

Reducing Malnutrition in Guatemala  
Summary of Estimates to Support Nutrition Advocacy  
Guatemala PROFILES 2017



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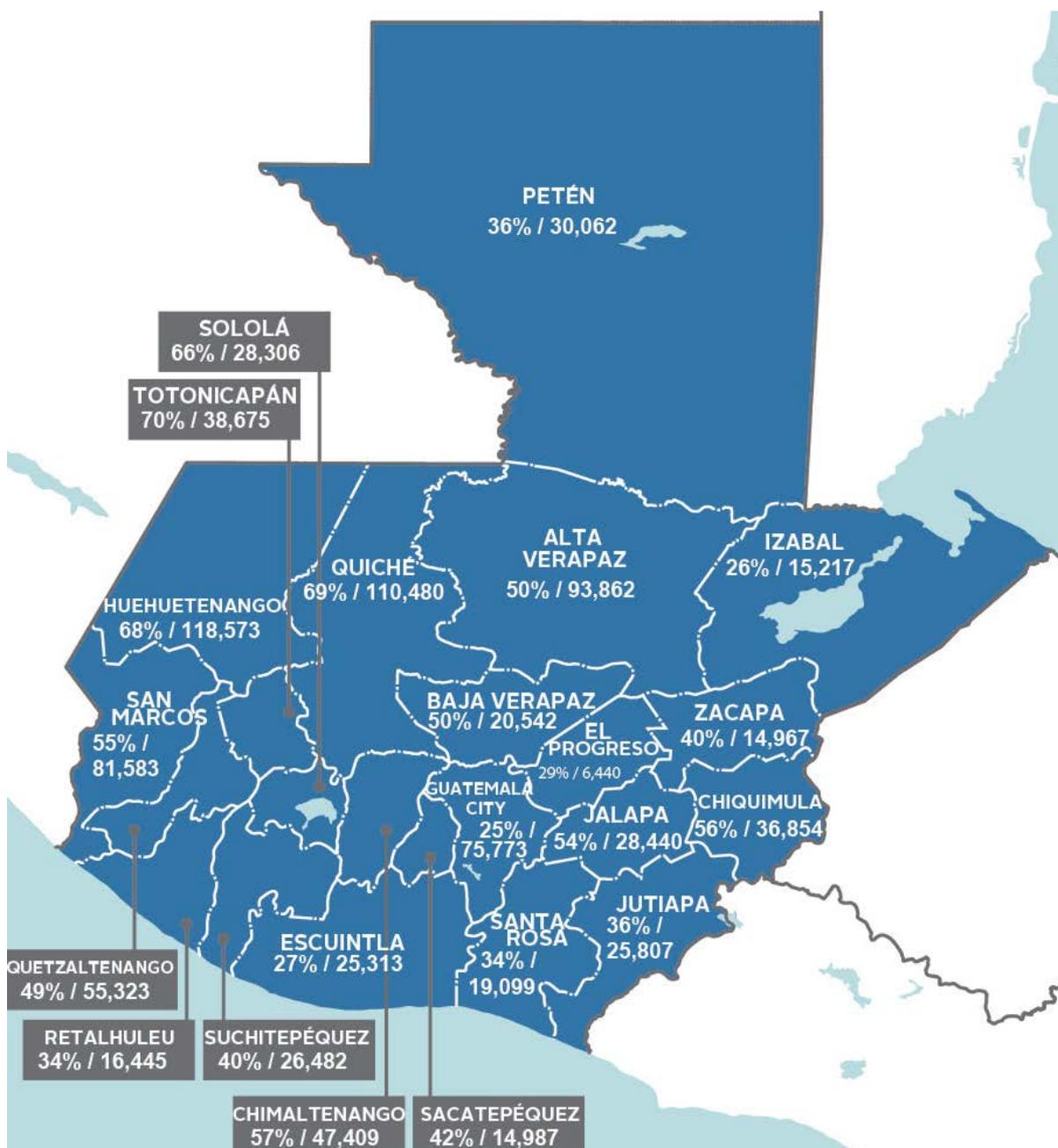
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## Background

