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June 27-28, 2018 | Washington Plaza Hotel | Washington D.C.

FOOD ASSISTANCE FOR NUTRITION EVIDENCE SUMMIT

Organized by the Food Aid Quality Review Project

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Food Aid for Nutrition:
Where do we stand on current evidence?

27 June 2018
Food Assistance for Nutrition Evidence Summit
Washington D.C.

Outline

I. Where do we stand?

II. How does food aid meet nutrient needs?

III. What evidence can we all agree on?

IV. Panel Discussion

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Ingredients of Success: Context and Content of Research on Food Assistance for Nutrition

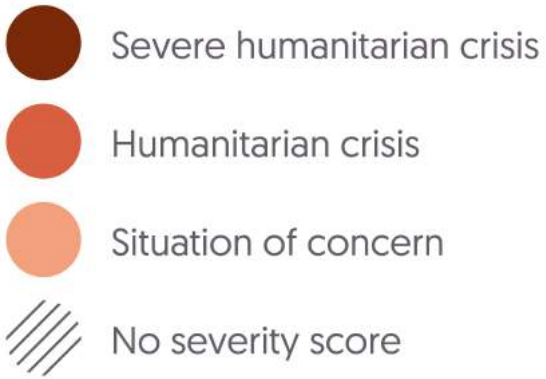
27 June 2018
Food Assistance for Nutrition Evidence Summit
Washington D.C.
Patrick Webb

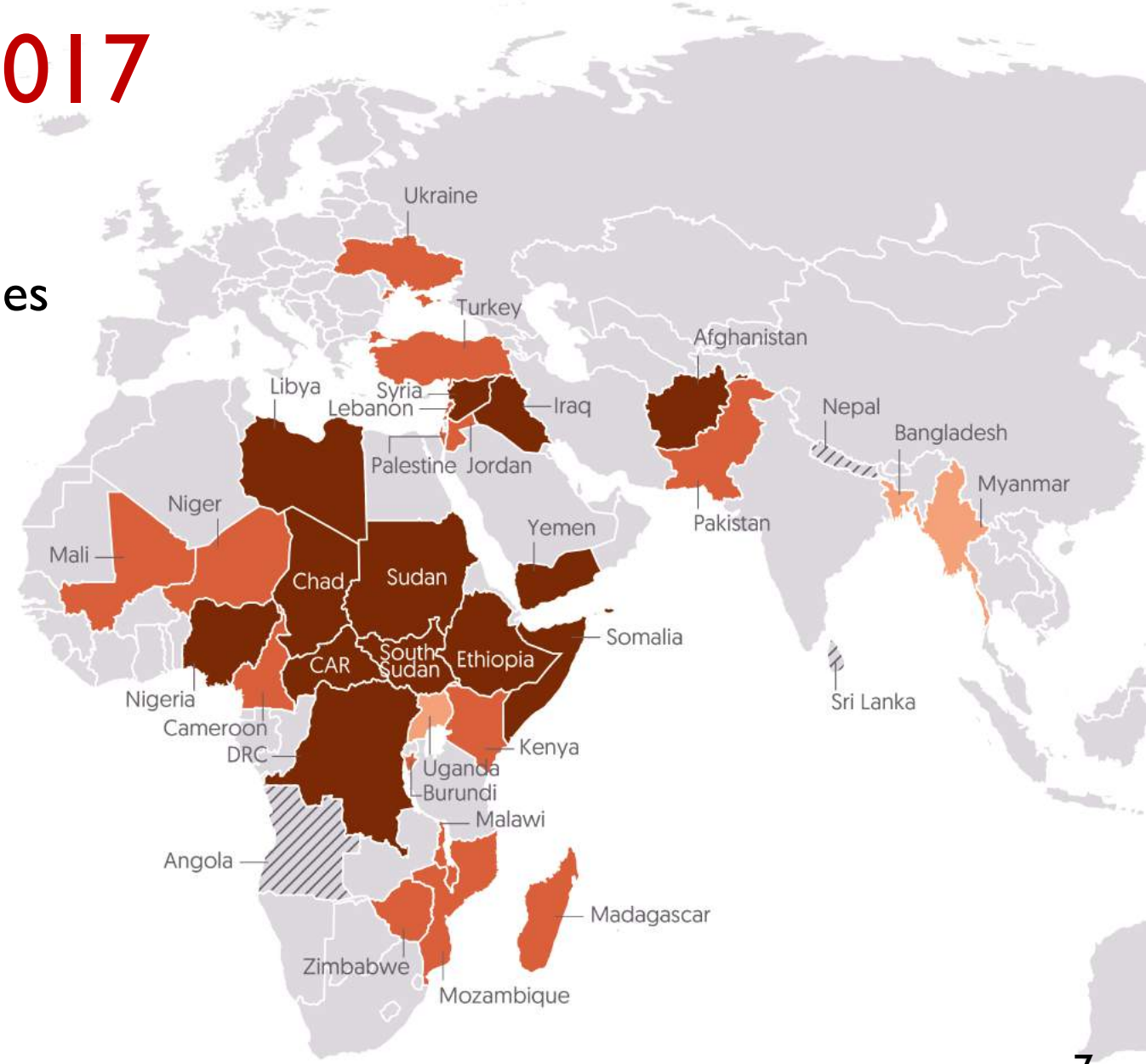
Image source: https://www.bellblack.com/its-good-optimistic/

Countries in Crisis, 2017

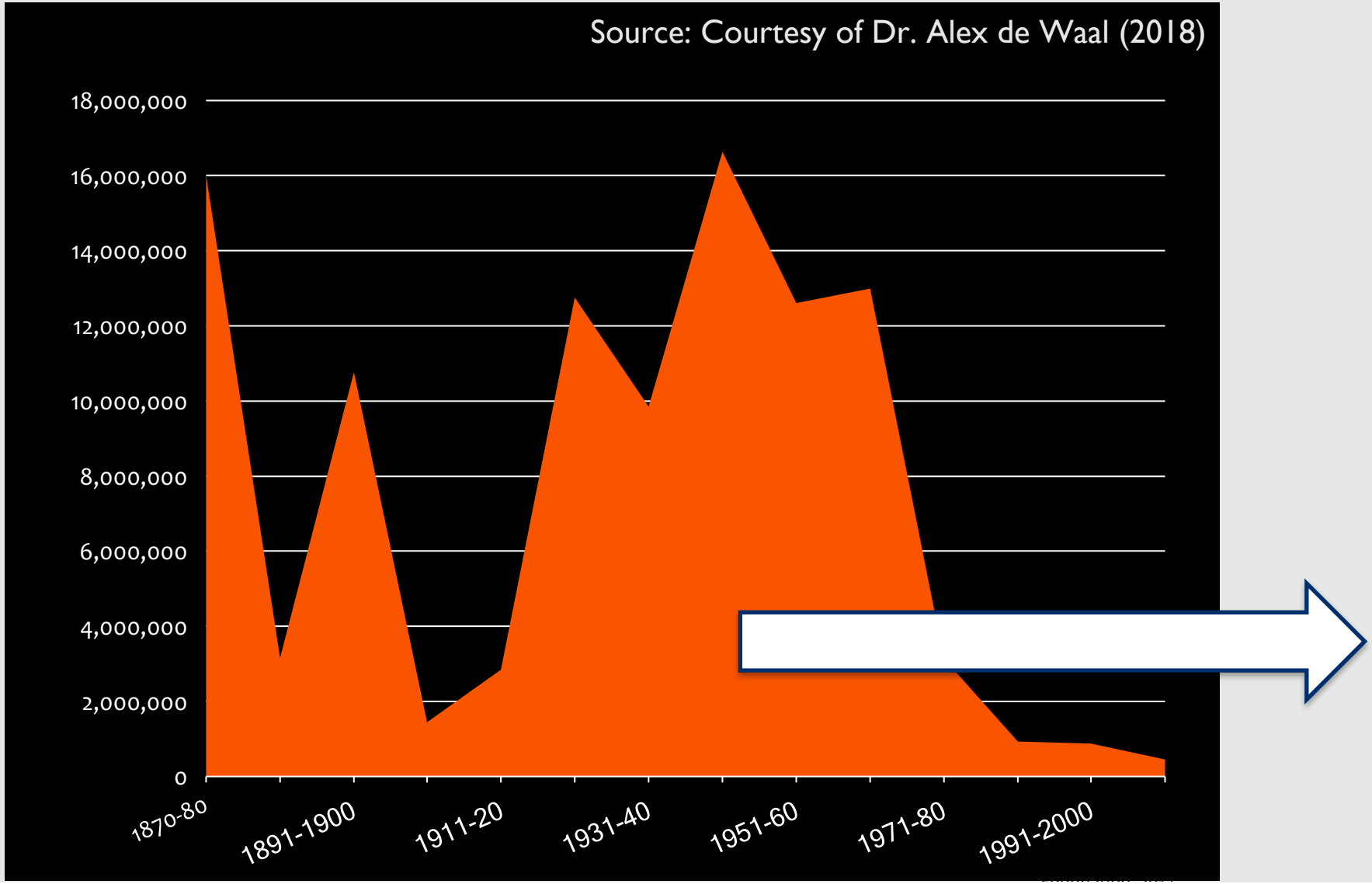
Over 201 million people in 134 countries "in need of international humanitarian assistance in 2017"

