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Amidou ZONGO

zongoamidou51@yahoo.fr

World Health Organization, Country Office Burkina Faso.

Hadiatou DIALLO

World Health Organization, Intercountry-Support Team for West Africa

Crepin Hilaire DADJO

World Health Organization, Intercountry-Support Team for West Africa

Issaka OUEDRAOGO

Directorate of Vaccination for Prevention, Ministry of Health, Burkina Faso

Salimata DRABO

World Health Organization, Country Office Burkina Faso.

Ado M. BWAKA

World Health Organization, Intercountry-Support Team for West Africa

N. Christelle NEYA/OUEDRAOGO

Directorate of Vaccination for Prevention, Ministry of Health, Burkina Faso

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Reducing immunization inequities among zero-dose and under-vaccinated children through catch-up vaccination in Burkina Faso: findings from a mixed-method evaluation of the Big Catch-Up initiative, 2023–2025.

Amidou ZONGO[1], Hadiatou DIALLO[2], Crepin Hilaire DADJO[2], Issaka OUEDRAOGO[3], Salimata DRABO[1], Ado M. BWAKA[2], N. Christelle NEYA/OUEDRAOGO[3]

Affiliations

*[1]World Health Organization, Country Office; Ouagadougou, **Burkina Faso**.*

*[2]World Health Organization, Intercountry-Support Team for West Africa; Ouagadougou, **Burkina Faso**.*

*[3]Directorate of Vaccination for Prevention, Ministry of Health; Ouagadougou, **Burkina Faso**.*

[*]Correspondance: Amidou ZONGO, zongoamidou51@yahoo.fr; zongoamidou4@gmail.com

Keywords: Zero-dose children; Under-vaccinated children; Big catch-up vaccination; Burkina Faso.

Abstract

Background: The COVID-19 pandemic and persistent insecurity have exacerbated inequalities in access to immunization in Burkina Faso, leading to an increase in the number of zero-dose and under-vaccinated children, particularly in hard-to-reach areas. In response, the country launched the Big Catch-Up initiative (2023–2025) to catch up children aged 12–59 months, restore

immunization coverage, and strengthen routine immunization services. Six vaccines were used: measles-rubella (MR), yellow fever, bivalent oral poliovirus vaccine (bOPV), meningococcal A (MenA), diphtheria-tetanus-pertussis–hepatitis B–Haemophilus influenzae type b (DTP-HepB-Hib), and inactivated poliovirus vaccine (IPV).

Methods: A mixed-methods evaluation was conducted between November 2025 and January 2026 in six regions selected based on accessibility and immunization performance. Data were collected through direct observation and semi-structured interviews with stakeholders at the central, regional, district, health facility, and community levels. Data collection tools were digitized using Kobo Collect and hosted on Ministry of Health servers. Quantitative and qualitative analyses were performed using Excel and Stata.

Results: By December 2025, the initiative had reached 144,245 zero-dose children (65% of the target) and 200,624 under-vaccinated children (90% of the target). Improvements were observed in routine immunization indicators, particularly Penta1, Penta3, and MR2 coverage. Integrating catch-up vaccination with primary health care services facilitated access to underserved populations and enabled the delivery of complementary services, including vitamin A supplementation and deworming. Community engagement, local leadership, and service integration were key success factors. Persistent barriers included insecurity, geographical inaccessibility, population mobility, limited human resources, logistical constraints, poor Internet connectivity, and vaccine-related misinformation.

Conclusion: The Big Catch-Up initiative helped reduce immunization inequities by reaching previously missed children and strengthening routine immunization services. The findings highlight the importance of integrated, community-centered, and data-driven approaches to improving equitable access to immunization in fragile settings. Sustaining these gains will require institutionalizing catch-up vaccination within routine immunization and primary health care services, as well as implementing strategies tailored to hard-to-reach and insecure areas.

Résumé

Contexte : La pandémie de COVID-19 et l'insécurité persistante ont accentué les inégalités d'accès à la vaccination au Burkina Faso, entraînant une hausse du nombre d'enfants sans dose et sous-vaccinés, surtout dans les zones difficiles d'accès. Pour y répondre, le pays a lancé l'initiative Big Catch-Up (2023–2025) afin de rattraper la vaccination des enfants de 12 à 59 mois, restaurer la couverture et renforcer les services de routine. Six vaccins ont été utilisés : ROR, fièvre jaune, bOPV, MenA, DTC-HepB-Hib et VPI.

Méthodes : Une évaluation mixte a été menée entre novembre 2025 et janvier 2026 dans six régions choisies selon l'accessibilité et la performance vaccinale. Les données ont été collectées par observation directe et entretiens semi-structurés auprès d'acteurs aux niveaux central, régional, district, établissement de santé et communauté. Les outils de collecte ont été numérisés via Kobo Collect et hébergés sur les serveurs du ministère de la Santé. Les analyses quantitatives et qualitatives ont été réalisées avec Excel et Stata.

Résultats : En décembre 2025, l'initiative avait atteint 144 245 enfants sans dose (65 % de la cible) et 200 624 enfants sous-vaccinés (90 %). Des améliorations ont été observées dans les indicateurs de routine, notamment la couverture Penta1, Penta3 et MR2. L'intégration de la vaccination de rattrapage aux soins de santé primaires a facilité l'accès aux populations mal desservies et permis la prestation de services complémentaires (supplémentation en vitamine A, déparasitage). L'engagement communautaire, le leadership local et l'intégration des services ont été des facteurs clés de succès. Les obstacles persistants incluaient l'insécurité, l'inaccessibilité géographique, la mobilité des populations, le manque de ressources humaines, les contraintes logistiques, la faible connectivité Internet et la désinformation sur les vaccins.

