



**REGIONAL OPERATIONAL GUIDANCE
ON CHILDREN AGED 6-59 MONTHS ANEMIA**

Subnational mapping for targeting anemia prevention among
children aged 6-59 months in West and Central Africa

Foreword

In West and Central Africa (WCA) region, approximately 68% of children aged 6-59 months suffer from anemia, based on the previous WHO Hemoglobin concentrations classification from 2011. This rate is significantly higher than the global average of 40%. Despite World Health Assembly's goal to halve anemia prevalence among non-pregnant women by 2025 and ongoing efforts, there is no global target for child anemia. This highlights a gap in global health priorities, contributing to a disproportionately high child anemia rate, showing little progress over time. This study aims to support efforts to prioritize and enhance the geographical targeting of anemia prevention programs in 17 West and Central African countries. Using the newly updated WHO cut-off published in March 2024, the study mapped any, moderate, and severe forms of anemia. The Annual Average Rate of Reduction (AARR) was calculated for each country.

By analyzing data on child anemia prevention interventions and relevant country-specific contextual factors from each country, this report offers recommendations to improve the design and implementation of child anemia prevention strategies. Countries with higher anemia prevalence have shown limited progress in reducing its incidence since 2000, highlighting the need to better understand the underlying factors contributing to this stagnation, despite ongoing intervention efforts over the past two decades. A detailed mapping of Multiple Micronutrient Powders (MNPs) distribution uncovered area mismatches between the allocation of MNPs interventions and the areas with high burden of child anemia. Focusing efforts on regions with the highest need before expanding to broader areas will be more cost-effective and manageable in terms of logistics and supply chain challenges. This approach serves as a starting point for proposing practical solutions to facilitate the smooth implementation of child anemia reduction efforts. With further analysis, including cost-effectiveness assessments, more efficient interventions can be developed within a limited funding context.

Acknowledgements

This publication was prepared by Simeon Nanama, Natsuki Kawai and Arnaud Laillou (Nutrition section, UNICEF West and Central Africa Regional Office), Research for Inclusive Development in Africa (Kaleab Baye) and produced by the UNICEF West and Central Africa Regional Office (WCARO).

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List of Abbreviations

- **AARR** - Annual Average Reduction Rate
- **DHS** - Demographic and Health Survey
- **MIS** - Malaria Indicator Survey
- **MNPs** - Multiple Micronutrient Powders
- **OCHA** - United Nations Office for the Coordination of Humanitarian Affairs
- **Sq-LNS** - Small Quantity-Lipid-based Nutrient Supplement
- **WASH** - Water, Sanitation, and Hygiene
- **WCA** - West and Central Africa
- **WHO** - World Health Organization

1. Background

Anemia is highly prevalent among young children (6-59 months of age). Several factors contribute to anemia, including micronutrient deficiencies, infection, inflammation, chronic diseases, gynecological and obstetric condition, and inherited red blood cell disorders (WHO, 2023a). Child anemia is primarily caused by iron deficiency, although other factors such as micronutrient deficiencies, infections, and inherited hemoglobin disorders also play significant roles (Allali *et al.*, 2017; Stewart *et al.*, 2020). Iron is essential for various physiological processes, making it particularly important for children. Anemia during infancy has been linked to delays in mental and motor development, while anemia in later childhood is associated with reduced cognitive abilities and poorer academic performance (Prado *et al.*, 2014; Murray-Kolb *et al.*, 2013). Therefore, child anemia significantly impacts young children, exacerbating the global burden of child malnutrition and developmental impairments (Lozoff, 2007).

In West and Central Africa (WCA) region, based on the old Hemoglobin concentrations classification by WHO in 2011, approximately 68% of children aged 6-59 months suffer from anemia, surpassing the global average of 40% (Stevens *et al.* 2022). Despite the World Health Assembly's global target to halve anemia prevalence among non-pregnant women by 2025, child anemia remains disproportionately prevalent, highlighting a disparity in global health priorities.

Numerous approaches have been evaluated to address anemia among young children in low-income countries, including supplementation, food fortification, and dietary diversification (Dewey *et al.* 2008). Global guidelines published after 2010 especially emphasize iron supplementation, home fortification with Multiple Micronutrient Powders (MNPs), periodic deworming as effective strategies for anemia prevention (Pastricha *et al.* 2013), and Small-quantity Lipid-Based Nutrient Supplements (Sq-LNS). Various interventions have been elaborated, but recent research revealed that providing MNPs to young children aged 6–23 months reduces anemia by 18% and iron deficiency by 53% (Suchdev PS *et al.* 2020). Additionally, another study demonstrated a 64% lower prevalence of iron-deficiency anemia among children who received Sq-LNS compared to those in the control group (Dewey *et al.* 2021). These approaches demonstrate potential for extensive implementation aimed at alleviating child anemia, necessitating further assessment of its effectiveness and feasibility.

Despite efforts to identify contributing factors and assess intervention effectiveness, practical challenges persist due to limited resources. The Global Nutrition Report highlights escalating funding requirements for child malnutrition, underscoring the critical need for strategic resource allocation and to enhance coverage of child nutrition interventions (Global Nutrition Report 2022). A detailed analysis is essential to identify current intervention gaps and propose effective strategies tailored to local contexts.

This study aims at supporting prioritization efforts for enhancing geographical targeting of anemia prevention program delivery in 17 West and Central African countries. As the hemoglobin cutoff was updated by WHO in March 2024, this study mapped any, moderate, and severe forms of anemia using its newly updated cut-off. The Annual Average Rate of Reduction (AARR) was calculated for each country. Drawing on collected information on child anemia prevention interventions in each country and available data pertinent to the issue, this report proposes recommendations to improve the design and implementation of child anemia prevention strategies.

2. Methodology

Overview and data sources

We aggregated data from the most recent Demographic and Health Surveys (DHS) from 17 countries to conduct a spatial analysis of anemia prevalence and burden among children under 5 years of age in WCA countries. Prevalence rates of any, moderate, mild, and severe anemia were estimated and mapped at both subnational and national levels. Based on strong evidence supporting the efficacy of MNPs in preventing anemia among young children including Suchdev *et al's* research in 2020, this analysis focused on assessing the distribution and coverage of MNPs in the region. A geospatial coverage of other anemia prevention and control services is provided in Annex 3 for further reference.

Use of updated hemoglobin cutoffs

The primary outcomes of interest were the prevalence rates of any, moderate, and severe anemia among children aged 6 to 59 months, estimated using the updated WHO cut-off (Table 1).

Table 1: Hemoglobin cutoffs to define anemia severity among under-five-year old children

Population	Hemoglobin concentration (g/L)			
	No anemia	Mild anemia	Moderate anemia	Severe anemia
Children, 6-23 months	≥ 105	95-104	70-94	<70
Children, 24-59 months	≥ 110	100-109	70-99	<70

Source: WHO, 2024

Analyzing spatial heterogeneity and identifying anemia hotspots

To analyze spatial heterogeneity, Kulldorff scan statistics were employed to identify hotspot regions (Kulldorff 1997). Additionally, ordinary kriging was used to predict subnational prevalence of any, moderate, and severe anemia. Hotspot maps were generated to identify regions with heightened anemia caseloads (density).

Computing Annual Average Rate of Reduction (AARR)

The AARR was calculated using anemia prevalence re-estimated with the new WHO cut-off. The AARR assesses country's progress toward child anemia reduction based on available data from a baseline year to the most recent year. For countries with multiple years of prevalence estimates available, AARR was computed using a regression model.

The regression model is described below:

If the prevalence in a baseline year t_0 is Y_0 (both can be unknown) and further data points after year t_0 are available for trend analysis, then each point can be written as:

$$Y_{t_i} = Y_0 * (1-b\%)^{(t_i-t_0)}, \text{ so that}$$

$$\ln(Y_{t_i}) = \ln(Y_0) + (t_i-t_0)*\ln(1-b\%) = \ln(Y_0) + t_i*\ln(1-b\%) - t_0*\ln(1-b\%) = \beta*t_i + C_0$$

Where $\beta = \ln(1-b\%)$ and $C_0 = \ln(Y_0) - t_0*\ln(1-b\%)$, is a constant

β , the coefficient of t_i , in a simple linear regression of $\ln(Y_i)$ against t_i can then be translated into $b\%$, the AARR, using the following formula:

$$\text{AARR} = 1 - \text{EXP}(\beta)$$

Source: UNICEF, 2007

Out of the 17 countries, one did not have more than two rounds of survey and thus was excluded from the AARR analysis. Data sources included DHS starting from 2000 (Annex 1).

Assessing progress in child anemia reduction

Current prevalence rates and AARR values were used to assess how countries are progressing on child anemia reduction (Table 2). In the absence of a global target for child anemia, targets for anemia used for women of reproductive age, as outlined in the Global Nutrition Report (a 50% reduction in anemia prevalence between 2012 and 2025), were adopted as a benchmark (Global Nutrition Report, 2020).

Table 2: AARR criteria to track country progress in child anemia reduction

Indicator	Substantial progress	Limited progress	No progress
Anemia	AARR ≥ 5.2	AARR < 5.2 but ≥ 0.5	AARR < 0.5

Mapping interventions for preventing child anemia: MNPs for home fortification

Data on MNPs distribution to children aged 6-23 months were extracted from the UNICEF NutriDash 2023 dataset to evaluate coverage levels. Additionally, brief interviews with UNICEF Country office nutrition team were conducted to assess distribution programming, including geographical locations and operational strategies in countries where MNPs distribution coverage exceeds 10% of the targeted population, compared to the regional average of 4.8% (Table 4).

Furthermore, the analysis collected information in several countries on promotion efforts to enhance access to MNPs through young child feeding programs for children aged 6-23 months. These data aimed at identifying factors contributing to the adoption of MNPs among caregivers and the strategies implemented to achieve a comprehensive coverage over 10%.

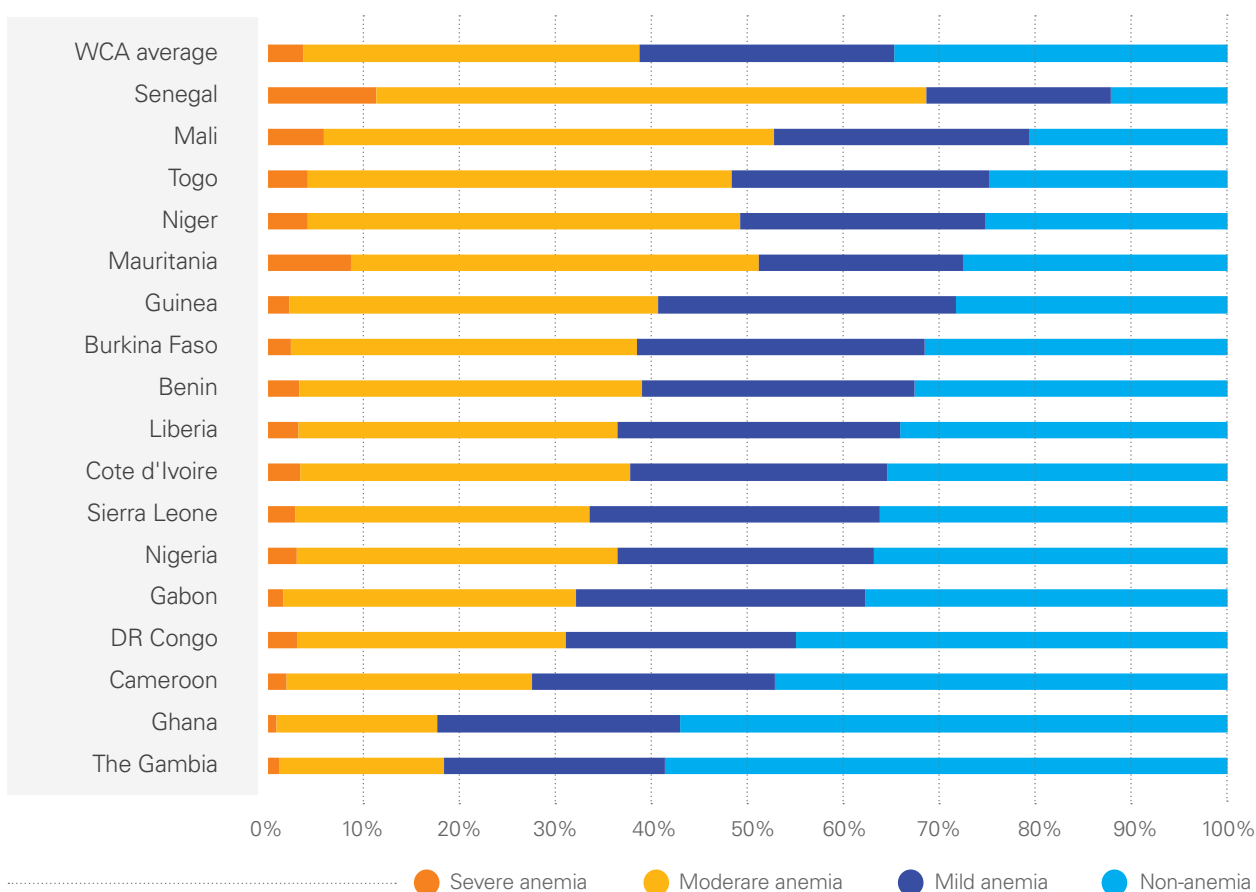
3. Result

Overview of child anemia distribution in WCAR

A total sample of 9,620 children aged 6 to 59 months from 17 countries were included in the analysis. On average, 3.7% were classified as suffering severe anemia, 35.0% with moderate anemia, and 26.5% with mild anemia (Figure 1).

The prevalence of anemia varied significantly across the region, ranging from 41.4% in The Gambia (source data from 2020) to 87.8% in Senegal. In total, 52.4 million children aged 6-59 months were affected, constituting 65.21% of the children aged 6-59 months across the 17 countries assessed. Notably, Nigeria and the Democratic Republic of Congo together contributed for more than 56% to the regional burden of moderate and severe anemia.

Figure 1: Types of child anemia by country in WCA region



Clusters of child anemia in the region

Figure 2 illustrates the predicted prevalence and caseload density of anemia among children in the WCA region, highlighting its extensive distribution and varying severity across geographic areas.

Moderate and severe anemia are notably prevalent in Mauritania, the northeastern part of Mali, and other smaller high-prevalence areas in Senegal, Liberia, and the Democratic Republic of Congo. Particularly high prevalence rates of severe anemia are observed in Mauritania, Mali, Niger, and the Democratic Republic of Congo, with additional clusters along the coastline and inland regions. The predicted prevalence and caseload density of 17 countries are summarized in Annex 2.

The density of any anemia cases generally reflects population concentrations in the region. However, severe anemia cases are notably more densely concentrated (exceeding 40%) in southern Mauritania/northeast Senegal, Togo, Benin, and the northern part of Nigeria. Population density maps of Senegal, Togo, Benin and Nigeria are shown in Figure 3 for reference (RIDA, 2024). Significant concentrations of severe anemia cases are also evident along the coastline of Sierra Leone and Liberia. High densities of all types of anemia are observed in cross-border areas in Senegal, Mauritania, and Mali, despite the low population density in these regions.