DI (2018) Global Humanitarian Assistance 2018





Mortality in Famines by Decade, 1870 to 2000

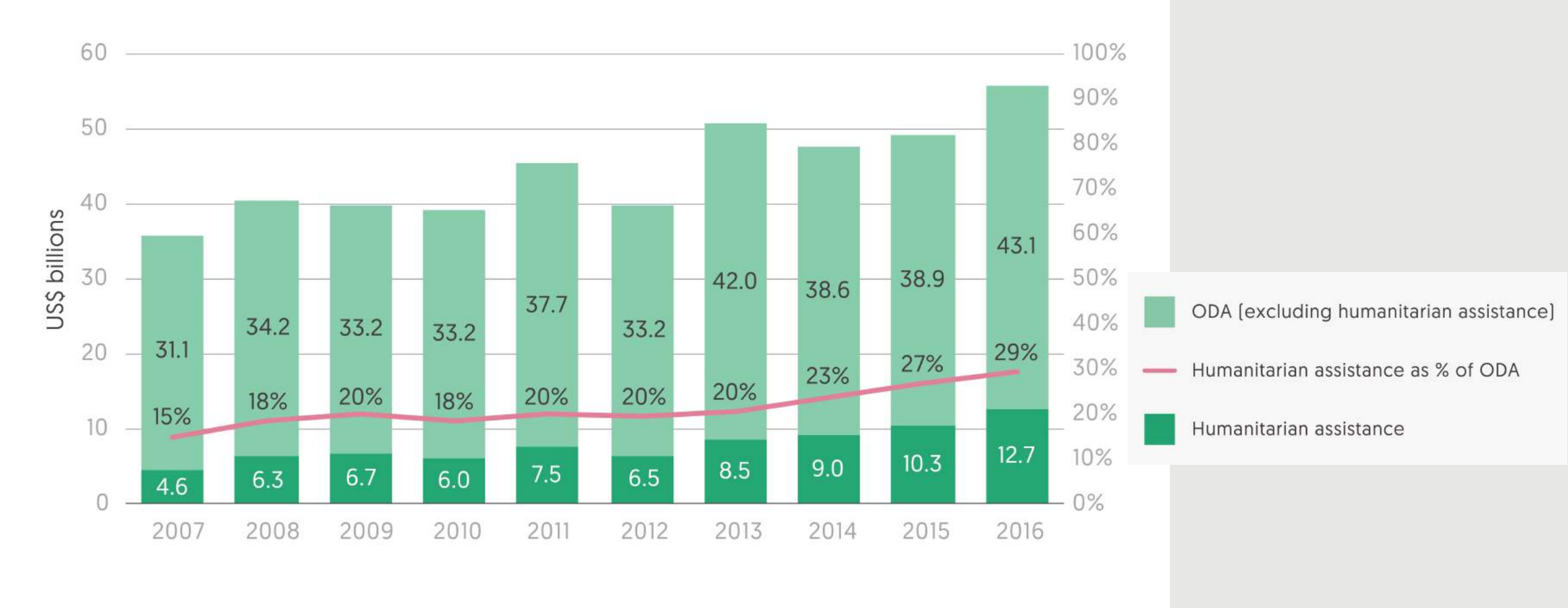


Wasting (contributing to high mortality risk) is a key facet of famine

Phase 1 Minimal	Phase 2 Stressed	Phase 3 Crisis	Phase 4 Emergency	Phase 5 Famine
More than four in five households (HHs) are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance	*Even with any humanitarian assistance at least one in five HHs in the area have the following or worse:* *Minimally adequate food consumption but are unable to afford some essential non food expenditures without engaging in irreversible coping strategies.*	*Even with any humanitarian assistance at least one in five HHs in the area have the following or worse:* *Food consumption gaps with high or above usual acute malnutrition* ***OR*** *Are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps.*	*Even with any humanitarian assistance at least one in five HHs in the area have the following or worse:* *Large food consumption gaps resulting in very high acute malnutrition and excess mortality* ***OR*** *Extreme loss of livelihood assets that will lead to food consumption gaps in the short term.*	*Even with any humanitarian assistance at least one in five HHs in the area have an extreme lack of food and other basic needs where starvation, death, and destitution are evident.* *(Evidence for all three criteria of food consumption, wasting, and CDR is required to classify Famine.)*

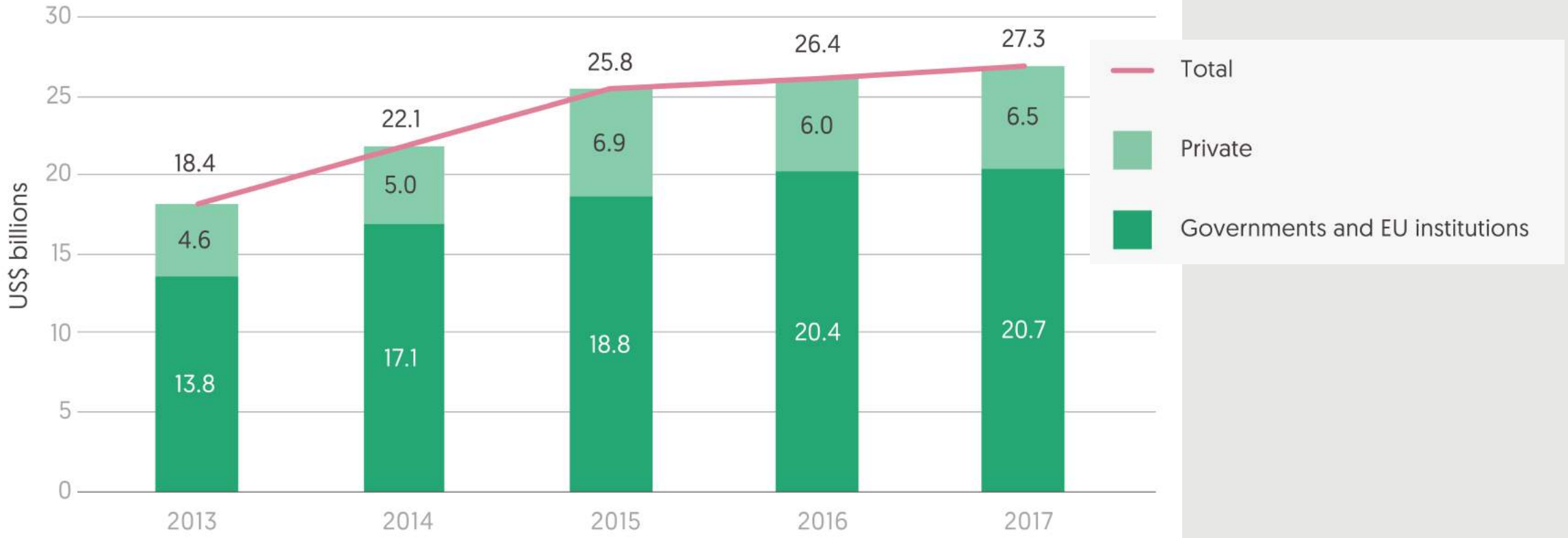
Source: Integrated Phase Classification (2012)

Humanitarian assistance as share of ODA (to 20 top recipients of humanitarian resources), 2007-2016



DI (2018) Global Humanitarian Assistance 2018

International humanitarian assistance, 2013-2017



- 10 of the 20 largest donors in 2016 increased their contributions in 2017, with six increasing by more than 10%.
- Among the very largest donors, increases in excess of US$100 million were seen from the US, of US$3.5 million (5%); Germany, of US$284 million (11%); and Canada, of US$111 million (19%).

DI (2018) Global Humanitarian Assistance 2018

“Food aid 2018: the never-ending crisis”

❖ UN’s Global Humanitarian Overview for 2018 calls for:

$22.5 billion in aid

for 91 million of the 135.7 million people “in need of assistance and protection”.

…“Funding can’t keep pace with need.”

Source: http://archive.irinnews.org/multimedia/food-aid-2018/index.html

Food Crises, 2017

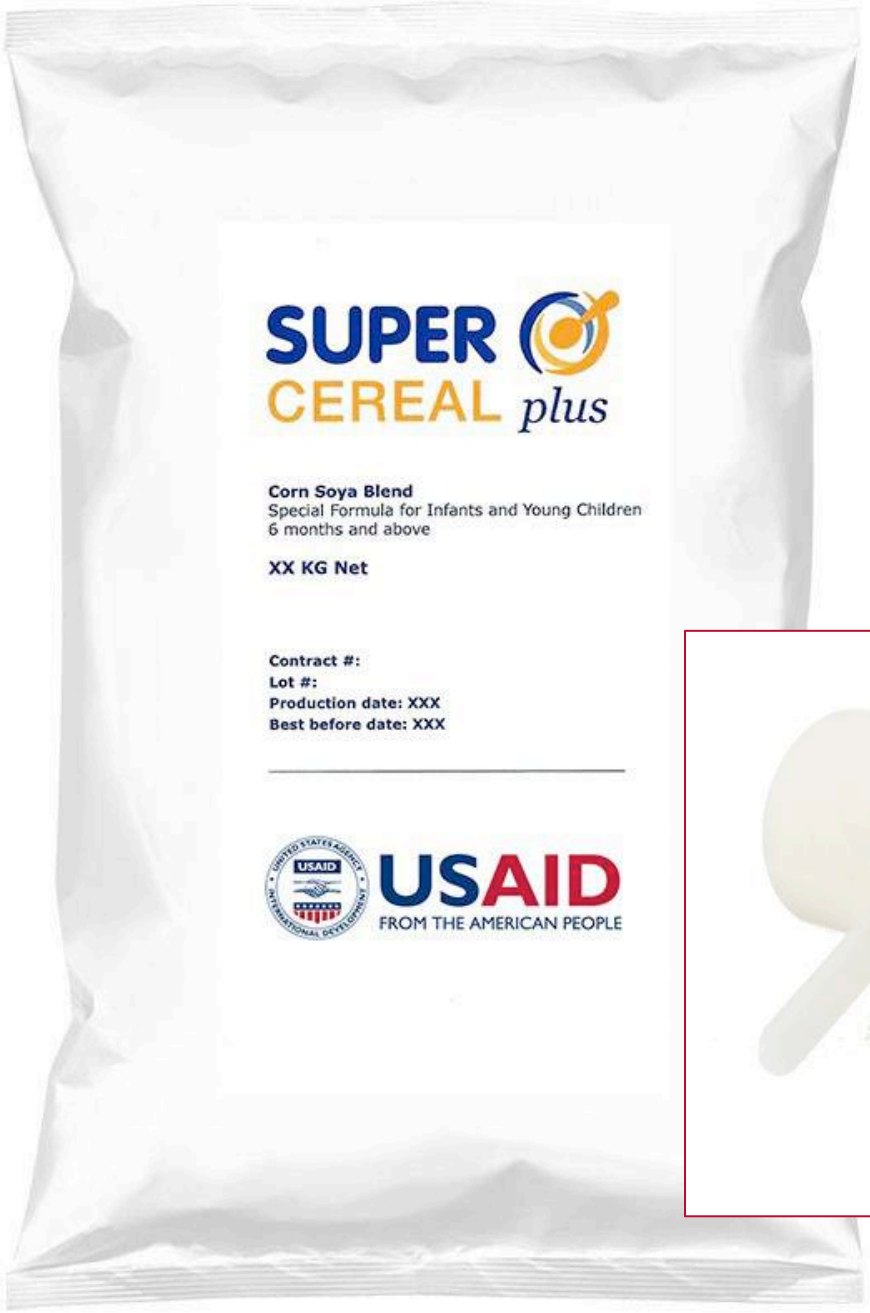
- 124 million people in 51 locations faced crisis level of acute food insecurity or worse (**IPC Phase 3** or above).

- Acute malnutrition in crisis-affected areas remains of concern; "there continues to be a double burden of high acute and chronic malnutrition in protracted crises."

- "The number of **children and women in need of nutritional support increased between 2016 and 2017**."