Conclusion : Le Big Catch-Up a contribué à réduire les inégalités vaccinales en atteignant des enfants auparavant manqués et en renforçant les services de routine. Les résultats soulignent l'importance d'approches intégrées, centrées sur la communauté et fondées sur

les données pour améliorer l'accès équitable à la vaccination dans des contextes fragiles. La pérennisation des acquis nécessitera l'institutionnalisation du rattrapage vaccinal dans les services de routine et de santé primaire, ainsi que des stratégies adaptées aux zones difficiles d'accès et en situation d'insécurité**.**

Background

Immunization is one of the most effective and cost-efficient public health interventions for preventing vaccine-preventable diseases and reducing child morbidity and mortality (1). Equitable access to immunization services is a central objective of Immunization Agenda 2030 (IA2030), which emphasizes reaching underserved populations and reducing the number of zero-dose children worldwide (2).

Zero-dose children, defined as children who have not received a first dose of a diphtheria-tetanus-pertussis-containing vaccine by 12 months of age, are increasingly recognized as markers of multidimensional deprivation and inequitable access to health services. These children are more likely to live in underserved communities affected by poverty, geographic isolation, humanitarian crises, population displacement, and weak health systems (2)

The COVID-19 pandemic disrupted routine immunization services globally, resulting in substantial declines in vaccination coverage and increases in the number of zero-dose and under-vaccinated children. In 2021, an estimated 18.2 million children worldwide had not received any vaccine doses, compared with 13.3 million in 2019. The African Region was disproportionately affected, accounting for 12.7 million under-vaccinated children, including 8.7 million zero-dose children (1,2).

The setback in immunization efforts has had a profound impact, representing a global emergency for child survival. More than half of the world's zero-dose children are concentrated in just seven countries-Nigeria, India, Ethiopia, the Democratic Republic of Congo, Sudan, Indonesia, and Yemen. It is important to note, however, that some highly populated countries contribute significantly to global figures despite maintaining relatively high immunization

coverage rates (3). The decline in childhood immunization coverage, combined with delays in catch-up efforts, has widened the immunity gap and contributed to increased outbreaks of polio and measles across the continent (3,4)

In Burkina Faso, the impact of the COVID-19 pandemic compounded the effects of persistent insecurity. These concurrent crises disrupted health service delivery, reduced the functionality of health facilities, limited the implementation of fixed and outreach immunization strategies, and exacerbated inequities in access to vaccination services. The number of zero-dose children in Burkina Faso increased from 79,691 in 2022 to 113,937 in 2023 (1) . Concurrently, the country experienced recurrent outbreaks of vaccine-preventable diseases, including measles, poliomyelitis, and meningitis (5)

To address immunization gaps resulting from the COVID-19 pandemic, the World Health Organization (WHO), UNICEF, Gavi, and partners launched the Big Catch-Up initiative in 2023. The initiative aimed to identify and vaccinate children who had missed routine immunization, restore vaccination coverage to pre-pandemic levels, and strengthen immunization systems within primary health care (6).

As one of the countries affected by both the COVID-19 pandemic and insecurity, Burkina Faso developed an immunization recovery plan for the period 2023–2025, targeting 123,545 zero-dose children and 153,395 under-vaccinated children, all aged 12 to 59 months. (DHIS2, BFA).

The initiative was implemented through routine immunization services, including fixed and outreach strategies, Periodic Intensification of Routine Immunization (PIRI) activities, Supplementary Immunization Activities (SIAs), and integrated primary health care interventions.

This study aimed to assess the contribution of the Big Catch-Up initiative to reducing inequities in immunization coverage among zero-dose and under-vaccinated children while strengthening routine immunization services in Burkina Faso.

Methods

Study design

We conducted a mixed-methods study from November 2025 to January 2026, along with an analysis of data pulled from DHIS 2 for the period from July 2023 to December 31, 2025

Study setting

The evaluation was conducted in Burkina Faso, a country affected by both the COVID-19 pandemic and a persistent security crisis that has disrupted access to health services and exacerbated inequities in immunization coverage.

The study was conducted at central, regional, district, health facility, and community levels. Six regions were purposively selected based on accessibility: Kadiogo, Nakambé, Nando, Djôrô, Koulsé, and Oubri.

Within these regions, 12 health districts, 24 health facilities, and 24 localities were selected. Health districts and health facilities were selected according to accessibility, routine immunization performance for Penta3, and urban-rural characteristics.

Equity dimensions

The evaluation examined inequities in immunization coverage by using routinely available program variables, including:

age group (0–11 months, 12–23 months, and 24–59 months);

geographic location;

urban-rural setting;

accessibility status;

routine immunization performance;

zero-dose status;

under-vaccinated status.

The selection of study sites considered contextual factors known to influence equitable access to immunization services, including insecurity and geographical accessibility.