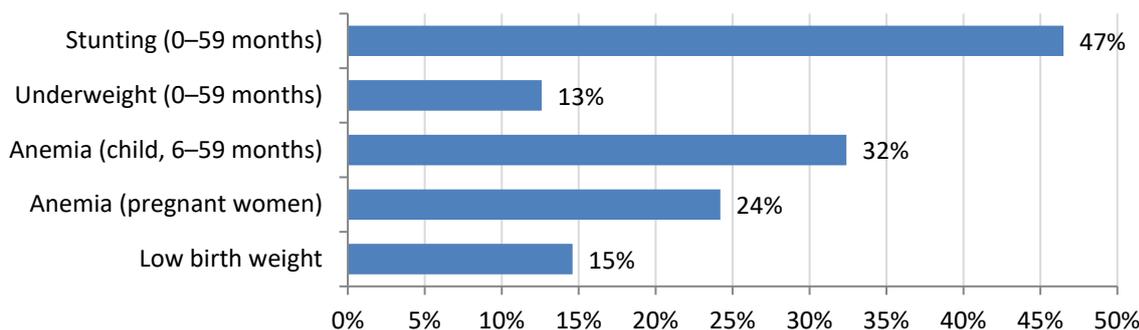
Today in Guatemala, 46.5 percent of children under 5 years of age are stunted, according to the country’s 2014–2015 Encuesta Nacional de Salud Materno Infantil, (ENSMI), compared to 48.2 percent in the 2008–2009 ENSMI, representing a decrease of 1.7 percentage points. The annual rate of improvement is only 0.28 percentage points per year. As the Government of Guatemala aims to reduce stunting among children under 2 by 10 percentage points from 2016 to 2020, the rate of improvement is too slow to accomplish this and greater investment in nutrition is needed to accelerate progress. Stunting prevalence also varies greatly across Guatemala, ranging from 25 percent in Guatemala City to a high of 70 percent in Totonicapán (see Figure 1).

**Figure 1. Percent and total estimated number of children under 5 who are stunted by department, ENSMI 2014-2015**



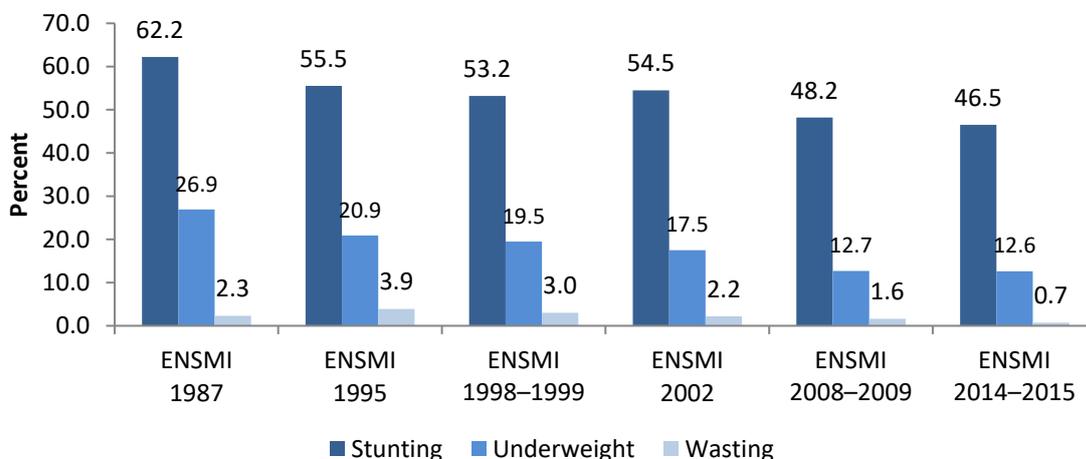
As shown in Figure 2, stunting is just one of several nutrition issues affecting Guatemala. Figure 3 shows the trends in stunting, wasting, and underweight in Guatemala since 1987.

**Figure 2. Prevalence of Malnutrition in Guatemala**



Source: MSPAS et al. 2017.

**Figure 3. Trends in Malnutrition Indicators in Guatemala in Successive ENSMI Surveys among Children under 5 Years of Age<sup>a</sup>**



Source: MSPAS et al. 2017; for all the surveys, the values in the graph show the percentage of children with height-for-age, weight-for-age, and weight-for-height z-scores < -2 standard deviations below the median of the World Health Organization (WHO) 2006 child growth standard.

