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SICA
Sistema de la Integración
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Final Report

SICA Landscape Analysis: Micronutrient Supplementation Among Pregnant Women

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I Abbreviation and Glossary of Terms

ABBREVIATIONS

GLOSSARY

UNHCR	Office of the United Nations High Commissioner for Refugees
ANC	Antenatal Care
BID	Inter-American Development Bank
CAMO	Fundación CAMO (Central American Medical Outreach)
CCSS	Costa Rica Social Security Fund
CSS	Social Security Fund of Panama
COMISCA	Council of Ministers of Health of Central America and the Dominican Republic
ECF	Eleanor Crook Foundation
FOSALUD	Solidarity Fund for Health
HMHB	Healthy Mothers Healthy Babies
IFA	Iron and Folic Acid
IGSS	Guatemala Social Security Institute
IHSS	Honduras Social Security Institute
INCAP	Institute of Nutrition of Central America and Panama
INSS	Nicaragua Social Security Institute
ISSS	El Salvador Social Security Institute
EML	Essential Medicines List
MINSA	Ministry of Health (Nicaragua)/ Ministry of Health (Panama)
MINSAL	Ministry of Health (El Salvador)
MMS	Multiple Micronutrient Supplements
MOSAFC	Family and Community Health Model
MOHW	Ministry of Health & Wellness (Belize)
MS	Costa Rican Ministry of Health
MY SCARS	Ministry of Public Health and Social Assistance (Dominican Republic)
NHI	Belize National Health Insurance
IOM	International Organization for Migration
WHO	World Health Organization
NGO	Non-Governmental Organization
PAHO	Pan American Health Organization
PMA	World Food Programme
SAN	Food and Nutrition Security
SICA	Central American Integration System
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIMMAP	United Nations International Multiple Micronutrient Antenatal Preparation
Anemia	A condition characterized by low red blood cell count or low hemoglobin concentration. Among pregnant women anemia is diagnosed as having less than 110 g/L in the first and third trimester and 105 g/L in the second trimester, adjusted for altitude and smoking (WHO, 2024).

Prenatal/ Antenatal Care	Prenatal care is defined as the set of health interventions (including assessment of nutritional status, supplementation, and early detection of risks) that pregnant women receive for the purpose of monitoring fetal development, preventing obstetric complications, and promoting healthy practices for mother and newborn (WHO, 2016)
Adherence to supplementation	According to the WHO, adherence to supplementation refers to the patient's compliance with the recommended supplementation schedule, which is a fundamental measure for the quality of care and the acceptability of the intervention (WHO, 2012).
Low birth weight	According to the WHO, low birth weight is defined as a birth weight of less than 2500 grams, regardless of gestational age, being a critical predictor of neonatal morbidity and mortality and a key indicator of maternal and newborn health (WHO, 2025)
Micronutrients	Micronutrients are vitamins and minerals that the body needs in very small amounts to function properly, develop and maintain good health. Unlike macronutrients, they do not provide energy or calories, but they are essential for most cellular functions (PAHO, 2026).
Iron and folic acid (IFA) supplementation	Iron and folic acid supplementation (IFA) is the public health intervention that consists of daily supplementation containing both micronutrients to pregnant women, with the aim of preventing maternal anemia, iron deficiencies, and neural tube defects in newborns (WHO, 2024).
Multiple Micronutrient Supplements (MMS)	Multiple micronutrient supplements (MMS), referred to locally as SMM, are a nutritional supplement for daily consumption composed of a combination of vitamins and minerals designed specifically for pregnant women. (Vitamin Angels, n.d.).
UNIMMAP	The United Nations International Prenatal Multiple Micronutrient Preparation (UNIMMAP) is a standardized prenatal MMS formulation that contains 15 essential vitamins and minerals, including iron and folic acid. It was developed in 1999 through a collaboration between WHO, UNICEF and the United Nations University to respond to the nutritional needs of pregnant women (Micronutrient Forum, 2026).



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II Executive Summary

Poor nutrition during pregnancy has serious consequences for both mothers and their babies. Malnourished women are more likely to deliver infants who are born too small or too soon, and they face a higher risk of anemia, a condition that increases the likelihood of postpartum hemorrhage, one of the leading causes of maternal death. While countries around the world have used iron and folic acid (IFA) as the standard prenatal supplement, over 20 years of evidence shows that UNIMMAP MMS may be far superior in improving birth outcomes such as low birth weight, pre-term birth, and stillbirth compared to IFA.

In 2025, the Eleanor Crook Foundation (ECF) signed a memorandum of understanding with the executive secretariat of Consejo de Ministros de Salud de Centro América y República Dominicana (COMISCA) and the Instituto de Nutrición de Centro America y Panama (INCAP) to address maternal malnutrition through UNIMMAP MMS in Sistema de la Integración Centroamericana SICA countries. As part of this initiative, INCAP conducted a landscape analysis to understand IFA implementation and explore interest and opportunities to transition from IFA to UNIMMAP MMS within national antenatal care (ANC) programs in the SICA region. This report presents the findings of the landscape analysis.

The landscape analysis covered six key areas: 1) Policies and Guidelines, 2) IFA Procurement, 3) Coverage and Adherence, 4) Operational Challenges, 5) Partner Overview, and 6) Government Interest. Information was gathered through documents available from public portals and interviews with Ministry of Health key informants in 7 out of 8 countries.

Below are key findings for each of the six areas:

- **Policies and Guidelines:** Most countries have updated their guidelines to include eight ANC visits recommended by WHO. The exceptions were Costa Rica (5 visit), Nicaragua (4 visit), and Panama (7 visit). Guidelines in most countries recommend IFA as the standard prenatal supplement, with endorsement of any MMS, if available. The exceptions were Costa Rica and Panama that had not included any MMS in their guidelines. The Dominican Republic had strict restrictions on Vitamin A dosage in any MMS to prevent the risk of teratogenicity. In half the number of countries, any MMS was included in the essential medicines lists

(EMLs) with some discrepancies between inclusion in the guidelines and EMLs. For example, in Belize, MMS appeared in the guidelines but not in the EMLs.

- **IFA Procurement:** Most countries operate under a mixed procurement modality combining local and international sources, as local manufacturing relies on international raw materials or inputs. The only exception is Belize, which relies exclusively on international procurement. In most countries, procurement is managed by an entity within the Ministry of Health, except for in Costa Rica where it was the Costa Rican Social Security Fund. IFA programs are primarily financed by national funds, with support from international organizations. Opportunities for pooled procurement through COMISCA Joint Negotiations are present.
- **Coverage and Adherence:** In all countries, high ANC (>90%) and moderate to high IFA (53% to 98%) coverage was noted from existing datasets, however, coverage was reported to be low in rural areas and among indigenous populations. The availability of IFA adherence data in each country is sparse or publicly inaccessible.
- **Operational Challenges:** Countries face several challenges related to the monitoring of their IFA programs. On monitoring, health information systems vary across countries: while some have unified electronic records, others remain fragmented in silos. Additionally, adherence measurement is unreliable, often based on self-reports and infrequent national surveys. These constraints highlight the need for innovation: new technologies and tailored monitoring strategies could strengthen verification of supplement use and improve program responsiveness. Additionally, high health worker workload prevents them from following up on pregnant women to ensure compliance.
- **Partner Overview:** We noted close collaboration between countries and agencies of the United Nations System PAHO/WHO, UNICEF, FAO and INCAP, WFP, and the World Bank for the technical financing of nutrition and maternal health policies. We also noticed the role of partners such as UNHCR and IOM in providing comprehensive care to migrant women, facilitating the delivery of supplements in specific contexts.
- **Interest in MMS:** Most countries already integrate MMS into their healthcare systems through donations, demonstrating institutional acceptance of the product and a clear pathway for its national distribution. Stakeholders from 4 out of 8 countries reported high

interest in the transition to UNIMMAP MMS, supported by regulatory frameworks that already permit the use of multiple micronutrients. Organizations such as FUSAL, Feed the Children, Convoy Hope, CAMO, CitiHope, Batey Relief Alliance, and Vitamin Angels currently or in the past support implementation of UNIMMAP MMS in the region.

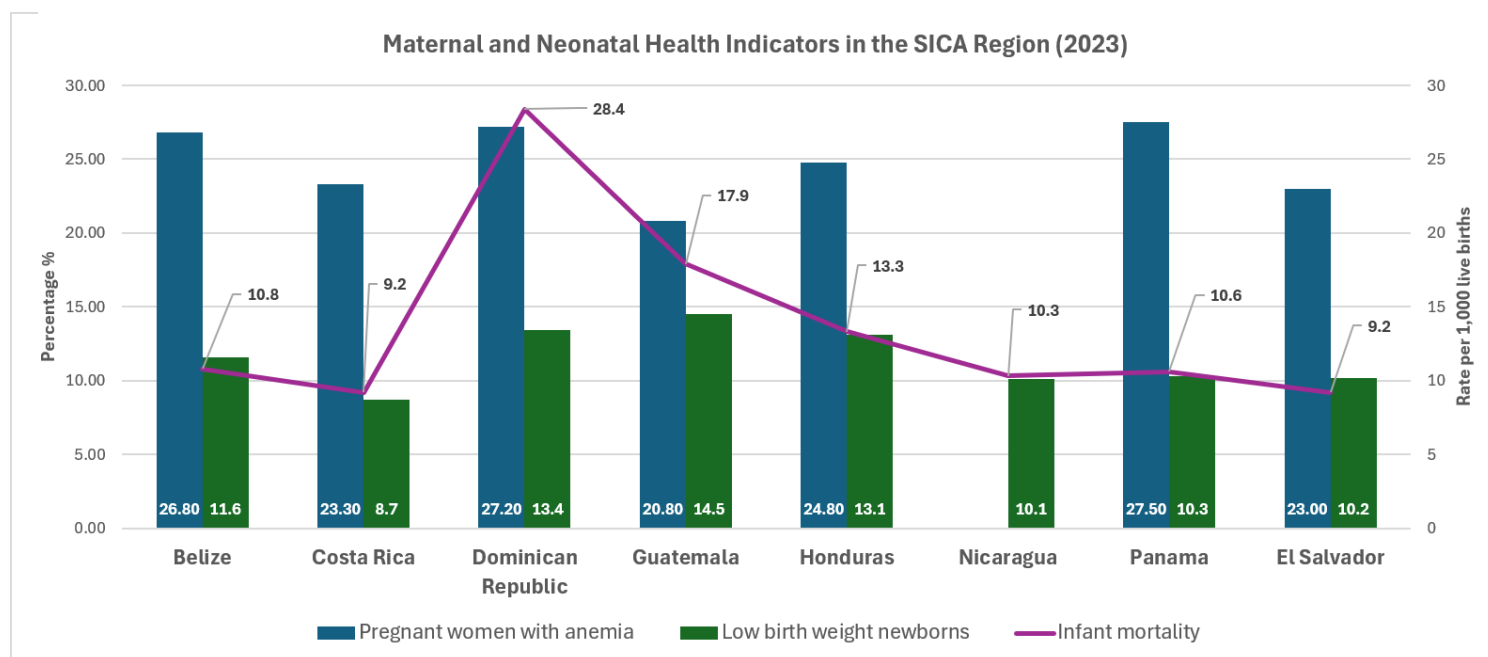
These findings underscore the growing momentum among SICA countries to integrate UNIMMAP MMS into their national antenatal care (ANC) platforms. To translate this interest into sustainable action, countries will need to develop a robust, costed roadmap that goes beyond pilot experiences. The roadmap must cover how countries will integrate UNIMMAP MMS into national policies and clinical guidelines; financing strategies to mobilize domestic resources; and existing ANC workflows, supply chains, and information systems to ensure women in SICA member states are able to benefit from this powerful supplement.



