



Closing the hepatitis B birth-dose gap in Cameroon: Global evidence and policy imperatives

Tambe Elvis Akem

To cite this article: Tambe Elvis Akem (2025) Closing the hepatitis B birth-dose gap in Cameroon: Global evidence and policy imperatives, Human Vaccines & Immunotherapeutics, 21:1, 2569242, DOI: [10.1080/21645515.2025.2569242](https://doi.org/10.1080/21645515.2025.2569242)

To link to this article: <https://doi.org/10.1080/21645515.2025.2569242>



© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.



Published online: 06 Oct 2025.



Submit your article to this journal [↗](#)



Article views: 231



View related articles [↗](#)



View Crossmark data [↗](#)

ARTICLE COMMENTARY



Closing the hepatitis B birth-dose gap in Cameroon: Global evidence and policy imperatives

Tambe Elvis Akem ^{a,b,c,d}

^aMédecins Sans Frontières (MSF) – Belgium, Medical Department, Brussels, Belgium; ^bNorwegian Red Cross, Emergency Response Unit (ERU), Oslo, Norway; ^cAfrica Centres for Disease Control and Prevention (Africa CDC), Emergency Preparedness and Response Division – Rapid Responder Programme, Addis Ababa, Ethiopia; ^dUnited Nations Children's Fund (UNICEF), Polio Outbreak Response – Health Section, Programme Group, New York, NY, USA

ABSTRACT

Hepatitis B virus infects an estimated 254 million people worldwide and caused 1.1 million deaths in 2022. In the WHO African Region, about 65 million people live with chronic HBV (HBsAg prevalence 5.8%). In Cameroon, pooled HBsAg prevalence was 11.2% among pre-2005 cohorts, born before infant HBV vaccination, versus 0.7% in a hospital-based cohort of children recruited in 2009–2010 among post-2005 births (not nationally representative). Nonetheless, HepB birth-dose coverage was 0% in 2024; infection at birth leads to chronic HBV in 80–90% of cases, with roughly one in four dying prematurely. Completion of the infant series is 68%, with subnational gaps leaving many children unprotected. Cameroon's selective policy restricts the timely birth-dose to infants of known HBsAg-positive mothers, further perpetuating inequities. In hard-to-reach areas, antenatal screening is limited and home deliveries are common; the same children who miss the infant series also miss the birth-dose. Leveraging high-coverage BCG platforms could help close this gap and protect newborns within 24 hours of birth. This commentary reviews global evidence for the birth-dose, analyzes Cameroon's policy gaps, and proposes equity-focused actions for universal birth-dose adoption, strengthened delivery systems and supply chains, and data-driven governance to reach WHO's 2030 elimination targets in Cameroon.

KEYWORDS

Hepatitis B; birth-dose; Cameroon; immunization policy; perinatal transmission

Introduction

Hepatitis B virus (HBV) is a leading cause of chronic liver disease worldwide. The World Health Organization Global Hepatitis Report 2024 estimates that, in 2022, 254 million people were living with chronic HBV infection, about 1.2 million individuals became newly infected, and roughly 1.1 million died from HBV-related cirrhosis or hepatocellular carcinoma.¹ The burden is far from evenly distributed. The WHO African Region carried about 64.7 million chronic infections in 2022 and accounted for 63% of all new HBV infections that year, approximately 771,000 cases. A further 22% of new infections, around 266,000 cases, occurred in the South-East Asia Region.¹ Although the Western Pacific Region has made substantial progress with childhood immunization, it still records the largest absolute number of HBV-related deaths. In Africa, the age-standardized prevalence of hepatitis B surface antigen (HBsAg) is roughly 5.8%.¹

Cameroon reflects a high-burden profile. In a national meta-analysis, pooled HBsAg prevalence across studies was 11.2% (95% CI 9.7–12.8%), based largely on participants born before the 2005 introduction of infant HBV vaccination.² In contrast, a hospital-based cohort of children recruited in 2009–2010, born after the introduction of the infant three-dose series (given at 6, 10 and 14 weeks), reported HBsAg prevalence of about 0.7% (95% CI 0.3–1.5).² These child-cohort data are from a single study conducted at two pediatric hospitals in Yaounde, are not nationally representative, and should be interpreted with caution. A national seroprevalence survey also found HBsAg prevalence of 8.7% among health-care workers, with only 11.4% fully vaccinated,³ underscoring infection-prevention gaps in delivery settings and reinforcing the rationale for a universal birth-dose that protects every newborn regardless of maternal testing or place of delivery.

