



**Evidence-based Solutions
to Address Malnutrition &
Expected Outcomes**
April 6-8, 2016
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Global Alliance for
Improved Nutrition





WHY ARE HEALTHY DIETS IMPORTANT?

- At GAIN, we think that everyone in the world should have access to an affordable and nutritious diet.
- More than 160mn children around the world are stunted (*Source: [Prevalence and Trends of Stunting among ... Children](#), Public Health Nutrition, 2012*) – failing to grow to their full height – because of poor nutrition with lifelong effects on their health, education and ability to earn a living.
- These effects are intergenerational, meaning that families, communities and countries remain locked in cycles of poverty and malnutrition. It is thought that countries are losing at least 2-3% of their GDP because of poor nutrition (*Source: World Bank. [Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action](#). Washington, DC: World Bank; 2006.*)
- The food available should ensure that every child in the world can achieve his/her full potential.



THE FOOD SYSTEM IS BROKEN

Our current food system is dysfunctional both in its impact on people and the planet. There is enough food in the world for everyone to eat a nutritious diet.

- **795 million people are hungry** (Source: [The State of Food Insecurity in the World \(SOFI\) Report 2015](#), FAO)
- **Many more do not receive sufficient intakes of essential vitamins and nutrients**
- **At the same time we are facing an obesity crisis (primarily ‘western’ diets)**
- **The food system is unsustainable**

By some measures, if climate and socio-economic trends continue the number of under-nourished children in Africa alone is expected to rise ten-fold by 2050 (Source: [Climate Change: Impact on Agriculture and Costs of Adaptation](#), IFPRI, 2009)

PROVEN SOLUTIONS TO ADDRESS THESE CHALLENGES: EXCLUSIVE BREASTFEEDING

1. Exclusive breastfeeding up to 6 months and alongside, complementary foods from 6 months to at least 2 years of age

- What children eat depends on foods available locally and the context. So GAIN's work with partners – including local food manufacturers, governments and civil society organizations --includes the promotion of breastfeeding as well as improving the nutritional quality of food and complementary foods to increase nutrients in the diet.
- After 6 months of age, it becomes increasingly difficult for breastfed infants to ensure optimal nutrition from human milk alone. Furthermore, most infants are developmentally ready for other foods at about 6 months.
- Most stunting occurs in the first two years of childhood, when there is a simultaneously high demand for nutrients and high rate of infectious diseases.
- A variety of food, including micronutrient-rich foods, is also important to ensure the adequate intake of all nutrients for young children during these critical years of development.



PROVEN SOLUTIONS TO ADDRESS THESE CHALLENGES: DIETARY DIVERSITY

2. Improving Dietary Diversity

Dietary diversification enables families to have a choice on a range of nutrient-rich foods. This involves caregivers educating on appropriate infant & young child feeding practices and improving the use of foods available in the local area.

At GAIN we're promoting diverse and nutritious diets available and affordable for low income consumers. We leverage the agriculture value chain to identify opportunities for nutrition interventions at each stage – from food production to storage, processing to distribution, retail, marketing and food preparation.



The marketplace can be a pivotal entry point for improving dietary diversity.

SOLUTIONS TO ADDRESS THESE CHALLENGES: SUPPLEMENTATION

3. Vitamin and mineral supplementation

- Supplementation programs provide specific micronutrients not found in sufficient amounts in the diet. It's important at times when the body has particularly high micronutrient needs (e.g during pregnancy)
- Multinutrient supplements are easy to use and cost effective. By simply adding powders, pastes or spreads to family meals, they provide family members with the essential nutrients they need.
- Multiple delivery channels are essential to sustain access to micronutrients on a sufficient scale. The most promising models involve public distribution and building markets that reach the poor.
- Underpinning this work related to both behaviour and access. Education programs that encourage behaviour change are an essential component of our work, especially for pregnant and breastfeeding women.