III Introduction

Poor nutrition during pregnancy has serious consequences for both mothers and their babies. It is estimated that, nearly two-thirds of women of reproductive age globally suffer from micronutrient deficiencies, a sign of poor nutrition (Stevens et al. 2022). Malnourished women are more likely to deliver infants who are born too small or too soon, and they face a higher risk of anemia, a condition that increases the likelihood of postpartum hemorrhage, one of the leading causes of maternal death. In the member states of the Central American Integration System (SICA): Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and the Dominican Republic, an estimated 21% to 28% of pregnant women are anemic contributing to poor birth outcomes such as low birth weight (9% to 15%) and infant mortality (9% to 28%). While there has been progress, the current situation suggests that an innovative approach is needed to drive further improvements.

Figure 1. Maternal and Neonatal Health Indicators in the SICA Region (2023)



Note. Own elaboration based on document review conducted during the study period. The epidemiological data presented correspond to the sources cited in the Introduction to this report: WHO (2023) for anemia in pregnant women, UNICEF (2023) for low birth weight, and WHO (2023) for the infant mortality rate.

Iron and folic acid (IFA) has been the standard supplement to prevent malnutrition during pregnancy. However, more than 20 years of scientific evidence demonstrates that the United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP MMS), which contains 15 essential vitamins and minerals, is more effective than IFA in reducing the risk of poor birth outcomes such as stillbirth, preterm birth, low birth weight, and small-for-gestational age with comparable reductions in anemia (**Table 1**). The benefits of MMS are also higher among malnourished mothers: those who are anemic and underweight.



Table 1. Impact of MMS on Birth Outcomes Compared to IFA

Result	All pregnant Women	Women with anemia* or underweight^
Reduced risk of stillbirth	8%	N/A
Reduced risk of infant mortality at 6 months	N/A	29%*
Reduced risk of preterm birth	6–8%	16% [^]
Reduced risk of low birth weight	12–14%	19%
Reduced risk of small for gestational age	2–9%	8%*

Note. Authors' elaboration with information from **BMGF, ECF, KH & CIFF (2024), *Global Investment Roadmap for MMS***. Summary of the benefits of MMS versus IFA in pregnant women in general and in pregnant women with anemia (hemoglobin <110 g/L) and/or low weight (BMI <18.5 kg/m²)

IV Methodology

4.1 Objectives

General Objective

The study aimed to describe current IFA supplementation programs and explore the feasibility of transitioning to UNIMMAP MMS in the SICA region.

Specific Objectives

- To assess the need, institutional interest, and feasibility of transitioning to UNIMMAP MMS in SICA countries.
- To analyze the operational aspects of prenatal supplementation, including the type of supplement, costs, logistics, and methods of administration.
- To identify lessons learned from current prenatal supplementation programs with IFA, recognizing strengths, implementation gaps, and opportunities for improvement based on the available information.
- To describe the prevalence of anemia and other micronutrient deficiencies among pregnant women in the eight SICA countries.

4.2 Research Questions

Specific research questions were defined to comprehensively address the six components of the landscape analysis: 1) Policies and Guidelines; 2) IFA Procurement; 3) Coverage and Adherence; 4) Operational Challenges; 5) Partner Overview; and 6) Government Interest in UNIMMAP MMS. These questions guided both the desk review and the interviews, ensuring that critical evidence was collected for each operational and policy dimension of prenatal supplementation. **Table 2** summarizes the key questions under each component.

Table 2. Research Questions by Component for the Analysis of Prenatal Supplementation in the SICA Region

Components	Key questions
Policies, Guidelines & EML	What are the official guidelines of the Ministry of Health for the provision of APIs to pregnant women (e.g., recommended distribution schedule, dosage, timing, and duration of consumption)? Are other vitamins/minerals recommended for pregnant women in the guidelines?
	Is the IFA or MMS included in the Essential Medicines List?
IFA Procurement	Who produces the IFA (local vs. international suppliers)?
	Who acquires it (direct governments, private importers, joint purchases)? At what prices?
	Who funds the IFA (how much is supported by donors, government budgets, or out-of-pocket spending)? How much?
	How is IFA typically distributed (e.g., 30-tablet blister packs, loose tablets at antenatal visits, 90-tablet bottles with child lock)?
	What are the main barriers to the implementation of current IFA programs?
Coverage and Adherence	What is the current IFA coverage, i.e., how many women receive IFA tablets?
	What is the current coverage of prenatal care (ANC) and ANC 4+?
	What is the current level of IFA consumption (is there data on how much of the recommended dose women consume)?
	Is the IFA product marketed as a medicine or supplement?
	What are the barriers to accessing and using the IFA?
Operational Challenges	Where do pregnant women currently access the IFA (public vs. private sector)?
	Are there specific population groups that are not being reached or have less access through current IFA distribution programs?
Partner Overview	Who are the main partners in nutrition/maternal health, etc.?
	Which bilateral and multilateral agencies are actively involved in nutrition?
Government Interest in UNIMMAP MMS	What is the level of knowledge and interest in MMS on the part of government actors?
	What are the main priority questions for government actors?
	Who are the main government actors? Are there any key MMS leaders or promoters?
	To what extent are the following issues relevant to policymakers (or society at large): stillbirth, low birth weight/preterm birth, anemia, maternal nutrition, and overall health?
Other considerations to drive MMS adoption	What is needed to change policies and support MMS instead of IFA?

Note. Own elaboration based on the questions of interest defined for the assessment. Abbreviations: MMS (Multiple Micronutrient Supplements); IFA (Iron and Folic Acid); LME (Essential Medicines List).

4.3 Data collection and key actors consulted

Data were collected between November 2025 and April 2026, using two main methods: document review for all eight countries and online interviews with key actors and designated focal points in seven of the eight countries. First, we conducted the document review of technical and legal regulations, including prenatal care protocols, supplementation guidelines, the Essential Medicines List (EML), and data systems. This review was based exclusively on official documentation available through the institutional portals of Ministries of Health and regional organizations at the time of collection. Second, we conducted virtual interviews with designated focal points from the Ministry of Health, which lasted between 45 and 60 minutes. The interview guide was structured into 25 main questions aligned with the six components of the assessment, which were disaggregated into 70 variables see **Annex 1**.

We systematically organized the data into a matrix integrating findings from the interviews with information from documents for each variable. This procedure allowed us to methodologically triangulate information, consolidating the findings by country and component to ensure consistency in the analysis. For Nicaragua, the information was obtained exclusively through document review and available secondary sources, because during the data collection period no national focal point was assigned to participate in the assessment.

The complete details of the technical and legal documents reviewed by countries, including their web links, can be referenced in **Annex 2** (Matrix of Documents Referenced). **Table 2** summarizes the key informants by country including their background.

Table 3. *Scope of stakeholder consultation and participation by country*

Country	Number of interviews conducted	Number of participants interviewed	Positions of the people interviewed	Institutions consulted
Belize	2	2	Nutritionist, Nutrition Unit and Technical Advisor for Maternal and Child Health	Ministry of Health and Welfare
Costa Rica	1	1	Doctor, head of the Health Technology Unit	Costa Rican Ministry of Health
Dominican Republic	2	1	Physician, Public Health Nutrition Program	Ministry of Public Health of the Dominican Republic
El Salvador	2	3	Head of Nutrition, Medical Epidemiologist and Maternal-Perinatal Coordinating Physician	Ministry of Health of El Salvador
Guatemala	3	2	Nutrition Specialist (PROSAN) and Medical Officer (Sexual and Reproductive Health)	Ministry of Public Health and Social Welfare
Honduras	3	2	Doctors, Head of Comprehensive Care and Technical Nutrition Officer	Ministry of Health
Nicaragua	0	0	N/A	Nicaragua Ministry of Health
Panama	1	2	Directorate-General for Health and Department of Health and Nutrition	Ministry of Health of Panama
Entity				
Feed the Children	1	2	Regional Office for Central America and Program and Project Management	Feed the Children: Donation Inquiries in the Region

Note. Prepared by the author based on the consultations and document review. In the case of Nicaragua, the analysis was based exclusively on publicly available technical information in the absence of a designated focal point for the study.

V Background: Demographic characteristics and micronutrient deficiencies.

5.1 Demographic and maternal and neonatal health profile.

The SICA countries vary in terms of their demographic characteristics, and maternal and infant health indicators. The estimated number of births per year ranges from 7,518 in Belize to 380,110 in Guatemala. Costa Rica is classified as a high-income country while Honduras and Nicaragua are classified as lower-middle income countries. Similarly, we see variation in neonatal, infant and maternal mortality. Most countries meet the Sustainable Development Goal (SDG) neonatal mortality target of less than 12 deaths per 1,000 live births except the Dominican Republic. Similarly, most countries meet the SDG maternal mortality ratio target of less than 70 per 100,000 live births except for the Dominican Republic and Guatemala.

Table 4. Demographic and mortality indicators in SICA Member States

Note. Prepared by the authors with information from the World Bank (2024), WHO (2023b), WHO (2023c) and Our World

Country	Total, of births (Our World in Data,2024)	National Income Category LMIC (World Bank, 2024)	Neonatal mortality rate [deaths per 1,000 live births) (OMS, 2023X)	Infant mortality rate (deaths per 1,000 live births) (OMS,2023b)	Maternal mortality ratio (modelled estimate, per 100,000 live births) (WHO, 2023c)
Belize	7,518	Upper-Middle income	9.3*	10.8	67*
Costa Rica	50,630	High income	7.2*	9.2	24*
Dominican Republic	199,014	Upper-Middle income	21.7	28.4	124
El Salvador	97,874	Upper-Middle income	4.4*	9.2	39*
Guatemala	380,110	Upper-Middle income	10.0*	17.9	94
Honduras	234,594	Lower-Middle income	8.8*	13.3	47*
Nicaragua	131,804	Lower-Middle income	8.4*	10.3	60*
Panama	71,610	High income	6.6*	10.6	37*

in data (2024).

Table 5. Prevalence of anemia, and deficiency in iron and other micronutrients in women by country

Country	Anemia (%)	Iron deficiency (Ferritin, %)				Other micronutrients (%)
	PW	NPW	PW	WRA	LW	
Belize	26.8	17.8	15.3	N/A	N/A	Vit A: 1 (NPW) Folate: 4.1 (NPW) Folate: 3 (PW) Vit B12: 17.2 (NPW)
Costa Rica	23.3	N/A	44.6	8.7	20.5	Vit A: 1 (LW) Folate: 4 (WRA) Vit B12: 4.8 (WRA) Vit B12: 6.4 (W) Vit B12: 5.3 (LW) Selenium: 42 (WRA) Selenium: 38.4 (W)
Dominican Republic	27.2	50.1	N/A	2.5	N/A	Vit A: 1 (WRA) Folate: 3.1 (NPW)
El Salvador	23.0	N/A	N/A	N/A	N/A	
Guatemala	20.8	13.6	45.8	N/A	N/A	Folate: 5.1 (NPW) Vit B12: 13.3 (NPW) Vit B12: 35.3 (PW) Zinc: 22.8 (NPW)
Honduras	24.8	N/A	N/A	N/A	N/A	
Nicaragua	N/A	31.2	N/A	33	N/A	Vit A: 1 (WRA)
Panama	27.5	N/A	N/A	67.5	N/A	Folate: 12.3 (WRA)

Note. The data reflects the most recent estimates available from the WHO (1996–2024). Data is expressed in percentages (%). The reference years vary by country and micronutrient, depending on data from the most recent national surveys. The cut-off for low ferritin (depleted iron) is defined as $< 15 \mu\text{g/L}$. Acronyms used in this table correspond to the following populations: (NPW), Non-Pregnant Women; (PW), Pregnant Women; (WRA), Women of Reproductive Age; (LW), Lactating Women; and (W), Women (utilized to specify general female data in selected micronutrient indicators). N/A: Information not available as of the date of the report.