CONTACT Tambe Elvis Akem  tambeelvis2008@yahoo.com  Yaoundé, Centre Region, Cameroon.

© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

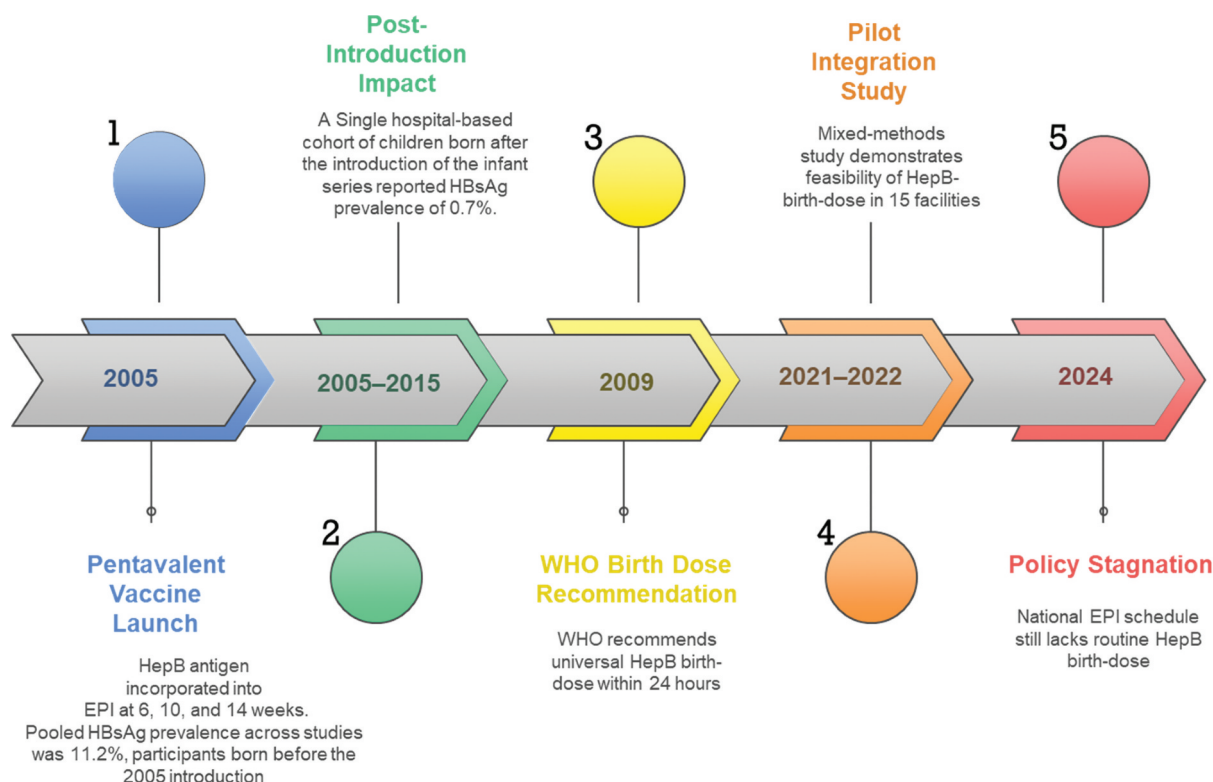


Figure 1. Hepatitis B vaccine introduction and expansion in Cameroon.