SOLUTIONS TO ADDRESS THESE CHALLENGES: FORTIFICATION

4. Food Fortification

- In an ideal world we would all have access to a wide variety of [nutrient rich foods](#) which provide all the vitamins and minerals we need. Unfortunately, for many people, especially in poorer countries, this is [not feasible or affordable](#) in short-term
- [Fortified foods](#) include vegetable oil with vitamin A and D; wheat and maize flour with iron, folic acid, other B vitamins and zinc; sauces and condiments such as soy sauce with iron; and salt with iodine
- [Food fortification](#) forms an important part of our work at GAIN. It is one of the most scalable, sustainable, and cost-effective tools we have to reduce malnutrition, enabling people to increase their nutrient intake consistently and safely



POTENTIAL TO BENEFIT FROM FORTIFICATION

Need – Moderate to high
Amount of food – Moderate
Potential to benefit – High
Potential to fully meet need - High

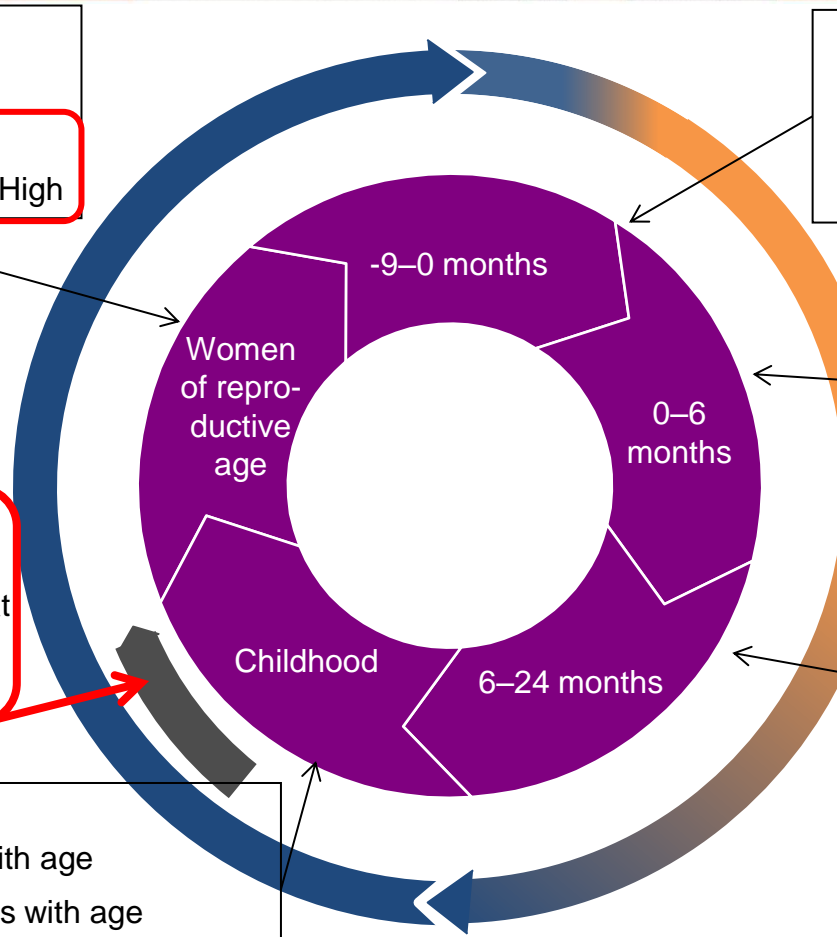
Need – Very high
Amount of food – Moderate
Potential to benefit – High
Potential to meet need- Low

NOTE: VIA FOODS CONSUMED BY LACTATING MOTHER:
Need – Very high
Amount of food – Very low
Potential to benefit – High
Potential to fully meet need- No

Need – Very high
Amount of food – Low
Potential to benefit – Low
Potential to fully meet need - No