<sup>a</sup> ENSMI 1987 was for children 3–36 months of age.

The Government of Guatemala has committed to step up efforts to substantively reduce stunting and other forms of malnutrition. There is high-level commitment and momentum for multisectoral action on nutrition in Guatemala, as demonstrated by the support for the National Strategy for the Prevention of Chronic Malnutrition (ENPDC) 2016–2020, which proposes four programs and five cross-cutting strategies to reach the goal of reducing stunting among children under 2 years of age by 10 percentage points by 2020. However, additional efforts are needed to help maximize the effectiveness of the government’s and partners’ current efforts. There is a need for continued national-level advocacy and further decentralization of the advocacy process from the national to the subnational level to create momentum for sustained change. Most importantly, there is a need to strengthen and expand nutrition service delivery across the country.

In partnership with the Government’s National Secretariat for Food Security and Nutrition (SESAN) and other stakeholders, the Food and Nutrition Technical Assistance III Project (FANTA), funded by the U.S. Agency for International Development (USAID) and managed by FHI 360, used PROFILES to develop estimates of the benefits of improved nutrition to support nutrition advocacy efforts in Guatemala.

## Methods

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Developed to support nutrition advocacy, PROFILES consists of a set of computer-based models that calculate consequences if malnutrition does not improve over a defined time period and the benefits of improved nutrition over the same time period, including lives saved, disabilities averted, human capital gains, and economic productivity gains. To calculate these estimates, PROFILES requires current country-specific nutrition data that have been identified and agreed upon in collaboration with stakeholders in the country. For Guatemala PROFILES 2017, sources of country-specific information included the: ENSMI (Encuesta Nacional de Salud Materno Infantil) 2014–2015, ENEI (Encuesta Nacional de Empleo e Ingresos) 2016, Acuerdo Ministerial 1171-2010 of the Ministerio de Educación de Guatemala (MINEDUC), among others. This summary report presents the PROFILES estimates that were calculated to help advance the nutrition advocacy agenda in Guatemala. The report *Reducing Malnutrition in Guatemala: Estimates to Support Nutrition Advocacy—Guatemala PROFILES 2017* describes the complete methods and process used to develop the PROFILES 2017 estimates for Guatemala (FANTA/FHI 360 2017).

The basic approach in PROFILES is to provide two scenarios: a “status quo” scenario and an “improved” scenario.

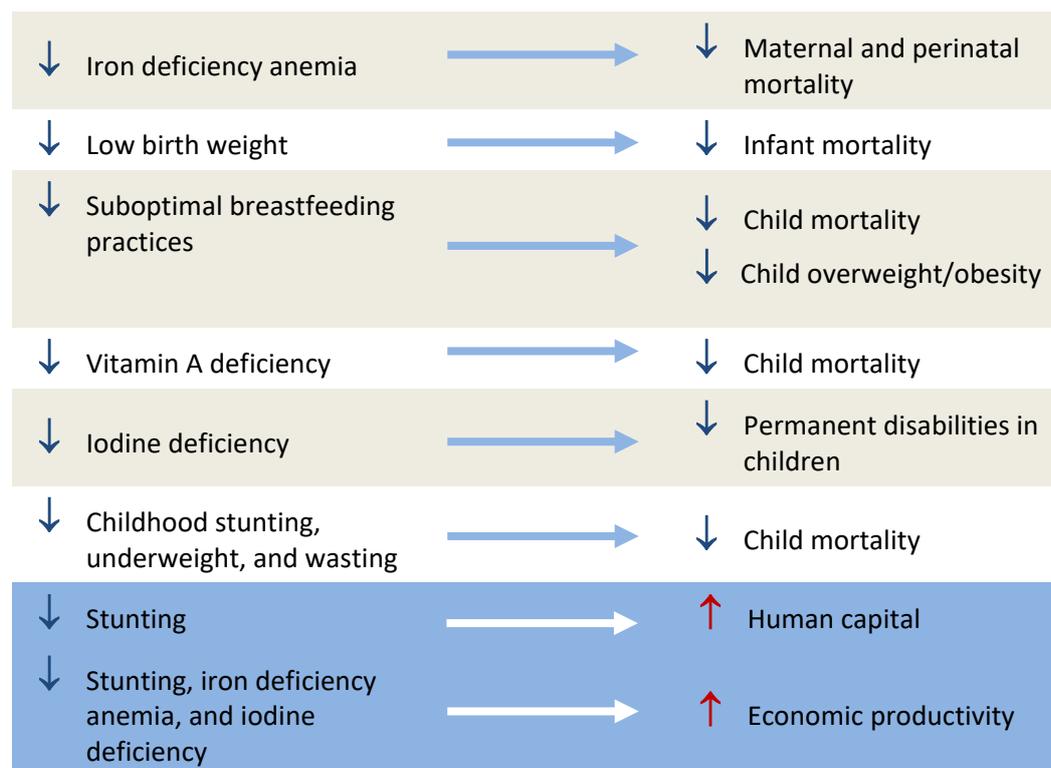
The **status quo scenario** assumes there will be no change from the current situation throughout the chosen time period (the number of years for which estimates are calculated), aside from projected changes in population size and structure. The prevalence of each nutrition problem remains the same every year in the status quo scenario.