Table 5 Table 5 shows that among the SICA countries, the burden of anemia among pregnant women is prevalent among up to 3 in 10 women, but that deficiencies in other micronutrients are also present. For example, approximately 45% of pregnant women in Costa Rica and Guatemala have low iron stores; additionally, 35% of pregnant women in Guatemala and 17% of non-pregnant women in Belize are deficient in Vitamin B12. While data are sparse, this suggests that women in the SICA countries need other micronutrients in addition to IFA.

VI Policies and Guidelines

6.1 Antenatal Care (ANC) Visits

In the SICA countries, ANC guidelines prioritize early contact and continuous follow-up.

Specifically, they note the following:

- **Timing of first contact:** Guidelines in all countries prioritize early initiation of prenatal care; specifically, it is recommended that the first visit should take place before the 12th week of gestation to identify potential risks early.
- **Frequency of follow-up:** Although most countries (Belize, Dominican Republic, El Salvador, Guatemala, and Honduras) have standardized their protocols towards an 8-visit model during pregnancy, there are variations. For example, Costa Rica recommends a schedule of 5 visits, while Nicaragua and Panama have models with follow-up goals of 4 and 7 sessions respectively.
- **Operational feasibility and barriers:** While clinical protocols establish an ideal 8-visit model, practical implementation is often constrained by contextual factors. Elements such as delayed pregnancy detection, late maternal self-referral to health centers, and limited access in rural areas directly influence the actual frequency of visits. Consequently, performance monitoring accounts for these operational realities often resulting in 4 or more visits rather than the ideal 8, reflecting variations inherent to each patient's profile and context, rather than strictly adhering to the clinical targets established.

For a detailed review of the recommendations by country, please refer to **Annex 2: Summary of Antenatal Care (ANC) Policies and Guidelines**.

6.2 Policies and Guidelines for Prenatal Supplementation

While the standard prenatal supplementation is IFA, we noticed incorporation of any MMS in several guidelines. Specifically, we learnt that:

- **IFA and MMS:** Six countries have incorporated any MMS, and not specifically the UNIMMAP formulation, into their national guidelines. The exceptions were Costa Rica and Panama whose guidelines focus strictly on IFA supplementation.

- **IFA format:** In six countries, guidelines recommend providing IFA as a single combined pill, whereas in Costa Rica and Guatemala the recommendation was to deliver it as two separate pills. Additionally, IFA was typically available in blister packs of 30 pills except in Panama where it was also available in blister packs of 10 or 30 pills. MMS, when referred, was always recommended as one pill and typically in a bottle.
- **Technical harmonization:** The analysis shows that, while the political intention to transition to MMS is broad, clinical implementation often depends on the availability of products on the EMLs and the updating of care protocols by each Ministry of Health.

For a detailed review, that includes the comparison of IFA versus MMS, specific doses, regulatory limitations by country, and official guidelines, see **Table 6:** Details of prenatal supplementation programs.

6.3 Essential Medicines Lists: IFA vs. MMS

The inclusion of prenatal supplementation in the EML signals its recognition as a national public health priority. The key findings related to IFA and MMS in EMLs were:

- **IFA and MMS:** IFA is included in EMLs of all eight countries. Four of the eight countries have also incorporated any MMS into their EMLs. The countries are Dominican Republic, El Salvador, Honduras, and Nicaragua. This analysis is based on public documents available on official portals; therefore, there may be unpublished or inaccessible regulatory updates.
- **Guidelines vs. EML:** Surprisingly, while referenced in guidelines, MMS is not in the EML of Belize and Guatemala.
- **Drug vs. Supplement:** IFA is classified as a medicine (drug) in all eight EMLs. When included, MMS is also classified as a drug in four out of eight EMLs.
- **Harmonization:** Since social security institutes play an active role in delivering health services in many countries, it is essential to reference their medicines list against that of the Ministry of Health. For instance, in the case of El Salvador, the reference reflects the current list of the Salvadoran Social Security Institute (ISSS) where the inclusion of MMS was identified. This list is currently being harmonized with the EML of the Ministry of Health (MINSAL) (Peñate, 2025).

For a detailed breakdown of the sources and scope of EMLs by country, please refer to **Annex 2.**

6.4 Comparative Analysis of Guidelines: IFA vs. MMS

National clinical guidelines reveal a complex regulatory architecture, where traditional IFA programs coexist with the introduction of MMS. The most significant operational differences we observed were:

- **Dose:** The iron and folic acid content in IFA is largely standardized at 60 mg of elemental iron and 400 mcg of folic acid, with a few country- specific exceptions such as 30–60 mg of iron in Belize and 5 mg of folic acid weekly in Guatemala. For MMS, several countries reported formulation restrictions, including a cap of 2,500 International Units of vitamin A in the Dominican Republic for safety, and requirements in the Dominican Republic, El Salvador, and Honduras to include 60 mg of elemental iron and at least 400 mcg of folic acid.
- **Frequency:** Guidelines in most countries maintain a more homogeneous daily frequency of IFA, except for in Guatemala where iron is recommended daily and 5mg folic acid is recommended weekly. MMS is also recommended daily in most countries, except in Belize where MMS is recommended every other day.
- **Timing:** Four countries recommend folic acid during the preconception stage to prevent neural tube defects with variation in the dose: Belize (400 mcg daily), Costa Rica (1 mg daily), El Salvador (5mg daily), Guatemala (5 mg weekly). One country, the Dominican Republic, recommends daily IFA for all women pre-conception and 5mg folic acid daily for high-risk cases (e.g., epilepsy). This is then followed by recommendation of IFA or MMS during pregnancy.
- **Duration:** Guidelines in all eight countries recommend IFA or MMS supplementation throughout pregnancy. In two countries, post-partum supplementation is also recommended: with IFA in El Salvador (covering the 6-week postpartum period) and with iron only for 6 months in Guatemala.
- **IFA and MMS:** The analysis shows that the adoption of MMS is a gradual process. In countries such as Guatemala and El Salvador, protocols do not automatically replace IFA but coexist with it; this means that healthcare professionals use MMS under certain circumstances or when they are available, while maintaining IFA as the standard and primary option.

Table 6. Regulatory framework and clinical guidelines for IFA and MMS supplementation in SICA countries

Country	Preconception phase	Pregnancy (IFA)	Pregnancy (MMS)	Iron content (per dose)	Explanatory notes
Belize	Folic acid: 400 mcg Frequency: Daily Prevention of NTD (Neural Tube Defect)	IFA: 60 mg of iron + 400 mcg of folic acid Frequency: Daily Duration: Throughout pregnancy	MMS: 1 capsule Frequency: Every other day Duration: From prenatal testing to delivery	Dosage: 30 mg-60 mg Frequency: Daily Duration: Throughout pregnancy Recommended for the prevention of anemia	The range offers two protocol options: folic acid is started before conception; iron is given after pregnancy is confirmed (60 mg) and, when available, MMS is used as an alternative.
Costa Rica	Folic acid: 1 mg Frequency: Daily	IFA: 1 mg folic acid (initial)/400 mcg folic acid (maintenance) + 60 mg iron. High risk: 4 mg folic acid (in case of a history of neural tube defects or BMI >30). Frequency: Daily. Folic acid is started before conception or at the first visit. Iron started between weeks 12 and 16. Duration: Throughout pregnancy.	MMS: N/A	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	During pregnancy, the dose of folic acid is adjusted to 4 mg in high-risk cases or to the standard maintenance dose of 1 mg/400 µg, always combined with 60 mg of elemental iron.
Dominican Republic	Dosage: 400 mcg of folic acid + 60 mg of iron High-risk group: 5 mg folic acid Frequency: Daily Duration: 1-2 months before pregnancy First 12 weeks: 400 mcg of folic acid. Frequency: Daily	IFA: 60 mg of iron + 400 mcg of folic acid High risk: 4 mg folic acid (for a history of neural tube defects or BMI > 30) Frequency: Daily Duration: Throughout pregnancy	MMS: 1 tablet (restricted use) Frequency: Daily Duration: Throughout pregnancy	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	The protocol does not specify a standalone iron supplement for pregnancy. Iron intake is covered by the combined iron and folic acid tablet or MMS capsule (LME code B03AD03), both of which provide 60 mg of iron
El Salvador	Folic acid: 5 mg Frequency: Daily	IFA: 60 mg of iron + 400 mcg of folic acid Frequency: Daily Duration: Pregnancy and postpartum (6-week)	MMS: 1 tablet (restricted use) Frequency: Daily Duration: Throughout pregnancy	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	The protocol establishes a constant dose of 60 mg of iron and 400 mcg of folic acid, both for the prevention of anemia and to reduce the risk of neural tube defects. In high-risk cases (epilepsy or a history of epilepsy), 5 mg of folic acid is given.

Country	Preconception phase	Pregnancy (IFA)	Pregnancy (MMS)	Iron content (per dose)	Explanatory notes
Guatemala	Low risk: Weekly treatment (5 mg folic acid). Specific diets: inclusion of vitamin B12	*IFA: 60 mg of iron (daily) + 5 mg of folic acid (weekly) Frequency: daily (iron) / weekly (folic acid) Duration: during pregnancy and 6 months postpartum (for iron)	MMS: 1 tablet (replaces API) Frequency: Daily Duration: throughout pregnancy	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	From registration to delivery and postpartum. Anemia treatment: 120 mg of iron (daily) + 5 mg of folic acid (weekly). For 3 months (with re-evaluation at 2 weeks). High risk (NTD): 5 mg daily. From 3 months before until the end of pregnancy. *Guatemala IFA Protocol: National standards (MSPAS 2023) state that iron and folic acid should be administered in separate tablets, not in a combination tablet. Therefore, the schedules differ: iron is daily and folic acid (5 mg) is weekly. The postpartum duration (6 months) applies only to iron.
Honduras	NA	API: 60 mg of iron + 400 mcg of folic acid Frequency: Daily Duration: Throughout pregnancy Anemia: 120 mg iron + 5 mg folic acid	MMS: 1 tablet Frequency: Daily Duration: Throughout pregnancy	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	The protocol prioritizes enrollment before week 12. The 2024 standard does not define any specific pharmacological dose for the preconception period.
Nicaragua	NA	API: 60 mg of iron + 400 mcg of folic acid Frequency: Daily Duration: Throughout pregnancy	MMS: 1 tablet Frequency: Daily Duration: Throughout pregnancy	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	MMS is listed on the Essential Medicines List (SCL) but is not included in the clinical care protocol.
Panama	NA	API: 60 mg of iron + 400 mcg of folic acid Calcium: 1000 mg (2020 standard)	MMS: N/A	Dosage: 60 mg Frequency: Daily Duration: Throughout pregnancy	Supplementation lasts up to three months after delivery. The 2020 protocol is the only one in this group that explicitly mandates a calcium intake of 1000 mg during pregnancy.