Although perinatal transmission from infected mothers is the primary pathway, early horizontal transmission can occur in the first months of life through household or health-care exposures; a universal birth-dose provides protection against both, independent of maternal testing status.⁴ Nonetheless, three critical programmatic gaps threaten progress. First, timely Hepatitis B (HepB) birth-dose coverage remained 0% in 2024.⁵ Second, completion of the infant three-dose series (HepB3) is 68%, below the global average of 83%⁵ and the WHO 2030 target of 90%.⁶ Third, persistent inequities remain: subnational coverage of the infant three-dose series lags behind the national average in hard-to-reach areas, leaving pockets of susceptible children.^{7,8} The current selective birth-dose approach, which limits eligibility to infants of known HBsAg-positive mothers, deepens these inequities because many pregnant women are not screened and out-of-facility births are common.⁷ As a result, the very children excluded from the infant series are also missed at birth. Closing these gaps is essential if Cameroon is to meet Immunization Agenda 2030 targets and contribute to the global goal of eliminating viral hepatitis as a public-health threat by 2030. Against this backdrop, [Figure 1](#) provides an overview of Cameroon's hepatitis B vaccine introduction and subsequent scale-up.

Evidence for the hepatitis B birth-dose

Infants infected at birth face an 80–90% risk of chronic HBV infection, compared with less than 5% in adults, and perinatal infection carries up to 25% lifetime mortality.⁹ A timely hepatitis B vaccine birth-dose, given within 24 hours of delivery, prevents about 95% of mother-to-child transmissions.⁴ Population data confirm the benefit. In Taiwan, childhood HBsAg prevalence fell from about 10% before the program to below 1% after universal introduction of the birth-dose.¹⁰ In The Gambia, chronic infection in children was roughly 10% without the birth-dose but dropped to under 1% when the dose was administered.¹¹ The protection extends to liver cancer: after Taiwan began the birth-dose schedule, hepatocellular carcinoma incidence in children aged 6–9 years fell by 75%.¹² Long-term follow-up shows that this protection persists through adolescence and early adulthood.¹³ These findings provide strong evidence that prompt birth-dose vaccination is essential for reducing chronic infection, blocking vertical transmission, and preventing HBV-related childhood liver cancer.

Policy implications in Cameroon

A timely hepatitis B birth-dose is both high-impact and cost-effective. Modeling indicates that reaching at least 90% global coverage could avert about 84% of future hepatitis B-related deaths and save roughly 1.4 million lives between 2015 and 2030.¹⁴ The World Health Organization has recommended universal birth-dose vaccination since 2009.¹⁵ By contrast, Cameroon has only recently adopted a selective policy limited to infants of mothers known to be HBsAg-positive.¹⁶ This divergence matters because a selective approach restricts eligibility and risks perpetuating coverage gaps in populations already underserved. Yet in Cameroon the prevalence of HBsAg among pregnant women is high and varies by region: an estimated 11% at Yaounde University Teaching Hospital,¹⁷ and 5.7% and 7.5% in Limbe and Muyuka Health Districts of the South West region, respectively.¹⁸ Despite this substantial burden, national birth-dose coverage stood at 0% in 2024.⁵ Although the vaccine was added to the routine schedule in February 2025, rapid nationwide implementation is now essential to block perinatal transmission, reduce chronic carriage, and prevent liver cancer.¹⁹

The risk-based directive issued on 20 February 2025¹⁶ limits vaccination to newborns of mothers known to be hepatitis B positive, but several gaps undermine this approach. Most rural and conflict-affected facilities do not screen pregnant women, peripheral clinics lack rapid tests, cold-chain capacity, and trained staff, and about one-third of deliveries occur at home.⁷ The direct cost of antenatal testing, about USD 5–20, excludes many low-income families even though the test is nominally part of a universal-health-coverage package that is not yet widely implemented and remains largely confined to certain urban centers. Engagement of mission and private facilities is inconsistent, and sustainable incentives for their participation remain undefined.

