination.

Phase 1. Building context, planning country-specific CCS scope, and updating or validating country-specific TOC.

The first phase of the CCS focused on understanding the country context and developing a country-specific scope for the CCS (including the development of the TOC) in order to prepare for data collection (Phase 2). The phase began with a kick-off meeting to establish the process and goals of the evaluation, and an introductory meeting with the country focal points. Using the CCS workbook templates, a robust data and document review was undertaken. Consultations with the focal points were conducted to assist in building context to produce a country context specific TOC from the “generic” country TOC developed during the inception phase of the evaluation. These consultations helped identify country-level learning questions within the general scope of our evaluation and were prioritized throughout the CCS. At the completion of Phase 1, a validation session was hosted with the focal points to ensure the updated TOC reflected and was aligned with the context and focus of COVAX’s work in the country.

Phase 1 activities

- Country kick-off meeting with local consultant.
- CCS methods workshop with local consultant.
- Data/document review to build background and context for work.
- Engagement with country focal points/primary stakeholders to gather information for TOC update.
- Identification of country-level learning questions and areas where COVAX support was focused (“focus areas”).
- TOC validation workshop with focal points/primary stakeholders.

Phase 2. Planning for and conducting primary data collection.

This phase involved tailoring and adapting data collection instruments to fit the country context and focus areas, as well as initially defined country learning priorities. Drawing on a predeveloped “generic” evidence matrix and data collection instruments, interview questions were made country-specific using insights gathered in Phase 1. Additionally, a stakeholder list of interviewees was mapped to ensure that appropriate perspectives and expertise were included. This list was validated with the focal points prior to conducting interviews. Interviews were scheduled and conducted with 13 identified key stakeholders. They included stakeholders from the MoH (n=4), UNICEF Côte d’Ivoire (n=1), WHO Côte d’Ivoire (n=1), GAVI (n=2), Jhpiego (n=1), Agence Médecine Préventive (n=1), Village Reach (n=1), academic/researcher from a public university (n=1), and a CSO representative (n=1).

During data collection, a structured evidence matrix was populated with the primary data to account for evidence gathered and to direct and focus remaining data collection activities. Quality-controlled interview transcripts were prepared following all interviews.

Phase 2 activities

- Phase 2 CCS data collection session (tailoring and adapting instruments to country context and focus areas of COVAX).
- Development of stakeholder list for KIIs.
- Scheduling and conducting KIIs/focus group discussions.
- Developing quality-controlled interview transcripts.

Phase 3: Analysis, synthesis, and report compilation.

Phase 3 involved the analysis of the interview data collected in Phase 2 and the development of findings using a standardized analysis template. This template allowed for new themes to be identified but retained a focus on comprehensive answers to evaluation questions and learning priorities. Initial findings were reviewed with the evaluation team to ensure that they were articulated appropriately and presented with relevant evidence. Findings were incorporated into a draft CCS report and shared with stakeholders in a validation session to ensure consensus before finalizing the document. Further clarification was then sought from the MOH and all additions incorporated in the report.

Phase 3 activities

- Conduct of thematic analysis of key takeaways.
- Compilation of findings into complete CCS report.
- Final validation session with key stakeholders.
- Facilitation of a consensus conversation with Ministry of Health.
- Finalization of CCS report.

Appendix B: Adapted Country Theory of Change

Workstreams	Illustrative activities	Outputs	Output comments
COVID-19 vaccine planning	COVAX supported the development of the NVDP through WHO and UNICEF. The document included the strategies for COVID-19 vaccine delivery and specified the priority population.	Once the NVDP was finalized the country was able to secure COVAX doses in late February 2021.	
Human resources	The MoH did not hire new staff at the national level but COVAX funding was used to train health professionals in pandemic response. Alliance partners hired international consultants to provide technical assistance to Côte d'Ivoire.	State-certified midwives, state-certified nurses, assistants, caregivers, and volunteers were mobilized. Their technical skills and competencies were improved to enable them to play a role in COVID-19 vaccination.	The integration with routine immunization reduced the shortage of health personnel and increased the effectiveness of campaigns. It also helped to reach zero-dose children.
Supplies and logistics	The existing EPI health system, supply chain, and inventory management were leveraged by the COVID-19 vaccination initiative. COVAX provided support to national and sub-national supply chain teams, ensured the functioning of cold chain equipment, managed vaccine forecasting and stock/coverage data, and integrated vaccine inventory management systems to accommodate various COVID-19 vaccines.	The supply chain and logistics system were strengthened as a result of COVAX resources.	
Cold chain	The cold chain equipment optimization platform enabled the effective storage and distribution of vaccines. Cold chain equipment, such as refrigerators, vaccine carriers, and freezers, was installed and vaccines were transported in refrigerated trucks. Ultracold storage was provided for the Pfizer-BioNTech vaccine.	Enhanced cold chain capacity, notably ultracold storage capability.	