Note. Prepared by the author based on the documentary review of standards, protocols and clinical guidelines of the SICA countries as of April 2026.

6.5 Key Government Actors

Several government entities are responsible for managing the regulations and implementation of prenatal supplements, they include:

- **Stewardship and Regulations (Ministries of Health):** They are the highest authority. They define the care protocols, clinical guidelines and supplementation guidelines that govern at the national level, being the technical basis of the entire system.

- **Social Security and Provision:** These institutions represent a key pillar in the care of workers and their families. While they possess administrative autonomy, their own pharmacies, and independent drug lists, their actions are typically aligned with the technical guidance of the Ministries of Health. Although all SICA countries operate dual health systems where social security functions as a specialized provider for workers, Costa Rica stands out because the Social Security Fund (*Caja Costarricense de Seguro Social*) acts as a primary and autonomous national health actor, distinct from the ministerial structure found elsewhere. In contrast, other countries are increasingly pursuing integration; for instance, El Salvador is currently advancing efforts to harmonize pharmaceutical procurement, conducting joint medication purchases between the Ministry of Health and the Social Security Institute to improve efficiency and availability.
- **Regulation and Selection of Supplies:** The sanitary surveillance units or drug directorates within the Ministries of Health or the Social Security (in Costa Rica) exercise sanitary control and registration. However, the clinical decision on which supplement to integrate into public care remains a central role of the ministerial leadership.
- **Procurement and Supply Chain:** There are specialized units (with their own names in each country) in charge of public procurement and logistics. These units operate in constant communication with the Ministries of Health to ensure that the distribution capacity responds to the defined technical needs.
- **Financial Management:** The central financial entities (Ministries of Finance) are responsible for authorizing the general budget. It is important to note that the availability of funds is usually a multi-stakeholder process that involves various sources and internal approvals depending on the administrative and legal structure of each country.

See **Table 7** for the institutional architecture that allows the acquisition and management of prenatal supplements in the region. This matrix details the key government actors in each SICA Member State, presenting their roles and responsibilities in terms of oversight, drug surveillance, procurement, and financing. Institutional mapping allows us to identify that, although there is a common ministerial leadership, operational execution depends on the coordination between the public procurement units and the ministries of finance, which determines the financing of the programs.

Table 7. Institutional mapping and responsible actors of the supply chain by country

Country	Supervision	Social Security Institution	Drug Surveillance, Essential Drug List (SCL)	Procurement	Financial Management and Disbursement
Belize	Ministry of Health and Social Welfare (MoHW)	National Health Insurance (NHI)	Ministry of Health and Welfare/Medicines Inspection (MoHW)	Supply Chain Management (MoHW) Unit	Ministry of Finance
Costa Rica	Costa Rican Social Security Fund (CCSS)	Costa Rican Social Security Fund (CCSS)	Costa Rican Social Security Fund (CCSS)	Purchasing Office of Goods and Services (CCSS)	Ministry of Finance
Dominican Republic	Ministry of Public Health (MISPAS)	National Health Insurance (SeNaSa)	General Directorate of Medicines, Food and Health Products (DIGEMAPS), (Autonomous).	Essential Medicines Program and Logistics Support Center (PROMESE/CAL)	Ministry of Finance
El Salvador	Ministry of Health (MINSAL)	Salvadoran Social Security Institute (ISSS)	National Directorate of Medicines (DNM), (Autonomous).	Public Procurement Unit (UCP) MINSAL	Ministry of Finance, (MH)
Guatemala	Ministry of Public Health and Social Assistance (MSPAS)	Guatemalan Social Security Institute (IGSS)	Division of Procurement and Maintenance (MSPAS)	Procurement and Maintenance División (MSPAS)	Ministry of Finance
Honduras	Ministry of Health (SESAL)	Honduran Social Security Institute (IHSS)	Health Regulation Agency (ARSA), (Autonomous).	Administrative Management Unit / Procurement Unit (SESAL)	Ministry of Finance (SEFIN)
Nicaragua	Ministry of Health (MINSAL)	Nicaraguan Social Security Institute (INSS)	National Health Regulation Authority (ANRS), (Autonomous).	General Division of Acquisitions (DGA), (MINSAL).	Ministry of Finance and Public Credit (MHCP)
Panama	Ministry of Health (MINSAL)	Social Security Fund (CSS)	National Directorate of Pharmacy and Drugs (MINSAL)	National Purchasing Directorate, (MINSAL).	Ministry of Economy and Finance (MEF)

Note. Prepared by the author based on the documentary review of government actors and procurement processes in the SICA countries as of April 2026. La "Financial Management and Disbursement" column identifies the entities responsible for the administration and transfer of budgetary resources. It is recognized that the availability of these funds is subject to the prior approval of the General Budget of the Nation by the legislative bodies of each country, with the entities listed being the operational arms that execute the disbursement to the corresponding ministries and executing units.

VII IFA Procurement

7.1 Purchasing mechanisms, financing and supply capacity

This section presents how countries ensure the availability of IFA and the key actors engaged in the process:

- **Procurement strategies:** There is variation in how countries source prenatal supplements. While Belize relies exclusively on international procurement, the remaining seven countries utilize a mixed modality combining international sourcing of active ingredients with local manufacturing, formulation, or packaging capacities. This applies to both basic IFA and multiple micronutrient supplements (MMS), where local facilities package or produce formulations containing diverse micronutrient profiles to supply both public and private sectors.
- **Production capacity:** We have identified that the local industry in seven of the eight countries possesses the operational capacity to mix, package, and finish prenatal supplements using imported raw materials. This capability primarily focuses on basic components such as folic acid and iron. It is important to note that while regional manufacturers in countries like Peru, Mexico, Guatemala, Colombia, and Brazil produce multiple micronutrient supplements, these often feature variations in their composition, typically including 10 active ingredients. In contrast, the UNIMMAP MMS formulation requires a blend of 15 essential micronutrients. Therefore, a comprehensive technical assessment is crucial to determine whether local facilities, currently experienced with less complex formulations, possess the specialized infrastructure and quality control protocols required to ensure the stability of the 15-ingredient formula.
- **Tendering process:** For procurement of IFA, all eight countries have public procurement mechanisms primarily through open tenders and competitive processes regulated by government procurement regulations. In certain instances, they also engage in direct contracting during emergencies. Once procured, they are distributed through government systems.
- **Cooperation mechanisms:** All eight countries participate in the harmonized COMISCA agreements to facilitate public procurement of medicines, medical devices, and other

health-related goods. While the mechanism has historically focused on high-complexity treatments, its regulatory framework is designed to be inclusive of any priority health product deemed necessary by the member states. Consequently, while IFA is not currently a fixed item in every regional procurement cycle, the mechanism provides a pre-existing legal and operational platform that could be leveraged for a regional initiative for UNIMMAP MMS.

Table 8 summarizes the regional procurement landscape, highlighting the existing manufacturing and logistics infrastructure available across the eight countries. It is important to note that the listed categories (such as IFA or MMS) reflect the current capabilities and portfolios of the identified laboratories. However, the specific formulations provided to public health units are developed according to the technical specifications of each country's procurement bids, which may differ from standard commercial offerings. Consequently, this table emphasizes regional capacity such as the established infrastructure of Procaps Latam which could be effectively leveraged to scale or adapt production toward UNIMAP MMS formulations, should member states choose to transition their national health policies accordingly.



Table 8. Summary of procurement, supply and responsible entities processes in the region

Country	Purchase		Procurement mechanisms and strategic agreements	Contracting Entity / Buyer (Legal Acquirer)	Distribution
	IFA Procurement Modality	Local capacity (Formulation & Packaging)			
Belize	International	N/A	COMISCA Harmonized List Framework (Active)	Ministry of Health Procurement and Supply Chain Management Unit (MoHW)	Central Medical Warehouse (MoHW)
Costa Rica	Mixed (International/Local)	Raven Lab (Final formulation, tablet manufacturing and packaging of 1 mg and 5 mg folic acid lines using imported raw materials), Folic Acid.	COMISCA Harmonized List Framework (Active)	Office of Procurement of Goods and Services (CCSS)	CCSS/ALDI Storage and Distribution Area
Dominican Republic	Mixed (International/Local)	Rowe Laboratories, Iron, Folic Acid, IFA.	COMISCA Harmonized List Framework (Active)	Essential Medicines Programme and Logistics Support Centre (PROMESE/CAL)	PROMESE/CAL
El Salvador	Mixed (International/Local)	Carosa Laboratory (Iron production) Vijosa Laboratory (Iron production) Procaps Latam: Regional manufacturing capacity (e.g., Gestavit maternal line), adaptable for local formulation & packaging	COMISCA Harmonized List Framework (Active)	MINSAL/Public Procurement Unit (UCP)	MINSAL/Supply Chain Management
Guatemala	Mixed (International/Local)	Santa Fe Laboratory, Iron, Folic Acid, IFA. Donovan Werke, Iron, Folic Acid. Procaps Latam: Regional manufacturing capacity (e.g., Gestavit maternal line), adaptable for local formulation & packaging	COMISCA Harmonized List Framework (Active)	MSPAS Procurement and Maintenance Division	MSPAS/DGLP Logistics Management Department

Country	Purchase		Procurement mechanisms and strategic agreements	Contracting Entity / Buyer (Legal Acquirer)	Distribution
	Procurement Modality	Local Sourcing (Formulation & Packaging)			
Honduras	Mixed (International/Local)	Finlay Laboratory, Iron, Folic Acid, IFA. Procaps Latam: Regional manufacturing capacity (e.g., Gestavit maternal line), adaptable for local formulation & packaging	COMISCA Harmonized List Framework (Active)	Procurement/Administrative Management/SESAL Unit	SESAL/ULMI Supply Logistics Unit
Nicaragua	Mixed (International/Local)	Panzima Laboratory (produces vitamins) Procaps Latam: Regional manufacturing capacity (e.g., Gestavit maternal line), adaptable for local formulation & packaging	COMISCA Harmonized List Framework (Active)	MINSAL/General Procurement Division (DGA)	MINSAL/CIPS Health Supply Center
Panama	Mixed (International/Local)	LAESA (Pharmaceutical Laboratories, Inc.) Gamma (Final formulation and packaging of specific folic acid lines such as Folhem using imported inputs) Procaps Latam: Regional manufacturing capacity (e.g., Gestavit maternal line), adaptable for local formulation & packaging	COMISCA Harmonized List Framework (Active)	MINSAL/ CSS/ National Directorate of Acquisitions	MINSAL/DGPS

Note. This table summarizes the procurement modalities, local manufacturing capacities, and responsible entities for micronutrient acquisition across the SICA countries.

Table 9 synthesizes the prenatal supplements in the facilities consulted, illustrating the heterogeneity of commodities. This variation highlights the opportunity to transition to a single, standardized MMS composition. Such standardization would not only simplify logistics processes but would also support the work of health personnel by providing them with a consistent and high-quality supplementation for the entire region.

Table 9. Prenatal micronutrients identified in health services in the region.

Reference image	Supplement	Source / Mechanism
Belize		
	UNIMMAP MMS)	Donation
Dominican Republic		
	Iron (Ferrous Sulfate)	Public procurement (PROMESE/CAL)
	Prenatal multivitamins	Donation
	UNIMMAP MMS	Donation

Reference image	Supplement	Source / Mechanism
El Salvador		
	Folic Acid and Ferrous Sulfate	Public procurement
	Prenatal multivitamins	Public Procurement (ISSS)
	UNIMMAP MMS	Donation
Guatemala		
	Folic Acid and Ferrous Sulfate	Public procurement

Note. Prepared internally using technical information provided by key national sources.