Figure 2: Predicted anemia prevalence and case-load density by severity in WCA region

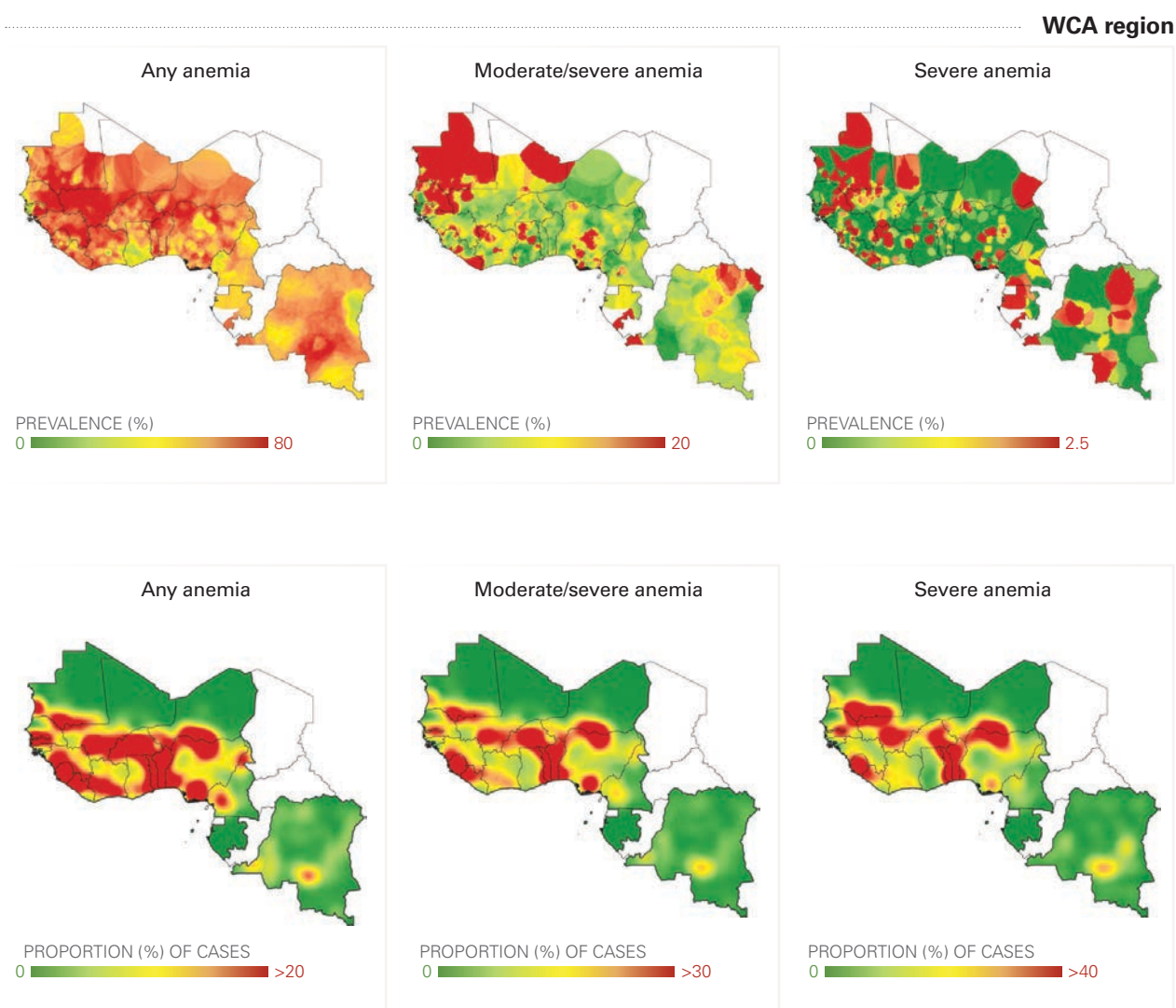
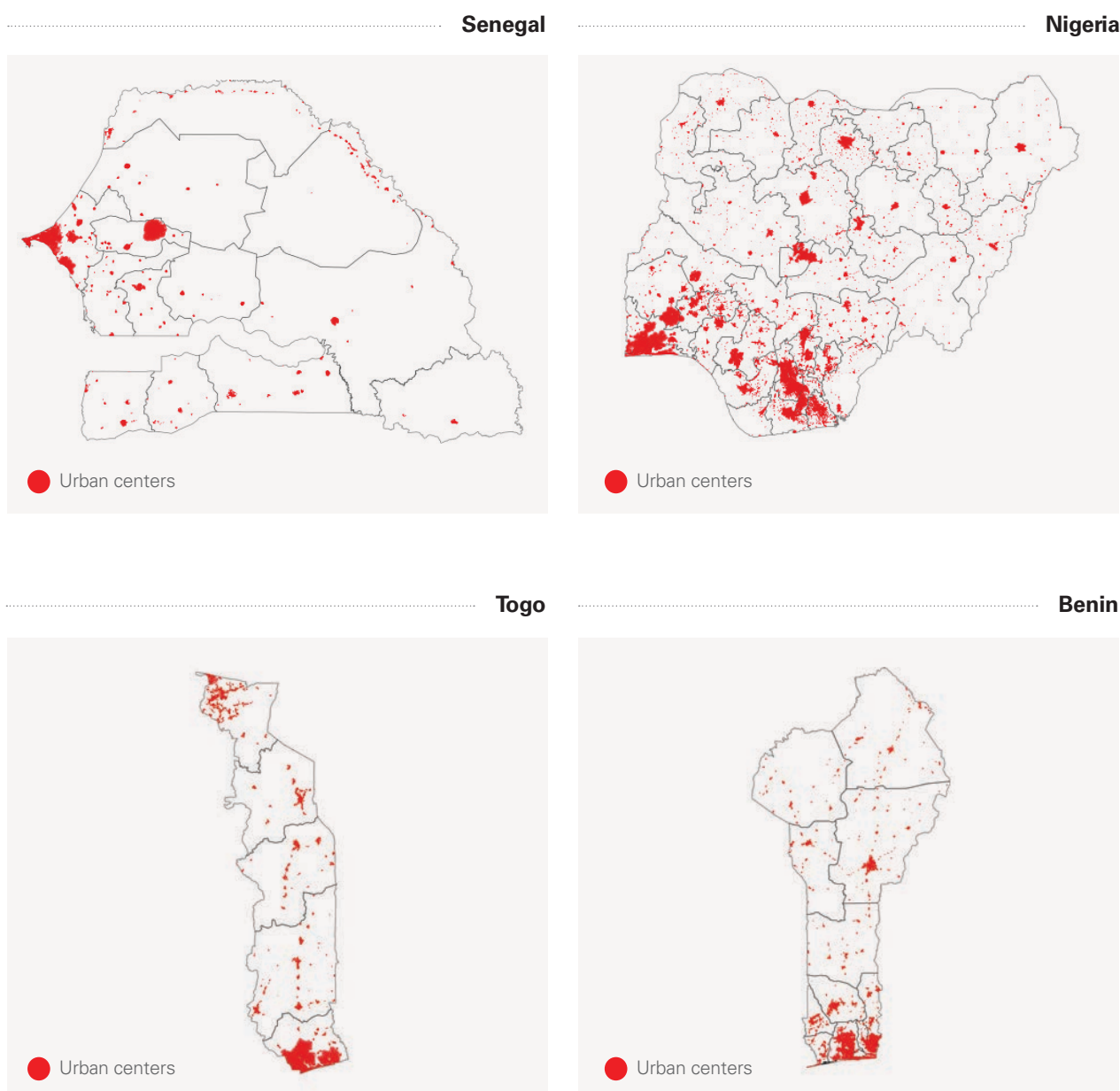


Figure 3: Population density map in Senegal, Benin, Togo, and Nigeria



Progress in the reduction of child anemia

Table 3 presents the AARR for any anemia and severe/moderate anemia in 16 countries for which several data points were available. The regional average AARR is 0.70% for any anemia, and 1.70% for severe/moderate anemia, which indicates that the region has achieved limited progress.

Among the countries assessed, only The Gambia shows substantial progress, whereas the remaining 15 countries show limited or no progress. Specifically, when analyzing the AARR for countries with the highest anemia prevalence, the top three countries, Senegal, Mali and Togo, show 'no progress' in reducing both overall anemia and moderate/severe anemia. The range of AARR varies significantly from -0.73% (Senegal, severe and moderate anemia) to 11.1% (The Gambia, severe and moderate anemia). In summary, the analysis reveals various levels of progress across the region, with notable disparities for the reduction between any anemia and severe/moderate anemia categories.

Table 3: AARR in child anemia in WCA region from 2000

Country	AARR	
	All types of Anemia	Severe / Moderate
Senegal	-0.73	-0.13
Mali	-0.40	-0.15
Togo	-1.81	-2.30
Niger	-0.07	0.70
Mauritania	no data	no data
Guinea	-0.14	0.85
Burkina Faso	1.10	2.69
Benin	0.55	3.05
Liberia	0.72	0.02
Cote d'Ivoire	1.76	2.67
Sierra Leone	-0.98	0.06
Nigeria	-0.13	0.13
Gabon	-1.21	-2.38
DR Congo	2.17	3.50
Cameroon	1.78	3.07
Ghana	1.81	4.29
The Gambia	6.73	11.10
Average	0.70	1.70

● Substantial progress ● Limited progress ● No Progress

MNPs intervention

Among the 17 countries in the region, 14 countries (Senegal, Mauritania, Mali, Niger, Benin, Liberia, DR Congo, Nigeria, Burkina Faso, Guinea, The Gambia, Cameroon, Chad, and Ghana) have implemented promotion and enhanced access to MNPs as components of young child feeding programs targeting children aged 6-23 months.

Table 4 below displays the number of children who received MNPs supplements in 2023, along with the coverage rates for children aged 6-23 months. Across the 14 countries that provided data on NutriDash 2023, a total of 1.34 million children received MNPs supplements throughout the year, representing less than 5% of the total eligible children in the region. Notably, coverage varied from 69.6% in Liberia to 0% in Ghana.

Table 4: MNPs distribution to children aged 6-23 months in 2023

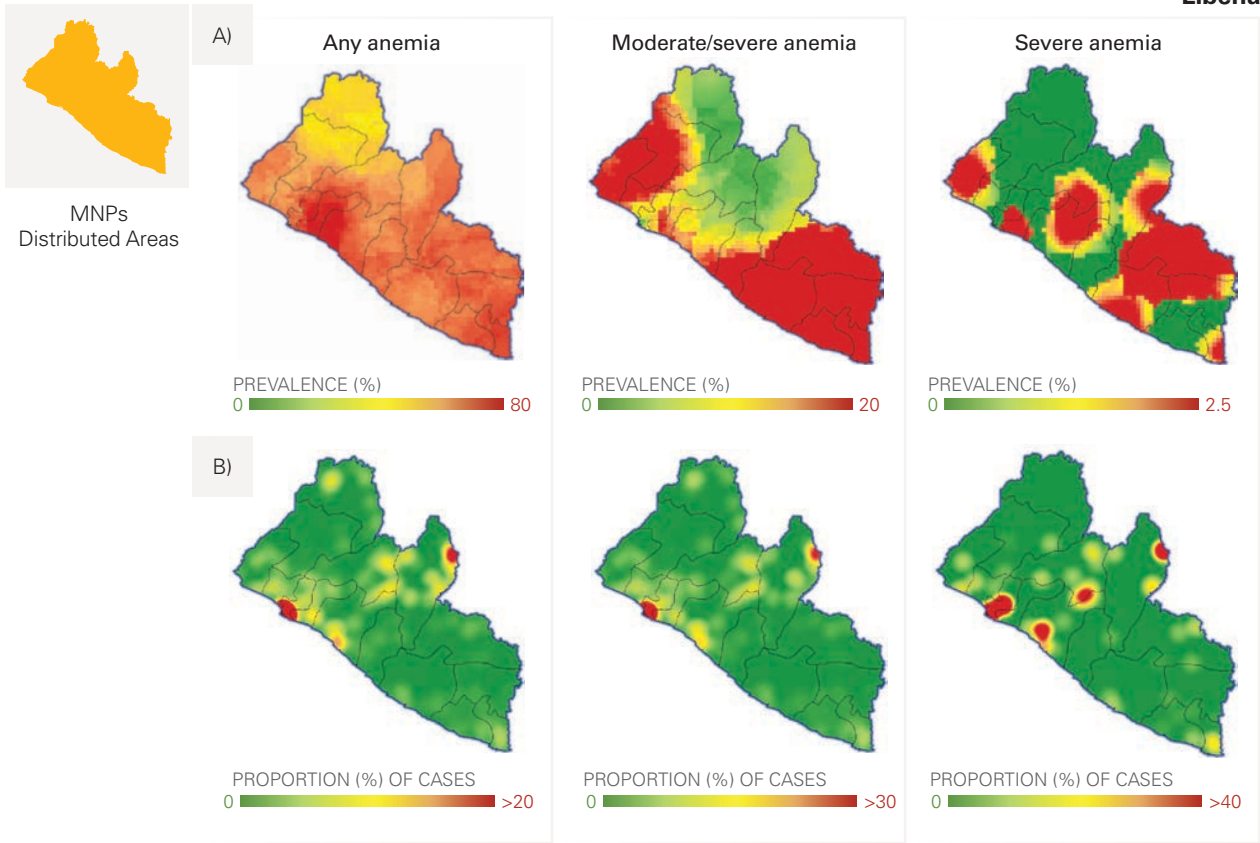
Country	Number of children reached by MNPs interventions 2023	Number of children aged 6-23.9 months	% Reached
Liberia	162,913	233,952	69.6%
Benin	145,087	685,467	21.2%
Senegal	99,011	816,186	12.1%
Niger	195,503	1,698,956	11.5%
Mali	135,563	1,325,680	10.2%
Mauritania	23,000	224,480	10.2%
Cameroon	117,740	1,376,305	8.6%
Burkina Faso	88,083	1,134,527	7.8%
The Gambia	8,447	129,175	6.5%
Chad	27,266	1,076,852	2.5%
DR Congo	129,148	5,909,707	2.2%
Guinea	14,668	662,599	2.2%
Nigeria	187,502	11,230,311	1.7%
Ghana	318	1,318,986	0.0002%
Total	1,334,249	27,823,181	4.8%

Figure 4 illustrates the areas where MNPs was distributed, alongside the proportion of three types of anemia (any, moderate/severe, and severe) in each country. Among the countries with the highest coverage, Liberia implemented a nationwide MNPs distribution program across all 15 regions through health facilities and community outreach. A key factor of the success of this nationwide initiative was the integration of nutrition services into the Community Health Assistant program, enabling extensive community-level outreach. At the upstream level, the government managed the distribution of MNPs to the last mile, ensuring delivery to health facilities. These facilities then provided MNPs to caregivers during outpatient visits. Furthermore, Community Health Assistants played a crucial role by delivering MNPs directly to households, targeting children aged 6-23 months during routine home visits.

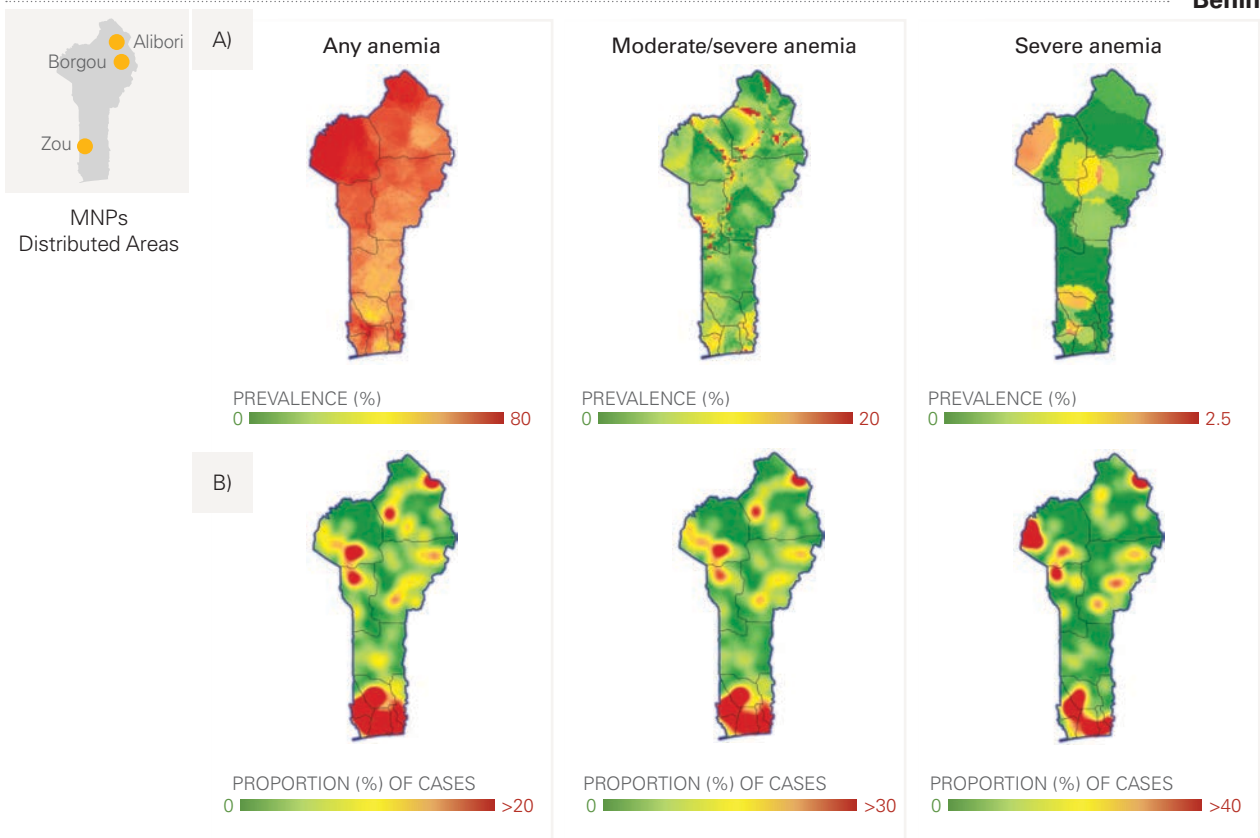
In Benin, the MNPs intervention is concentrated in two northern regions (Alibori and Borgou) and one southwestern region (Zou). However, our analysis has revealed that the highest prevalence of anemia is predominantly concentrated in the southern coastal areas and the northwestern region. The MNPs distribution mapping of other 4 countries with high coverage is also illustrated in Figure 4. In Mali, the intervention primarily took place in three regions, including two in the North (Gao and Menaka) and one in the Central region (Mopti). It is noteworthy that in Mali, most funding is directed towards the Northern and Central regions, which are humanitarian priority areas. In Mauritania, the distribution took place at the end of 2023 and covered three regions (wilayas) of the country: Assaba, Hodh Echarqui (HEC), and Guidimakha. This distribution was carried out with the support of two partnering NGOs.