Source: Food Security Information Network (2018) Global Report on Food Crises 2018

Source: https://mymortgageinsider.com/cash-out-refinance/


SUPER CEREAL plus
Corn Soya Blend
Special Formula for Infants and Young Children
6 months and above
XX KG Net
Contract #:
Lot #:
Production date: XXX
Best before date: XXX
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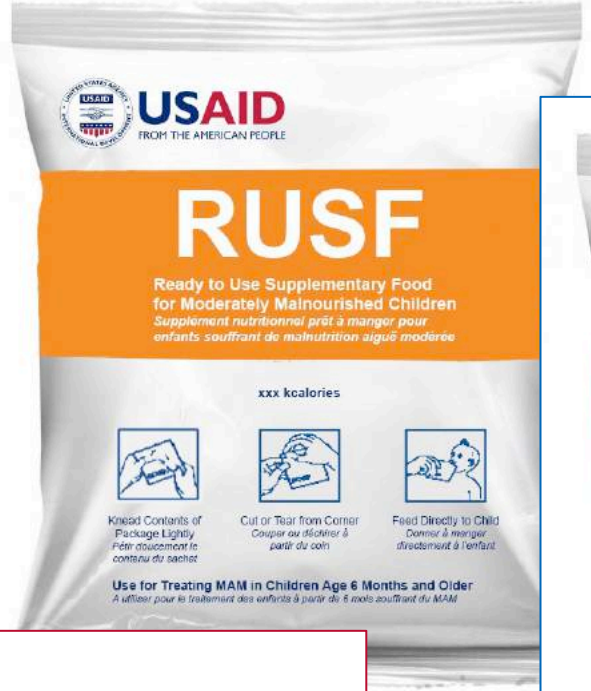
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RUSF
Ready to Use Supplementary Food
for Moderately Malnourished Children
Supplément nutritionnel prêt à manger pour
enfants souffrant de malnutrition aiguë modérée
xxx kcalories
Knead Contents of Package Lightly
Pétir doucement le contenu du sachet
Cut or Tear from Corner
Couper ou déchirer à partir du coin
Feed Directly to Child
Donner à manger directement à l'enfant
Use for Treating MAM in Children Age 6 Months and Older
A utiliser pour le traitement des enfants à partir de 6 mois souffrant du MAM


USAID
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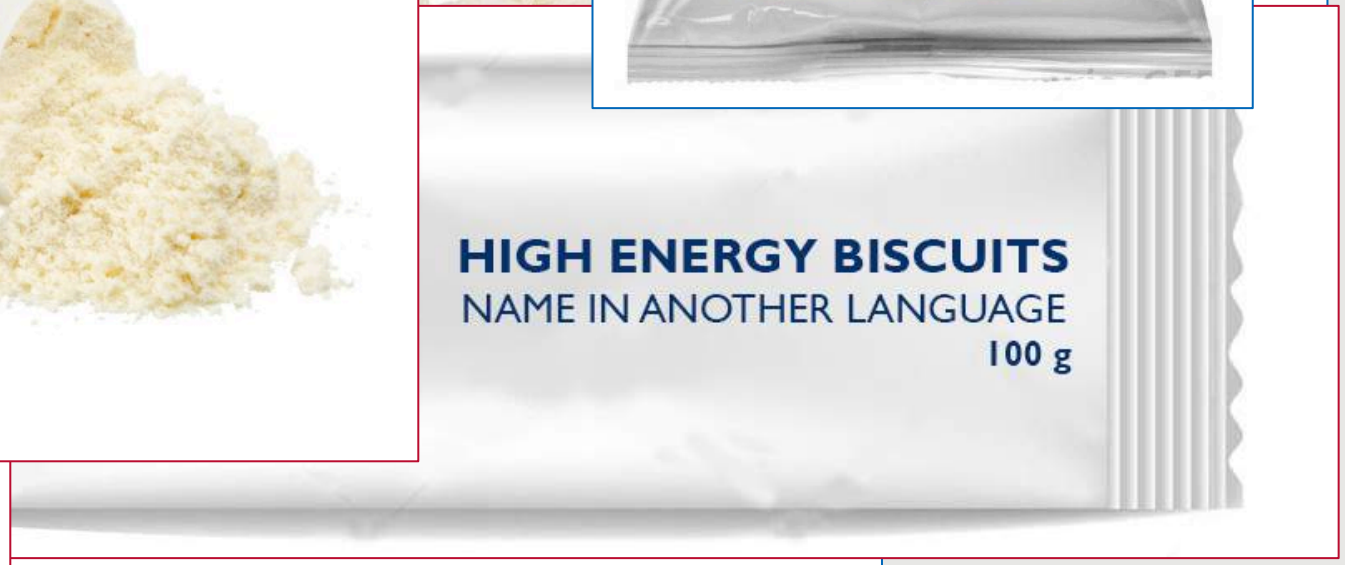
RUTF
Ready to Use Therapeutic Food
for Severely Malnourished Children
Supplément nutritionnel prêt à manger pour
enfants souffrant de malnutrition aiguë sévère
500 kcalories
Knead Contents of Package Lightly
Pétir doucement le contenu du sachet
Cut or Tear from Corner
Couper ou déchirer à partir du coin
Feed Directly to Child
Donner à manger directement à l'enfant
Use for Treating SAM in Children Age 6 Months and Older
A utiliser pour le traitement des enfants à partir de 6 mois souffrant du SAM


HIGH ENERGY BISCUITS
NAME IN ANOTHER LANGUAGE
100 g

The beginning…

- Sept 1964, the American Corn Millers Federation prepared Food for Peace Formula Food No.1 ('Ceplapro' - cereal-plant protein).
- Composition: 58% degerminated corn meal, 10% wheat flour, 5% non-fat dry milk solids, 27% full-fat toasted soy flour, 2% of a mineral mix, and 0.5% of a vitamin-antioxidant-soy mix.
- Formulated "to contain a sufficient level of all essential nutrients" if consumed as 25% of a child's energy needs.
- 18% protein, 6% fat and 355 calories per 100g.

Ingredient	Formula #1 (Ceplapro)	Formula #2 (CSM)
	%	%
Corn meal, processed (gelatinized)	58.05	68.05
Wheat flour (Durham)	10	--
Soy flour, defatted, toasted	25	25
Milk, non-fat, dry	5	5
Calcium phosphate, di-basic, hydrated	0.55	0.55
Calcium carbonate 1/	0.6	0.6
Zink sulfate hepta-hydrate 1/	0.004	0.004
Ferrous fumarate 1/	0.024	0.024
Iodized salt 1/	0.67	0.67
Vitamin-antioxidant premix 2/	0.1	0.1

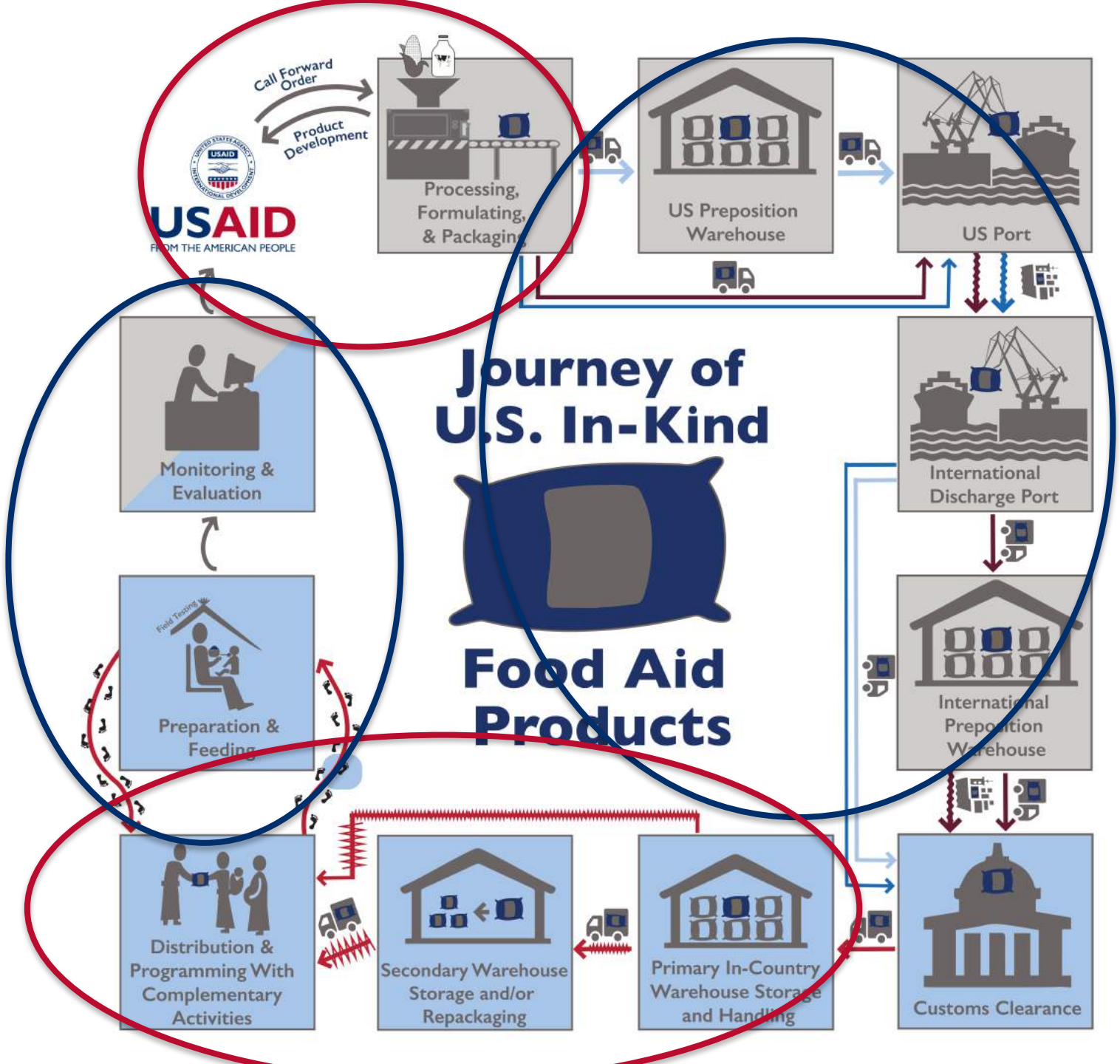
1/ Supplied as mineral premix.

Source: Combs (1967) Development of a Supplementary Food Mixture.

Good nutrition is not achieved via single nutrients

"Supplementation alone, or the addition of the first limiting amino acid to improve the effectiveness of protein, without concern about total energy intake or adequacy of other essential nutrients, may be of little or no value."

F. G. Combs (1967) Development of a supplementary food mixture (CSM) for children. FAO/WHO/UNICEF Protein Advisory Group Bulletin No. 7.