7.2 Prenatal Supplementation Cost Analysis

This section presents the market cost identified during the study. Given that the availability of official data varies significantly by country and by the nature of the sources consulted, this analysis should be understood as a referencing exercise and not as an audit of updated costs.

- **Sources:** The analysis integrates data from various sources, including public tenders, offers in purchasing processes, price records from regulatory bodies, and lists of village pharmacies known as Boticas. In many cases, it reflects reference prices, expected offers, or regulated market prices, which do not necessarily coincide with the actual wholesale purchase prices obtained by government institutions through direct negotiations. For a detailed breakdown of identified market costs for IFA and MMS, including specific dosage specifications and unit price variations, please refer to **Annex 3: Market Cost Analysis of Micronutrient Supplements**.
- **IFA Cost:** At public pharmacies and local markets, retail costs per tablet vary by country: in the **Dominican Republic**, prices are \$0.024 for IFA (300 mg ferrous sulfate / 5 mg folic acid), \$0.005 for iron alone (300 mg ferrous sulfate), and \$0.163 for multi-micronutrient supplements (prenatal multivitamin capsules); in **El Salvador**, prices are \$0.593 for IFA, \$0.231 for 5 mg folic acid, and \$0.222 for 1 mg folic acid. Meanwhile, government procurement and institutional acquisition records show public unit costs for iron and folic acid components: in **El Salvador**, procurement records indicate an IFA cost of \$0.034 (60 mg of elemental iron plus 1 mg folic acid) and iron alone at \$0.048 (ferrous sulfate 300 mg); in **Guatemala**, the unit cost is \$0.014 for 60 mg elemental iron and \$0.011 for 5 mg folic acid; in **Honduras**, public unit costs are \$0.005 for 60 mg of elemental iron and \$0.004 for 1 mg or 5 mg folic acid; and in **Panama**, public acquisition records reflect a unit cost of \$0.20 for 300 mg ferrous sulfate and \$0.20 for 400 µg folic acid supplied in separate components.

Given the diversity of national regulations in the countries of the region, the mechanisms for the acquisition of medicines can be organized into three broad categories outlined in **Table 10**. It is important to note that joint negotiation and technical cooperation have yet to be leveraged for prenatal supplementation.

Table 10. Medicine acquisition modalities identified in the region

Purchase Mode	Description
 Competitive processes or public tenders	A general mechanism used by countries for the procurement of supplies, subject to current national regulations.
 Joint negotiation and technical cooperation	Regional negotiation strategy (e.g., COMISCA) or cooperation agreements with international organizations (e.g., PAHO/WHO), for the consolidated acquisition of medicines.
 Direct Purchases	Mechanism used in situations of scarcity, logistical emergencies, or critical contexts (e.g. COVID-19 pandemic).

Note. This classification systematizes the procurement modalities reported by key informants for the provision of inputs, including joint negotiation processes and regional and international technical cooperation. The terms reflect observed practices, recognizing the variability in each country's public procurement regulations.

- Access and supply dynamics:** The public health system is the main provider of supplements. However, to strengthen the continuity of supplementation, complementary platforms have emerged that deserve to be highlighted. A relevant example is the model of the "popular pharmacies" in the Dominican Republic, which function as access points where users can purchase supplements at reduced costs when inventory in the health unit is unavailable. This model represents a strategic opportunity for resilience: by offering a low-cost alternative protected against the volatility of the traditional private market, it ensures that pregnant women maintain adherence to treatment. The implementation of similar schemes in other countries in the region could constitute a competitive advantage for health systems.

For a detailed review, which integrates the sources consulted by country, the reference dates of each data and the specific nature of each source (e.g., tender, regulatory registration, institutional list), refer to **Annex 3: Market cost analysis of supplements**.

VIII Coverage and Adherence

8.1 Data systems to monitor prenatal supplementation

The monitoring of prenatal supplementation relies on indicators that seek to measure two different dimensions:

- **Provision indicators (Coverage):** Measures the proportion of pregnant women who received the supplement (IFA). This data is usually more available through administrative registers and national surveys [such as ENDESA (**E**ncuesta **N**acional de **D**emografía y **S**alud) or ENNESS (**E**ncuesta Nacional de **S**alud y **N**utrición)].
- **Consumption indicators (Adherence):** They seek to measure whether the pregnant woman consumed the supplement according to the protocol. This is the most complex data to obtain, since it depends on the user's report and is not always systematically captured in prenatal check-ups.

It is observed that the quality and timeliness of the data vary according to the country; while some have recent surveys, others depend on projections or administrative data that do not always reflect true adherence. Below is a summary of the data systems identified in each country:

Table 11. Information and monitoring systems for the registration of health indicators by country

Country	Information System / Monitoring
Belize	Belize Health Information System (BHIS)
Costa Rica	Single Digital Health Record (EDUS)
El Salvador	Health Information System (SIS)/ SIMMOW
Guatemala	Health Management Information System (SIGSA)
Honduras	Comprehensive Information System (SIAS)/ SIP
Panama	Perinatal Information System (SIP Plus)
Dominican Republic	National Surveillance System (SINAVE)

Note. Developed by authors based on information collected through the collection of technical data and review of official records. The list reflects the information systems identified in each country for monitoring antenatal care and supplementation; for Nicaragua, no publicly available information on the specific system was available at the time of writing this document.

8.2 Coverage of and Adherence to ANC and IFA

Table 12 presents a breakdown of coverage and adherence indicators by country, as well as the data sources used and specific monitoring challenges. The key findings related to national coverage and adherence include:

- **Coverage (ANC):** At least one ANC visit is high in all eight countries ranging from 91% from Guatemala to 98% in Dominican Republic.
- **Coverage (4+ ANC):** Four or more ANC visits are also high in all eight countries ranging from 76% in Belize to 94% in Costa Rica.
- **Coverage (Any iron supplementation):** Consumption of any iron supplementation varied across the countries from 53% in Honduras to 95% in El Salvador and Dominican Republic.
- **Adherence (IFA 90+ days):** As noted, information on IFA adherence for 90 or more days was not always available. Among countries where the information was available, adherence ranged from 29% in Guatemala to 82% in Dominican Republic.



Table 12. Monitoring systems and indicators of coverage and adherence (ANC and IFA)

Country	Monitoring System (Institutional Use)	Public Information Source (Survey)	Coverage (at least 1 ANC visits)	Coverage (4 or more ANC visits)	Coverage (Any Iron supplementation)	Adherence (IFA 90+ days)
Belize	HIS	MICS (UNICEF, 2024)	93.6%	76.4%	85.0%	N/A
Costa Rica	EDUS	National Survey (INEC, 2018)	97.6%	94.1%	87.0%	N/A
El Salvador	SIAS / SIMMOW	National Health Survey (INS, 2021)	96.1%	90.1%	95.0%	N/A
Guatemala	SIGSA	National Survey (MSPAS, 2017)	91.3%	86.2%	76.0%	29.3%
Honduras	SIS	ENDESA/MICS 2021	96.1%	88.3%	53.0%	37.4%
Nicaragua	N/A	INIDE (2013)	95.0%	88.0%	74.0%	N/A
Panama	SIP Plus	MICS 2014	93.4%	87.9%	N/A	N/A
Dominican Republic	SINAVE	ENHOGAR-MICS 2021	98.0%	92.6%	95.0%	81.5%

Note. Compiled by the authors. Institutional monitoring systems are still, for the most part, used for internal administrative purposes; however, there are growing efforts toward transparency and open data for decision-making, as evidenced by public consultation platforms in countries such as Guatemala. Coverage and adherence indicators are based on national surveys: Belize (Statistical Institute of Belize & UNICEF, 2024), Costa Rica (National Institute of Statistics and Censuses, 2023), El Salvador (Ministry of Health, 2021), Guatemala (Ministry of Public Health and Social Assistance et al., 2017), Honduras (National Institute of Statistics, 2021), Nicaragua (National Institute of Development Information & Ministry of Health, 2013), Panama (National Institute of Statistics and Census & United Nations Children’s Fund, 2014), and the Dominican Republic (National Statistics Office & UNICEF, 2021). Data on iron supplementation is incorporated from the *Gage et al. 2026 Lancet*. The disparity in the years of data collection reflects budgetary and methodological constraints on real-time monitoring.

IX Operational Challenges

9.1 Challenges in implementation and monitoring

The supplementation program faces implementation challenges related to measurement, human resources, and coverage that vary by the context in each country:

Measurement

- **Variability in system integration:** While some countries have managed to implement unique electronic records that allow the patient's history to be viewed at any level of care (from the first to the third level), such as Costa Rica's EDUS system; in other countries, information silos persist, such as the fragmented records often found in Honduras's SIS or El Salvador's SIAS/SIMMOW, which frequently rely on parallel manual systems. This disparity limits the ability to have a unified view of supply at the regional level.
- **Limitations in measuring adherence:** Measuring actual supplement intake is a complex challenge. Currently, verification depends largely on the voluntary report of the pregnant woman during ANC or home visits (as in the case of health promoters in El Salvador). This methodology carries the risk of social desirability bias, where the patient reports consumption to meet the expectations of health personnel.
- **Lag in updating data:** The dependence on periodic national surveys, carried out with periods of up to five years, generates a time gap. The available information does not always reflect the programs status of the programs, complicating decision-making based on recent evidence.
- **Primary data quality:** Manual filling processes persist in primary care points that, when digitized later, are susceptible to recording errors, affecting the reliability of global coverage metrics.
- **Opportunities for innovation in monitoring:** Given these limitations, there is an opportunity to innovate in monitoring processes. The implementation of new technologies or differentiated monitoring strategies could complement the work of health personnel, allowing effective consumption to be verified more accurately and reducing out-of-pocket expenditure generated by discontinuation.

Human resources

- **Operational capacity of personnel:** A common challenge reported is the limitation of human resources. The workload of health personnel and community promoters prevents monitoring of consumption, which limits the ability to intervene in a timely manner in the event of poor adherence.

Coverage

- **Reaching women in certain areas:** In five countries, stakeholders interviewed commented on the challenge with reaching pregnant women in rural areas (Belize, El Salvador, Honduras) and from indigenous communities (Guatemala, Panama). In Costa Rica, the main challenge was reaching women outside the social security system, while in the Dominican Republic it was ensuring early access to women, as many did not present to health facilities early in pregnancy. These challenges underscore the need for differentiated outreach strategies that go beyond traditional clinical settings to ensure that prenatal nutrition interventions effectively reach the most vulnerable populations.

X . Partner Overview

10.1 Role of actors in the transition to MMS

The success in the sustainability and improvement of maternal nutrition interventions does not depend solely on state management, but on an articulated network of technical and financial partners. This ecosystem is illustrated in **Table 13**, which presents the map of strategic actors where the World Health Organization (WHO) acts as a regional technical and regulatory reference, facilitating efforts between national governments, technical cooperation agencies, financial partners, and field implementers, all oriented towards a common public health goal.

10.2 Technical Cooperation Organizations

Entities such as INCAP and COMISCA are fundamental pillars, each providing distinct support based on their core mandate. INCAP serves as the primary technical reference, focusing on regional research, the development of clinical guidelines, and the harmonization of nutritional protocols. Complementing this, COMISCA facilitates operational mechanisms for negotiation and the joint

purchase of inputs, which allows countries to access medicines and supplements at competitive costs.