In contrast, in the **improved scenario**—with results estimated for the same time period—it is expected that nutrition interventions that are known to be effective are implemented at scale and succeed in reaching the stated targets in terms of improvements in the prevalence of the various nutrition problems.

The targets, which are determined and agreed upon through stakeholder meetings and a PROFILES workshop, reflect the proportion by which it is expected that nutrition problems will be reduced over the chosen time period. In the status quo scenario, the negative consequences are expressed, for example, in terms of lives lost, disabilities, human capital lost, and economic productivity losses. When contrasting the results between the status quo and the improved scenarios, the differences reflect the benefits of improved nutrition, expressed as lives saved, disabilities averted, human capital gains, and economic productivity gains.

For Guatemala PROFILES 2017, FANTA, in collaboration with SESAN, held a 1-day stakeholder meeting on March 6, 2017 in Guatemala City, Guatemala. In that meeting, stakeholders discussed the objectives and rationale of PROFILES, key assumptions of the models, and how PROFILES will help to advance the nutrition advocacy agenda in Guatemala. Immediately following the stakeholder meeting, FANTA facilitated a 4-day PROFILES workshop on March 7–10, 2017, in which 14 participants from SESAN, the Ministerio de Salud Pública y Asistencia Social (MSPAS), the Ministerio de Desarrollo Social (MIDES), MINEDUC, regional institutes, academia, and USAID partners collaborated to generate preliminary PROFILES estimates. These preliminary estimates were then shared during a nutrition advocacy meeting to provide stakeholders a chance to review and discuss them before their finalization. The specific nutrition indicators from which PROFILES estimates can be calculated are shown in Figure 4.

**Figure 4. Nutrition Problems and Consequences Addressed in PROFILES**



Note: Guatemala PROFILES 2017 did not include estimates on wasting, childhood overweight/obesity, vitamin A deficiency, or iodine deficiency. See the PROFILES full report (FANTA/FHI 360 2017) for more information.

### Time Period, Prevalence, and Targets Used for Guatemala PROFILES 2017 Estimates

Workshop participants chose a 10-year time period starting in 2017 and running through 2026 for the Guatemala PROFILES 2017 estimates. Table 1 shows the starting prevalence information used for the status quo scenario and the target prevalence for each nutrition problem in PROFILES. The improved scenario assumes a gradual, linear improvement over the time period.