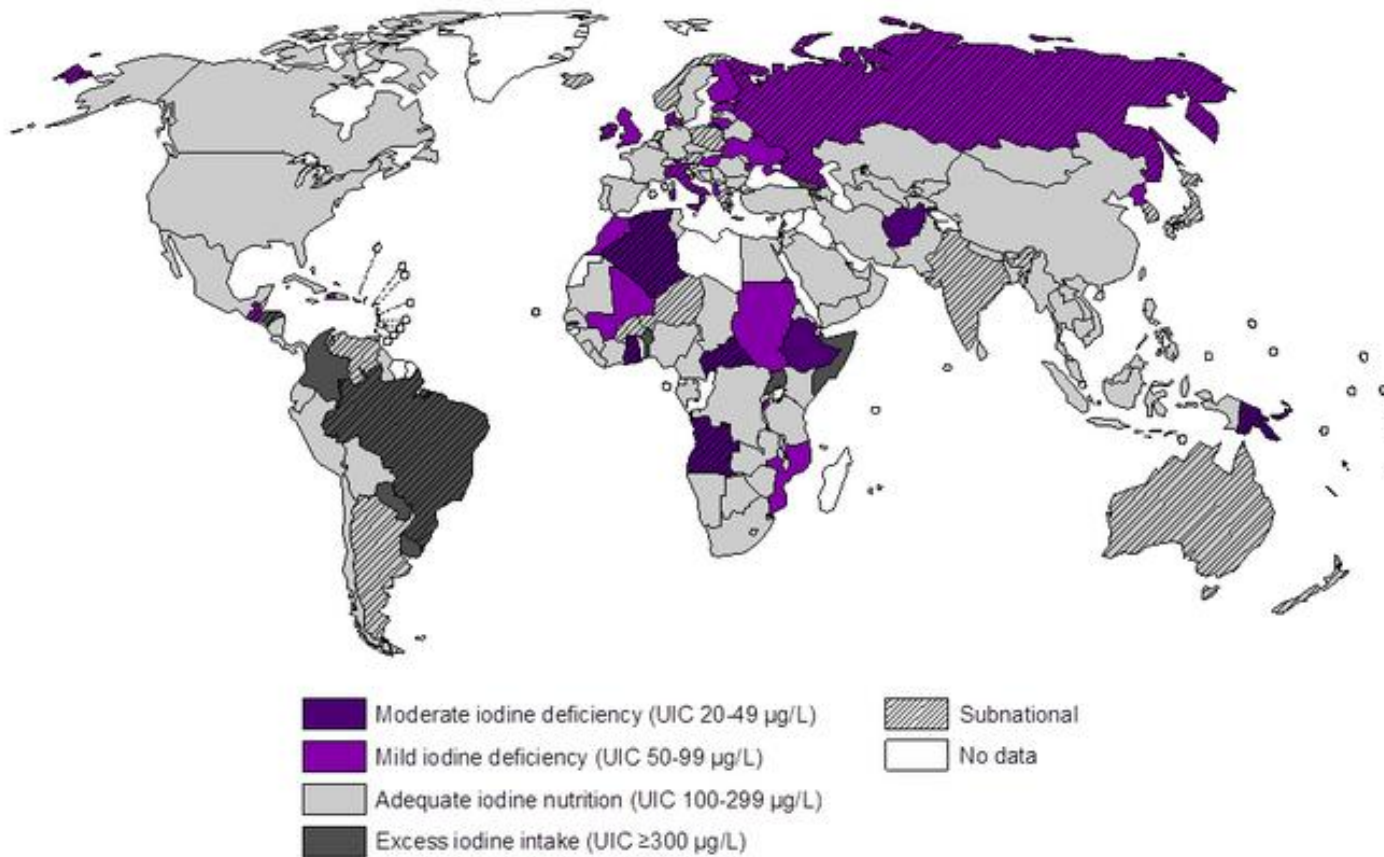
Potential may increase through delivery mechanisms that successfully ensure children eat adequate quantity of fortified foods (e.g., school feeding)