10.3 Strategic Role in MMS Transition

Building upon the collaboration described above, these strategic allies serve as the primary vehicle for scalability. Their management capacity and direct involvement in Ministries of Health represent a significant opportunity for current technical knowledge to be effectively transferred towards the transition to MMS, aligning cooperation agendas with the future needs of the region.



Table 13. Mapping of Strategic Actors and Cooperation Mechanisms for MMS Transition in the SICA Region

Country	Partnerships and Financial Cooperation	MMS Donors + Implementing Partners	Mechanisms and Support Partners
Belize	PAHO, UNICEF, World Bank	Vitamin Angels	COMISCA Joint Negotiation
Costa Rica	UNFPA, UNICEF, IOM, UNHRC	Vitamin Angels (focused on migrant population)	COMISCA Joint Negotiation
Dominican Republic	UNICEF, WFP, UNFPA, USAID	Food for the Hungry (FH) Vitamin Angels (VA) City Hope, Sanar una Nación	COMISCA Joint Negotiation
El Salvador	INCAP, PAHO, FAO, UNICEF, WFP, USAID, World Bank	FUSAL/ Vitamin Angels Feed The Children Convoy of Hope	COMISCA Joint Negotiation
Guatemala	INCAP, PAHO, UNICEF, UNFPA, World Bank	Vitamin Angels/ Bayer	COMISCA Joint Negotiation UNOPS PAHO Strategic Fund
Honduras	UNICEF, WFP, USAID, World Bank	Feed The Children/ Vitamin Angels CAMO FFTP/Funazúcar /Cepudo	COMISCA Joint Negotiation
Nicaragua	PAHO, UNICEF, WFP, UNFPA, World Bank	Vitamin Angels / Wisconsin Partners of the Americas, Inc	COMISCA Joint Negotiation UNOPS
Panama	PAHO, UNICEF, WFP, UNFPA, OIM, World Bank	Vitamin Angels	COMISCA Joint Negotiation

Note. Prepared by the author based on documentary reviews and stakeholder interviews conducted between 2025 and 2026.

XI Government Interest

All eight countries have experience implementing UNIMMAP MMS. Interviewees reported that implementation is nation-wide in Belize and the Dominican Republic and targeted in the other countries (see Table 13). Implementation began as early as 2013 in Honduras and is currently ongoing in Belize, Dominican Republic, Guatemala, and Honduras in 2026. For most countries, these interventions currently operate in a complementary and small-scale manner. These efforts represent a "pre-worked path" of great value, which demonstrates the technical feasibility of the transition; however, they do not yet constitute a national public policy, nor do they cover all regional needs, in most countries.

This transition ecosystem has been driven by a network of key actors, non-governmental organizations, cooperation agencies and technical partners, such as *Vitamin Angels*, *Food for the Hungry*, *FUSAL*, *Convoy of Hope*, *Bayer*, and local organizations such as *CAMO*, *Feed the Children*, or *FTTP*, who have facilitated access to MMS in vulnerable groups and rural areas. However, to scale this model, the challenge is not only logistical; it requires moving towards a robust regulatory adoption (inclusion in Clinical Practice Guidelines and Essential Medicines Lists), greater evidence on implementation and adherence within the local context and sustained financial support. The implementation experience demonstrates that transitioning to UNIMMAP MMS is feasible under appropriate management conditions. However, the gap between one-off donation and sustainable public policy requires integration into national health systems.

The following matrix summarizes each country's degree of readiness to adopt UNIMMAP MMS as part of the national ANC program.

This matrix is intended to guide discussion in each country and inform regional technical cooperation. The classification of countries responds to the maturity of their regulatory framework and should not be interpreted as a rating of public management; on the contrary, it seeks to identify differentiated needs for accompaniment.

Country	Experience using MMS	Interest in Transition	Guidelines (Include MMS)	List of Medications (EML)
Belize				
Costa Rica				
El Salvador				
Guatemala				
Honduras				
Panama				
Dominican Republic				

Table 14. Regional Overview of the Transition to UNIMMAP Multiple Micronutrient Supplementation (MMS).

Note. Prepared by the authors, this matrix classifies the advances according to the maturity of the program in the current context of the research. The categories reflect stages of technical development and do not constitute an evaluation of institutional performance. Nicaragua is not included in this comparison because it did not have a focal point assigned during the period of information collection, which makes it impossible to carry out a validated analysis of the experience in the use of MMS and the current state of interest in the programmatic transition.

Conventions and Classification Criteria	
	High/ Harmonized Level: The recommendation is already integrated into the regulatory framework (Guidelines/EML).
	Intermediate Level/ In the Process of Adjustment: There is interest and steps taken, but there are specific technical or regulatory gaps to be resolved (such as vitamin A adjustments or the need for more evidence).
	Level of Exploration/ Need for Evidence: The country is in the analysis stage; it is necessary to strengthen knowledge about the benefits and local evidence before proceeding with regulatory changes.

XII Study Findings

11. Summary of the main findings

This section presents the main conclusions drawn from the regional assessment conducted in the eight SICA countries. The results summarize the information gathered on: 1) Policies and Guidelines, 2) IFA procurement, 3) Coverage and adherence, 4) Operational Challenges, 5) Partner Overview, and 6) Government Interest in UNIMMAP MMS. The fundamental element of this analysis is the programmatic transition from the traditional iron and folic acid (IFA) regimen to UNIMMAP multiple micronutrient supplementation (MMS) for pregnant women. The findings document the status of this transition, identifying the policy and operational gaps that must be addressed to ensure that this policy change translates into effective coverage.

- **Policies and Guidelines:** Most countries had updated their guidelines to include eight ANC visits recommended by WHO. The exceptions were Costa Rica, Nicaragua, and Panama. Guidelines in most countries recommend IFA as the standard prenatal supplement, with endorsement of MMS, if available. The exceptions were Costa Rica and Panama. The Dominican Republic had strict restrictions on Vitamin A dosage in MMS. In half the number of countries, MMS was included in the EMLs with some discrepancies between inclusion in the guidelines and EMLs. For example, in Belize, MMS appeared in the guidelines but not in the EMLs.
- **IFA Procurement:** The research revealed that procurement pathways across the region are predominantly characterized by a mixed modality combining local production with international input dependencies. Specifically, Belize operates as the sole exception relying exclusively on international procurement. Institutional responsibility for procurement rests primarily within Ministries of Health, with Costa Rica representing the alternative model managed through its Social Security Fund. Financing relies principally on national budgets supplemented by international cooperation, alongside identified opportunities for regional cost-efficiency via COMISCA Joint Negotiations.
- **Coverage and Adherence:** In all countries, high ANC and IFA coverage was noted from existing datasets, however, coverage was reported to be low in rural areas and among

indigenous populations. The availability of IFA adherence data in each country is sparse or publicly inaccessible.

- **Operational Challenges:** Countries face several challenges related to the monitoring and follow-up of their IFA programs. On monitoring, health information systems vary across countries: while some have unified electronic records, others remain fragmented in silos. Additionally, adherence measurement is unreliable, often based on self-reports and infrequent national surveys. These constraints highlight the need for innovation: new technologies and tailored monitoring strategies could strengthen verification of supplement use and improve program responsiveness. Additionally, high health worker workload prevents them from following up on pregnant women to ensure compliance.
- **Partner Overview:** Close collaboration was identified with agencies of the United Nations System PAHO/WHO, UNICEF, FAO and INCAP, WFP, and the World Bank for the technical financing of nutrition and maternal health policies. The role of partners such as UNHCR and IOM in providing comprehensive care to migrant women and in pregnancy prevention, facilitating the delivery of supplements in specific contexts, is highlighted. The role of organizations such as FUSAL, Feed the Children, Convoy Hope, CAMO, CitiHope, and Batey Relief Alliance is highlighted.
- **Government Interest:** Most countries already integrate MMS into their healthcare systems through donations, demonstrating institutional acceptance of the product and a clear pathway for its national distribution. Stakeholders from 4 out of 8 countries reported high interest in the transition to UNIMMAP MMS, supported by regulatory frameworks that already permit the use of multiple micronutrients.

Finally, strengthening regulatory frameworks and robust budget planning are imperative for a successful transition from grant-based models to self-sustainable national management schemes.

XII Recommendations

Recommendations

Below we present recommendations to integrate UNIMMAP MMS into national ANC programs in SICA countries.

- **Policies and Guidelines:** Harmonize national regulations and care protocols with WHO/UNICEF standards, prioritizing the explicit inclusion of UNIMMAP MMS in national guidelines and Essential Medicines Lists (EMLs).
- **Access to Supplements:** Implement the transition through sustained public procurement of MMS, beginning with smaller purchases at controlled programmatic scales to integrate national logistics and reduce dependence on donations. Leverage COMISCA Joint Negotiations for pooled procurement.
- **Coverage and Adherence:** Strengthen monitoring and evidence-generation mechanisms at the local level to identify specific shortcomings, ensuring continuous monitoring and informed, targeted decision-making.
- **Collaboration with Partners:** Increase coordination between governments and cooperation partners to avoid duplication of efforts and ensure that donations are integrated into national policy.
- **UNIMMAP MMS Transition:** Develop a technical roadmap that empowers decision-makers at the ministerial level to ensure the gradual transition and budgetary sustainability of MMS, tailored to each country's level of programmatic maturity.

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XIV Appendices

Annex 1

Table 15. Survey Format

#	COMPONENT	QUESTIONS	VARIABLES
1	IFA COVERAGE AND ADHERENCE	Please tell me about the micronutrient supplementation program for pregnant women in your country? A. How many women receive prenatal care, describe the number of appointments and the number of populations served. B. Number of controls recommended in the program standard or protocol, describe the process.	There is a pregnancy care or supplementation program.
			Coverage of prenatal supplementation
			Coverage of any antenatal care (at least 1 visit)
			ANC 4+ coverage (four or more visits)
2	POLICIES/GUIDELINES/LIST OF ESSENTIAL MEDICINES (EML)	What national legislation underpins this program? A. What national guideline (antenatal care guideline) guides this program? B. What is this guideline based on? Answer options (multiple choice): ☐ International standards or guidelines (WHO, PAHO). ☐ Official national regulations or guidelines. ☐ Scientific evidence or studies carried out in the country. ☐ Recommendations for cooperation programs or projects. ☐ Institutional practices without regulatory support. ☐ There is no formal guideline. ☐ Don't know/Don't respond.	Existence of legislation on the care of pregnant women
			Existence of a national prenatal guideline
			Basis of prenatal guideline
			Background Description of the Prenatal Guideline

#	COMPONENT	QUESTIONS	VARIABLES
3	IFA OVERVIEW	How are supplements given to pregnant women in your country? (Select all that apply) Answer options: B. Form ☐ Tablets/tablet ☐ Capsules ☐ Powder (sachets) ☐ Liquid ☐ Chewable ☐ tablets Not administered ☐ Other (specify) C. Format? ☐ Blister packs of 30 pieces ☐ Loose ☐ tablets 90-piece ☐ child-safe packs Other (specify) D. Monthly Frequency ☐ ☐ At Prenatal ☐ Care Visit Other (specify) E. Recommended ☐ Dose Mention Recommended Dose Don ☐ I't Know / Don't Answer	Micronutrient recommended in official documents
			Type of micronutrients used in the country
			Presentation of the micronutrient
			Packaging or delivery method
			Frequency of micronutrient delivery as recommended
			Recommended Dose of Prenatal Supplementation
4	POLICIES/GUIDELINES/LIST OF ESSENTIAL MEDICINES (EML)	Is IFA, MMS, or iron and folic acid separately part of the National Essential Medicines List (LNM)? (Ask for a copy of this document if you don't have it and make it clear which type is included or if there is more than one type.)	Inclusion of the supplement in the EML
			Type of supplement included in the EML
			EML document available
5		Is it classified as a drug or supplement?	Product regulatory classification
			Source: regulatory classification