Call Forward Order
Product Development
USAID
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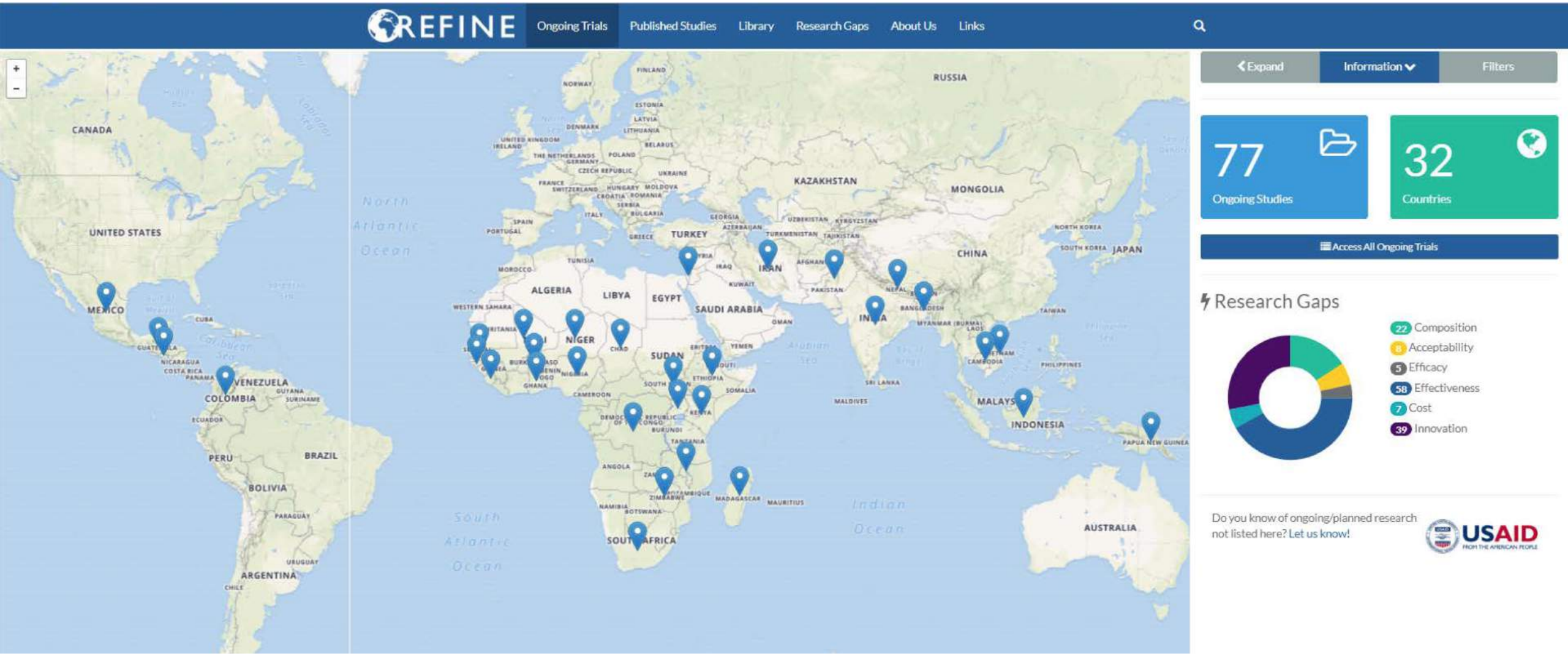
Processing, Formulating, & Packaging
US Preposition Warehouse
US Port
Journey of U.S. In-Kind Food Aid Products
International Discharge Port
Monitoring & Evaluation
Field Testing
Preparation & Feeding
International Preposition Warehouse
Distribution & Programming With Complementary Activities
Secondary Warehouse Storage and/or Repackaging
Primary In-Country Warehouse Storage and Handling
Customs Clearance

It's not just about product formulation…

- Cash and vouchers
- Program design innovation
- Coverage, retention, uptake of products/services
- Rigorous determination of cost-effectiveness of impacts
- Complementary activities (SBCC, WaSH, seeds & tools, etc.)
- Intrahousehold practices and preferences
- Pipeline and warehouse management, transportation logistics
- Interagency cooperation, harmonization of approaches

REFINE (www.refinenutrition.org)



Our purpose over the coming 2 days…

1. Discuss what do we now know? Evidence base for action.
2. What emerging evidence can we look to for new insights, innovations?
3. What persisting knowledge gaps should we prioritize?
4. How to secure funding to further enhance our evidence base?
5. How to enhance cross-researcher and cross-agency collaboration across this critically important agenda?

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What nutrients do malnourished children need and how does/can food aid meet those needs?

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University of Tampere (Finland)
University of Copenhagen (Denmark)
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UNIVERSITY OF TAMPERE
SCHOOL OF MEDICINE
DEPARTMENT FOR INTERNATIONAL HEALTH

Rewording the question

- **Malnourished children have special nutritional requirements**
- **They have access to some local food**
- **Question: how to design food aid to cover their nutritional requirements at minimum cost ?**

This is a variation of the classical « diet problem »

The diet problem

THE COST OF SUBSISTENCE

GEORGE J. STIGLER
University of Minnesota

ELABORATE investigations have been made of the adequacy of diets at various income levels, and a considerable number of "low-cost," "moderate," and "expensive" diets have been recommended to consumers. Yet, so far as I know, no one has determined the minimum cost of obtaining the amounts of calories, protein, minerals, and vitamins which these studies accept as adequate or optimum. This will be done in the present paper, not only for its own interest but because it sheds much light on the meaning of conventional "low-cost" diets.

This paper is organized under five headings, devoted to

1. The quantities of the various nutrients which should be contained in an average person's diet.
2. The quantities of these nutrients which are found in certain common foods.
3. The methodology of finding the minimum cost diet.
4. The minimum cost diet in August 1939 and August 1944.
5. Comparison with conventional low-cost diets.

Stigler G. Journal of Farm Economics, 1945; 2: 303-314

The diet problem

Stigler never found the exact solution, just approached it, although he was one of the brightest mathematician and economists of his time – he got the Nobel prize in 1981

Too many equations to solve at the same time although only 77 foods, 9 nutrients

The problem was solved a few years later by other mathematicians: George Danzig, John Von Neumann, Tjalling C. Koopmans, Leonid Kantorovich

Yet, the classical diet problem is a simpler version of the problem we want to address

The malnourished child problem

- **Nutritional requirements (>30 nutrients) of malnourished children not well known**
- **Local composition and quantity consumed of local foods poorly known**
- **Non linear mathematicial functions**

Non linear functions: the iron example

Requirements are based on absorbed iron, not only iron present in the diet – best estimated by complex functions

$$Ln\ Absorption\ (\%) = 6.294 - 0.709\ ln\ (SF) + 0.119\ ln\ (C) + 0.006\ ln\ (MFP + 0.1) - 0.055\ ln\ (T + 0.1) - 0.247\ ln\ (P) - 0.137\ ln\ (Ca) - 0.083\ ln\ (NH),$$

where SF is serum ferritin (μg/L), C is vitamin C (mg), MFP is meat, fish, and poultry (g), T is tea (number of cups), P is phytate (mg), Ca is calcium (mg), and NH is nonheme iron (mg).

Same problem for Ca, Mg, Zn, Se …

Armah et al. J Nutr. 2013 Jul;143(7):1136-40

Non linear functions: the amino-acid score

Digestible Indispensable Amino Acid Score (DIAAS)

DIAAS % = 100 x lowest value [(mg of digestible dietary indispensable amino acid in 1 g of the dietary protein)/(mg of the same dietary indispensable amino acid in 1g of the reference protein)]

FAO WHO 2013

Fraction of digestible amino acid difficult to estimate

Composition of locally available foods

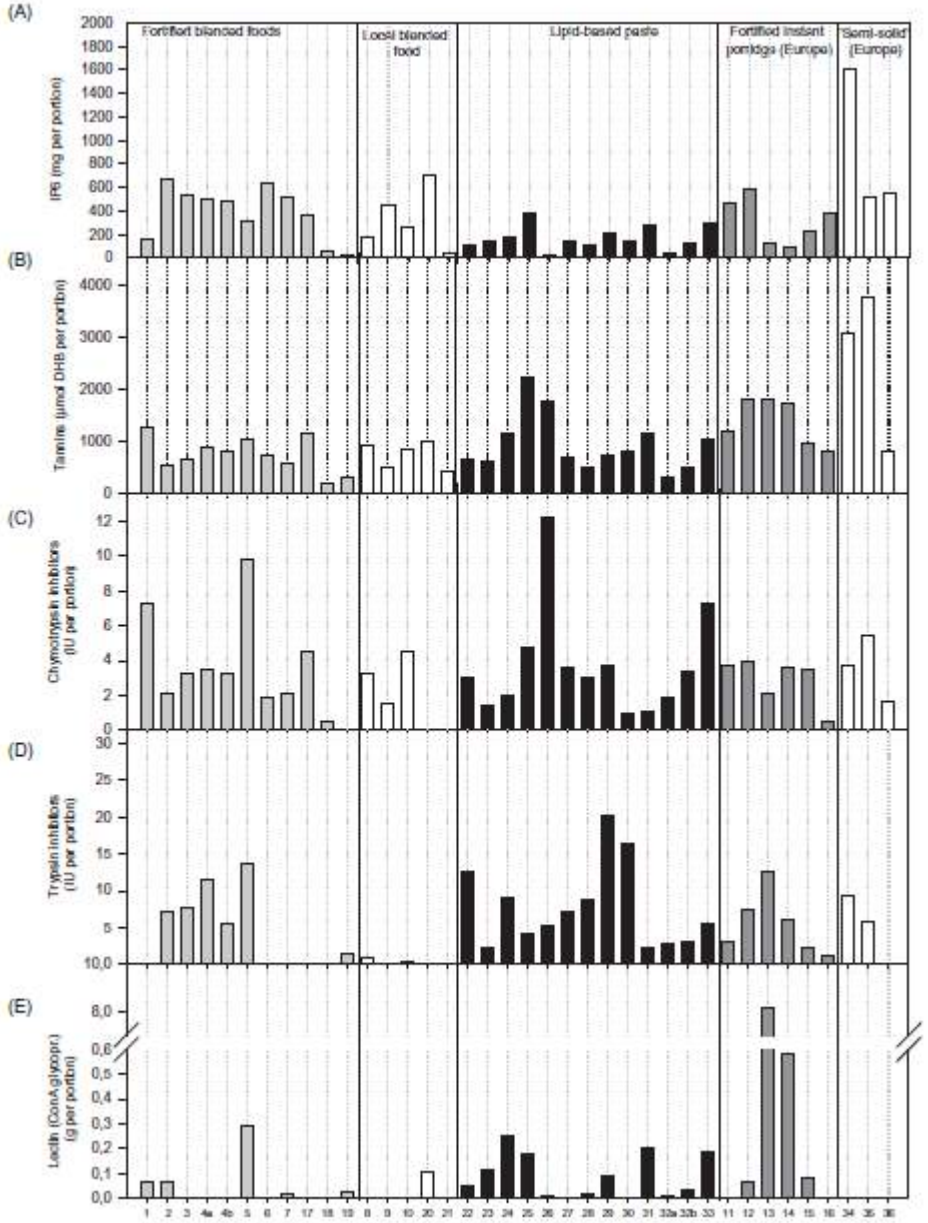
Macro and micro nutrient composition usually known

But…

Many uncertainties re. antinutritional factors affecting digestibility and absorption of nurients even for common foods

Screening antinutrients in common food aid products

Roos N et al, Matern Child Nutr. 2013 Jan;9 Suppl 1:47-71.



Nutritional requirements of malnourished children

Proposed recommended nutrient densities for moderately malnourished children

Food Nutr Bull. 2009 Sep;30(3 Suppl):S267-342.

Michael H. Golden

Abstract

Recommended Nutrient Intakes (RNIs) are set for healthy individuals living in clean environments. There are no generally accepted RNIs for those with moderate malnutrition, wasting, and stunting, who live in poor environments. Two sets of recommendations are made for the dietary intake of 30 essential nutrients in children with moderate malnutrition who require accelerated growth to regain normality: first, for those moderately malnourished children who will receive specially formulated foods and diets; and second, for those who are to take mixtures of locally available foods over a longer term to treat or prevent moderate stunting and wasting. Because of the change in definition of severe malnutrition, much of the older literature is pertinent to the moderately wasted or stunted child. A factorial approach has been used in deriving the recommendations for both functional, protective nutrients (type I) and growth nutrients (type II).