Need – Moderate to high
Amount of food – Increases with age
Potential to benefit – Increases with age
Potential to fully meet need – Increases with age



Nutrition interventions
 LSFF
 School feeding

SALT IODIZATION PROGRAMS IN OVER 140 COUNTRIES HAVE IMPROVED IODINE NUTRITION





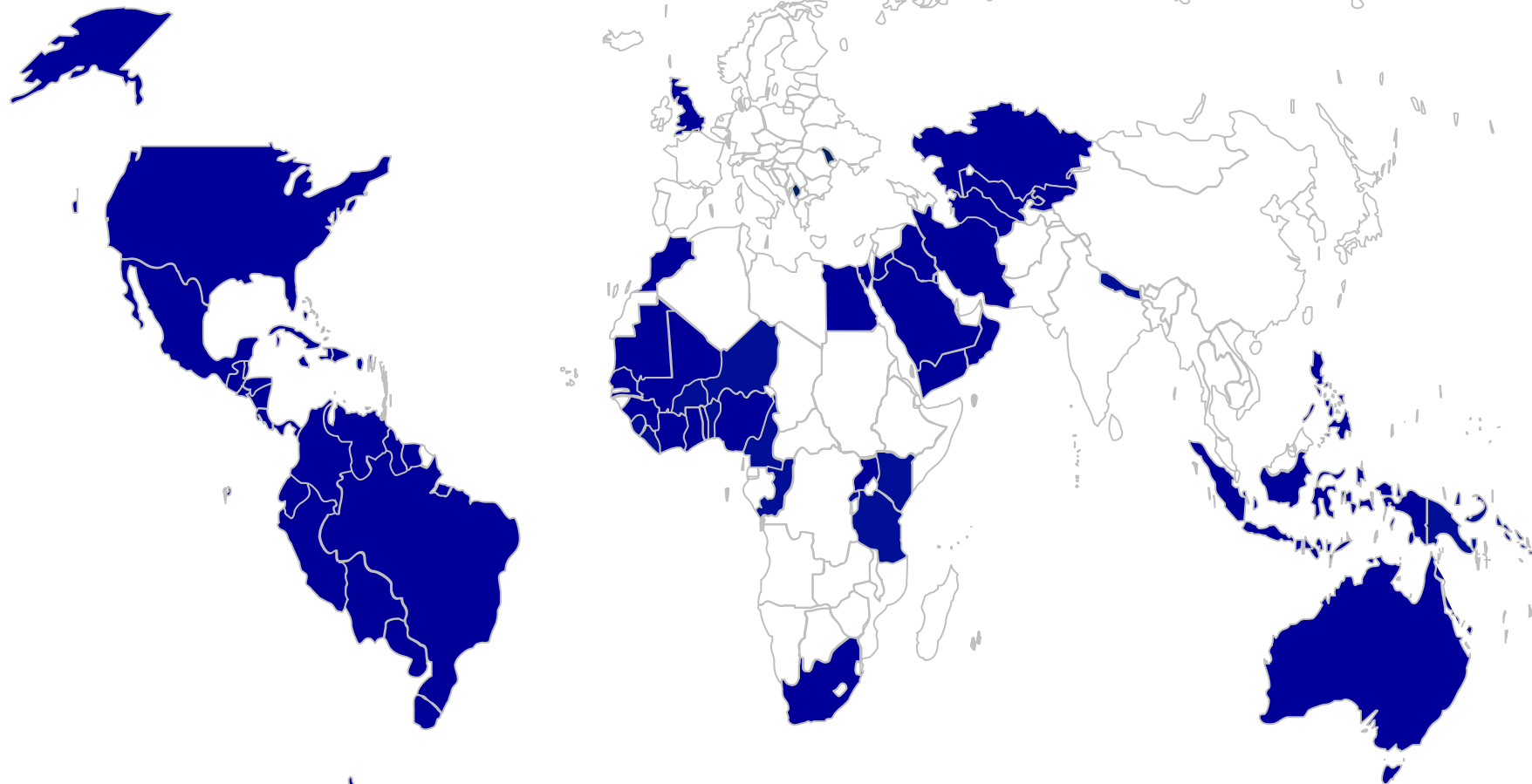
FORTIFICATION OUTCOMES: IODINE



Salt iodization and IDD

- Due to USI, iodine deficient countries decreased from 54 to 25 from 2003 to 2015 (IGN.org).
- As of Dec 2015, coverage of the population in GAIN-supported countries (14 countries) with salt containing any iodine increased from 85.2% to 89.8%, reaching an additional 606 million people (from 2.67 billion to 3.27 billion people).