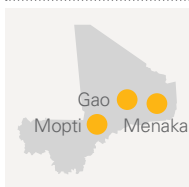
Figure 4: Predicted anemia prevalence by severity (A), case-load density (B) and MNPs distributed areas in high MNPs coverage countries in WCA region.

Liberia



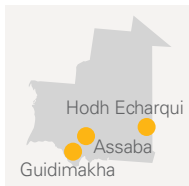
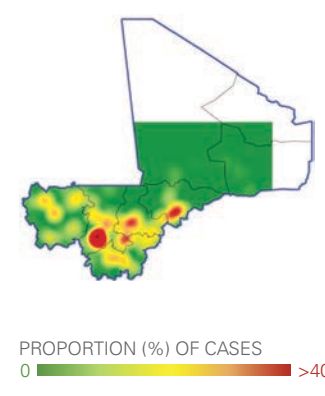
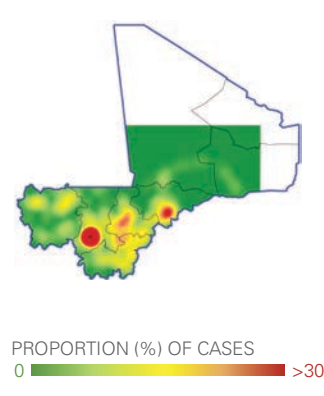
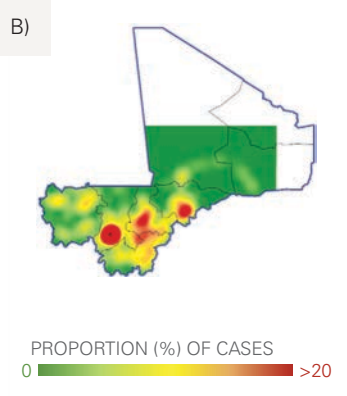
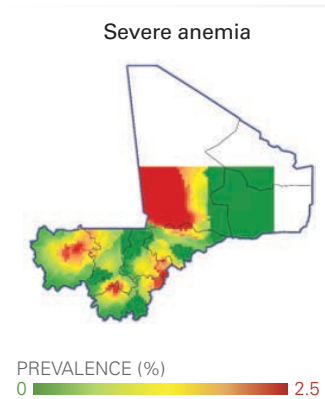
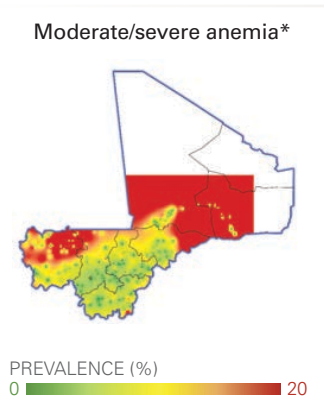
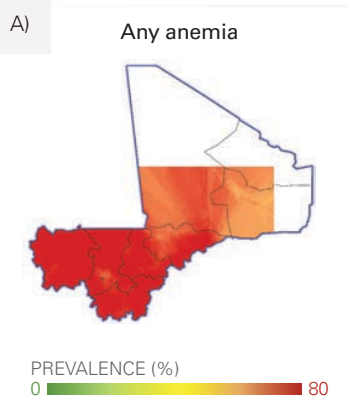
Benin



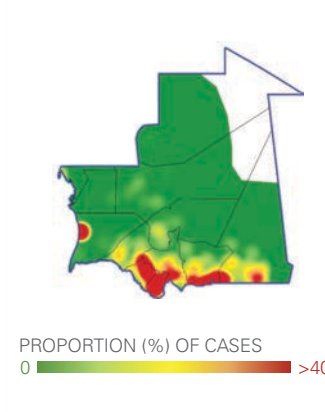
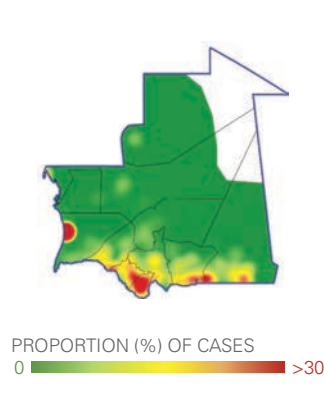
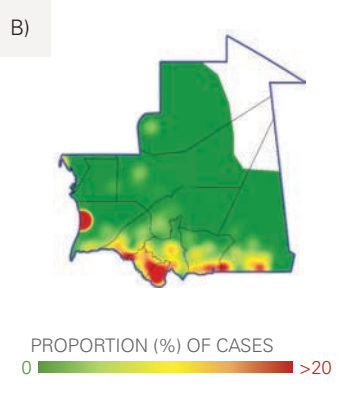
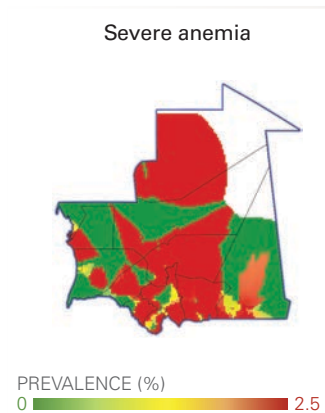
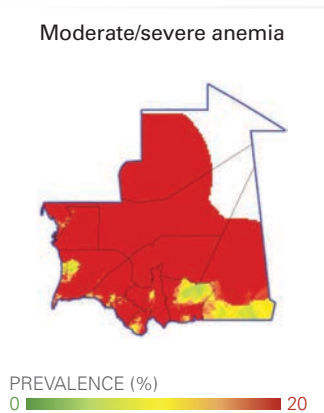
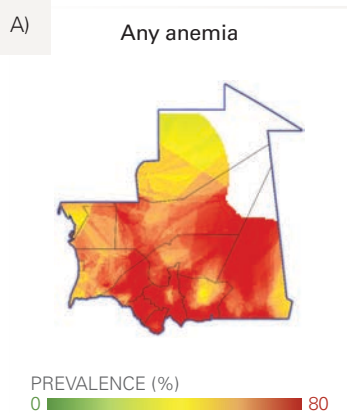


MNPs Distributed Areas

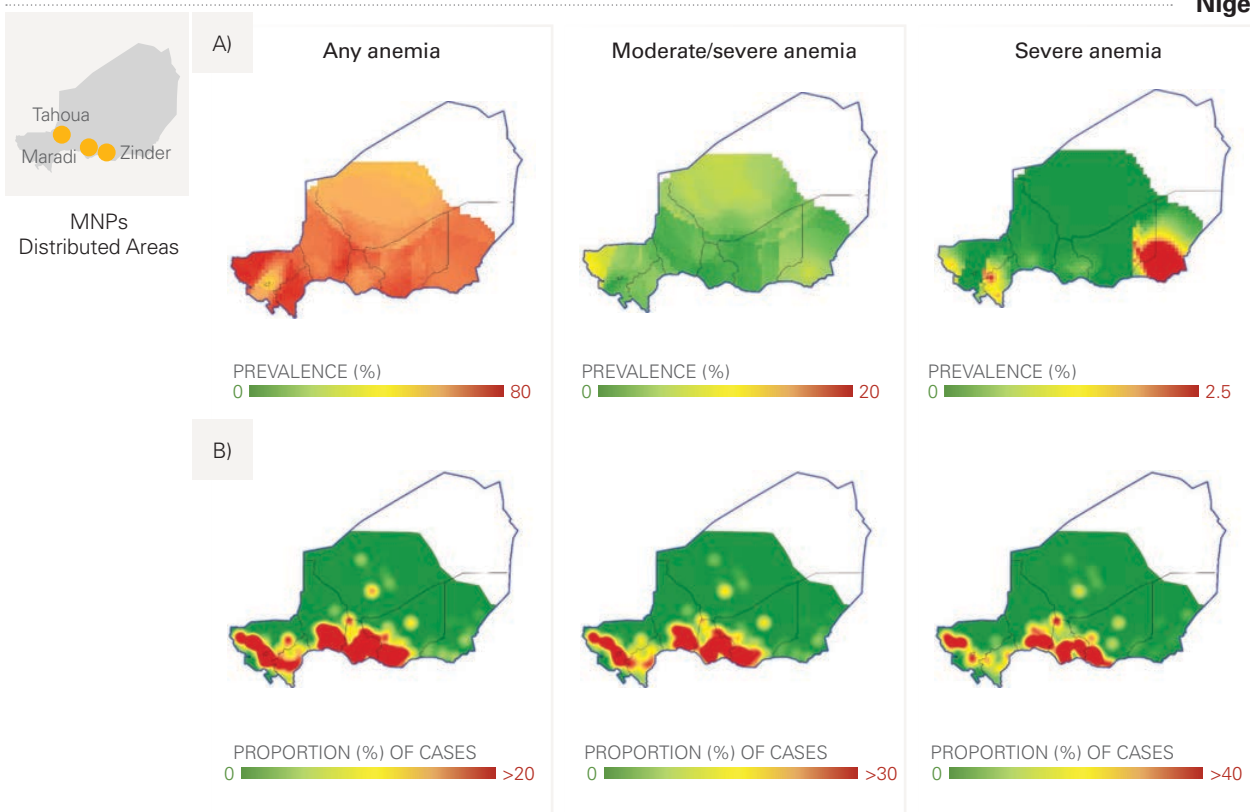
* Applied a slightly different interpolation method (i.e. inverse distance weighing)



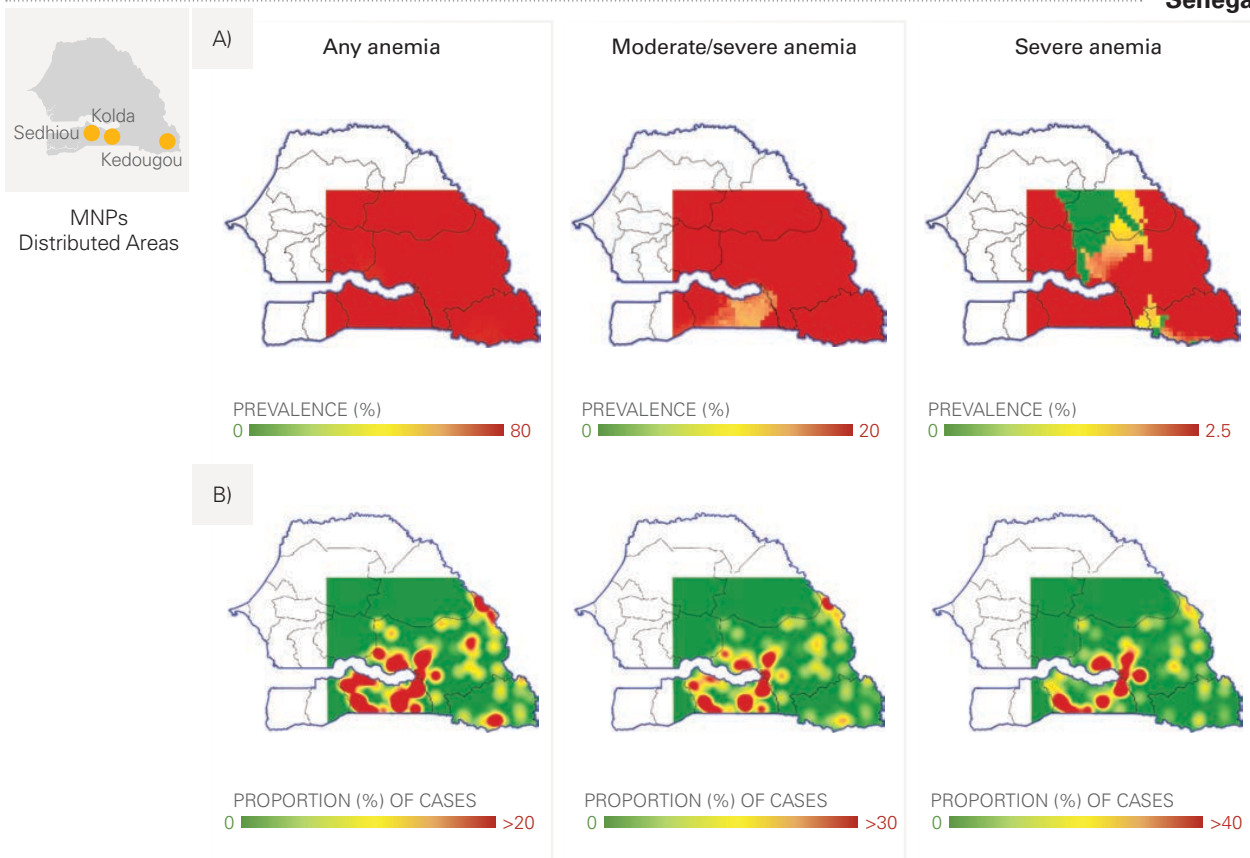
MNPs Distributed Areas



Niger



Senegal



It is important to highlight the strategic targeting of MNPs interventions in The Gambia. Despite a relatively low MNPs coverage of 6.5%, the country achieved a high AARR of 6.7% for any anemia and 11.1% for moderate and severe anemia. This success can be attributed to the prioritization of interventions in regions where anemia prevalence exceeded 80% in 2013, focusing resources on areas with the greatest need. Consequently, these targeted regions have experienced significant reductions in anemia rates over time.

4. Discussion

Our findings indicate that 65.21% of the children aged 6-59 months across the 17 countries are affected by anemia, with moderate and severe forms of anemia concentrated in specific hotspots rather than evenly distributed. Countries with higher anemia prevalence have demonstrated limited progress in its reduction since 2000, highlighting the need to better understand the underlying factors contributing to this stagnation, despite ongoing intervention efforts over the past two decades. Detailed mapping of MNPs distribution has revealed misalignments between the areas where MNPs interventions are implemented and the regions with the highest prevalence of child anemia, indicating a gap in addressing the most affected populations. Moreover, based on the *Regional Operational Guide on Maternal Anemia* (UNICEF, 2024), the coverage of anemia prevention and control interventions shows inadequate integration of services delivered by the health and WASH system within the anemia control package. This lack of coordination between health, WASH and anemia prevention efforts may be an additional contributing factor to the persistence of anemia in certain areas.

Our research underscores that the WCA region, with the highest prevalence of child anemia, has shown limited progress. This highlights the lack of focused efforts in geographic targeting/prioritization to effectively address child anemia in WCA. Countries with high anemia prevalence have made minimal progress, revealing a disconnection between regional prioritization and areas of greatest need. Our study reveals that areas with initially low anemia prevalence may still exhibit high anemia caseloads. This trend is also supported by research on anemia among women of reproductive age in Ethiopia (Hailu *et al.* 2021). However, high population density does not consistently correlate with severe anemia cases among children, as evidenced by our findings that severe cases are concentrated in border areas of Senegal, Mali, and Mauritania, regions not typically associated with high population density.