Summary

The objective is to derive nutrient requirements for moderately malnourished children that will allow them to have catch-up growth in weight and height, prevent their death from nutritional disease, strengthen their resistance to infection, allow for convalescence from prior illness, and promote normal mental, physical, and metabolic development.

The malnourished population will have been exposed to nutritional stress and seasonal shortages and will have been living in unhygienic conditions; a proportion will have been severely malnourished. Typically, from 5% to 15% of children aged 6 to 59 months are moderately wasted, and 20% to 50% are stunted in height.

There has been little published on the requirements for the moderately wasted or stunted child *per se*. However, with the change in definition of severe malnutrition from the Wellcome classification [1] based upon weight-for-age to one based upon weight-for-

Nutritional requirements of malnourished children

Derived from nutritonal requirements of well nourished children adjusted for the need to correct deficits and of catch-up growth

Nutritional requirements of well nourished children poorly known, based mainly on « adequate intakes », i.e. intake of children with no signs of deficiency – presumably an overestimate of real needs.

A lot of uncertainties, but in practice…

We know how to feed malnourished children based on best estimates and trials and errors

Weight gain of severely malnourished children fed current products 5 to 10 times higher than for normal children

WHO UNICEF WFP 2007 RUTF specifications

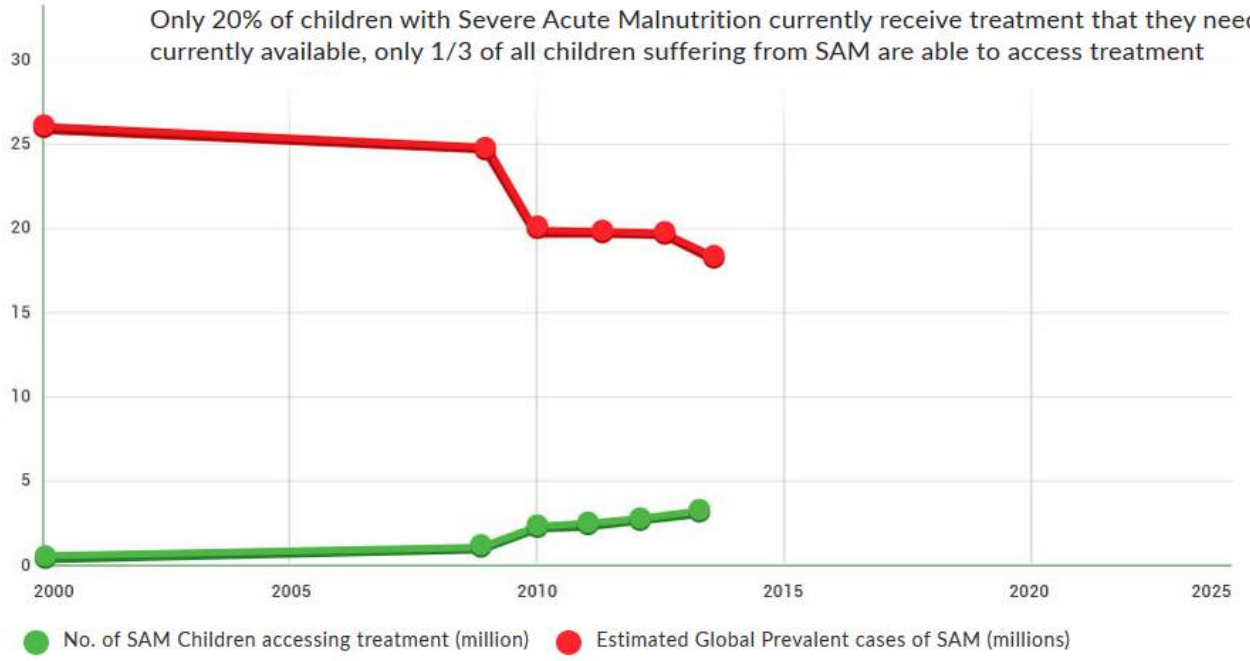
Nutritional composition	
Moisture content	2.5% maximum
Energy	520–550 Kcal/100 g
Proteins	10%–12% total energy
Lipids	45%–60% total energy
Sodium	290 mg/100 g maximum
Potassium	1,100–1,400 mg/100 g
Calcium	300–600 mg/100 g
Phosphorus (excluding phytate)	300–600 mg/100 g
Magnesium	80–140 mg/100 g
Iron	10–14 mg/100 g
Zinc	11–14 mg/100 g
Copper	1.4–1.8 mg/100 g
Selenium	20–40 µg
Iodine	70–140 µg/100 g
Vitamin A	0.8–1.1 mg/100 g
Vitamin D	15–20 µg/100 g
Vitamin E	20 mg/100 g minimum
Vitamin K	15–30 µg/100 g
Vitamin B1	0.5 mg/100 g minimum
Vitamin B2	1.6 mg/100 g minimum
Vitamin C	50 mg/100 g minimum
Vitamin B6	0.6 mg/100 g minimum
Vitamin B12	1.6 µg/100 g minimum
Folic acid	200 µg/100 g minimum
Niacin	5 mg/100 g minimum
Pantothenic acid	3 mg/100 g minimum
Biotin	60 µg/100 g minimum
n-6 fatty acids	3%–10% of total energy
n-3 fatty acids	0.3%–2.5% of total energy

Huge progress and success over the last 20 years

WHERE ARE WE IN TREATING CHILDREN WITH SAM?

Estimated Proportion of SAM Children Covered by Services Worldwide (2000-2016)

Only 20% of children with Severe Acute Malnutrition currently receive treatment that they need. Even in areas where SAM treatment is currently available, only 1/3 of all children suffering from SAM are able to access treatment



Countries with the highest SAM burden & program admissions

National SAM Burden (2015 Joint Estimates)	Total Admissions (2015 Nutridash)
1. Indonesia (1,614,663)	1. Nigeria (397,221)
2. Pakistan (783,444)	2. Democratic Republic of Congo (364,398)
3. Nigeria (609,656)	3. Niger (357,463)
4. Bangladesh (476,587)	4. Ethiopia (351,972)
5. Democratic Republic of Congo (370,241)	5. Pakistan (270,809)
6. Ethiopia (361,013)	6. Yemen (197,390)
7. Sudan (264,453)	7. Sudan (167,178)
8. Niger (254,386)	8. Afghanistan (160,160)
9. Yemen (202,027)	9. South Sudan (148,934)
10. Afghanistan (199,758)	10. Mali (142,177)

http://www.severemalnutrition.org/en/home/Ge

Yet, treatment maybe not optimal, for example we don't know how to correct stunting

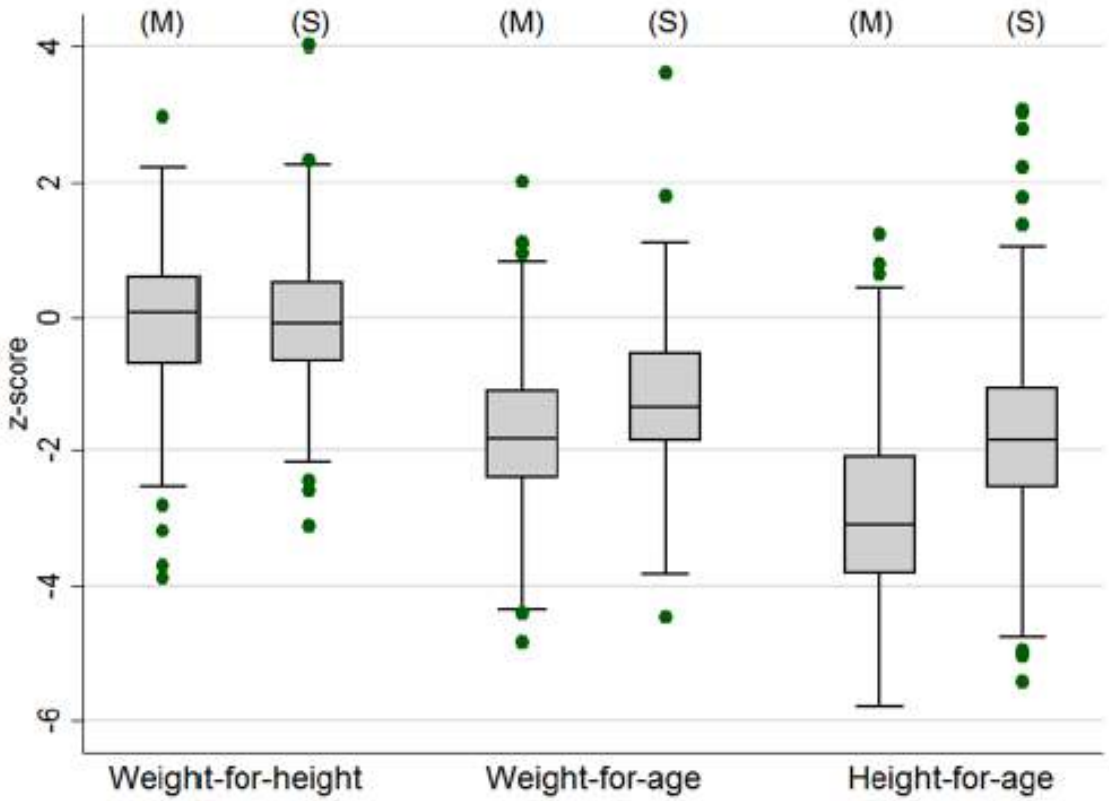
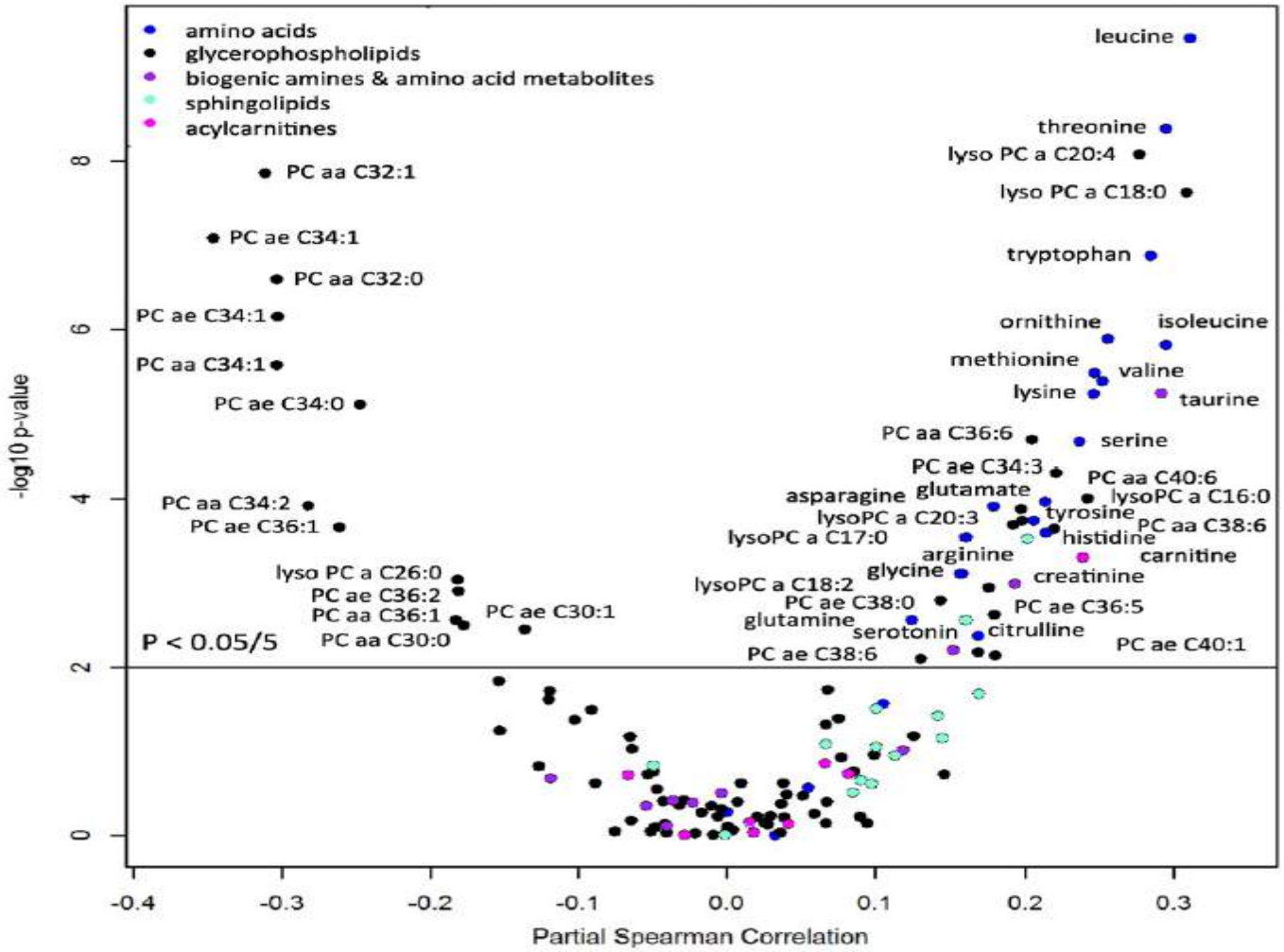