WHO therefore recommends a universal birth-dose for every newborn, regardless of maternal hepatitis B status.⁴ This blanket policy eliminates dependence on antenatal testing and ensures that every infant receives protection within 24 hours of delivery. Financially, global guidance and modeling support the birth-dose as a cost-effective intervention in high-burden settings like Cameroon.^{4,14} Regional expert recommendations also emphasize these strategies.²⁰

Recommendations for hepatitis B birth-dose in Cameroon

- (1) Adopt a universal birth-dose policy: Cameroon should align fully with WHO guidance by introducing the hepatitis B birth-dose for all newborns, not only those of known HBsAg-positive mothers. Local data indicate substantial declines in HBsAg prevalence among post-2005 birth cohorts that received the infant three-dose series, down to about 0.7% in a single hospital-based cohort study (not nationally representative), compared with 11.2% pooled prevalence in pre-2005 cohorts.² Meanwhile, completion of the infant three-dose series remains 68%, below both the global average and the WHO 2030 target, with subnational gaps in hard-to-reach areas.^{5–8} A selective, risk-based birth-dose policy deepens these inequities by missing infants born outside facilities, those in rural hard-to-reach areas, and infants of unscreened mothers; these are the very children least likely to complete the series.
- (2) Leverage the BCG platform: BCG coverage in Cameroon remains relatively high compared with DTP3. Integrating the hepatitis B birth-dose with BCG and OPV0 as a standard birth-immunization package would help reach the children most likely to miss pentavalent doses, including those in rural, poor, or conflict-affected settings, and provide protection at birth before exposure occurs.²¹ A timely birth-dose can prevent up to 95% of perinatal infections.⁴
- (3) Strengthen delivery systems for timely administration: Pre-position single-dose HepB vials in all delivery units, authorize trained traditional birth attendants and community health workers to administer the dose at home deliveries, and equip them with cold chain carriers and simple reporting tools linked to nearby health facilities.²²
- (4) Integrate hepatitis B screening into maternal and newborn health services: Make rapid diagnostic testing freely available at point of care in antenatal clinics, supported by reliable supply chains and staff training. This will help identify positive mothers and allow proper management, including antiviral prophylaxis where indicated, while still ensuring that every infant receives the universal birth-dose.^{19,23}
- (5) Build supply chain and monitoring resilience: Deploy electronic logistics management information systems (eLMIS) for real-time monitoring of vaccine stocks and cold chain, secure buffer stocks with Gavi and UNICEF support, and establish district dashboards for tracking timely coverage.^{24,25}

- (6) Launch a national awareness campaign: Use mass media, SMS messaging through MTN and Orange, and community health workers to promote the message “24 Hours Protects from Hepatitis B,” highlighting that the birth-dose given within 24 hours can prevent up to 95% of perinatal infections.

Key messages

A complete hepatitis B immunization schedule – timely birth-dose followed by the three-dose infant series – reduces an individual child’s risk of chronic HBV infection by about 95% and, at high population coverage, lowers chronic carriage and childhood liver-cancer incidence by more than 70%. Birth-dose coverage in Cameroon was still 0% in 2024. The 20 February 2025 communiqué confines vaccination to infants of known HBsAg-positive mothers and offers no guarantee of free screening or coverage of home deliveries, thereby perpetuating inequities in populations that are already missed by the DTP3 schedule. Most newborns therefore remain unprotected. Achieving the WHO 2030 elimination targets will require four complementary actions: (i) universal administration of the birth-dose within 24 hours of birth; (ii) full completion of the infant three-dose schedule; (iii) strengthened systems to ensure equity in hard-to-reach settings; and (iv) real-time data systems that monitor coverage and impact nationwide.

Acknowledgments

The author thanks Dr. Calvin Besong Eta Oben, Nnam Immaculate Muhzong, Dr. Theodore Ngatchu, and Dr. George Assam for critical comments and support on earlier drafts.

Author contributions

CRediT: **Tambe Elvis Akem:** Conceptualization, Data curation, Formal analysis, Investigation, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

Notes on contributor

Tambe Elvis Akem is a field epidemiologist and immunization specialist with several years of experience in vaccine introduction, outbreak response, and health-system strengthening across humanitarian settings. His work focuses on equity-driven delivery models and data-enabled strategies to close immunization gaps.