Study population

Participants included stakeholders involved in the implementation of the BCU initiative at all levels of the health system, including the Director of the Directorate for Vaccine-Preventable Disease Prevention (DPV), Regional Health Directors and data managers, District Medical Officers and data managers, head nurses, vaccinators, Community-Based Health Workers (CBHWs), opinion leaders, and caregivers of children aged 0–59 months.

Sampling and participant selection

Study sites were selected purposively.

Regional Health Directors (06), District Medical Officers (12), and the Director of the DPV (01) were included because of their roles in planning, coordinating, implementing, and monitoring the BCU initiative.

Head nurses (24), vaccinators (36), data managers (18), and CBHWs (60) were included because of their direct involvement in implementation activities. Opinion leaders (48) were selected based on their roles and influence within their communities.

The final sample included 205 participants.

Data collection

Data were collected through direct observation and semi-structured interviews. Data collection tools were adapted to the country context and digitized using Kobo Collect through servers managed by the Directorate of Information Systems of the Ministry of Health.

Following data collection, datasets were cleaned and checked for duplicates before analysis.

Data analysis

An analysis plan was developed to guide the extraction and analysis of quantitative and qualitative data. Data were analyzed using Excel and Stata 18 software.

The qualitative data from the interviews were analyzed manually by a group of people. The data were handled by theme. Then, there was coding, followed by presentation and

formulation, and finally verification. In other words, the main words or concepts were identified and grouped under codes to get themes.

Results were analyzed according to key equity dimensions, including age group, geographic location, accessibility, and immunization status.

The main indicators used during data extraction include, among others:

Proportion of vaccinators who participated in the planning of catch-up activities

Proportion of vaccinators who have the vaccination guide

Proportion of ICPs who considered children aged 12 to 59 months in their micro-plans

Proportion of vaccinators who know the process for identifying zero-dose children

Proportion of vaccinators with good knowledge about the number of contacts during the 2nd year of life

Allocation of financial resources and sources of funding

Main roles played by leaders in a vaccination campaign

The three benefits of vaccination mentioned by opinion leaders in decreasing order.

Ethical considerations

Administrative authorizations were obtained before data collection. Participation in interviews was voluntary, and informed consent was obtained from all participants before data collection. No personal identifiers were collected during the evaluation.

Reporting guidelines

This study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Results

I. Characteristics of Study Sites and Participants

The evaluation was conducted at central, regional, district, health facility, and community levels across six purposively selected regions of Burkina Faso.

Selection criteria included geographical accessibility, routine immunization performance, and urban-rural characteristics to capture contexts associated with inequitable access to immunization services.

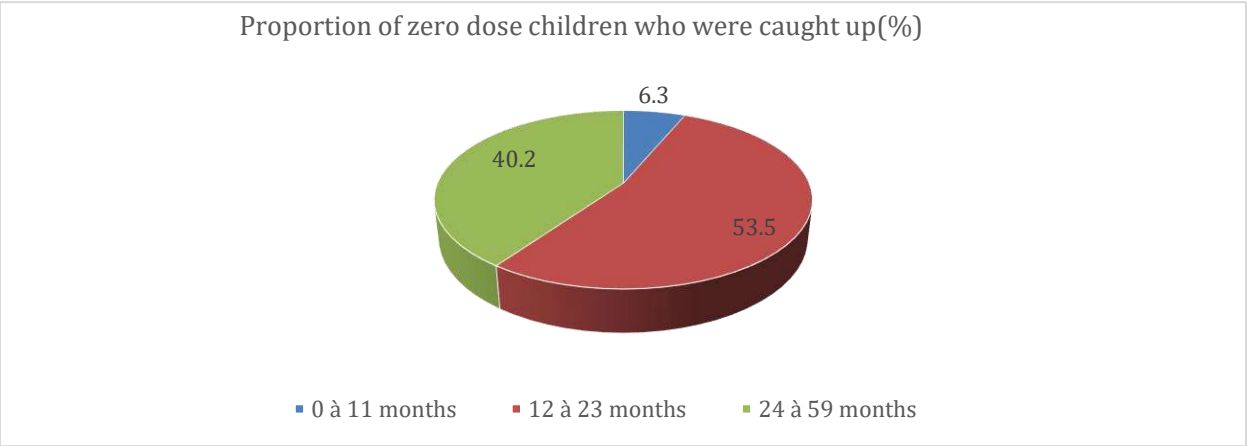
The study included 205 participants, comprising the Director of the Directorate for Vaccine-Preventable Disease Prevention (DPV), Regional Health Directors, District Medical Officers, data managers, head nurses, vaccinators, Community-Based Health Workers (CBHWs), opinion leaders, and caregivers of children aged 0–59 months.

II. Reach and Coverage Among Zero-Dose and Under-Vaccinated Children

Distribution of Catch-Up Vaccinated Children by Age Group

The BCU initiative helped identify and vaccinate children who had previously missed routine vaccination services. Children aged 12 to 23 months made up the largest share of zero-dose children caught up through vaccination (53.5%), followed by children aged 24 to 59 months (40.2%) and children aged 0 to 11 months (6.3%), see fig. 1. These findings indicate that a substantial proportion of under-vaccinated children remained unreached beyond infancy.

n=154 043



Source: BCU evaluation report, DPV Ministry of Health

Figure 1: Distribution of catch-up vaccinated children aged 0–59 months by age group.