Figure 4. Boxplot showing weight-for-height, weight-for-age and height-for-age of the ex-malnourished surviving child (M) (n = 386) compared to sibling controls (S) (n = 277).

Kerac M, et al. PLoS One. 2014 Jun 3;9(6):e96030

Follow-up >= 12 mo.

A possible clue: a problem with protein metabolism



Association between serum AA (branched chain) and height-for-age

Semba RD et al. EBioMedicine. 2016 Apr;6:246-252.

Time to revisit AA profile of foods for malnourished children ?

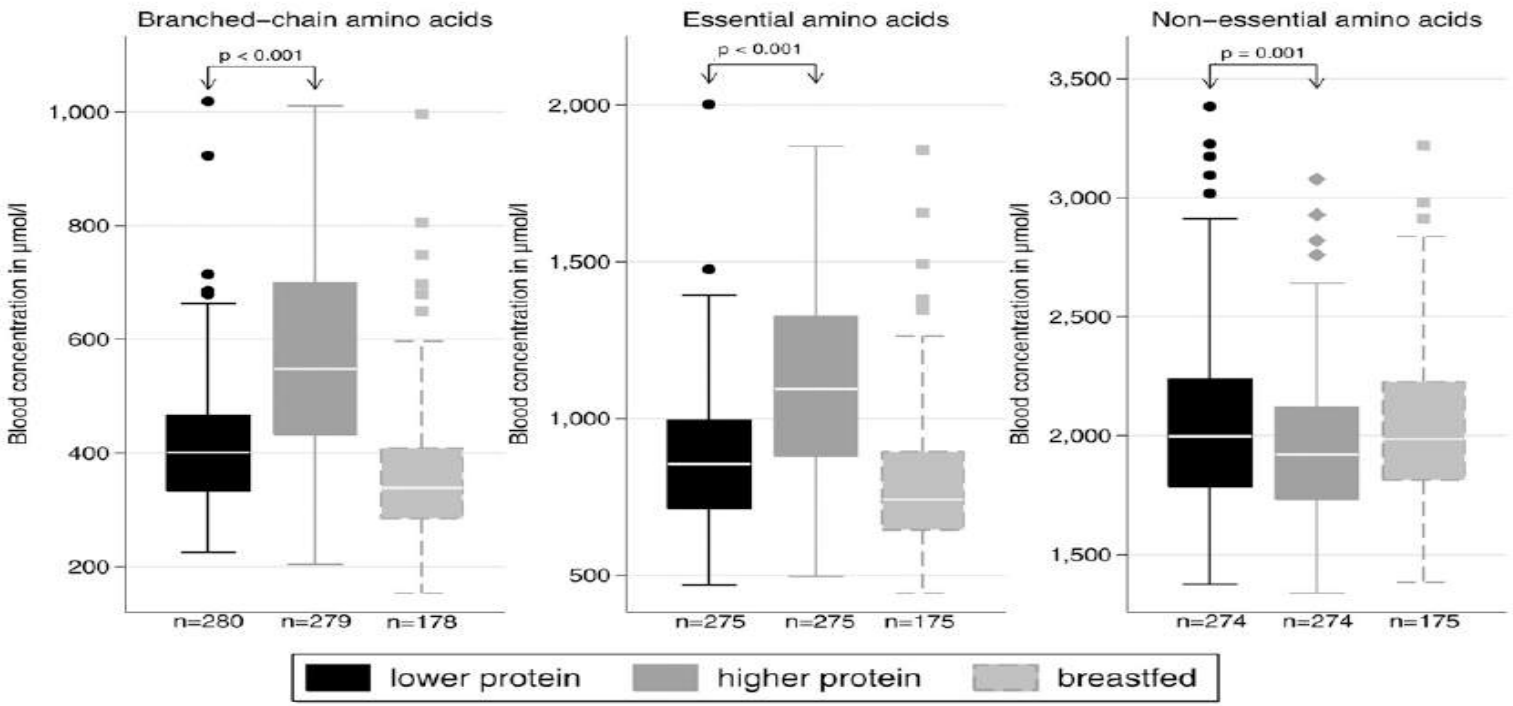
	His	Ile	Leu	Lys	SAA	AAA	Thr	Trp	Val
Breast milk	21	55	96	69	33	94	44	17	55
RUTF	24	38	78	60	28	83	35	13	46
RUTF (% breast milk)	113	70	81	87	84	88	79	75	84

Breast milk is known to promote weight gain > 10g/kg/day and should be the reference

RUTF AA profile: Bahwere et al Am J Clin Nutr. 2017;106:1100-1112.

Breast milk AA profile: FAO WHO 2013

Branched chain amino acids levels influenced by protein intake in well nourished children



Serum amino acid concentrations in formula-fed and breastfed infants at 6 mo of age.

Socha et al. Am J Clin Nutr. 2011 Dec;94(6 Suppl):1776S-1784S.

Protein requirements of malnourished children – time for a change ?

Table 15.17 Requirements for energy and protein at different rates of weight gain

Rate of gain (g/kg/day)	Energy (kcal/kg/day)	Protein (g/kg/day)	P/E (%)	Time needed to correct deficit (weeks)
0	75	0.75	4.0	∞
1	80	1.0	5.0	52
2	85	1.25	5.9	25
5	100	2.00	8.0	10
10	125	3.25	10.4	5
20	175	5.75	13.1	2.5

Modified from Ashworth and Millward (1986)
Assumptions:
1. A child 1 year old initially weighing 7 kg; target weight is 10 kg
2. Requirements at zero gain are the estimated maintenance requirements
3. The energy cost of weight gain is taken here as the conventional figure of 5 kcal/g, rather than the lower figure of 4 kcal/g calculated earlier for normal growth
4. The protein content of tissue gained is taken as 0.175 g/g, deposited with 70 per cent efficiency (see text)

Waterlow JC, 1992

Questions re. fat intake – potential effect on cognitive recovery

Table 1 Comparison of the plasma phospholipid fatty acid changes for treatments that exclusively increase ALA (Jones et al. [8]) vs. those that decrease LA and increase ALA (Hsieh et al. [9])

		Intake (% wt)		Plasma phospholipid DHA (% wt)			
Jones et al. [8], BMC Medicine 2015							
n = 20 per group		LA	ALA	Basal	28 d	Diff (%)	
Control	S-RUTF	14.9	1.3	2.51	2.23	−11%	n.s.
	F-RUTF	14.4	6.2	2.63	2.08	−21%	n.s.
Hsieh et al. [9], JPGN 2015							
Control, n = 38; HO-RUTF, n = 43							
Control	C-RUTF	21.3	0.4	3.24	2.43	−25%	$P = 0.04$
	HO-RUTF	13.1	13.1	2.84	2.96	4%	n.s.

Jones et al. [8]: From entry DHA drops non-significantly from baseline with a 4.7-fold increase in ALA from flax with no change in LA for both standard (S) and flax oil supplemented (F) RUTF. Hsieh et al. [9]: DHA drops dramatically in control (C); the drop in LA in high oleic (HO) prevents the decrease. Units are percent by weight of fatty acids.

RUTF: contains peanut with a have a high LA content

Not optimal for (n-3) LC-PUFA synthesis – Competition for Δ6 desaturase - Need to decrease LA ?

Brenna et al, BMC Med. 2015 May 15;13:117.

Need for optimising the mineral and vitamin content of RUTF

We are now in a situation where millions of children are treated every year with RUTF, but without a single evaluation of the vitamin and mineral status of children at the end of treatment.

Briend A, Akomo P, Bahwere P, de Pee S, Dibari F,
Golden MHN, Manary M, Ryan B. Food Nutr Bull 2015

Neglected nutrients (example 1)

Ann. N.Y. Acad. Sci. ISSN 0077-8923

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
Issue: Annals *Reports*
PERSPECTIVE

Thiamine content of F-75 therapeutic milk for complicated severe acute malnutrition: time for a change?