ORCID

Tambe Elvis Akem  <http://orcid.org/0009-0007-5699-8999>

References

1. World Health Organization. Global hepatitis report 2024: action for access in low- and middle-income countries. Geneva: WHO; 2024. Licence: CC BY-NC-SA 3.0 IGO.
2. Bigna JJ, Amougou MA, Asangbeh SL, Kenne AM, Noumegni SRN, Ngo-Malabo ET, Noubiap JJ. Seroprevalence of hepatitis B virus infection in Cameroon: a systematic review and meta-analysis. *BMJ Open*. 2017;7(6):e015298. doi: 10.1136/bmjopen-2016-015298.
3. Bilounga Ndongo C, Eteki L, Siedner M, Mbaye R, Chen J, Ntone R, Donfack O, Bongwong B, Essaka Evoue R, Zeh F, et al. Hepatitis B vaccination coverage among healthcare workers in Cameroon: a national cross-sectional study. *J Viral Hepat*. 2018;25(12):1582–1587. doi: 10.1111/jvh.12974.

4. World Health Organization. Preventing perinatal hepatitis B virus transmission: a guide for introducing and strengthening hepatitis B birth-dose vaccination. Geneva: WHO; 2015. <https://iris.who.int/handle/10665/208278>.
5. WHO/UNICEF. Estimates of national immunization coverage (WUENIC), 2023 revision. Geneva: WHO & UNICEF; 2025.
6. World Health Organization. Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022–2030. Geneva: WHO; 2022. <https://www.who.int/publications/i/item/9789240053779>.
7. National Institute of Statistics (Cameroon) (NIS) and ICF. 2018 Cameroon demographic and health survey: summary report (SR266). Rockville (MD), USA: NIS and ICF; 2020.
8. Yakum MN, Atanga FD, Ajong AB, Eba Ze LE, Shah Z. Factors associated with full vaccination and zero vaccine dose in children aged 12–59 months in 6 health districts of Cameroon. *BMC Public Health*. 2023;23(1):1693. doi: [10.1186/s12889-023-16609-4](https://doi.org/10.1186/s12889-023-16609-4).
9. Centers for Disease Control and Prevention. Epidemiology and prevention of vaccine-preventable diseases. Hamborsky J, Kroger A, Wolfe S, eds. 14th ed. Washington, DC: Public Health Foundation; 2021. Chapter 10, Hepatitis B; p. 149–174.
10. Chen DS, Hsu NH, Sung JL, Hsu TC, Hsu ST, Kuo YT, Lo KJ, Shih YT. A mass vaccination program in Taiwan against hepatitis B virus infection in infants of hepatitis B surface antigen-carrier mothers. *JAMA*. 1987;257(19):2597–2603. doi: [10.1001/jama.1987.03390190103022](https://doi.org/10.1001/jama.1987.03390190103022).
11. Mendy M, Peterson I, Hossin S, Peto T, Jobarteh ML, Jeng-Barry A, Sidibeh M, Jatta A, Moore SE, Hall AJ, et al. Observational study of vaccine efficacy 24 years after the start of hepatitis B vaccination in two Gambian villages: no need for a booster dose. *PLOS ONE*. 2013;8(3):e58029. doi: [10.1371/journal.pone.0058029](https://doi.org/10.1371/journal.pone.0058029).
12. Chang MH, Chen CJ, Lai MS, Hsu HM, Wu TC, Kong MS, Liang D-C, Shau W-Y, Chen D-S. Universal hepatitis B vaccination in Taiwan and the incidence of hepatocellular carcinoma in children. *N Engl J Med*. 1997;336(26):1855–1859. doi: [10.1056/NEJM199706263362602](https://doi.org/10.1056/NEJM199706263362602).
13. Chang MH, You SL, Chen CJ, Liu CJ, Lee CM, Lin SM, Chu H-C, Wu T-C, Yang S-S, Kuo H-S, et al. Decreased incidence of hepatocellular carcinoma in hepatitis B vaccinees: a 20-year follow-up study. *J Natl Cancer Inst*. 2009;101(19):1348–1355. doi: [10.1093/jnci/djp288](https://doi.org/10.1093/jnci/djp288).