**Table 1. Summary of Prevalence and Targets Used for Guatemala PROFILES 2017 Estimates**

	Starting prevalence (used for status quo scenario) (%)	Target prevalence 2026 (%)
<b>Anthropometric indicators</b>		
Moderate and severe underweight among children 0–59 months of age (weight-for-age z-score < -2)	12.6	10.0
Moderate and severe stunting among children 24–35 months of age (height-for-age z-score < -2)	51.5	35.5
Moderate and severe stunting among children 0–59 months of age (height-for-age z-score < -2)	46.5	30.5
<b>Anemia (including anemia related to iron deficiency)</b>		
Pregnant women with anemia (Hemoglobin (Hb) < 11 g/dL)	24.2	15.0
Women 15–49 years of age with anemia [Non-pregnant: (Hb < 12 g/dL) and pregnant: (Hb < 11 g/dL)]	13.6	7.6
Children 6–59 months of age with anemia (Hb < 11 g/dL)	32.4	19.9
<b>Low birth weight</b>		
Infants weighing < 2,500 g at birth	14.6	10.2
<b>Breastfeeding practices*</b>		
Exclusive breastfeeding among children 0–5 months of age	53.1	73.1
Predominant** breastfeeding among children 0–5 months of age	16.4	9.5
Partial breastfeeding among children 0–5 months of age	25.2	14.5
No breastfeeding among children 0–5 months of age	5.3	2.9
Any breastfeeding among children 6–23 months of age	78.3	88.3
No breastfeeding among children 6–23 months of age	21.7	11.7

Source: MSPAS et al. 2017.

\* Breastfeeding targets included setting targets both to increase optimal breastfeeding practices (exclusive breastfeeding 0–5 months of age and any breastfeeding 6–23 months of age) and to reduce suboptimal breastfeeding practices (predominant, partial, or no breastfeeding for 0–5 months of age, and no breastfeeding for 6–23 months of age).

\*\* Predominant breastfeeding refers to infants 0–5 months of age who received breast milk as the predominant source of nourishment during the previous day, oral rehydration salts, vitamin and/or mineral supplements, ritual fluids, water and water-based drinks, and fruit juice. Other liquids, including non-human milk and food-based fluids, are not allowed, and no semi-solid or solid foods are allowed (WHO 2010). Partial breastfeeding refers to a situation where the baby is receiving some breast feeds, but is also being given other milk, food, or food-based fluids, such as formula milk or complementary foods.

## Guatemala PROFILES 2017 Estimates

Table 2 shows information on the number of deaths that would result if the current nutrition situation continues in Guatemala (status quo scenario), the number of deaths in the improved scenario,<sup>1</sup> and the number of lives that would be saved over the time period if the nutrition situation improves and the targeted reductions for each nutrition problem are reached (improved scenario).

**Table 2. Deaths Attributable to Various Nutrition Problems and Lives Saved Related to Improved Nutrition**

Nutrition problem	2017–2026		
	DEATHS if current situation continues <i>Status quo scenario</i>	DEATHS if nutrition situation improves <i>Improved scenario</i>	LIVES SAVED if nutrition situation improves <i>Improved scenario</i>
<b>Anthropometric indicators</b>			
Deaths/lives saved attributable to <b>stunting</b> (severe, moderate, mild) among children < 5 years of age	38,019	31,327	6,692
<b>Low birth weight</b>			
Infant deaths/lives saved	30,542	26,958	3,584
<b>Iron deficiency anemia</b>			
Maternal deaths/lives saved	674	427	248
Perinatal deaths/lives saved	5,549	3,539	2,010
<b>Breastfeeding practices</b>			
Deaths/lives saved attributable to suboptimal breastfeeding practices among children < 2 years of age <sup>2</sup>	70,935	61,788	9,147

Table 3 shows information on the human capital losses (status quo scenario) and gains (improved scenario) in terms of learning related to stunting.<sup>3</sup> By the end of the time period, the gains in learning ability mean that on average, children who are 2 years of age (in 2026) will gain 1.7 equivalent school years of learning by the time they reach the age corresponding to the end of the primary school years.

<sup>1</sup> Since improvements in the nutrition situation are assumed to be gradual, there will still be nutrition-related deaths, even in the improved scenario.

<sup>2</sup> For more information on how the model to generate these estimates was created, see Oot et al. 2015.

<sup>3</sup> For more information on how the model to generate these estimates was created, see Oot et al. 2016.