Workstreams	Illustrative activities	Outputs	Output comments
Demand promotion and community mobilization	COVAX, through UNICEF and implementing partners, recruited communication volunteers and supported demand creation through six campaigns. It managed a monitoring system during multimedia campaigns, which utilized traditional media, social media, the U-Report Coronavirus Information Centre, and face-to-face community outreach.	Improved community awareness and demand for COVID-19 vaccines.	
Monitoring and evaluation	COVAX, through WHO, recruited data managers in 103 districts (who input COVID vaccination data to DHIS2 to create a central database), purchased IT kits and tablets, and computerized the management of vaccine stocks (specifying type, batch number, expiration date, vaccine control tag status, manufacturer, packaging, and price).	Strengthened electronic data management for COVID-19 vaccination.	
Prioritization, targeting and AEFI surveillance	<p>Priority groups were well defined and vaccination data was disaggregated by priority group, age, gender ,and occupational group, where relevant. This enabled the calculation of coverage for specific groups.</p> <p>Initially only adults were eligible for vaccination, but the target population was later revised to include everyone aged 12 and older.</p> <p>The country activated and strengthened the AEFI monitoring system with support from WHO.</p>	<p>Improved vaccination coverage.</p> <p>Improved AEFI management capacity.</p>	

Appendix C: Country Timeline

	Trend/Event/Intervention/Outcome	Time period
Global context	COVID-19 becomes a public health epidemic of international concern (PHEIC) with high morbidity and mortality. Lockdown measures are imposed worldwide. First COVID-19 vaccines become available. Supplies are constrained, demand is high. COVAX supplies are limited. Conspiracy theories, speculation and misinformation about the vaccines are widespread.	2020–2021 (CRD phase)
	Increased supply of vaccines and increased vaccination coverage especially in developed countries. Shifting narratives about the vaccines as they show some efficacy. Vaccine demand begins to wane as the COVID-19 epidemic slows down. The global emergency is lifted.	2022–mid-2023 (CoVDP phase)
	Supply of vaccines is plentiful. Demand is very low. Life begins to return to pre-COVID normality.	Mid-2023–end of 2023 (Alliance phase)
Country context	Government declares a state of emergency. It introduces safety measures and limits travel between Abidjan and other regions. Misinformation and vaccine hesitancy become a significant challenge.	2020–2021 (CRD phase)
	Infection and mortality rates decline, leading to the easing of safety measures. Vaccine supplies increase along with support for delivery.	2022–mid-2023 (CoVDP phase)
	Public urgency and interest in receiving a COVID-19 vaccine drop significantly. The country receives additional vaccine doses.	Mid-2023–end of 2023 (Alliance phase)
COVAX engagement	COVAX partners support Côte d'Ivoire to produce the National Vaccine Deployment Plan. Côte d'Ivoire is one of the first recipients of COVAX vaccines in late February 2021, almost a year after the first local case was reported.	2020–2021 (CRD phase)
	Côte d'Ivoire becomes a focus country for the CoVDP in January 2022 to boost coverage rates.	2022–mid 2023 (CoVDP phase)
	The COVID-19 vaccine integration mapping tool is developed and used to integrate COVID-19 vaccination into routine healthcare.	Mid-2023–end of 2023 (Alliance phase)
COVAX results	NPDV is validated by the inter-agency taskforce and approved by GAVI. Regional vaccine depots are established and cold chain strengthened to enable access for vulnerable populations.	2020–2021 (CRD phase)
	Coverage with primary series is 46.1% of total population while 51.4% have received partial primary series.	2022–mid-2023 (CoVDP phase)
	COVAX funds are re-allocated to strengthen EPI and COVID-19 vaccination is integrated into routine immunization.	Mid-2023–end of 2023 (Alliance phase)