#	COMPONENT	QUESTIONS	VARIABLES
6	IFA ACCESS AND PROVISION	Tell me about the logistics management system in the country?	Existence of a formal logistics management system
			Logistics Management System Type
			Logistics chain level
			Description of the logistics management system
7		Does the country have the adequate infrastructure to store micronutrients?	Adequacy of the appropriate storage infrastructure
			Chain level with adequate infrastructure
			Available storage conditions
			Type of infrastructure
			Observations or limitations
8	IFA OVERVIEW	What is the process of acquiring IFA, folic acid and iron separately or MMS (frequency, quantities, steps)?	Acquisition modality
			Funding Source
			Acquisition frequency
			Quantities purchased
			Annual Wanted Amount
			Steps of the procurement process
9		Who are the main actors in the process of purchasing supplements? A. Who produces the purchased supplements (local, international)? B. Who acquires the supplements (the government, private importers, both)? C. At what price does each one acquire it?	Type of supplement producer
			Actors responsible for the acquisition
			Purchase price of the supplement
10		Have there been any problems with the procurement process of the supplements over the past year (research on shortages, quality)?	Existence of problems in procurement
			Main type of problem
			Impact of the problem on supplement availability

#	COMPONENT	QUESTIONS	VARIABLES
11	IFA ACCESS AND PROVISION	How is IFA, MMS, or iron and folic acid distributed separately to healthcare facilities?	Mechanism for the distribution of supplements in health facilities
12		Where do pregnant women access supplements (public or private)? A. Do they have to pay it? If so, at what cost?	Pregnant women's access to supplements sector
			Payment for supplements
			Price paid for supplements
13	IFA OVERVIEW	What challenges exist in relation to the distribution of supplements for pregnant women?	Main type of challenge identified
			System level where the challenge occurs
			Degree of impact of the challenge on coverage
14	IFA ACCESS AND PROVISION	Are there populations or groups that are not reached or less reached by the current supplement distribution system? Why?	Existence of populations with less coverage
			Type of population with less access
			Main reason for lower coverage
15	IFA COVERAGE AND ADHERENCE	What mechanisms are in place to assess adherence to folic acid and iron supplementation among pregnant women? (Research the role of community health volunteers or other strategies.) A. What mechanisms are in place to ensure that women complete the recommended dose (of at least 90 tablets)?	Existence of compliance monitoring mechanisms
			Type of mechanism used
16	PANORAMA OF GOVERNMENTAL INTEREST	Are compliance indicators integrated into the national health information management system? ☐ Yes. ☐ No. ☐ Others A. How much of a priority is for the government on the issues of low weight, anemia, among other issues, there are indicators of these issues or similar, mention which ones are raised.	Integration of compliance indicators into the information system

#	COMPONENT	QUESTIONS	VARIABLES
17	IFA COVERAGE AND ADHERENCE	What are the main obstacles or barriers at the national level that affect the implementation of supplements? Describe them. (Indicate whether these are regulations, financing, distribution, administrative management and acceptance by the population). (Select all that apply.) Suggested options: ☐ Regulatory limitations or lack of guidelines for MMS. ☐ Lack of allocated funds. ☐ Procurement or purchase issues (administrative processes). ☐ Distribution and logistics difficulties. ☐ Lack of trained personnel. ☐ Low acceptance by the population. ☐ Recurrent shortages. ☐ Low institutional priority. ☐ Other (specify).	Existence of obstacles at the national level
			Type of obstacle identified
18	POLICIES/GUIDELINES/LIST OF ESSENTIAL MEDICINES (EML)	Do healthcare providers perform hematological tests (such as complete blood counts or hemoglobin levels) to guide supplementation recommendations based on each patient's individual condition? If yes, what tests are performed? How is this information used? Suggested ☐ answer options Yes, for all patients. ☐ Yes, but only for some patients according to clinical criteria. ☐ Yes, but not systematically. ☐ No, hematological tests are not performed. ☐ It is not applicable.	Performing hematology tests
			Type of hematologic test performed

#	COMPONENT	QUESTIONS	VARIABLES	
19	PARTNER OVERVIEW	Who are the key partners in maternal and child nutrition and health in your country? Are bilateral and multilateral organizations present in the country and actively participate in initiatives, programmes or financing related to nutrition and maternal health? Describe your contribution (funding, implementation, policies, or programs).	Existence of active bilateral/multilateral partners	
			Type of partner involved	
			Main type of contribution	
20		Has MMS been implemented in your country before? If yes, please tell me more about it (where, when, which partners participated).	MMS Pre-Deployment	
21		OVERVIEW OF GOVERNMENT INTERESTS	How is MMS given (or was) given to pregnant women in your country? (Select all that apply)a. Form	MMS Supply Presentation to Pregnant Women
			Answer options:	Packaging or delivery method
			☐Tablets/tablets ☐Capsules ☐Powder (sachets) ☐Liquid ☐Chewable ☐tablets Not supplied ☐Other (specify) C. Format? ☐Blister packs of 30 pieces ☐Loose ☐tablets 90-piece ☐child-safe packs Other (specify) D. Monthly Frequency ☐ ☐At Prenatal ☐Care Visit Other (specify)	Frequency of micronutrient delivery as recommended

#	COMPONENT	QUESTIONS	VARIABLES
22	OVERVIEW OF GOVERNMENT INTERESTS	What level of interest does the government have in transitioning from IFA or folic acid and iron separately to MMS? A. What factors are driving this idea? B. What additional information would the government need to support this change? C. Is there an advocate for MMS in the country?	Government Interest Level
			Degree of government commitment
			What additional information the government needs to support change
23	IFA ACCESS AND PROVISION	Does the country carry out quality analysis of the supplements used? If yes, how often?	Performing quality analysis
			Frequency of scans
24		Who is the main supplier of supplements that supply the public health system? Answer options (single choice): ☐ Domestic production (manufactured domestically) ☐ UN/Multilateral organizations (UNICEF, UNFPA, PAHO, WFP, etc.) ☐ International NGOs / Donors ☐ Unknown / Not applicable	Primary provider of supplements to the public health system
25		Is there anything else you would like to share with me about the micronutrient supplementation program in your country or your interest in moving to MMS?	N/A

Annex 2

Table 16. Summary of normative instruments for the care of pregnant women in the SICA region

Country	Legal Framework (Laws)	National Policies	Guidelines	Care protocols
Belize	N/A	National Nutrition Policy, Ministry of Health (2022-2032)	Belize Drug Formulary and Therapeutics, Ninth Edition (2009-2011)	-Obstetric Care Protocol: Guide for Physicians and Nurses, MOH (2020) -Preconception Care and Obstetrics, Primary Health Care, Continuum of Care, MOH (2018)
Costa Rica	-Law No. 10081: Women's Rights during Pregnancy, Childbirth, Postpartum and Newborn Care. (2022) -General Health Law. (1973)	N/A	-Official Standard for Comprehensive Care for Women during Low-Risk Obstetric Pregnancy (2009) - Preconception Care Standard (2025) - Preconception Care Guidelines (2025) - Official Drug List (LOM), CCSS (2024)EML	-Clinical Protocol for Comprehensive Care for Pregnancy, Childbirth and Postpartum in the Health Services Network. CCSS - (2022) -Guide to Comprehensive Care for Women, Children and Girls during the Prenatal, Childbirth and Postpartum Period. CCSS- (2009)
El Salvador	-Growing Together Law for the Comprehensive Protection of Early Childhood, Childhood and Adolescence. (2022) -Nacer con Cariño Law. (2021)	National Strategic Plan for Maternal, Perinatal and Child Health. MINSAL - (2025–2030)	-Technical guidelines for micronutrient supplementation in the life cycle. MINSAL - (2014) -Technical guidelines for the implementation of the comprehensive early childhood care model. ICJ - (2023) -Drug data sheets. ISSS - (2024) -Official List of Medicines (LOM) MINSAL - (2026)	-Protocols for the care of women during the prenatal period, childbirth, postpartum and newborn care (2025)

Country	Legal Framework (Laws)	National Policies	Guidelines	Care protocols
Guatemala	Law for Healthy Motherhood. (Decree 32-2010)	N/A	-Comprehensive Health Care Standards: Module 1. Pregnancy, childbirth and puerperium. Adolescent, young and adult woman. MSPAS- (n.d.) -Basic List of Medicines. MSPAS - (2019)	N/A
Honduras	Law on Equal Opportunities for Women. (2000)	N/A	-Standards of Maternal and Neonatal Care - SESAL - (2015) -List of Essential Medicines SESAL - (2023)	-Protocol for comprehensive maternal health care: preconceptional, prenatal, childbirth, puerperium and obstetric complications SESAL- (2024)
Nicaragua	General Health Law. (2002)	-Demographic and Health Survey of Nicaragua (2011-2012) -National Plan to Combat Poverty (2022-2026)	-Food and nutrition standard by life course. MINSA - (2025) -Dietary and nutritional guidelines for pregnant women, postpartum women and children under five years of age. MINSA - (2009)- Regulations for comprehensive care for women. MINSA - (2008)- National List of Essential Medicines. MINSA - (2022)	N/A
Panama	Medicines Law No. 419 (2024) Public Health Code of the Republic of Panama, Law No. 66 of November 10, 1947.	- Strategic Plan for Reducing Mortality in Healthcare Networks (2021-2025) - National Plan for Sexual and Reproductive Health in Health Care Networks (2021-2025) - National Plan for the Elimination of Mother-to-Child Transmission of HIV and Syphilis (2025)	Guide on Pregnancy Complications, MINSA, (2024) Guidelines for the Management of Pregnancy Complications, MINSA, (2024) -National List of Essential Medicines (SCL). MINSA - (2019)	- Technical and administrative guidelines and protocols for women's health care. MINSA (2020)
Dominican Republic	General Health Law No. 42-01. (2001)	N/A	-Basic Table of Essential Medicines. PROMESE/CAL (2022)	-Protocol for the Care of Low-Risk Pregnancy. MISPAS - (2020) -Protocols of care in obstetrics and gynecology. MISPAS - (2019)

Note. Prepared by the author based on the documentary review of standards, protocols and clinical guidelines of the SICA countries as of April 2026.