Laurent Hiffler,[1] Bola Adamolekun,[2] Philip R. Fischer,[3] and Aviva Fattal-Vavleski[4]

[1]Médecins Sans Frontières-OCBA, Dakar Unit, Dakar, Senegal. [2]Department of Neurology, University of Tennessee Health Science Center, Memphis, Tennessee. [3]Mayo Clinic School of Medicine, Rochester, Minnesota. [4]Pediatric Neurology Unit, Dana-Dwek Children's Hospital, Tel Aviv Sourasky Medical Center and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

Neglected nutrients (example 2)

Choline

Children with SAM have a fatty liver

Fatty liver difficult to induce in malnourished animals except when protein energy deficiency associated with choline deficiency

Role of choline deficiency as a contributing factor in fatty liver seen in SAM children not explored

Choline deficiency associated with cognitive impairment in animals

Neglected nutrients (example 2)

Maternal choline supplementation during the third trimester of pregnancy improves infant information processing speed: a randomized, double-blind, controlled feeding study

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ABSTRACT: Rodent studies demonstrate that supplementing the maternal diet with choline during pregnancy produces life-long cognitive benefits for the offspring. In contrast, the two experimental studies examining cognitive effects of maternal choline supplementation in humans produced inconsistent results, perhaps because of poor participant adherence and/or uncontrolled variation in intake of choline or other nutrients. We examined the effects of maternal choline supplementation during pregnancy on infant cognition, with intake of choline and other nutrients tightly controlled. Women entering their third trimester were randomized to consume, until delivery, either 480 mg choline/d ($n = 13$) or 930 mg choline/d ($n = 13$). Infant information processing speed and visuospatial memory were tested at 4, 7, 10, and 13 mo of age ($n = 24$). Mean reaction time (RT) averaged across the four ages was significantly faster for infants born to mothers in the 930 (*vs.* 480) mg choline/d group. This result indicates that maternal consumption of approximately twice the recommended amount of choline during the last trimester improves infant information processing speed. Furthermore, for the 480-mg choline/d group, there was a significant linear effect of exposure duration (infants exposed longer showed faster RTs), suggesting that even modest increases in maternal choline intake during pregnancy may produce cognitive benefits for offspring.—Caudill, M. A., Strupp, B. J., Muscalu, L., Nevins, J. E. H., Canfield, R. L. Maternal choline supplementation during the third trimester of pregnancy improves infant information processing speed: a randomized, double-blind, controlled feeding study. FASEB J. 32, 000–000 (2018). www.fasebj.org

In summary

Food aid is very successful in helping malnourished children, often saving their lives

Despite these successes, current food aid products can be improved

Parallel effort needed: increase coverage of existing interventions and improving the efficacy of existing products

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

Food Assistance for Nutrition:

The evidence on which we can agree

Dr Nancy J Aburto
June 2018

SAVING LIVES
CHANGING LIVES

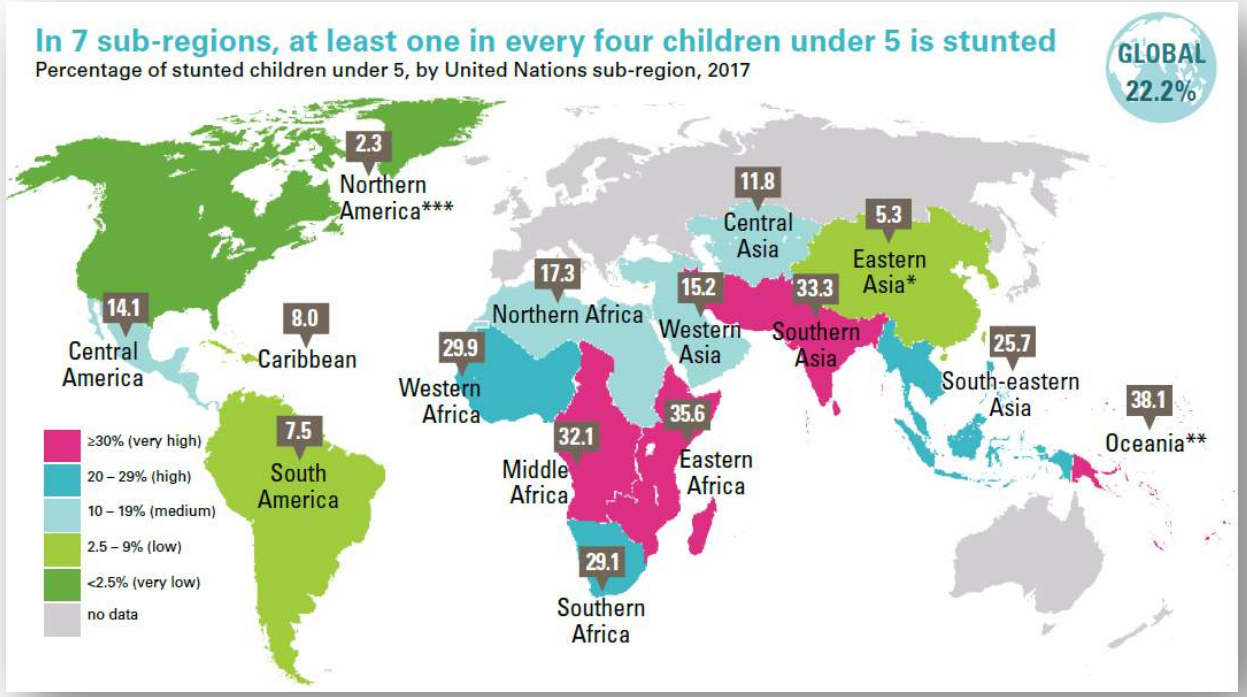
Hunger Map 2017

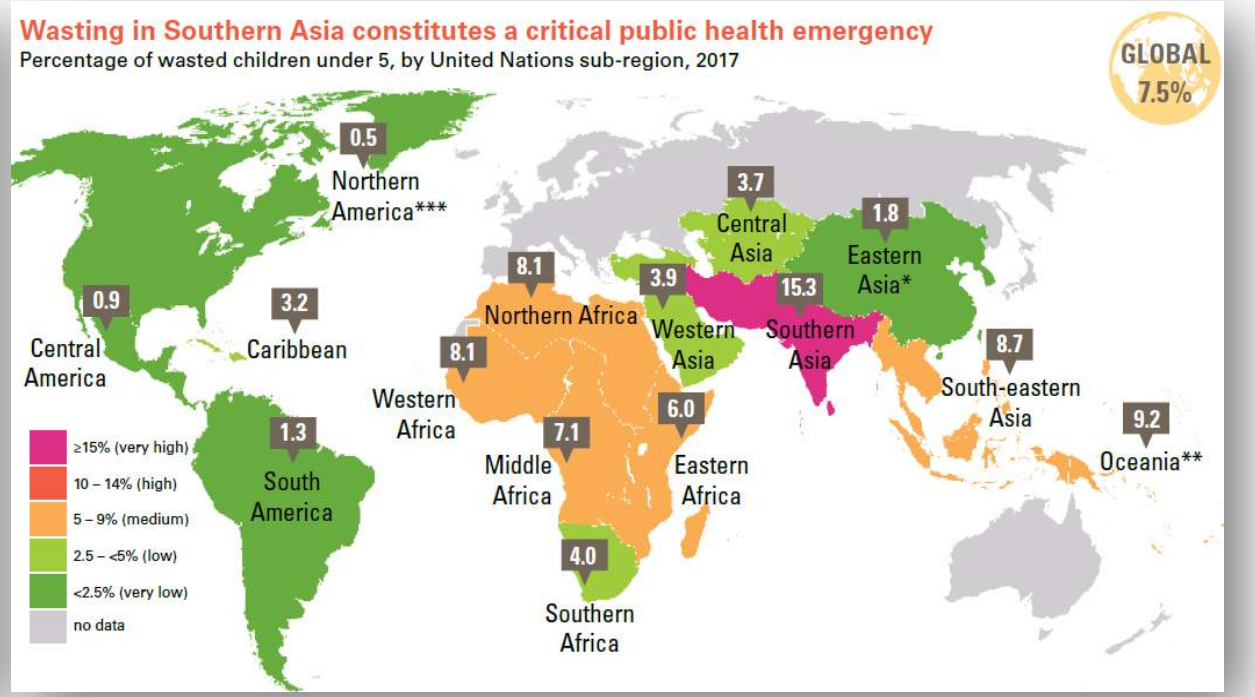
PREVALENCE OF UNDERNOURISHMENT IN THE POPULATION *(PERCENT)* IN 2014-16

- <5% — Very low
- 5-14,9% — Moderately low
- 15-24,9% — Moderately high
- 25-34,9% — High
- 35% and over — Very high
- Missing or insufficient data