While distribution of MNPs targeted the Northern and Central regions of Mali, our study suggests that these regions do not always coincide with areas with the highest burden of child anemia. Such discrepancies between need and intervention is mostly due to significant humanitarian funding directed to these regions, which are identified as priority areas due to food insecurity, malnutrition, and overall humanitarian needs. The five countries with the highest population facing acute food insecurity are DRC, Nigeria, Burkina Faso, Niger, and Cameroon (OCHA 2024). Interestingly, these countries do not exhibit significant hotspots of child anemia in our study. Conversely, countries like Senegal or southern Mauritania, where child anemia prevalence is high, are classified as 'Phase 1: minimal' to 'Phase 2: stressed' in terms of Integrated Food Security Phase Classification (IPC, 2024).

This underscores the potential misalignment between humanitarian priorities and the need to consistently address prevention programs for issues such as child anemia, even outside of crisis settings. It is essential to prioritize anemia prevention in children universally, regardless of the presence of humanitarian funding. Moreover, during emergencies such as natural disasters and financial crises, children are particularly vulnerable to significant declines in anemia status (Ngnie-Teta *et al.*, 2007). As the nature and duration of crises vary across countries, context-specific analyses are critical to developing effective strategies.

Despite the critical need to prioritize areas with high caseloads within countries, research on geospatial analysis and its contributing factors to child anemia remains limited. While most related studies have focused on anemia among women, understanding the distribution and causes of child anemia is equally crucial, as maternal anemia is a recognized risk factor for child anemia (Ntenda *et al.*, 2018). WCA countries are recognized as global hotspots for anemia, partly due to the high prevalence of malaria, hemoglobinopathies, and schistosomiasis (Correa-Agudelo *et al.*, 2011; Aula *et al.*, 2021; Baye *et al.*, 2025). Recent findings highlight that the etiology of anemia extends beyond nutritional deficiencies, requiring a multi-sectoral approach. This includes addressing factors related to health, environment, agriculture, social protection, and WASH (Anato *et al.*, 2024). Emerging evidence underscores the interplay of various determinants of anemia. For instance, malaria is strongly associated with higher anemia rates, as demonstrated in studies conducted across Sub-Saharan Africa (Roberts *et al.*, 2020). Additionally, research by Endris *et al.* (2021) links child anemia to clustering effects such as maternal anemia, stunting, and high fertility rates, further emphasizing the need for integrated interventions. Given the complexity of its causes, addressing child anemia requires not only a focus on nutrition but also comprehensive, context-specific strategies to tackle its multifaceted drivers.

Our research identifies discrepancies between MNPs intervention areas and the areas with high burden of child anemia, indicating that high coverage of MNPs across a country does not consistently translate into progress in combating child anemia. However, the efficacy of MNPs is underscored by several studies, demonstrating that young children who receive MNPs exhibit significantly higher concentrations of hemoglobin and ferritin compared to those who do not receive interventions or receive placebos (Salam *et al.* 2013). Hence, prioritizing targeted areas at a small scale before expanding coverage nationwide may be crucial as can be demonstrated by the experience of The Gambia. Effective collaboration with local health and nutrition services is essential in this context, as evidenced by successful initiatives in Liberia that have shown progress in reducing severe and moderate anemia. Research by Kyei-Arthur *et al.* (2020) highlights the feasibility and acceptance of integrating MNPs distribution into Child Welfare Clinics, facilitated by robust community sensitization efforts and effective logistical management. Moreover, the maintenance of micronutrient supply chains is identified as a critical success factor for scaling up MNPs, as emphasized by Afsana *et al.* (2014). While targeting specific areas with the greatest need is essential, it is often discouraged due to the additional complexity it introduces, such as the requirement for screening. However, concentrating efforts on regions with the highest need before expanding to broader areas will not only be more cost-effective but will also ensure that logistical and supply chain challenges are more manageable. This approach however warrants further studies, including on the cost-effectiveness of such approaches, to propose viable solutions for smooth scale up.

5. Limitation

Our study encountered limitations stemming from inconsistent data availability across countries, leading to temporal gaps for certain years. Additionally, hemoglobin levels in the DHS were measured using capillary blood with a portable HemoCue machine, while recent evidence has raised concerns about the reliability of capillary blood samples (WHO, 2023b). Furthermore, our analysis primarily focused on the MNPs intervention, with limited consideration for other anemia-related interventions, which could have provided a more comprehensive understanding of anemia reduction efforts.

6. Conclusion

Since 2000, progress in reducing anemia prevalence in countries across WCA region has remained limited, particularly in regions with the highest burden, underscoring persistent gaps in the effectiveness of interventions. Geographic disparities in anemia prevalence and the prioritization of MNPs distribution highlight significant mismatches, with interventions often failing to target the areas most affected by child anemia. The Gambia provides a valuable example, demonstrating that focusing on targeted, small-scale planning areas before expanding to national coverage can enhance the impact of interventions.

Tackling child anemia in Sub-Saharan Africa requires a comprehensive, multifaceted approach that addresses its diverse and complex underlying causes. This includes integrating health, environment, agriculture, social protection, and WASH interventions. Effective strategies must prioritize multisector coordination, leverage community-based approaches, strengthen collaboration with local health systems, and ensure the strategic distribution of MNPs to reach the most vulnerable populations.

Reference

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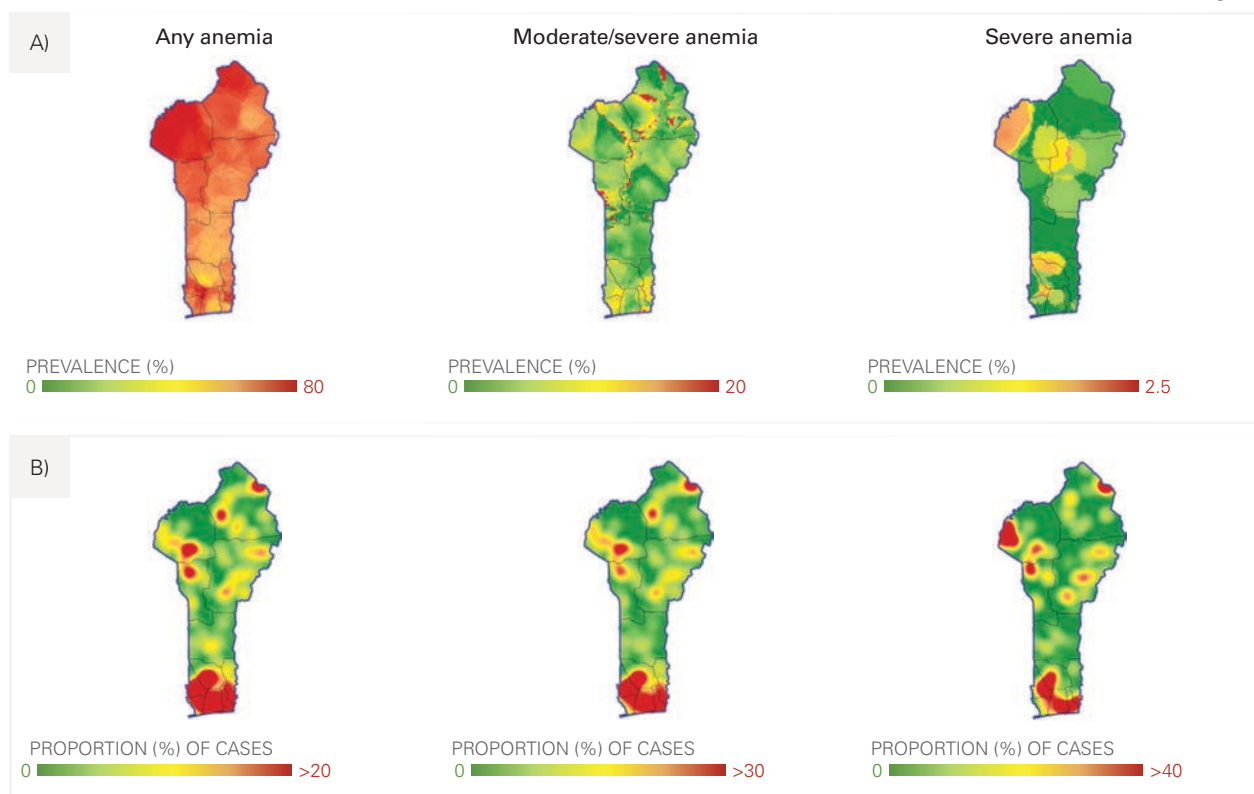
Annexes

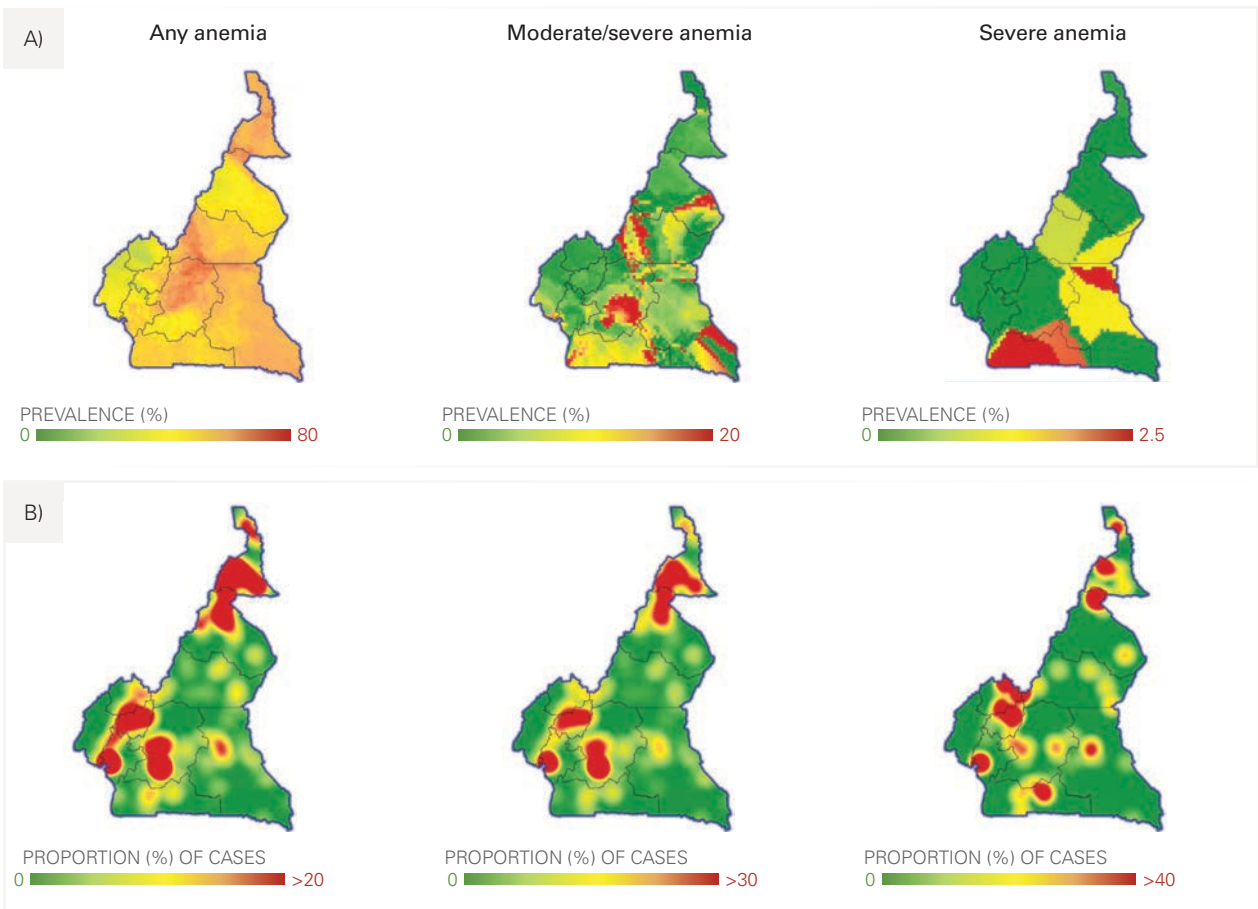
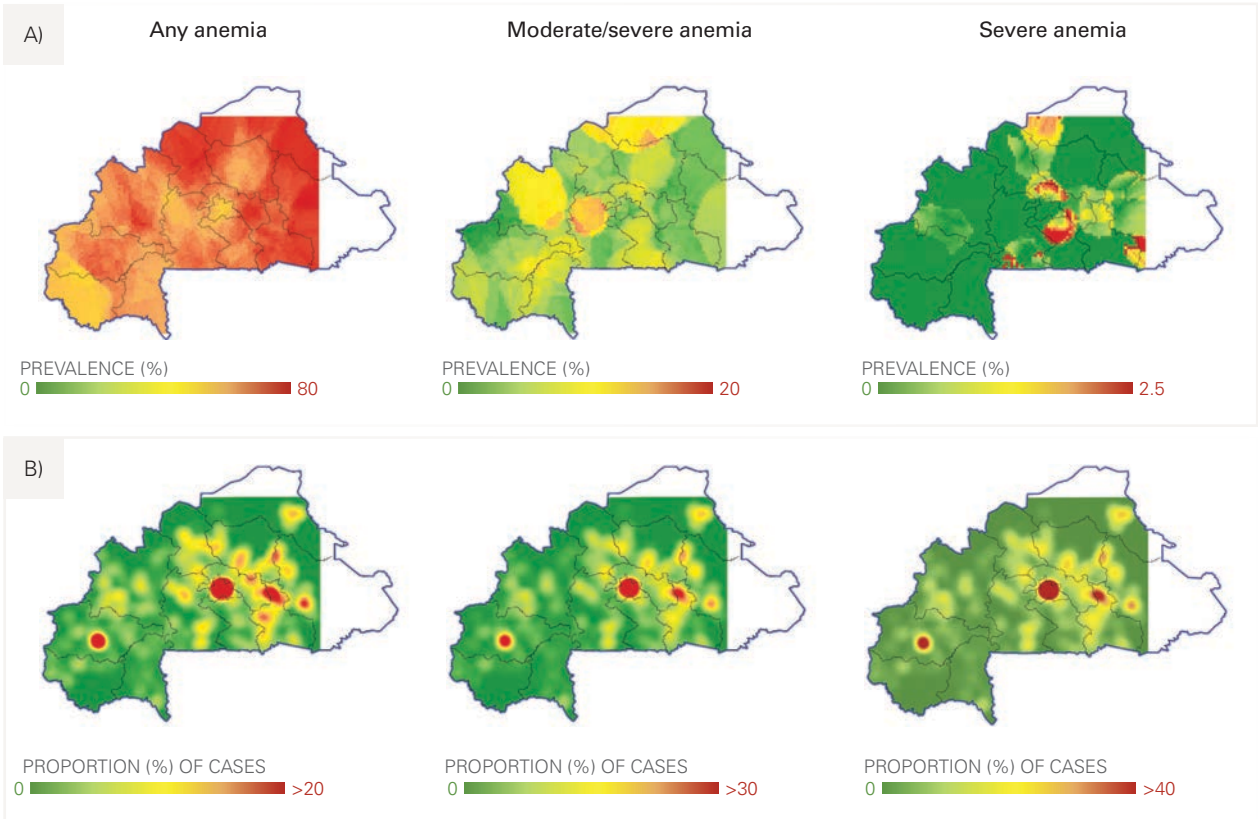
Annex 1. List of data sources used for child anemia AARR calculation