- **113 million children now have access to ‘adequately’ iodized salt and are protected from IDD due to GAIN and our partners’ work. This is leading to improvements in intelligence and educability, and helps prevent infant mortality, miscarriages and goiter.**
- **We’re in an unprecedented position in terms of being able to control IDD and sustain those efforts globally.**

GRAIN FORTIFICATION STATUS: 82 COUNTRIES MANDATE FORTIFICATION OF WHEAT, MAIZE FLOUR AND/OR RICE



August 2014. Source: Food Fortification Initiative.
http://www.ffinetwork.org/global_progress/index.php

FLOUR FORTIFICATION OUTCOMES: FOLIC ACID

Folate fortification and NTD's(1)

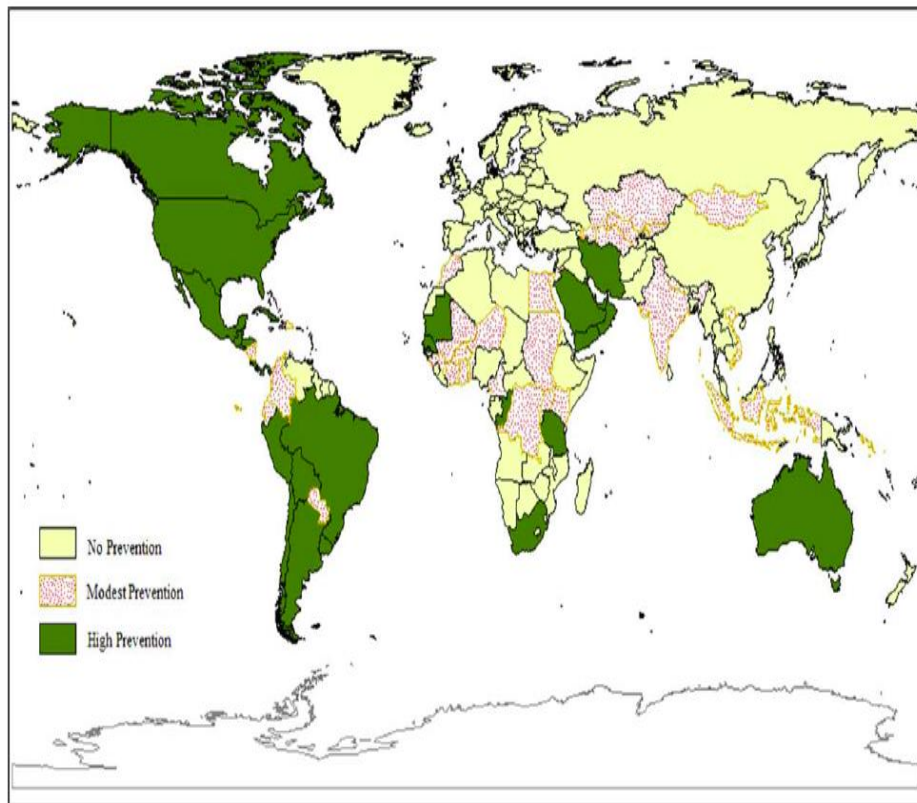
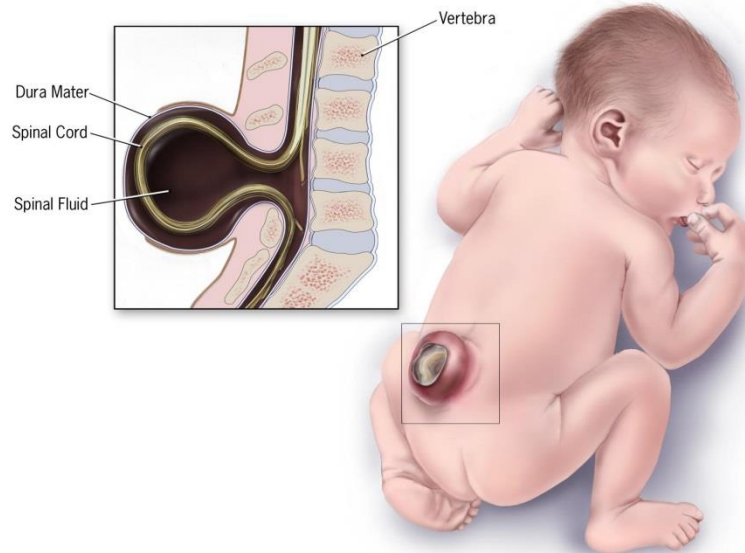