14. Nayagam S, Thursz M, Sicuri E, Conteh L, Wiktor S, Low-Beer D, Hallett TB. Requirements for global elimination of hepatitis B: a modelling study. *Lancet Infect Dis*. 2016;16(12):1399–1408. doi: [10.1016/S1473-3099\(16\)30204-3](https://doi.org/10.1016/S1473-3099(16)30204-3).
15. World Health Organization. Hepatitis B vaccines: WHO position paper. *Wkly Epidemiol Rec*. 2009;84(40):405–420. <https://www.who.int/wer/2009/wer8440.pdf>.
16. Republic of Cameroon Ministry of Public Health. Press release: Hepatitis B birth-dose introduction policy and antenatal screening mandate. Yaoundé. 2025 Feb 20.
17. Mbongue-Mikangue CA, Njiki-Bikoï J, Carole S, Sake N, Sara HRE. Prevalence of HBsAg among pregnant women followed at the Yaounde University Teaching Hospital, Cameroon. *J Clin Case Rep Med Images Health Sci*. 2025;11(1):001470. doi: [10.55920/JCRMHS.2025.11.001470](https://doi.org/10.55920/JCRMHS.2025.11.001470).
18. Eyong EM, Yankam BM, Seraphine E, Ngwa CH, Nkfusai NC, Anye CS, Nfor GK, Cumber SN. The prevalence of HBsAg, knowledge and practice of hepatitis B prevention among pregnant women in the Limbe and Muyuka health districts of the South West region of Cameroon: a three-year retrospective study. *Pan Afr Med J*. 2019 Mar 15;32:122. doi: [10.11604/pamj.2019.32.122.16055](https://doi.org/10.11604/pamj.2019.32.122.16055). PMID: 31312290; PMCID: PMC6607245.
19. World Health Organization. Prevention of mother-to-child transmission of hepatitis B virus: guidelines on antiviral prophylaxis in pregnancy. Geneva: WHO; 2020. <https://www.who.int/publications/i/item/978-92-4-000270-8>.
20. Spearman CW, Afihene M, Ally R, Apica B, Awuku Y, Cunha L, Dusheiko G, Gogela N, Kassianides C, Kew M, et al. Gastroenterology and hepatology association of sub-Saharan Africa (GHASSA). Hepatitis B in sub-Saharan Africa: strategies to achieve the 2030 elimination targets. *Lancet Gastroenterol Hepatol*. 2017;2(12):900–909. doi: [10.1016/S2468-1253\(17\)30295-9](https://doi.org/10.1016/S2468-1253(17)30295-9).
21. World Health Organization Western Pacific Region. Hepatitis B control through immunization: a reference guide. Manila: WHO WPRO; 2014.
22. Iwu CA, Uwakwe K, Oluoha U, Duru C, Nwaigbo E. Empowering traditional birth attendants as agents of maternal and neonatal immunization uptake in Nigeria: a repeated measures design. *BMC Public Health*. 2021;21(1):287. doi: [10.1186/s12889-021-10311-z](https://doi.org/10.1186/s12889-021-10311-z).
23. Pan CQ, Duan Z, Dai E, Zhang S, Han G, Wang Y, Zhang H, Zou H, Zhu B, Zhao W, et al. Tenofovir to prevent hepatitis B transmission in mothers with high viral load. *N Engl J Med*. 2016;374(24):2324–2334. doi: [10.1056/NEJMoa1508660](https://doi.org/10.1056/NEJMoa1508660).
24. World Health Organization. Monitoring and evaluation for viral hepatitis B and C: recommended indicators and framework. Geneva: WHO; 2016. <https://apps.who.int/iris/handle/10665/204790>.
25. Gavi, the Vaccine Alliance. Eligibility and transition policy. Geneva: Gavi; 2023. <https://www.gavi.org/programmes-impact/programmatic-policies/eligibility-and-transition-policy>.