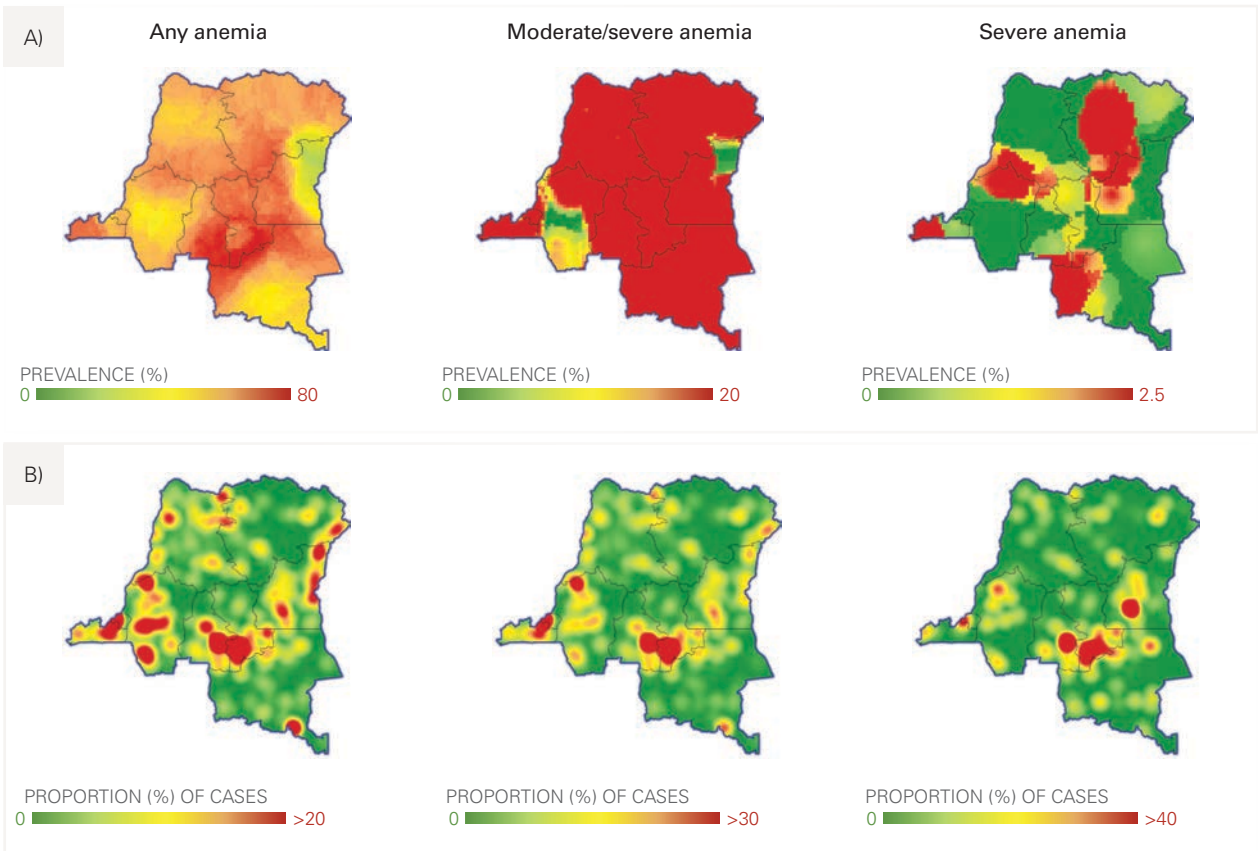
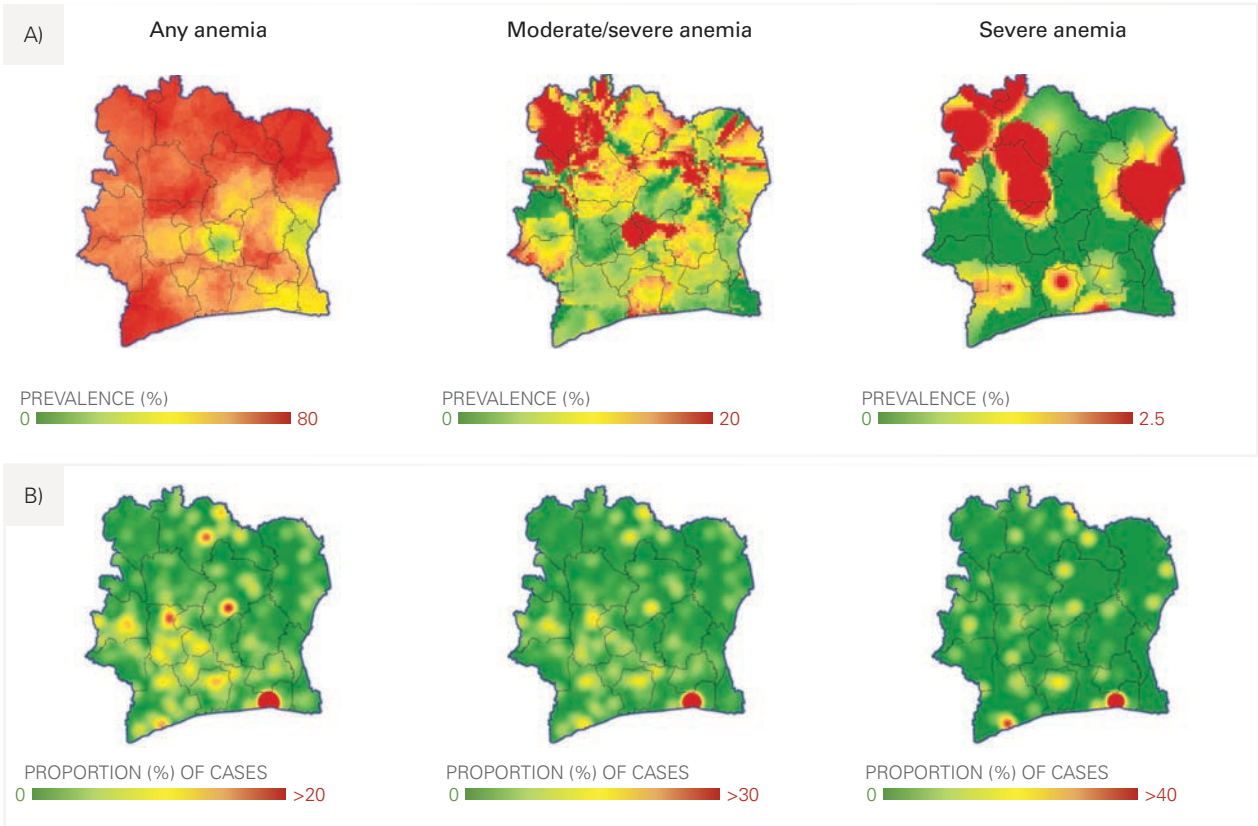
Country	Data Sources	Country	Data Sources
Benin	DHS 2001, 2006, 2012, 2018	Liberia	DHS 2009 (MIS), 2011 (MIS), 2016 (MIS), 2020, 2022 (MIS)
Burkina Faso	DHS 2003, 2010, 2014 (MIS), 2018 (MIS), 2021	Mali	DHS 2001, 2006, 2013, 2015 (MIS), 2018, 2021 (MIS)
Cameroon	DHS 2004, 2011, 2018	Mauritania	DHS 2021
Cote d'Ivoire	DHS 2012, 2021	Niger	DHS 2006, 2012, 2021 (MIS)
DR Congo	DHS 2007, 2013-2014	Nigeria	DHS 2015 (MIS), 2018, 2021 (MIS)
Gabon	DHS 2012, 2019-2021	Senegal	DHS 2005, 2009 (MIS), 2011, 2013, 2014, 2015, 2016, 2017, 2021 (MIS)
The Gambia	DHS 2013, 2020	Sierra Leone	DHS 2008, 2013, 2019
Ghana	DHS 2003, 2008, 2014, 2016 (MIS), 2019 (MIS), 2023	Togo	DHS 2014, 2017 (MIS)
Guinea	DHS 2005, 2012, 2018		

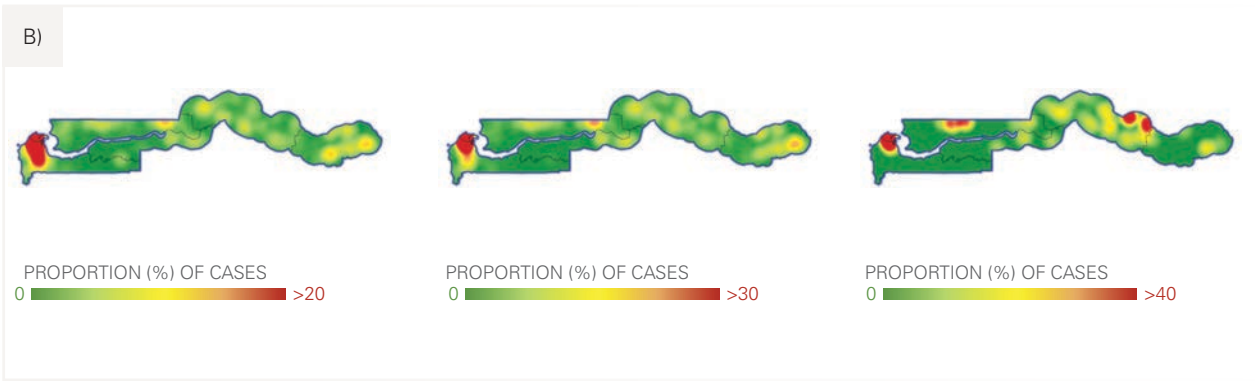
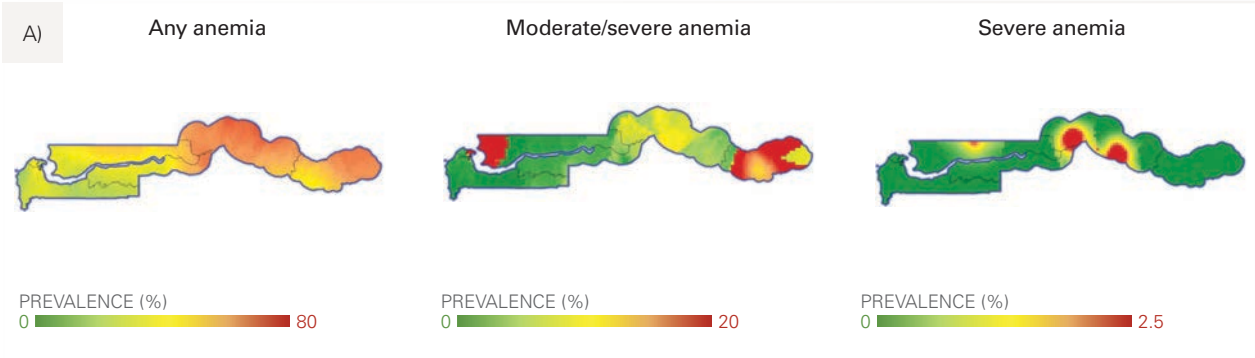
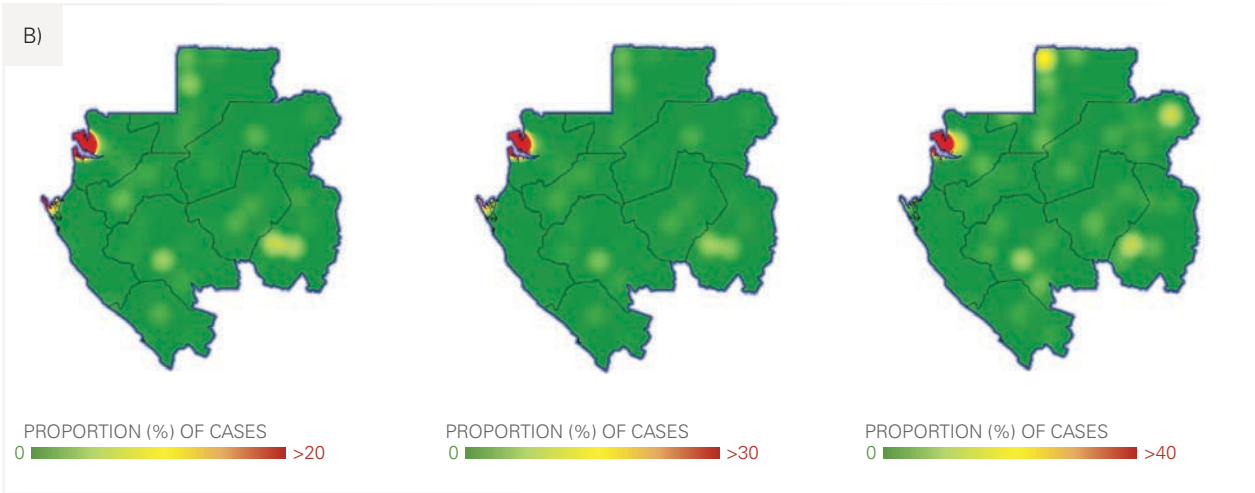
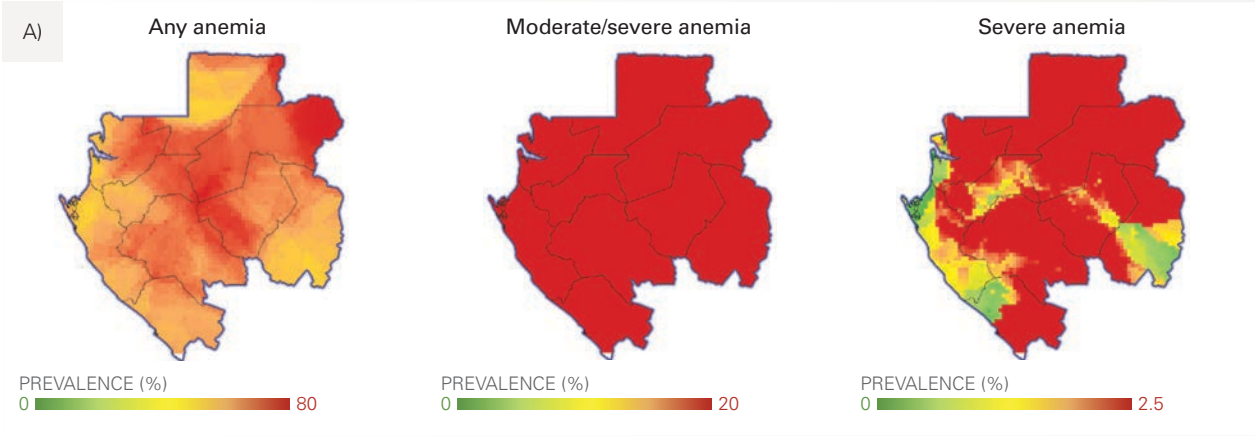
Annex 2. Predicted anemia prevalence (A) and case-load density (B) in each country