Figure 1. The status of global prevention of folic acid-preventable spina bifida and anencephaly (model II), 2012.

Spina Bifida (Open Defect)



(1) Youngblood ME, Williamson R, Bell KN, Johnson Q, Kancherla V, Oakley GP. 2012 update on global prevention of folic acid-preventable spina bifida and anencephaly. Birth Defects Research. 2013.

FLOUR FORTIFICATION OUTCOMES: ANNUAL ESTIMATES OF NEURAL TUBE DEFECTS (NTDS)

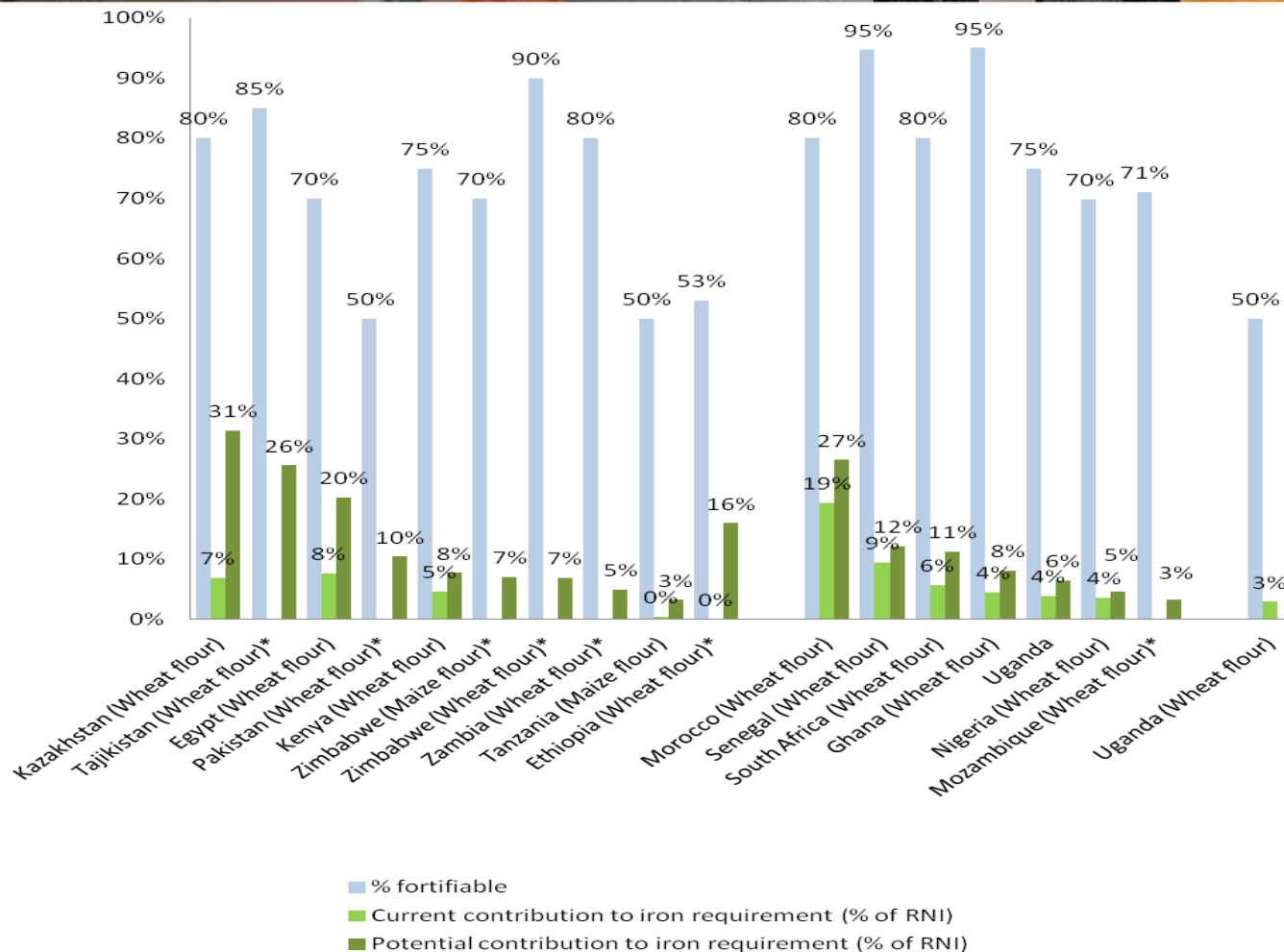


CDC Birth Defects & GAIN modelled outcomes in 18 countries that have data on coverage of industrial-milled wheat flour

Current NTDS	NTDs already averted by fortification	Additional NTDS that could be averted by fortification of <u>fortifiable</u> wheat flour	NTDs that could be averted by fortification of all wheat flour
136000 (104000-171000)	19000 (3000-33000)	32000 (20000-46000)	103000 (71000-138000)

- Takeaways
 - There is uncertainty in estimates related to NTDS prevalence and fortifiable flour
 - NTDS remain a serious public health problem
 - Many NTDS are already being averted through fortification
 - Many additional NTDS could be immediately averted through fortification
 - Reaching populations that do not consume industrial-milled staples remains an important problem to be solved

FLOUR FORTIFICATION OUTCOMES: CURRENT AND POTENTIAL INCREASES IN IRON




On average we can expect a 2.4% min reduction in iron deficiency reduction through fortification

Barkley, J., Wheeler, K., and Pachón, H. Anaemia prevalence may be reduced among countries that fortify flour. [British Journal of Nutrition](#), available on CJO2015. doi:10.1017/S0007114515001646.