**Table 3. Human Capital Losses and Gains in Terms of Learning**

Nutrition problem	Losses in learning if the current situation continues <i>Status quo scenario 2017–2026</i>	Gains in learning if the nutrition situation improves <i>Improved scenario 2017–2026</i>
Stunting	32,970,000 or 33.0 million equivalent school years of learning	3,561,000 or 3.6 million equivalent school years of learning

Table 4 shows information on the productivity losses related to stunting and iron deficiency anemia that would result if the current nutrition situation in Guatemala were to continue (status quo scenario) and the productivity gains that could be made over the time period if the stunting and anemia situations were improved and the targeted reductions were reached (improved scenario).

**Table 4. Economic Productivity Losses and Gains**

Nutrition problem	Economic productivity losses if the current situation continues <i>Status quo scenario 2017–2026</i>	Economic productivity gains if the nutrition situation improves <i>Improved scenario 2017–2026</i>
Stunting	146 207 000 000 GTQ or 146 207 million GTQ (US\$ 19 437 000 000 or US\$ 19 437 million)	25 229 000 000 GTQ or 25 229 million GTQ (US\$ 3 354 000 000 or US\$ 3 354 million)
Iron-deficiency anemia (adult: women)	1 800 000 000 GTQ or 1 800 million GTQ (US\$ 239 300 000 or US\$ 239.30 million)	412 000 000 GTQ or 412 million GTQ (US\$ 54 810 000 or US\$ 54.81 million)
Iron-deficiency anemia (child: 6–59 months of age)	3 044 710 000 GTQ or 3 045 million GTQ (US\$ 404 770 000 or US\$ 404.77 million)	592 130 000 GTQ or 592 million GTQ (US\$ 78 720 000 or US\$ 78.72 million)

Note: Productivity gains that could result from a reduction in stunting related to improvement in the low birth weight indicator is not shown separately (there would be overlap with the productivity gains shown here associated with improvement in stunting). Note: Numbers in GTQ and US\$ are rounded. Exchange rate used is GTQ7.52 = US\$1.

A summary of the Guatemala PROFILES 2017 estimates is provided in Figures 5 and 6 below. Figure 5 summarizes the status quo scenario losses (lives lost, economic productivity lost, and human capital lost). Figure 6 shows the improved scenario gains (lives saved, economic productivity gains, and human capital gains).

**Figure 5. Estimates of Future Lives Lost, Economic Productivity Lost, and Human Capital Lost Associated with Various Nutrition Problems, 2017–2026**

LIVES LOST		ECONOMIC PRODUCTIVITY LOST	HUMAN CAPITAL LOST
<b>38,019</b> lives of children under 5 years of age lost related to stunting	<b>30,542</b> infants' lives lost related to low birth weight	<b>146,207 million GTQ (US\$ 19,437 million)</b> lost related to stunting	<b>33 million</b> equivalent school years of learning lost related to stunting
<b>674</b> women's lives lost related to maternal anemia	<b>5,549</b> infants' lives lost during the perinatal time period related to maternal anemia	<b>3,045 million GTQ (US \$404.77 million)</b> lost related to iron deficiency anemia among children (6–59 months of age)	
<b>70,935</b> lives of children under 2 years of age lost related to suboptimal breastfeeding practices		<b>1,800 million GTQ (US \$239.30 million)</b> lost related to iron deficiency anemia among adult women	

**Figure 6. Estimates of Future Lives Saved, Economic Productivity Gained and Human Capital Gained, 2017–2026**

LIVES SAVED		ECONOMIC PRODUCTIVITY GAINED	HUMAN CAPITAL GAINED
<b>6,692</b> lives of children under 5 years of age saved related to a reduction in stunting	<b>3,584</b> infants' lives saved related to increases in birth weight	<b>25,229 million GTQ (US\$ 3,354 million)</b> gained related to a reduction in stunting	<b>3.6 million</b> equivalent school years of learning gained related to a reduction in stunting
<b>248</b> women's lives saved related to a reduction in maternal anemia	<b>2,010</b> infants' lives saved in the perinatal time period related to a reduction in maternal anemia	<b>592 million GTQ (US\$ 78.72 million)</b> gained related to improvements in iron deficiency anemia among children	
<b>9,147</b> lives of children under 2 years of age saved related to improved breastfeeding practices		<b>about 412 million GTQ (US\$ 54.81 million)</b> gained related to improvements in iron deficiency anemia among adult women	

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