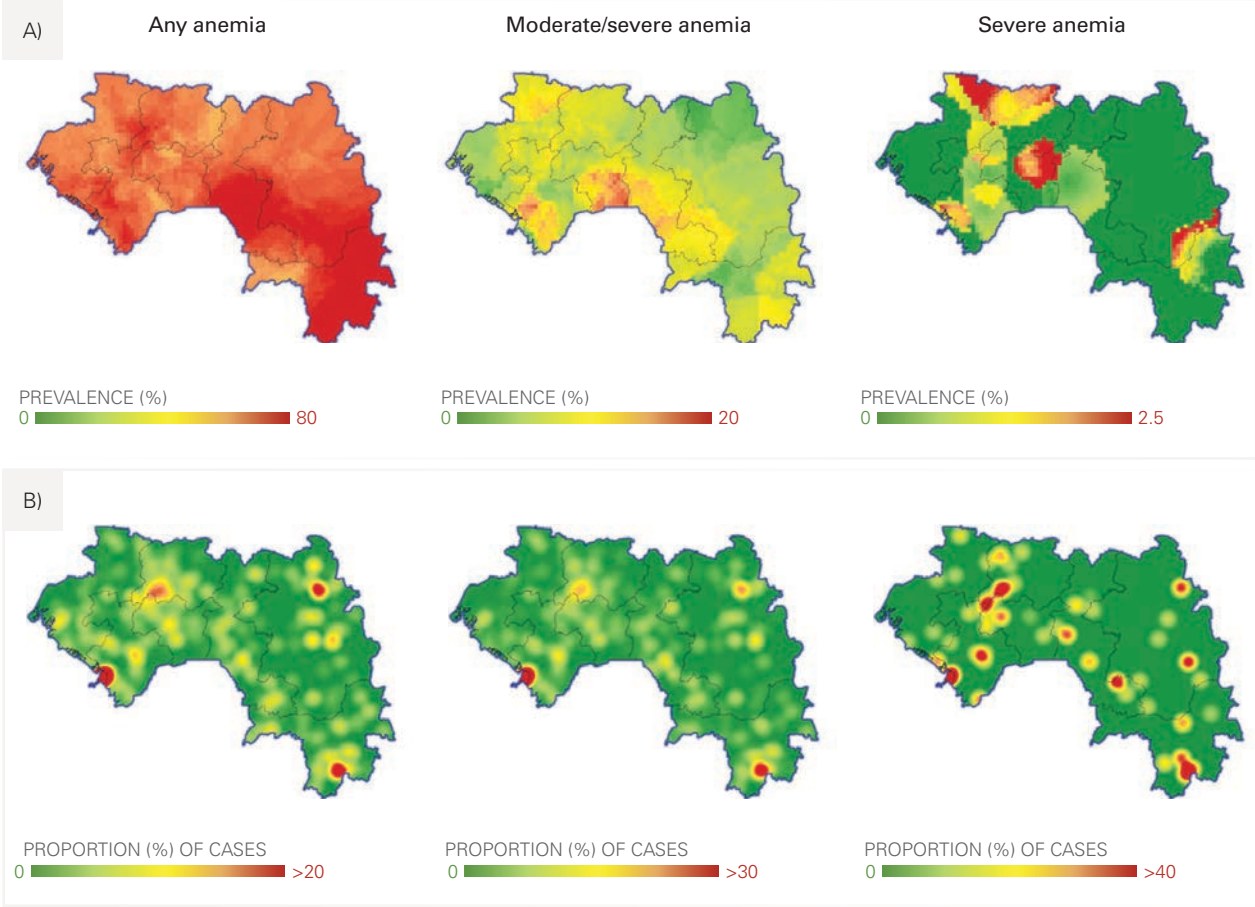
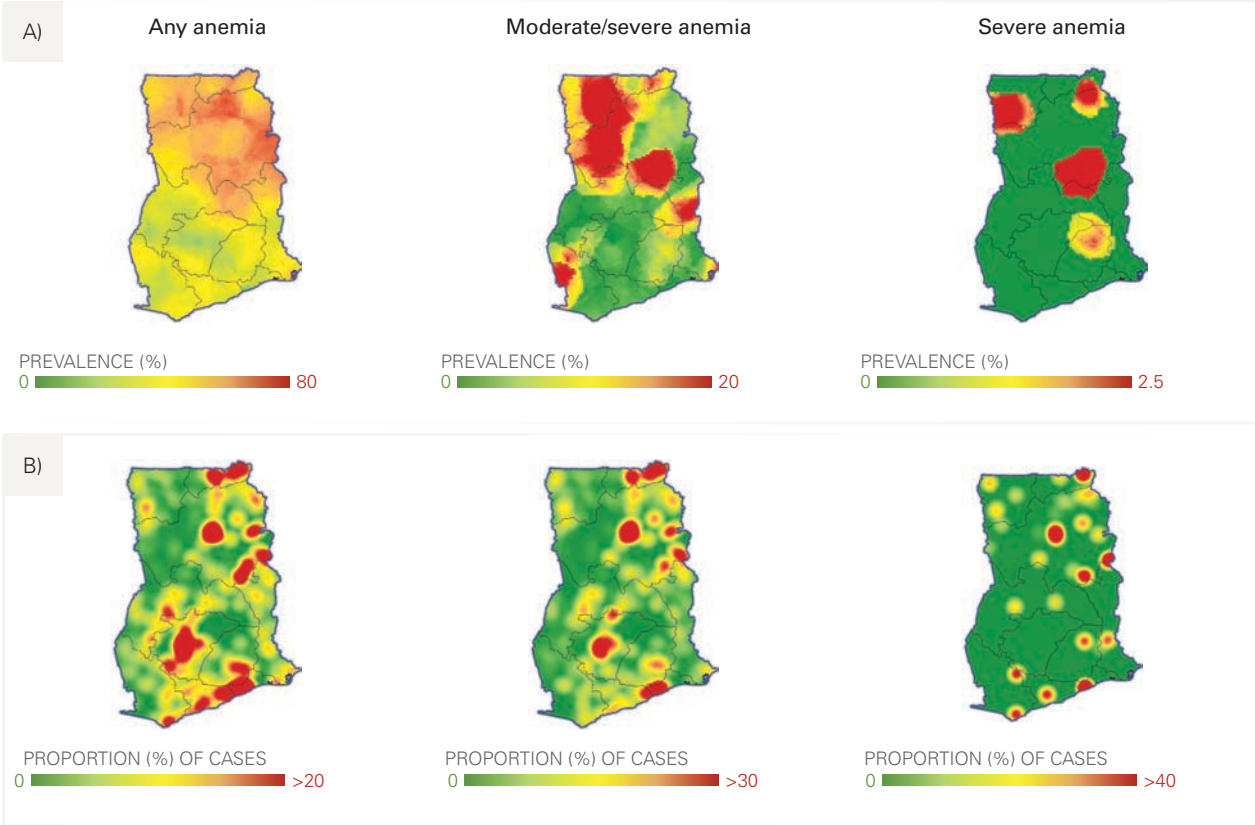
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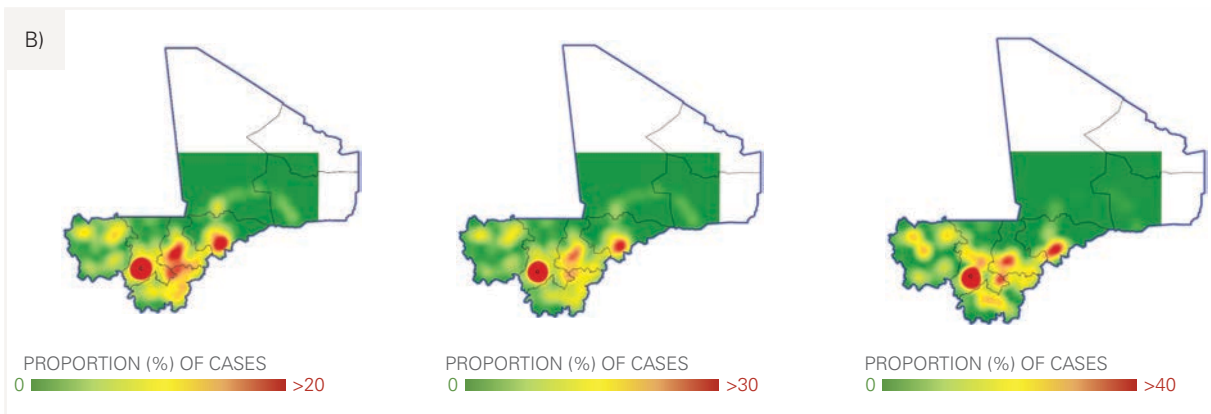
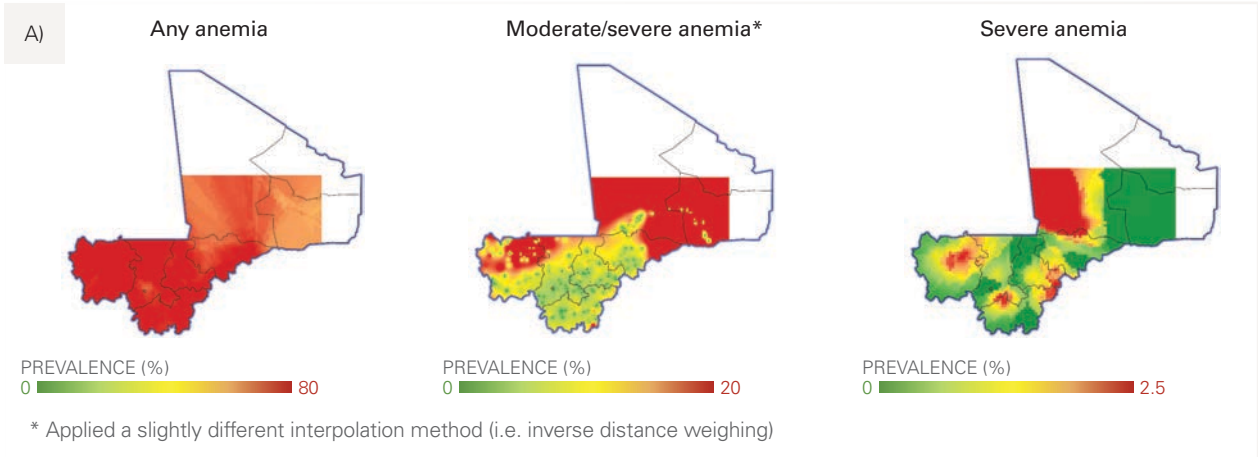
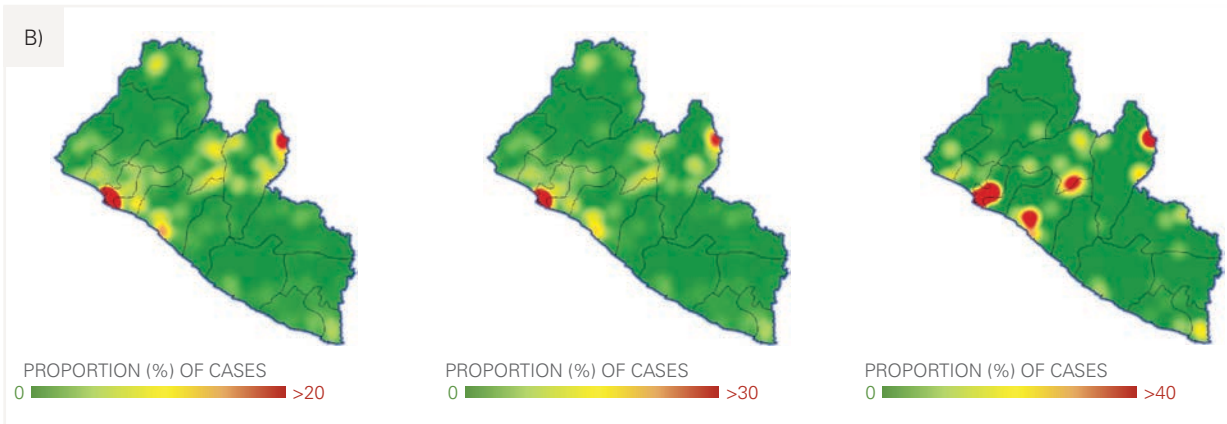
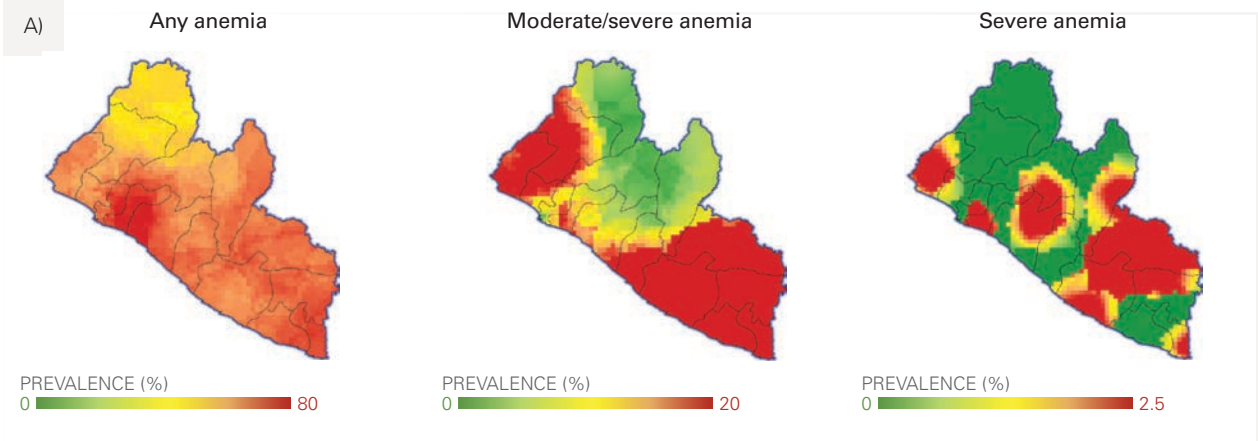