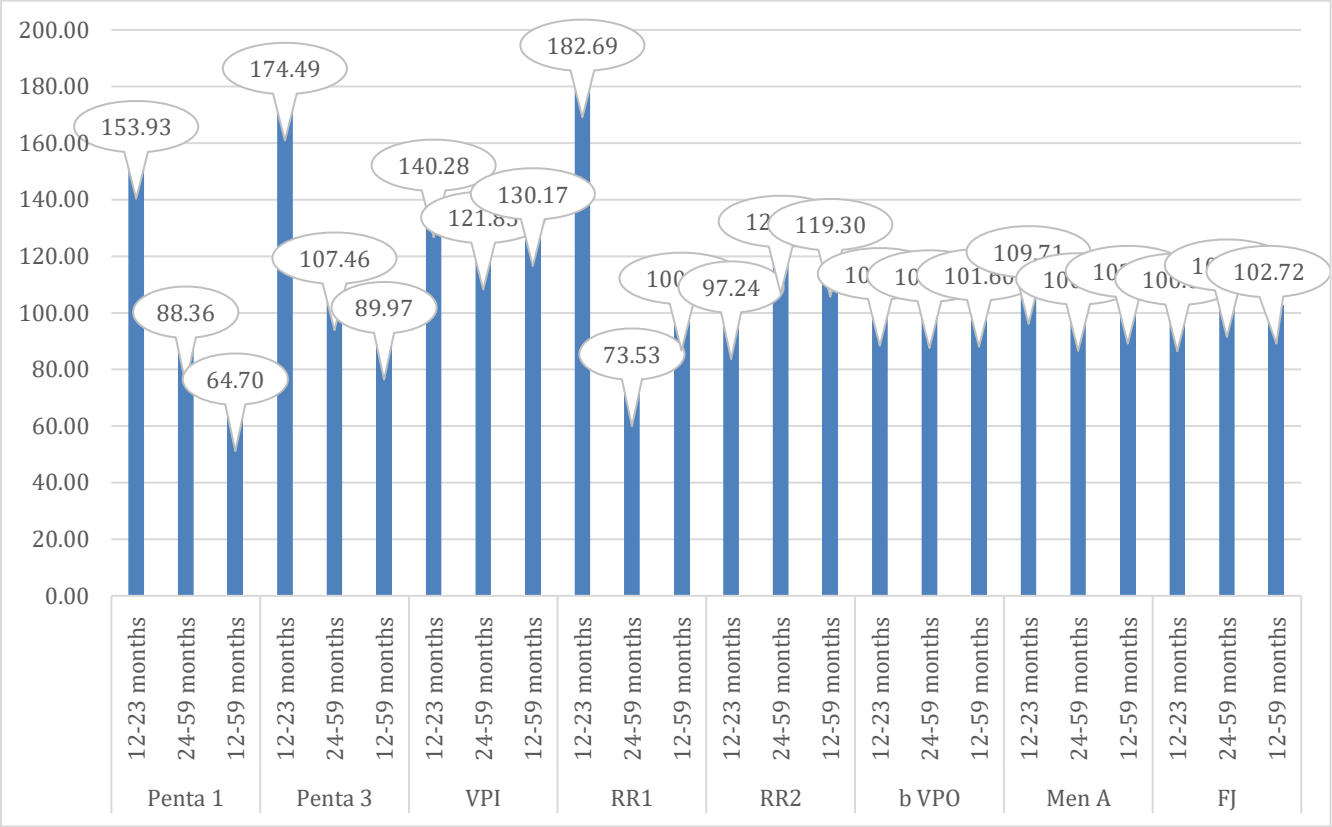
Vaccination Coverage Among Zero-Dose and Under-Vaccinated Children

By 31 December 2025, a total of 144,245 zero-dose children had been vaccinated, representing 65% of the initial target.

During the same period, 200,624 under-vaccinated children who had not completed the DTP-HepB-Hib vaccination schedule received catch-up vaccination, corresponding to 130.9% of the initial target (see fig. 2).

Overall, the number of children reached exceeded the estimated targets derived from administrative data recorded in DHIS2.

The coverage achieved for Penta1 and MR1 among children aged 24–59 months suggests that substantial immunization gaps persisted beyond the routine target age group.



Source: BCU evaluation report, DPV Ministry of Health

Figure 2: Coverage achieved among zero-dose and under-vaccinated children reached through the Big Catch-Up initiative, Burkina Faso, 2023–2025

III. Changes in Routine Immunization Indicators Across Equity Dimensions

Penta1 Vaccination

Following implementation of the BCU initiative, the number of children aged 6 weeks to 59 months vaccinated with Penta1 increased in four of the six study regions across all age groups.

Between the pre-implementation and post-implementation periods, the number of children vaccinated with Penta1 increased from 564,496 to 590,780 among children aged 0–11 months, from 1,060 to 2,174 among children aged 12–23 months, and from 903 to 2,550 among children aged 24–59 months see Table 1. (*Source: DHIS2, Ministry of Health, BFA)*