OIL FORTIFICATION STATUS: APPROX. 20 COUNTRIES MANDATE FORTIFICATION OF EDIBLE OILS



 Voluntary fortification with high potential for scale up

 Mandatory
gain
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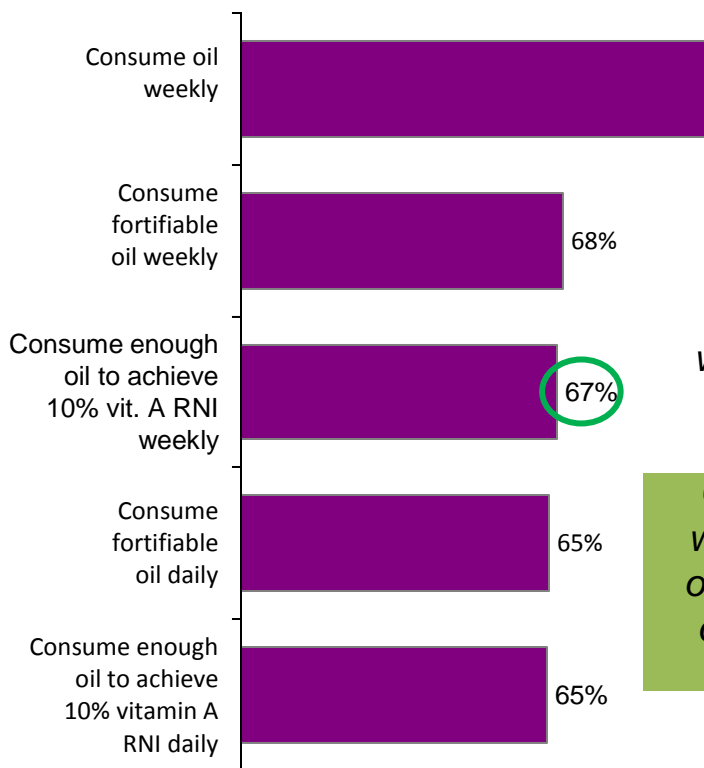
References- Global Regulatory Landscape for the Use of Condiments and Seasonings as Dietary Vehicles for Micronutrient Fortification, Mejjia, L et al, 2014; Theory of Change, GAIN internal data.



OIL FORTIFICATION OUTCOMES: 67% POOR WOMEN GET 10% RNI (VIT A) FROM FORTIFIED OIL WEEKLY

65% poor WRA in Senegal consume at least 10% vitamin A RNI daily through fortified oil

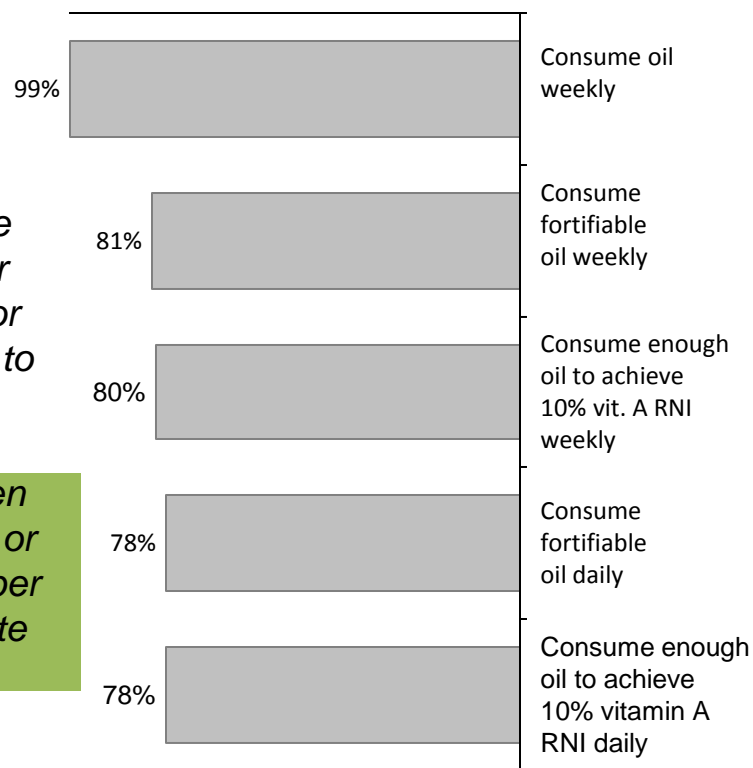
... while 78% of their non-poor peers do the same



Poor women of reproductive age in Senegal

Poor women **3.2x** more likely to eat artisanal or homemade oil; non-poor women **1.5x** more likely to eat branded oil

On average, poor women who consumed branded or open oil daily ate **80.6g** per day; non-poor women ate **75.3g** per day



Non-poor women of reproductive age in Senegal



SUMMARY

Evidence-based solutions are having an impact.

However, there is still much potential in rolling out these interventions more effectively and in unison to help end malnutrition.

**Thank you for your
attention.**