Annex 3

Table 17. Market Cost Analysis of Supplements

Country	Public centre (IFA supply)	IFA Format	Public center (Price per tablet)	Institutional pharmacies /RD pharmacies (Price per tablet)	Public procurement (Price per tablet)	Reference
Dominican Republic	✓	30-unit blister filling	Free	IFA: \$0.024 (300 mg/5 mg) Iron: \$0.005 (300 mg) MMS: \$0.163 (Prenatal Multivitamin Capsules)		Excel document received by the Dominican Republic focal point
El Salvador	✓	30-unit blister filling	Free	IFA (60 mg iron + 1 mg folic acid): \$0.593 Folic Acid (5 mg): \$0.231 Folic Acid (1 mg): \$0.222	IFA: \$0.034 (Iron 60 mg + 1mg folic acid) Iron: \$0.048 (300 mg)	Government of El Salvador, Ministry of Health (MINSAL). Institutional Procurement and Contracting Unit (UACI) - Purchase Order for Goods and Services No. 61/2021. Registered chemicals, substances, and pharmaceutical products. San Salvador: Superintendency of Health Regulation; [cited 2026 May 15]. Available from: SUPERINTENDENCIA DE REGULACIÓN SANITARIA
Guatemala	✓	30-unit blister filling	Free	N/A	Iron (60 mg): \$0.014 Folic Acid (5mg): \$0.011	Government of Guatemala. (n.d.). <i>GUATECOMPRAS: State procurement and contracting information system.</i> https://www.guatecompras.gt/
Honduras	✓	30-unit blister filling	Free	N/A	Iron (60 mg): \$0.005 Folic Acid (1mg or 5mg): \$0.004	Institute for Access to Public Information (IAIP). (n.d.). Procurement records of the National Warehouse for Medicines and Medical Supplies. https://api.iaip.gob.hn/ver_archivo/MzA3NzI1
Panama	✓	Blister filling from 10 to 30 units	Free	N/A	Iron: \$0.20 (300 mg) Folic Acid: \$0.20 (400 µg)	Verified via closed public tender. LicitaYa. (n.d.). Folate tenders – Panama. https://www.licitaya.com.pa/conteudo.php?country=panama&veja=licitaciones+de+acido+folico+licitaciones+64602&idLj=9NSrfe

Note. Author's elaboration based on publicly available information up to April 2026. Price variations between countries reflect differences in national guidelines regarding dosage (mg) and distinct procurement mechanisms.

Annex 4

Table 18. Consolidated Mapping of Progress, Good Practices, and Opportunities for Improvement Across Key Thematic Areas in the SICA Region

Thematic Area	Countries	Progress and Good Practices	Opportunity for Improvement / Gap
Micronutrient Access and Supply	Belize	Efficient centralized management through the Ministry of Health with medical warehouse and digital inventory control.	Ensure long-term supply sustainability beyond reliance on donations.
	Costa Rica	Efficient centralized management through the CCSS. Highly integrated logistics system with automated distribution to EBAIS, clinics and hospitals; High efficiency in data-driven planning and sustained availability.	Dependence on the IFA model. Gap between formal care and the migrant population (mostly attended by UN agencies/donors with no formal link to the national health system).
	El Salvador	Strategic unification of purchases (MINSAL and ISSS). Differentiated logistics (acquisitions vs. donations) with pharmacies installed at all levels of care.	Implement a transition strategy toward the sustained public procurement of MMS, beginning with pilot purchases on a controlled, programmatic scale to integrate MMS into the national supply chain.
	Guatemala	Centralized purchases via MSPAS with high transparency through <i>Guatecompras</i> (public access to prices and destinations).	Implement a transition strategy toward the sustained public procurement of MMS, beginning with pilot purchases on a controlled, programmatic scale to integrate micronutrients into the national supply chain.
	Honduras	Centralized procurement through ULMI (Ministry of Health). A well-structured and well-defined SALMI logistics system for managing supplies.	Implement a transition strategy toward the sustained public procurement of MMS, beginning with pilot purchases on a controlled, programmatic scale to integrate MMS into the national supply chain.
	Nicaragua	Centralized purchases via public tenders and participation in COMISCA joint purchasing agreements. Structured state distribution through the service network.	Implement a transition strategy toward the sustained public procurement of MMS, beginning with pilot purchases on a controlled, programmatic scale to integrate MMS into the national supply chain.
	Panama	Implementation of the Logistics Management System for Medicines and Supplies (SALMI) to strengthen the management of medicines and supplies at the Ministry of Health. In addition, SALMI operates from the local level up to regional and national warehouses, enhancing traceability and the supply chain.	Update the current supplementation policy to transition from the current scheme, which relies solely on IFA, to the adoption of MMS, leveraging the operational capacity of the SALMI system for their distribution and monitoring.
	Dominican Republic	Implementation of the “Farmacias del Pueblo” network (PROMESE/CAL), which ensures the population's access to essential medicines at reduced costs and serves as a key support mechanism during shortages at public health centers.	Dependence on external donations (USAID, Vitamin Angels) for MMS; necessary transition towards ordinary public procurement.

Thematic Area	Countries	Progress and Good Practices	Opportunity for Improvement / Gap
Coverage and Adhesion	Belize	Digital registration system and single file per person, with early antenatal care check-up before 12th week.	Improve communication and access to information among healthcare facilities to ensure smoother clinical follow-up.
	Costa Rica	Nationwide coverage through the CCSS. A robust system for monitoring prenatal care that is integrated into the Costa Rican Social Security Fund's information system.	Need to unify care for the migrant population (Colombia, Venezuela, Nicaragua) within the national system to guarantee the continuity of the supplement.
	El Salvador	Compliance with the 8 prenatal check-ups according to the WHO and early recruitment (<12 weeks). Model of health promoters with house-to-house monitoring.	Maintain adherence coverage in hard-to-reach areas, taking advantage of the infrastructure of health promoters.
	Guatemala	Compliance with 8 antenatal controls (WHO) and early recruitment (<12 weeks). Monitoring through SIGSA.	Expand effective health care coverage nationwide, prioritizing access for the most vulnerable populations in rural areas and indigenous communities and ensuring continuity of care and adherence to prenatal checkups.
	Honduras	Compliance with the WHO standard (8 prenatal cares). Detailed protocol from preconception care to referral at week 41.	Strengthen early uptake (before 12 weeks) rather than starting follow-up as early as 12 weeks.
	Nicaragua	A prenatal care model with a preventive focus, which ensures that care begins before 12 weeks of gestation and guarantees early detection through a network of at least four scheduled prenatal visits.	Implement a phased transition strategy toward the use of MMS by developing pilot projects to assess logistics and acceptability prior to nationwide implementation.
	Panama	Effective early uptake before 13 weeks. Ability to perform standardized biochemical screenings during the first trimester.	Implement a phased transition strategy toward the use of MMS by developing pilot projects to assess logistics and acceptability prior to nationwide implementation.
	Dominican Republic	Compliance with the WHO standard of 8 prenatal check-ups. Early uptake before 12 weeks and weekly follow-up from week 38.	Ensure continuity of early uptake to avoid loss of follow-up in the third trimester.

Thematic Area	Countries	Progress and Good Practices	Opportunity for Improvement / Gap
National Context	Belize	Installed capacity at the three levels of care, including the public and private sectors (social security system).	To establish prenatal care as a priority on the national health agenda, ensuring universal coverage and continuity of maternal care, regardless of changes in government leadership.
	Costa Rica	Robust universal health coverage through the Costa Rican Social Security Fund (CCSS). Integrated pregnancy care system, with early recruitment (before 12 weeks) and a centralized information system that allows planning based on accurate data.	
	El Salvador	Staggered health structure (1st to 3rd level) and 24/7 FOSALUD support. The "Grow Together" Institute effectively articulates maternal and child care.	
	Guatemala	MSPAS service network organized by health regions and levels of care (from primary to tertiary), which facilitates decentralization and the management of obstetric complications.	
	Honduras	Legal framework aimed at effective protection (Equal Opportunities Act, 2000). Specific mandate of the Ministry of Health for the prevention and care of adolescent and high-risk pregnancies.	
	Nicaragua	A family and community health model that integrates a tiered network of services (primary, secondary, and tertiary), facilitating access to prenatal care and timely referrals throughout the region.	
	Panama	Robust system with dual financing (Public Budget + Social Security), achieving a very broad population coverage. Existence of local suppliers with production and distribution capacity.	
	Dominican Republic	System based on the General Health Law 42-01 (2001).	

Thematic Area	Countries	Progress and Good Practices	Opportunity for Improvement / Gap
Cooperation Overview	Belize	Direct, smooth and successful management with strategic partners (PAHO, UNICEF, World Bank and <i>Vitamin Angels</i>).	Document the lessons learned from this cooperation in order to replicate the model in other health axes.
	Costa Rica	There is political and technical openness to explore the transition to MMS. Availability of local pharmaceutical industry with supplement production capacity, which facilitates the logistics ecosystem.	They require the generation of local evidence (pilot study with local population) to support the political and budgetary transition. Need to align donor agencies with the national strategy.
	El Salvador	Extensive cooperation network (Vitamin Angels, Feed the Children, FUSAL, etc.) with technical expertise in UNIMAP distribution.	Formalize the participation of these partners within a national nutrition strategy that centralizes data from interventions.
	Guatemala	Consolidated network (UNICEF, PAHO, INCAP, Vitamin Angels/Bayer). Technical expertise in MMS distribution in vulnerable areas.	Need to move from grant-based programs to a budgetarily sustainable national procurement model.
	Honduras	Extensive support network of United Nations agencies (UNICEF, WFP) and NGOs (CAMO, Save the Children, Vitamin Angels).	Centralize technical cooperation in the generation of local evidence to support the high-level political transition.
	Nicaragua	Active participation in COMISCA joint drug procurement mechanism, which enables access to supplies at more competitive prices.	Leverage the experience gained from the pilot project with Vitamin Angels to generate local evidence that will enable a transition, through COMISCA's joint procurement mechanism, from current donations to a sustainable government procurement policy for MMS.
	Panama	Technical support from agencies of the United Nations system (UNICEF, PAHO) for capacity building in nutrition and children.	Need to move from donation-based cooperation to a technical cooperation agenda focused on the implementation of public policy for MMS.
	Dominican Republic	History of technical cooperation and active donations with USAID and Vitamin Angels, who support logistics on the ground.	Professionalize cooperation towards a transfer of capacities that facilitates national budgetary sustainability.

Thematic Area	Countries	Progress and Good Practices	Opportunity for Improvement / Gap
Political Interest and Feasibility of Transition to MMS	Belize	Manifest political will on the part of the technical team for the transition to the use of MMS.	Generate local evidence on the impact on health indicators to strengthen budget decision-making.
	Costa Rica	There is an explicit openness to exploring MMS. The existence of the local pharmaceutical industry is a strategic asset that facilitates logistical viability and sovereignty in the production of inputs for the transition.	Lack of local scientific evidence (pilot study required) to escalate the decision to the ministerial level. Technical staff are not yet trained on the benefits of MMS, limiting the political traction needed for budget change.
	El Salvador	Full openness to MMS; The staff already manages both schemes in practice. High political support through the policies of “Crecer Juntos”.	Consolidate this transition as a permanent State policy, taking advantage of the technical capacity already in place to lead the region.
	Guatemala	There is a regulatory basis that enables the use of MMS. Political opening is favorable to the transition.	Technical gap on the safety of vitamin A (due to massive sugar fortification), which requires a local pilot study before large-scale implementation.
	Honduras	Explicit openness to transition backed by years of hands-on experience through donations.	They require a pilot study to generate local evidence that facilitates budgetary decision-making at higher hierarchical levels
	Nicaragua	N/A	N/A
	Panama	Technical openness to evaluate benefits and global evidence on MMS.	There is a lack of regional scientific evidence to support escalating the decision to the ministerial level. Technical staff have not yet been trained on the benefits of MMS, which limits the political momentum needed to secure budget changes.
	Dominican Republic	Explicit political will for the adoption of MMS, supported by the path already traveled through donations.	The transition depends on a roadmap that allows the cost of MMS to be integrated into the public budget without affecting the fiscal sustainability of the system.

Note: Prepared by the authors based on document review and information gathered through interviews with the national focal points designated by each country’s health authorities. In the case of Nicaragua, the analysis is based exclusively on the available literature review, given the absence of a designated technical counterpart for this study. The results reflect the progress reported by Member States, as well as the areas identified as opportunities for continued strengthening within the framework of regional cooperation.