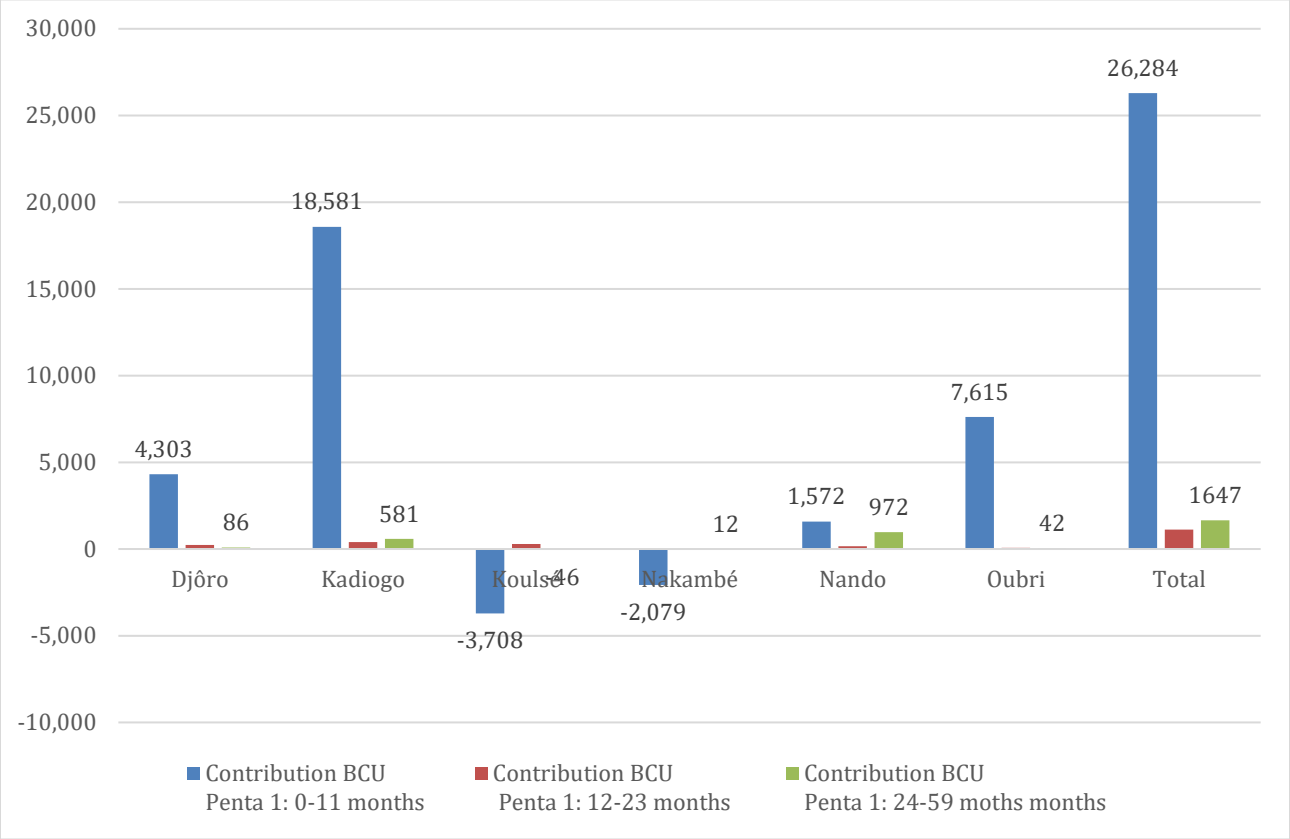
Table 1: Changes in Penta1 vaccination by age group and region before and after implementation of the Big Catch-Up initiative.

	Penta 1: 6 weeks-11 months			Penta 1: 12-23 months			Penta 1: 24-59 months		
Region	Before	After		Before	After		Before	After	
Djôro	55 895	60 198	4 303	207	437	230	32	118	86
Kadiogo	143 234	161 815	18 581	3	404	401	12	593	581
Koulsé	109 414	105 706	-3 708	611	903	292	479	433	-46
Nakambé	91 644	89 565	-2 079	137	95	-42	14	26	12
Nando	98 960	100 532	1 572	86	249	163	328	1 300	972
Oubri	65 349	72 964	7 615	16	86	70	38	80	42
Total	**564 496**	**590 780**	26 284	**1 060**	**2 174**	1114	**903**	**2 550**	1647

BCU's contribution to routine vaccination from July 1, 2023 (before) to December 31, 2025 (after) at the Penta 1 level

Declines observed in Nakambé and Koulsé may reflect the implementation of previous catch-up activities through PIRI and the contextual challenges associated with hard-to-reach areas (see figure 3 below)

Figure 3: Contribution of the BCU to Penta 1 vaccination coverage between 2022-2025



Source: BCU evaluation report, DPV Ministry of Health

Figure 3: Contribution of the BCU to Penta 1 vaccination coverage between 2022-2025

Penta 3 Vaccination

The number of children vaccinated with Penta3 increased from 546,535 to 573,487 among children aged 6 weeks-11 months, from 1,554 to 3,241 among children aged 12–23 months, and from 873 to 4,546 among children aged 24–59 months (see Table 2). Improvements were observed across all regions and age groups except in Koulsé. (*Source: DHIS2, Ministry of Health, BFA).*

Table 2: Changes in Penta3 vaccination by age group and region before and after implementation of the Big Catch-Up initiative.