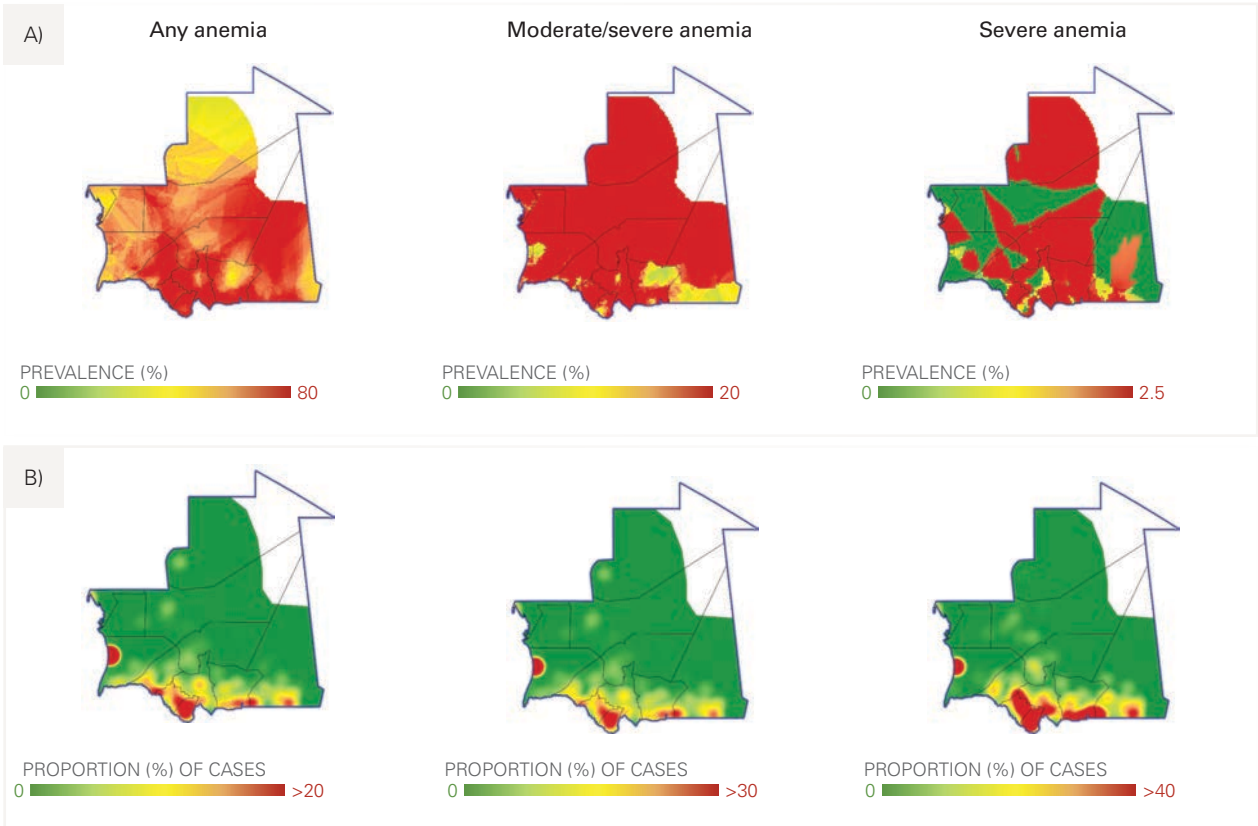




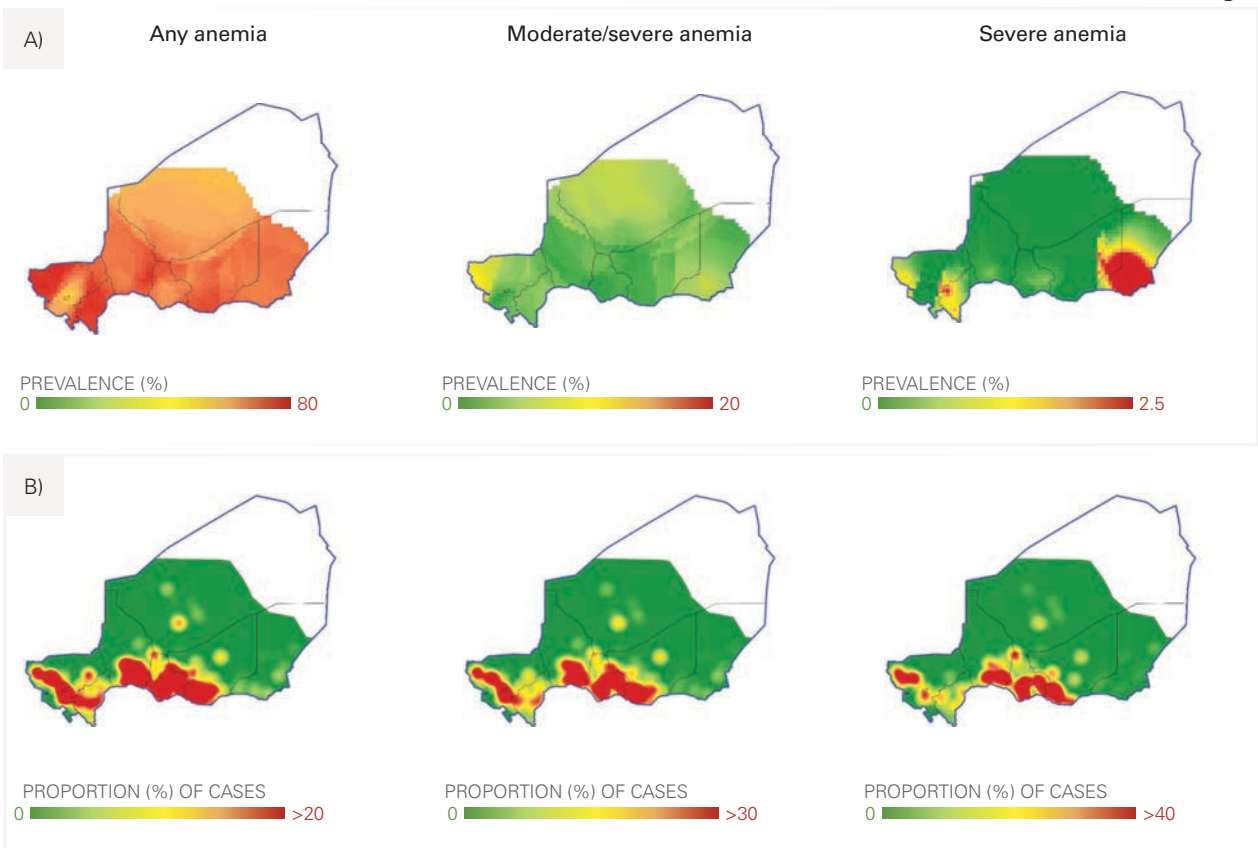




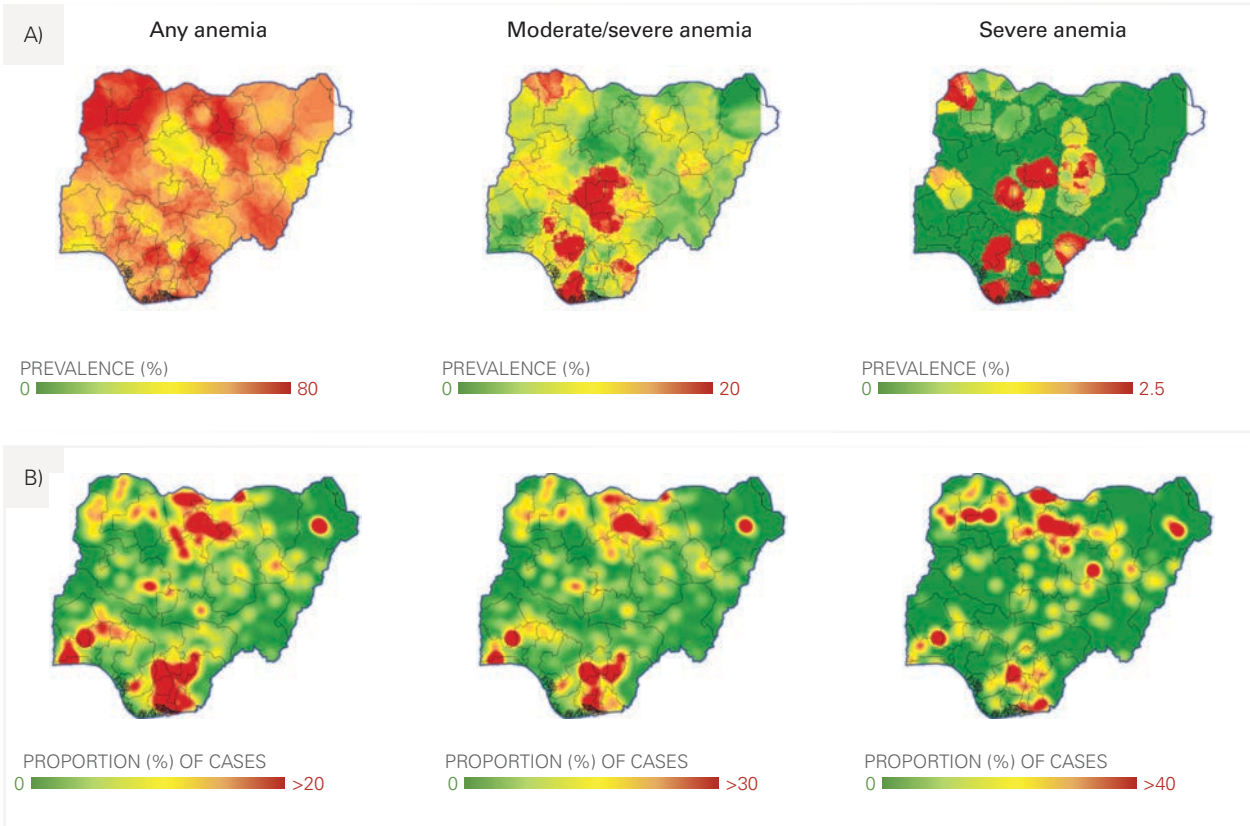
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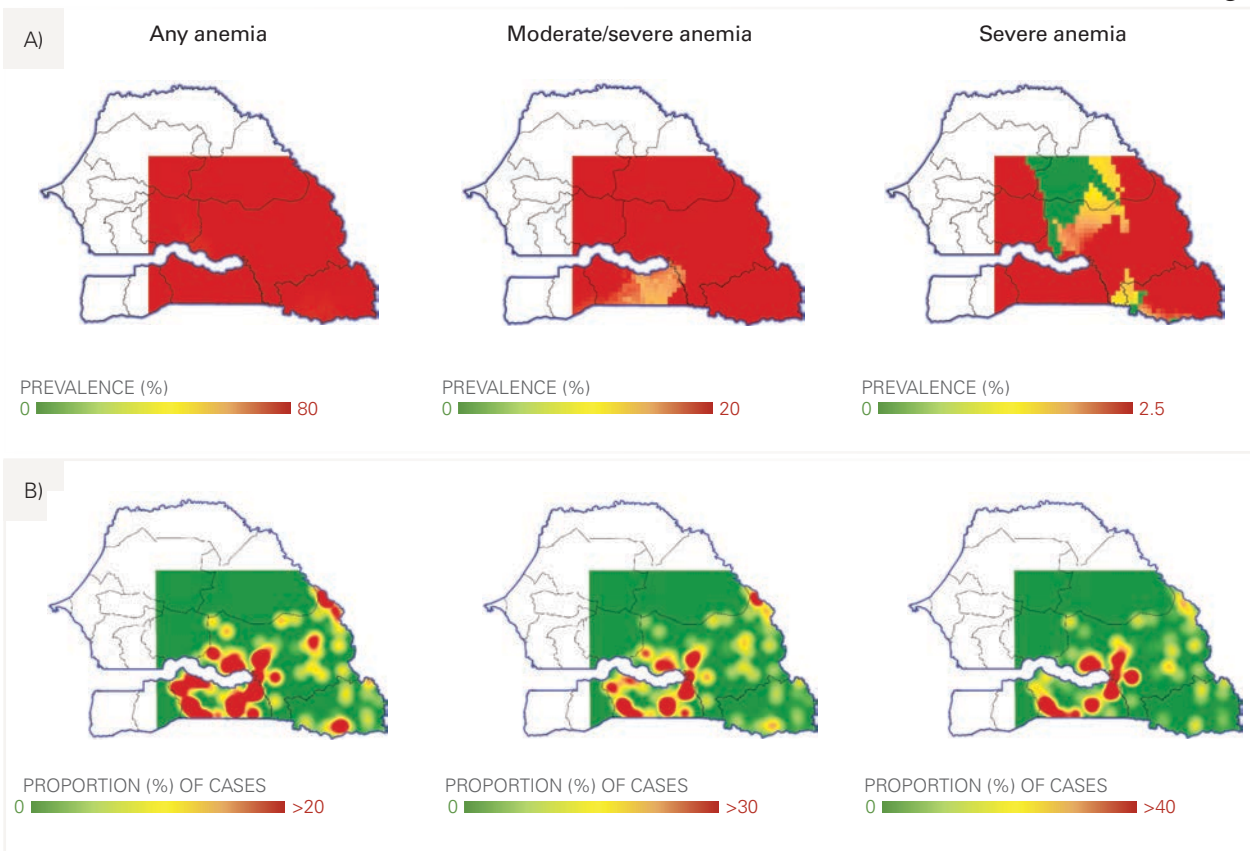
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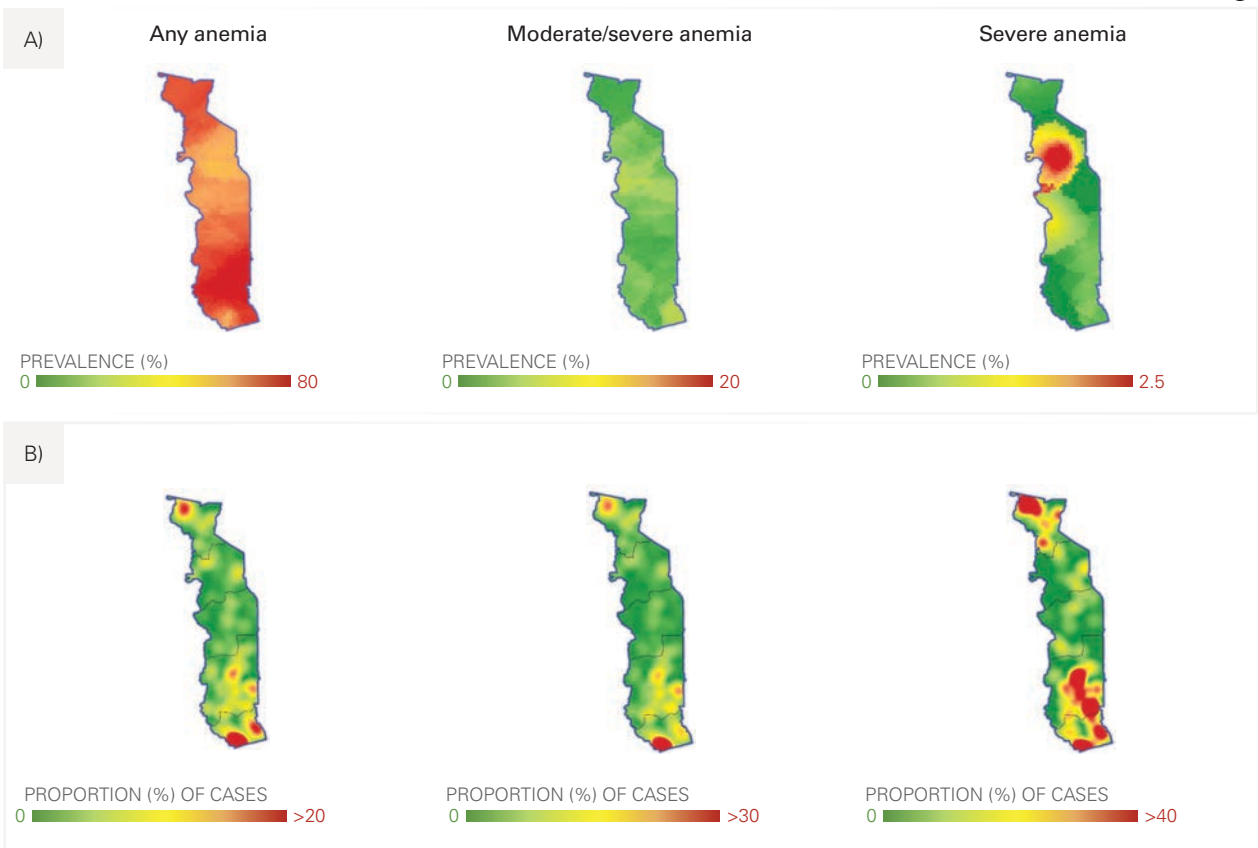
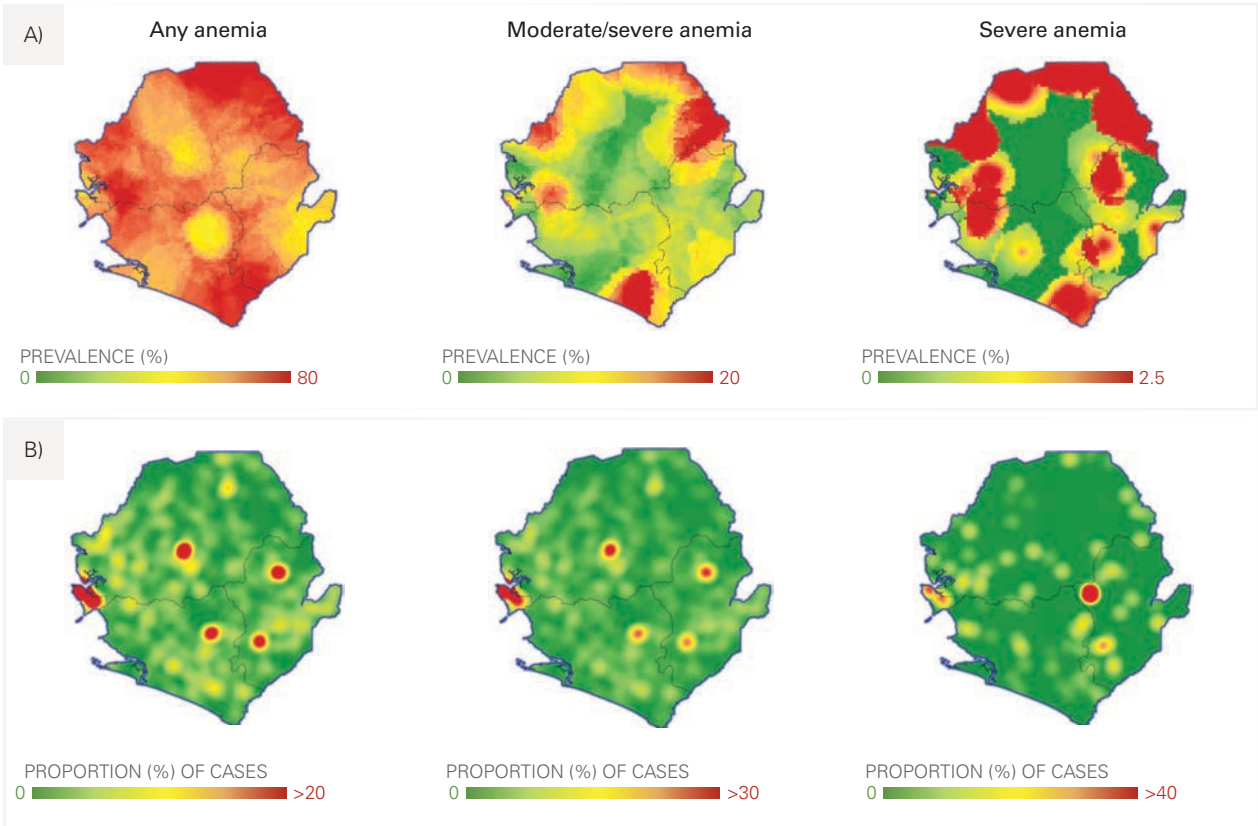