	Penta 3: 6 weeks-11 months			Penta 3: 12-23 months			Penta 3: 24-59 months		
Region	Before	After	Difference	Before	After	Difference	Before	After	Difference
Djôro	53 387	58 044	4 657	201	435	234	39	300	261
Kadiogo	142 511	158 511	16 000	26	897	871	17	1 659	1 642
Koulsé	103 644	98 870	- 4 774	1 040	117	67	441	677	236
Nakambé	87 539	88 159	620	152	63	- 89	-	125	125
Nando	96 769	99 138	2 369	75	627	552	344	1 609	1 265
Oubri	62 685	70 765	8 080	60	112	52	32	176	144
Total	546 535	573 487	26 952	1 554	3 241	1 687	873	4 546	3 673

BCU's contribution to routine vaccination from July 1, 2023 (before) to December 31, 2025 (after) at the Penta 3 level

MR2 Vaccination

According to the vaccination schedule, the MR is given starting at 15 months. With the Big Catch-Up, the number of vaccinated children went from 475,923 to 509,539.

Among children aged 24–59 months, the number increased from 31,474 to 48,377 (Table 3). Lower gains observed in Koulsé may reflect the implementation of catch-up activities before the national rollout of the BCU initiative. (*Source: DHIS2, Ministry of Health, BFA)*

Table 3: Changes in MR2 vaccination by age group and region before and after implementation of the Big Catch-Up initiative.

	MR2: 12-23 months			MR2: 24-59 months		
Region	Before	After	Difference	Before	After	Difference
Djôro	45 685	46 742	1 057	1 032	2 681	1 649
Kadiogo	105 975	131 689	25 714	317	15 152	14 835
Koulsé	98 505	95 963	-2 542	27 937	11 789	-16 148
Nakambé	79 683	80 636	953	1 403	3 424	2 021
Nando	89 159	91 107	1 948	601	12 938	12 337
Oubri	56 916	63 402	6 486	184	2 393	2 209
Total	475 923	509 539	33 616	31 474	48 377	16 903

BCU's contribution to routine vaccination from July 1, 2023 (before) to December 31, 2025 (after) at MR2 level.

IV. Contribution of Integrated Primary Health Care Services to Equitable Access

Integrating catch-up vaccination with other primary health care interventions helped improve access to vaccination services for underserved populations. Between June 13 and 16, 2025, combining vitamin A with catch-up vaccination allowed 37,096 children under five who were behind on their vaccination schedule, as well as 8,522 nine-year-old girls and 7,779 pregnant women, to be identified and referred to a health center.

Of these, 33,164 children under five years of age, 7,753 girls, and 6,836 pregnant women received vaccination services.

The integrated approach also facilitated the vaccination of 6,849 zero-dose children and 6,714 under-vaccinated children.

In addition, vitamin A supplementation was provided to 4,469,170 children aged 6–59 months, representing 96,2% of the target population in 2025.

V. Facilitators of Equitable Immunization Delivery

At all levels of the health system, participants identified several factors facilitating equitable access to immunization services:

The catch-up initiative was implemented in all 70 health districts of Burkina Faso. Several factors contributed to the success of this important activity. Indeed, data from the evaluation showed that 100% of the health facilities visited had implemented a system to ensure continuity of services. This was mentioned by one of the regional health directors. "*For me, I think it's the availability of services in functional health facilities, the continuity of primary healthcare, and an acceptable margin for maneuver,"* said a regional health director.

Some mentioned adapting vaccination strategies to the local context. Indeed, according to a head nurse, "...*one of the facilitating factors is the fact that we adapted the strategies to our current context to be more operational in the field."* At the health facility level, a vaccinator emphasized that involvement and good collaboration greatly facilitated the implementation of the major catch-up campaign: *“During the major catch-up campaign, the involvement and*

collaboration of opinion leaders were crucial. Some were even on the front lines, taking children to get vaccinated. You see…" (Comments from a Community Health Worker)

Another Community Health Worker explained that mass media, such as radio and television messages, contributed to the acceptance of mothers and parents. *"There are households where, when we arrive to raise awareness among parents, some tell us they've already seen the message on TV. That actually made our job easier…"*

VI. Persistent Barriers to Immunization Equity

Despite the progress, several obstacles continued to limit fair access to vaccination services. The main obstacles mentioned by the stakeholders are:

Contextual barriers

"What really slowed things down was mainly the insecurity and the geographic access constraints, which were the main barriers." Words of a vaccinator's agent

Indeed, during the large multi-antigen campaign, some vaccination sites were not accessible to the supervisors. Vaccination was postponed, and the data was submitted after the campaign.

Health system barriers

"There is also a shortage of human resources due to staff mobility, especially in insecure areas; the agents ask to leave every year, and it's really not easy; it's their right." Words of a Regional Health Director

"In certain healthcare training programs, there is a shortage of cold chain equipment, which acts as a barrier," says a Chief Medical Officer of a health district.

"For us, it's the lack of internet. It doesn't make entering and sending the data on time any easier. We have to travel to enter the data and synchronize it," said a data manager from a health district.

"The persistence of zero-dose children is linked to the discontinuity of vaccination services; there is often an interruption or irregularity. It's not our fault; you yourself know the context, or well…. Remarks from a Chief Medical Officer of a health district.

Demand-side barriers

Despite the progress made, several obstacles continue to limit equitable access to vaccination services. The main obstacles mentioned by stakeholders are as follows:

❖ **Contextual Obstacles**

Insecurity has hampered the implementation of the major catch-up vaccination campaign in Burkina Faso. Indeed, it was raised at all levels of the health system as one of the primary challenges to be addressed by all six regional directors, the twelve chief medical officers of the health districts, and especially by those working in health facilities. This is evidenced by the comments of a vaccination worker who stated in an interview: "What really slowed things down was mainly insecurity and geographical access constraints, which were the main obstacles." In fact, the inaccessibility of some vaccination sites due to insecurity led to the postponement of the campaign in certain areas.

❖ **Obstacles Related to the Health System**

Regarding obstacles related to the health system, 60% of the regional health directors surveyed reported staff turnover affecting vaccination, especially in insecure areas. Indeed, one regional director noted during an interview: “Ah, there is a very important aspect I must emphasize at our level. There is also a shortage of human resources due to staff turnover, particularly in high-risk areas; staff request transfers every year, and it is really not easy; it is their right.” (Statement from a regional health director)

❖ **Obstacles Related to Demand**

On the demand side, the opinion leaders surveyed did not report the presence of sociocultural factors affecting vaccination. This is evidenced by the statement of a religious leader who said: “It used to be that way, because people didn’t understand the importance of vaccination.” But currently, everyone here knows the benefits of vaccination.” While no cases of sociocultural factors have been reported, concerns have been raised regarding the availability of vaccines. One of the regional directors mentioned the persistence of rumors leading to

vaccine hesitancy. In this regard, he emphasized that: “Despite awareness campaigns, misinformation about vaccines is still circulating, which is generating vaccine hesitancy. You saw this with the introduction of the new typhoid vaccine into the Expanded Program on Immunization (EPI); it’s not easy, is it?” These are the words of a regional health director.

Discussion.

Achieving catch-up routine vaccination rates requires coordinated efforts to raise awareness of the importance of childhood immunization and to expand access to preventive services. It is essential to inform parents about the value of vaccines against preventable diseases through proactive communication channels by trusted institutions (2). In parallel, effective catch-up strategies must be developed, with increased availability of vaccination points designed to ‘meet people where they are’—for example, by organizing vaccination sites in schools, deploying mobile clinics, and holding mass vaccination days (5)

Principal’s findings

In situations where immunization services are reduced or temporarily suspended, countries have adopted diverse measures to reach children who missed vaccinations.

This assessment showed that the Big Catch-Up initiative contributed to reducing the number of zero-dose and under-vaccinated children in Burkina Faso while strengthening routine immunization services.

By December 2025, the initiative had reached 144,245 zero-dose children and 200,624 under-vaccinated children, exceeding the initial national targets.

Improvements were also observed in routine immunization indicators, including Penta1, Penta3, and MR2 coverage across most study regions.

Contribution of the BCU initiative to immunization equity

The findings suggest that the BCU initiative contributed to reducing inequities in immunization coverage by reaching children who had previously been missed by routine services.

The implementation of fixed and outreach strategies, PIRI activities, SIAs, and integrated primary health care interventions created multiple opportunities to reach underserved populations.

The integration of catch-up vaccination with vitamin A supplementation and deworming activities facilitated access to immunization services while addressing broader child health needs.

Community engagement emerged as a key mechanism for improving equitable access to immunization services. The involvement of Community-Based Health Workers, opinion leaders, and local stakeholders strengthened community mobilization and facilitated the identification and referral of zero-dose and under-vaccinated children.

These findings support the importance of community-centered approaches for reaching underserved populations in fragile settings.

Persistent inequities and barriers to equitable access

Despite the progress achieved, important barriers to equitable immunization coverage remain. Insecurity and geographical inaccessibility continue to limit access to vaccination services in some areas.

Population mobility, shortages of human resources, transportation constraints, limited internet connectivity, and vaccine-related rumors also affected the implementation of catch-up activities and the utilization of immunization services.

The lower performance observed in some regions suggests that high administrative coverage does not necessarily indicate the absence of zero-dose or under-vaccinated children.

These findings highlight the need for context-specific approaches tailored to populations living in hard-to-reach and insecure settings.

Comparison with previous evidence

The findings are consistent with the objectives of the global Big Catch-Up initiative and support previous evidence highlighting the importance of catch-up vaccination activities for restoring immunization coverage following the COVID-19 pandemic (1).

The results also align with recommendations from WHO and Immunization Agenda 2030, which emphasize the need to prioritize zero-dose children and strengthen immunization services within primary health care (7).

For instance, in China during the early stages of the COVID-19 epidemic, approximately 80% of vaccination services were halted, resulting in an 80% decline in National Immunization Program (NIP) doses and a 90% decline in non-NIP doses compared with pre-pandemic levels. A subsequent three- to six-month catch-up campaign successfully administered 94.4% of the nearly 90 million delayed doses. This strategy relied on informing parents of eligible children through rural government officials, sub-district and community health centers, and expanding service delivery by extending daily operating hours and offering weekend vaccination sessions (6). This is similar to the catch-up vaccination campaign *'Metti un vaccino in cartella'* implemented to increase coverage and prevent outbreaks of vaccine-preventable diseases in Italy, which successfully reached between 13% and 48% of children who had missed vaccinations, resulting in a significant improvement in coverage. Given that the optimal threshold for herd immunity is 95%, catch-up strategies remain essential. Notably, this campaign not only restored coverage levels to those observed in 2019 but also substantially exceeded them, with rates of 73.1% versus 63.5% for DTaPP4 and 72.3% versus 62.9% for MMR2 (7).