Nigeria



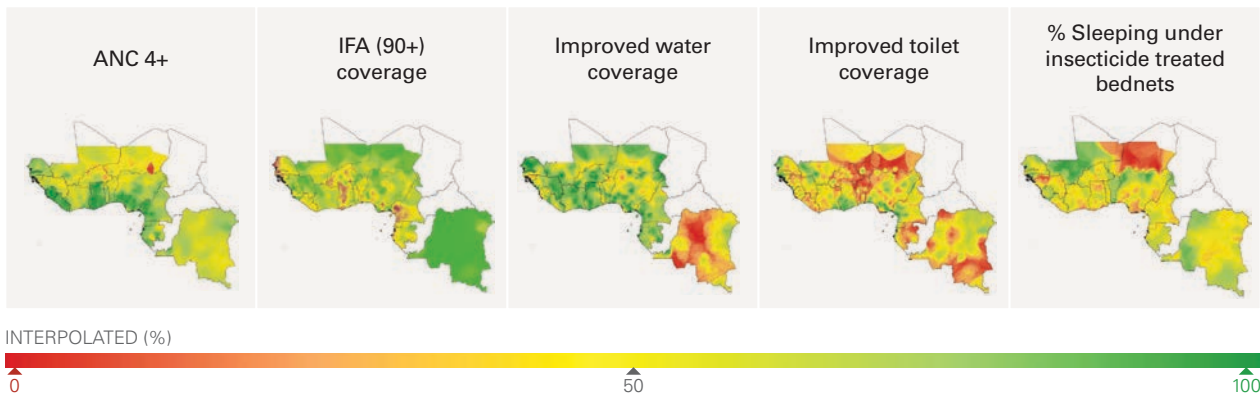
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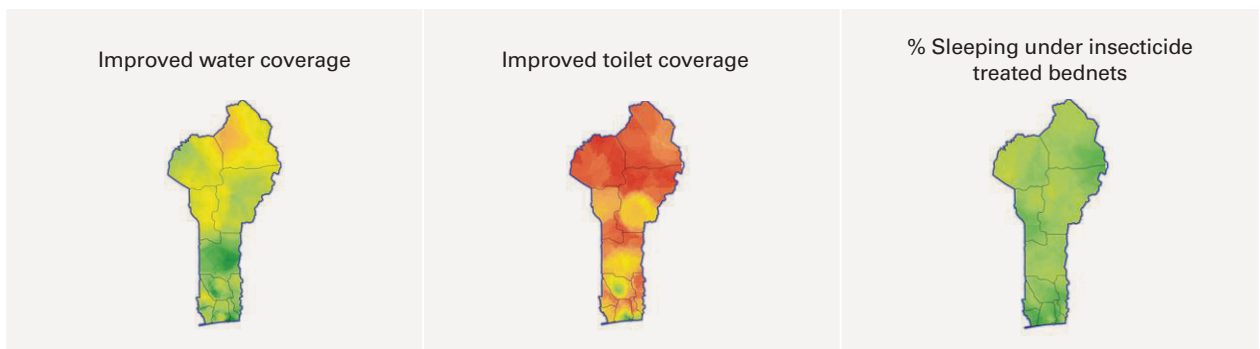


Annex 3. Mapping of composite coverage of interventions for anemia prevention and control

WCA region



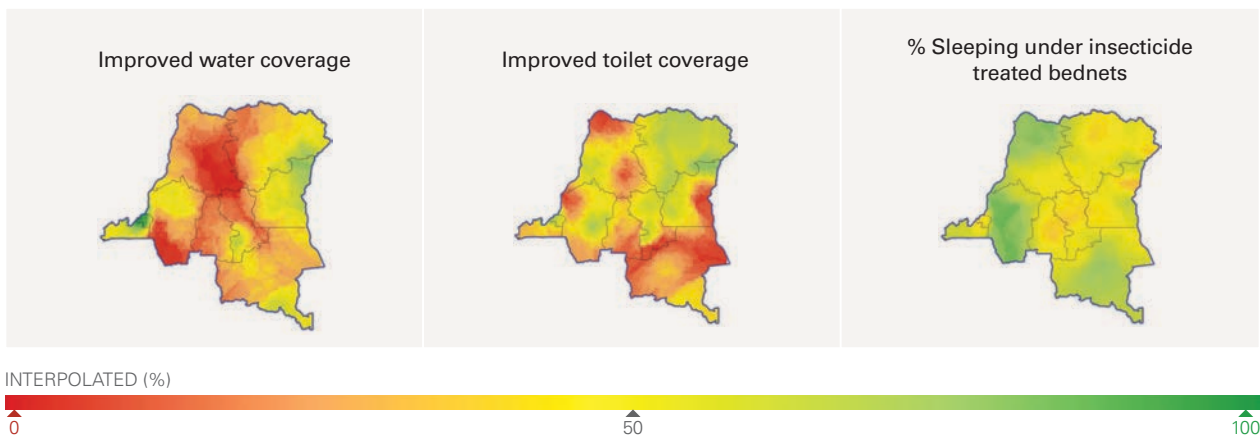
Benin



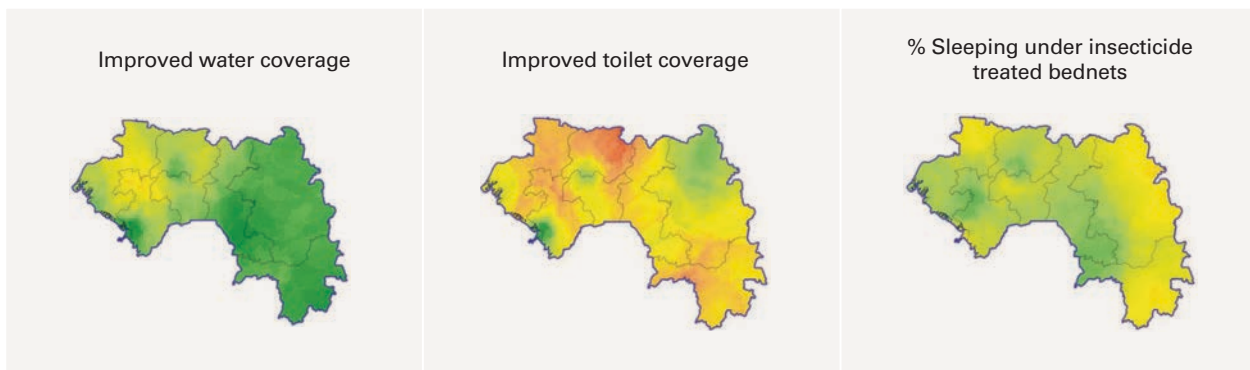
Burkina Faso



DR Congo



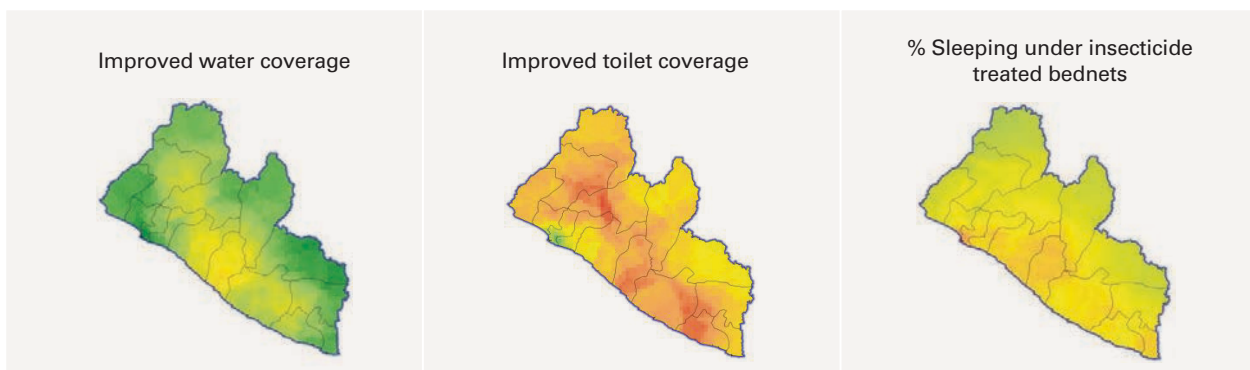
Guinea



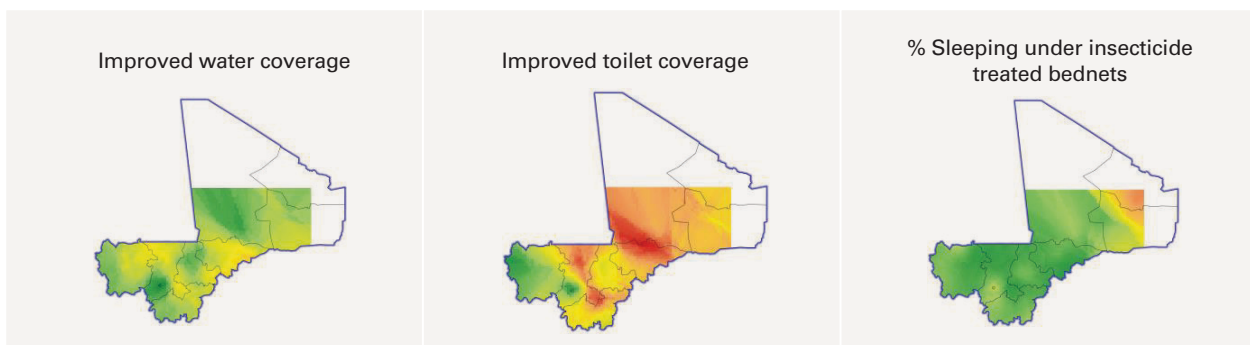
Cote d'Ivoire



Liberia



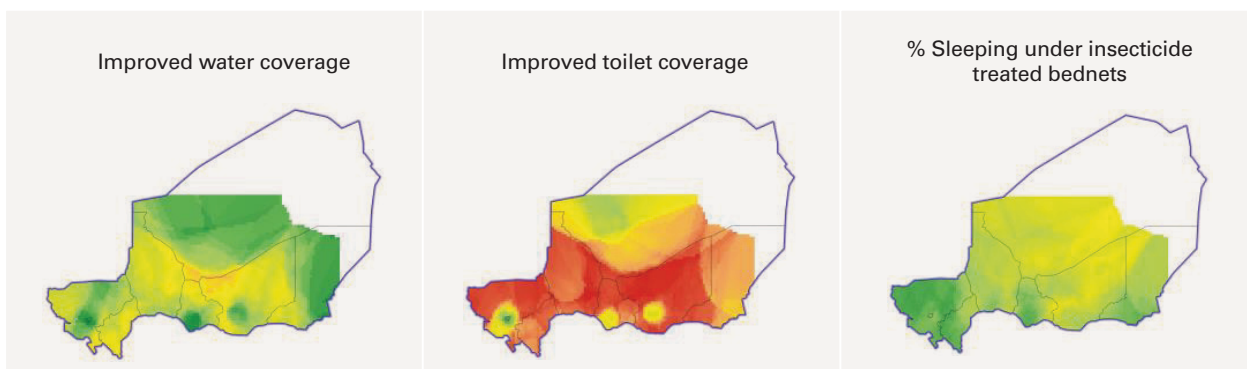
Mali



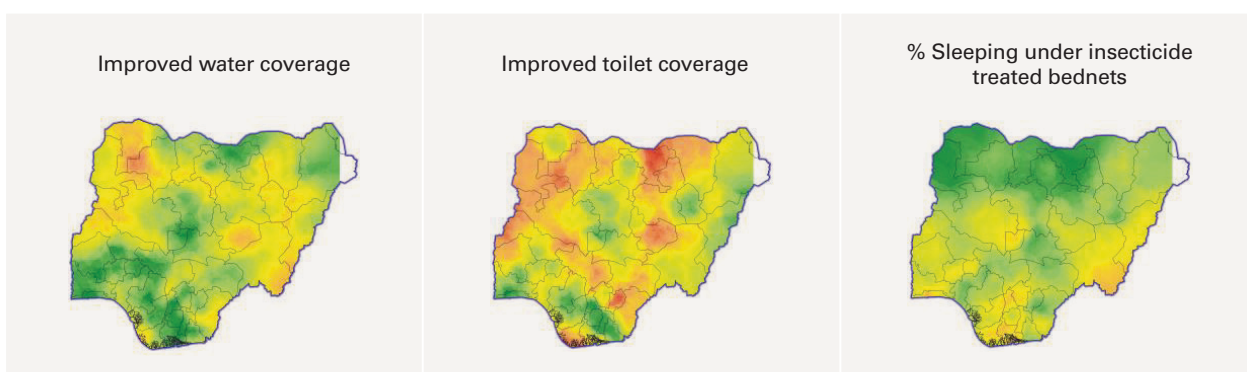
INTERPOLATED (%)



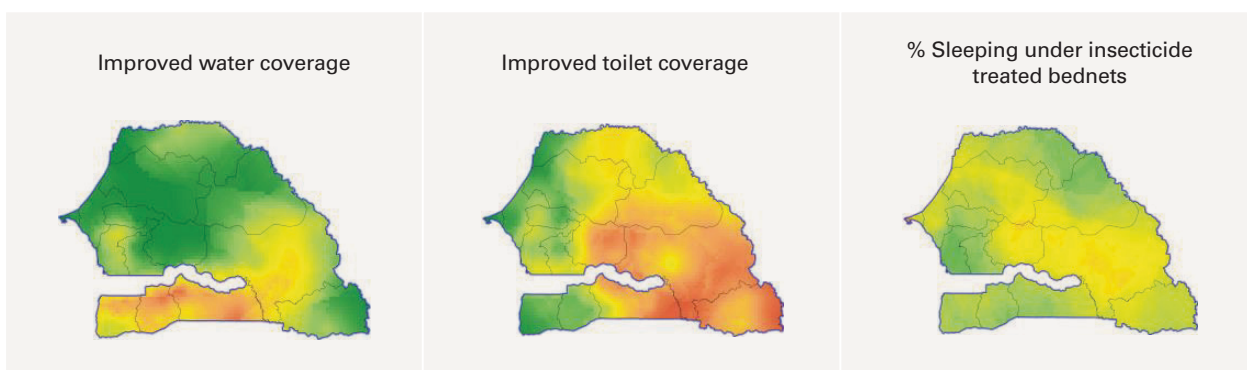
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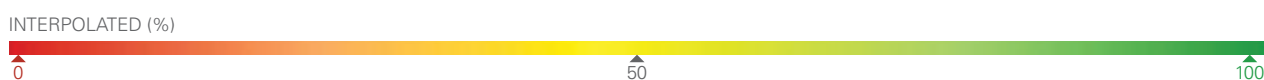
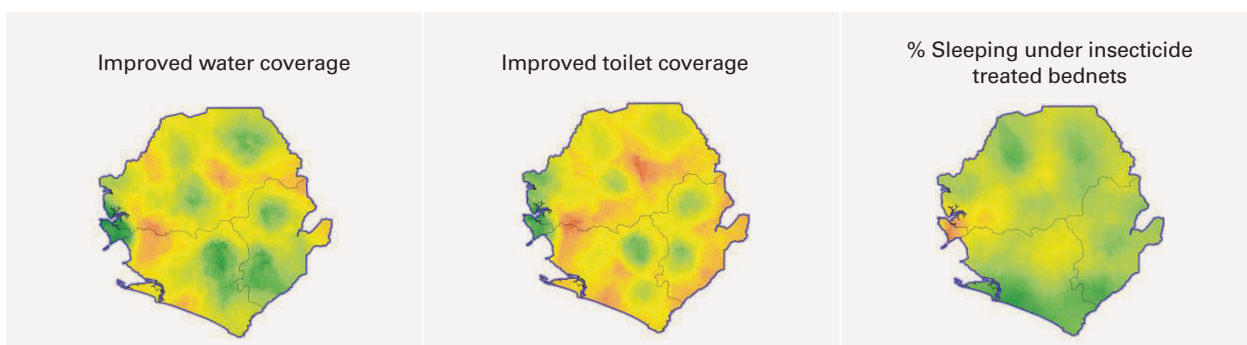
Nigeria



Senegal



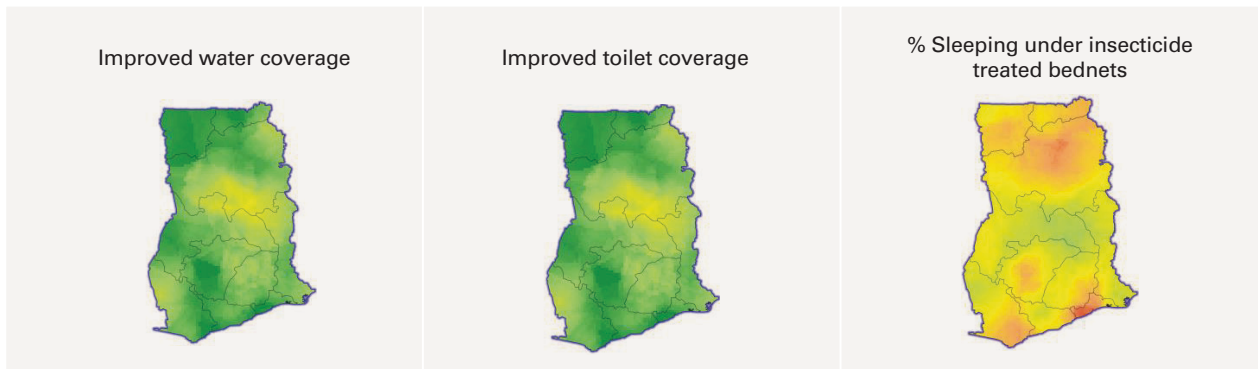
Sierra Leone



Togo



Ghana



INTERPOLATED (%)





**Regional Operational Guidance
on Children Aged 6-59 Months Anemia**

Subnational mapping for targeting anemia prevention among children aged
6-59 months in West and Central Africa

MAY 2025