Otherwise, the results are consistent with those from the EMRO region, which indicated that implementing integrated campaigns could enhance parents' acceptance and participation in child vaccination (2). This further illustrates the efficacy of integrated approaches, as they facilitate the coordinated mobilization of human, material, and financial resources to support the delivery of multiple health interventions (2)

Examples from non-health sectors in remote rural settings can serve as valuable models to promote zero-dose vaccination uptake. These initiatives often rely on integration with existing structures and on addressing broader structural determinants. In Chad, for instance, vaccination services were integrated with animal health programs, achieving higher coverage among pastoralist communities. The program proved more cost-effective, feasible, and culturally acceptable than delivering human health services alone (8).

Part of community implication, evidence from Togo shows that community engagement is vital for successful vaccination, especially in catch-up programs and mobilization efforts (2). Building trust and credibility is essential for mobilizing urban communities. To achieve this, vaccination messages must be adapted to local cultural norms, as highlighted in Afghanistan and Nigeria, where religious and traditional leaders played a pivotal role in promoting vaccination in fragile settings, conducting door-to-door outreach and fostering community acceptance (9,10).

Despite the progress and added value observed with the implementation of the BCU, persistent obstacles were identified in our study, corroborating those reported elsewhere. Barriers to reaching zero-dose children—stemming from economic, political, and socio-cultural factors—remain a major challenge. Both findings underscore that, beyond progress achieved, significant challenges persist and must be addressed to ensure equitable immunization coverage(7)

Policy implications

Integrating the minimum package of activities into health services is one of the Ministry of Health's priorities. In fact, it's one of the components of quality care, taught in the health schools of Burkina Faso. In the context of vaccination, it is included in primary healthcare and during other public health interventions. The BCU results once again highlight and call on stakeholders to recognize the importance of this integration.

Integrated, community-centered, and data-driven approaches should be prioritized to sustain gains achieved through the BCU initiative.

Strengthening collaboration with community actors and maintaining regular catch-up activities may help reduce persistent inequities in immunization coverage. Additional efforts are needed to strengthen human resources, logistics, vaccine availability, and digital infrastructure, particularly in hard-to-reach and insecure areas.

Strengths and limitations

This evaluation generated evidence from multiple levels of the health system and combined document review, observation, and stakeholder perspectives.

However, several limitations should be considered.

The purposive selection of study sites based on accessibility may have introduced selection bias.

The evaluation relied partly on administrative data recorded in DHIS2.

Recall bias and incomplete document archiving may have affected data quality.

Finally, insecurity limited access to some regions, which may have reduced the representativeness of the findings.

Conclusion

The Big Catch-Up initiative contributed to reducing immunization inequities in Burkina Faso by identifying and vaccinating zero-dose and under-vaccinated children who had been missed by routine services.

The initiative demonstrated that integrated, community-centered, and data-driven approaches can improve equitable access to immunization services in fragile settings.

The engagement of stakeholders across all levels of the health system, together with strong community mobilization led by Community-Based Health Workers and opinion leaders, played a critical role in reaching underserved populations.

However, persistent inequities remain, particularly in insecure and hard-to-reach areas where geographical barriers, population mobility, human resource shortages, logistical constraints, and vaccine-related misinformation continue to affect access to immunization services.

Sustaining progress will require institutionalizing catch-up vaccination within routine immunization and primary health care services while strengthening strategies tailored to underserved populations.

Priority actions include reinforcing community-based identification of children who miss vaccination appointments, maintaining regular catch-up activities, strengthening digital systems for identifying zero-dose children, and improving human resources, logistics, and vaccine availability.

Author Contributions

Conceptualization, methodology, data collection, formal analysis, and writing-original draft: AZ

Methodology, writing-review and editing, English language editing: HD

Writing-review and editing: CHD

Data collection, data curation, and formal analysis: IO

Supervision, project administration, and study coordination: NCNO, SD, AMB.

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List of abbreviations

BFA: Burkina Faso

BCU: Big Catch-Up

CBHWs: Community-Based Health Workers

DHIS2: District Health Information Software 2

DPV : Direction de la Prévention par les Vaccinations

GAVI: Global alliance vaccine immunization

IPV: Inactivated poliovirus vaccine

Men A: vaccine targeting *Neisseria meningitidis* serogroup A

MR: measles-rubella vaccine

OPV: Oral poliovirus vaccine

Penta: Diphtheria-tetanus-pertussis-Hepatitis -Hemophilus influenzae

PIRI: Periodic Intensification of Routine Immunization

SIAs: Supplementary Immunization Activities

UNICEF: United Nations Children's Fund

Vit A: Vitamin A

WHO: World Health Organization

YF: yellow fever vaccine

Declarations

Competing interests

The authors declare that they have no competing interests.

Ethics approval and consent to participate

As part of the evaluation of the Big Catch-Up initiative, prior approval from the National Health Research Ethics Committee was deemed unnecessary. However, administrative notes were prepared by the Ministry of Health and disseminated to all relevant administrative authorities at the subnational level to inform them about the evaluation and facilitate its implementation. Participation in the study was voluntary, and informed consent was obtained from all participants before their inclusion in the study and data collection. The evaluation was conducted in accordance with the ethical principles set out in the Declaration of Helsinki.

Consent for publication

"Not Applicable" in this section

Data Availability

The data for this study come from Burkina Faso's District Health Information Software (DHIS) and from field collection hosted on the Ministry of Health's server, specifically at the Directorate of the Information System (DSI).

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