WFP
World Food Programme

The Global Burden





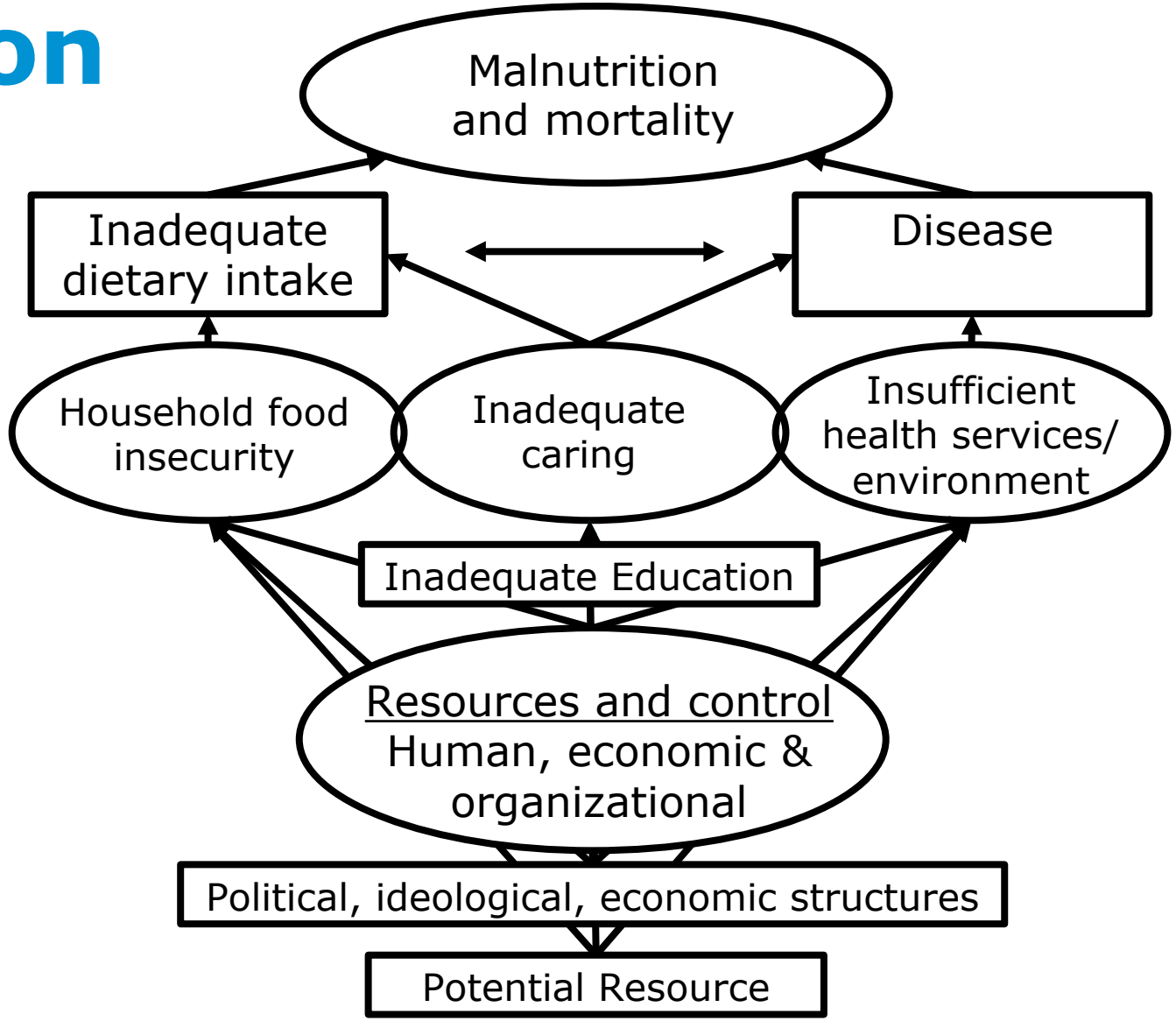
151 million U5 suffer stunting

51 million U5 suffer wasting

6 million U5 suffer stunting and wasting

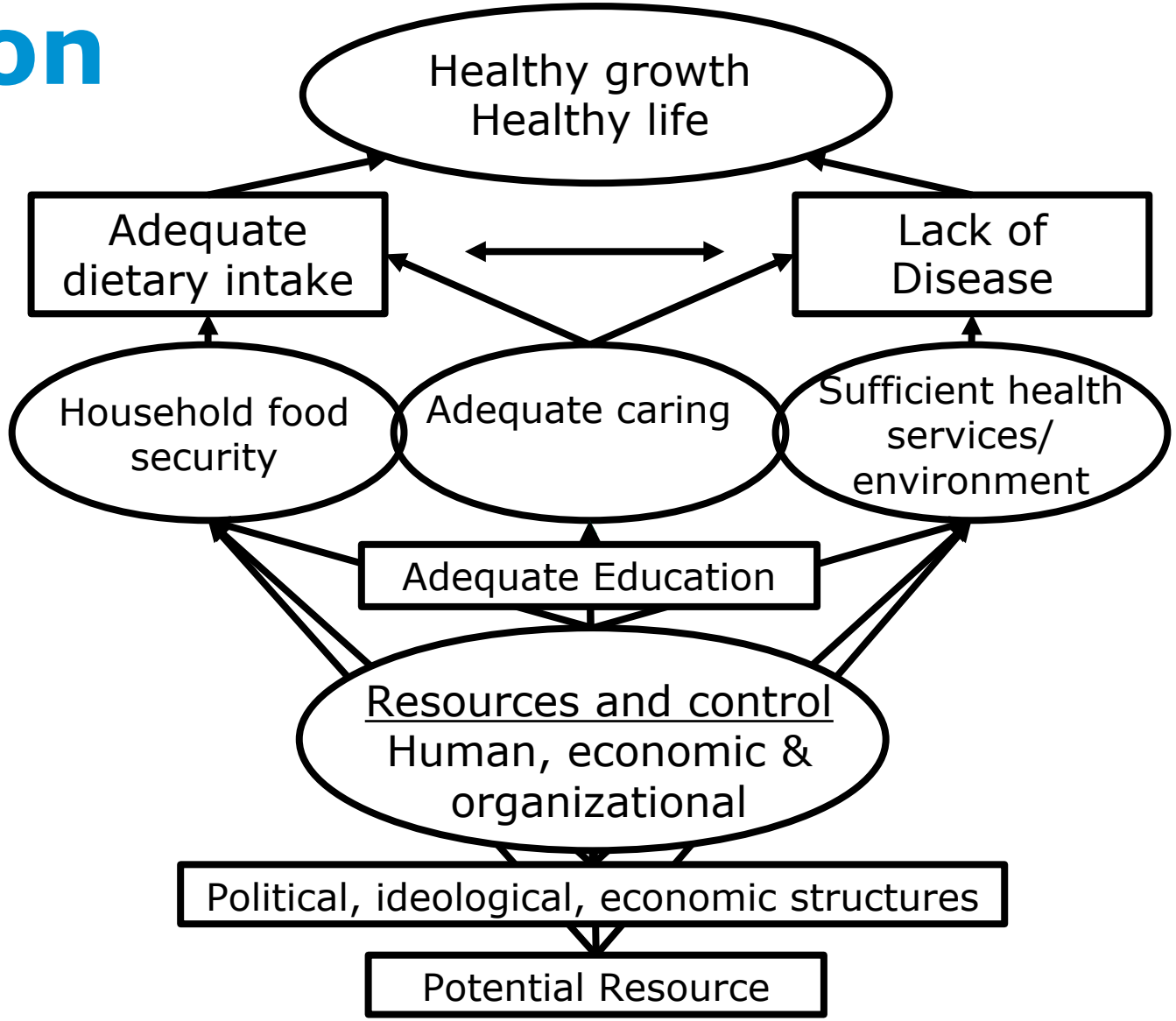
Joint Estimates 2018, Khara 2017

A Framework for Action

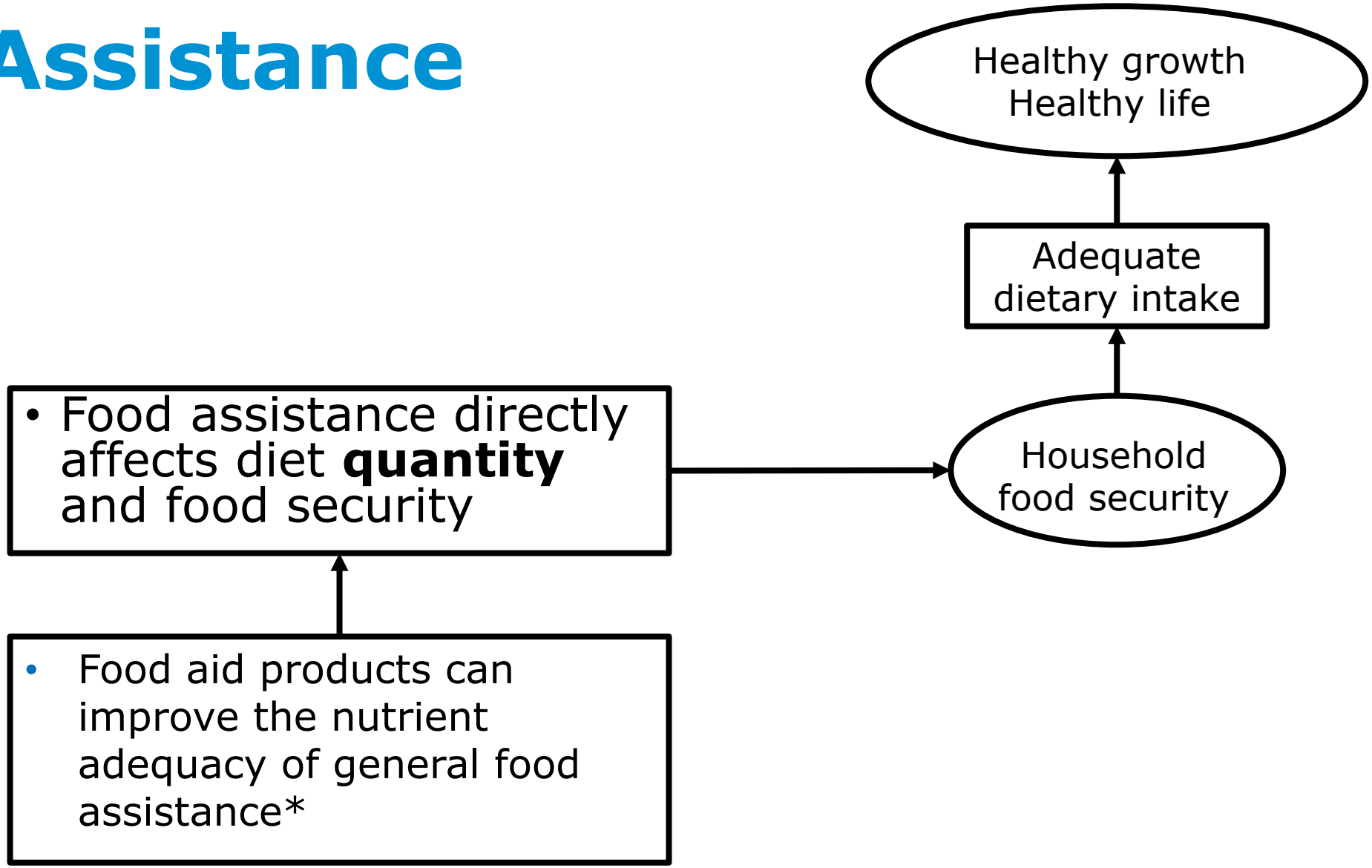


Jonsson 1992

A Framework for Action



Food Assistance



*Chaparro & Dewey 2010

Treating Malnutrition

- Not treating acute malnutrition
  - Irreversible consequences in reduced growth and development#
  - Significant non-recovery (~47%)
  - Significant deterioration into more severe malnutrition (~9% - 50%)
  - High mortality

- Intake needed for treatment
  - Recommended nutrient intake for children with acute malnutrition^*

James, 2016 *UN Joint Statement 2007 ^Golden 2009

Treating Malnutrition

Treatment of acute malnutrition including food assistance effective

- Provision of RUTF in community effective for recovery of **SAM**
  - Systematic review with meta analysis*

→

- WHO protocol reduced case fatality rate for inpatient treatment
- Children 50% more likely to recover with RUTF than standard care including corn-soy blend
- Community care of SAM comparable in reducing mortality and recovery to inpatient care

*Picot, et al 2012

Treating Malnutrition

Treatment of acute malnutrition including food assistance effective

- Provision of supplementary food effective for recovery of **MAM**
  - Two systematic reviews with 8 trials and 14 trails^#
  - Review of programme results without meta-analysis*

→

- Provision of food results in higher chance of recovering from moderate malnutrition, greater improvement in nutritional status
- RUSF and corn-soy blend following WHO guidance most effective
- RUSF improved outcomes vs un-enhanced corn-soy blend

^Lazzerini et al 2013 # Lenters 2013 *CMAM Forum (Annan et al) 2014

Treating Malnutrition

Treatment of acute malnutrition including food assistance effective

- Integrated management of **acute malnutrition**
  - Treatment across the spectrum of acute malnutrition (SAM+MAM)
  - Provision of a single product or protocol for acute malnutrition

→

- Several reports included participants across acute malnutrition and concluded community management effective*#
- Trail in Sierra Leone showed a comparable recovery from GAM in integrated management vs standard CMAM methodology**

*Picoct 2012 #CMAM Forum 2014**Maust 2015

Food assistance for nutrition is effective for treatment to save and improve lives

Preventing malnutrition

Food assistance can be an effective component of prevention

- Complementary food improves growth^
  - 7 studies in food insecure setting
  - Increase in HAZ and WAZ
  - Positive non-significant affect on stunting

- Food assistance in the form of cash-based transfers can lead to positive nutrition outcomes**

^Lancet, 2013 **WFP/ACF 2018

Preventing malnutrition

Programming evidence for prevention effectiveness

International Initiative for Impact Evaluation (3ie) conducted external evaluation of four WFP programmes in the Sahel

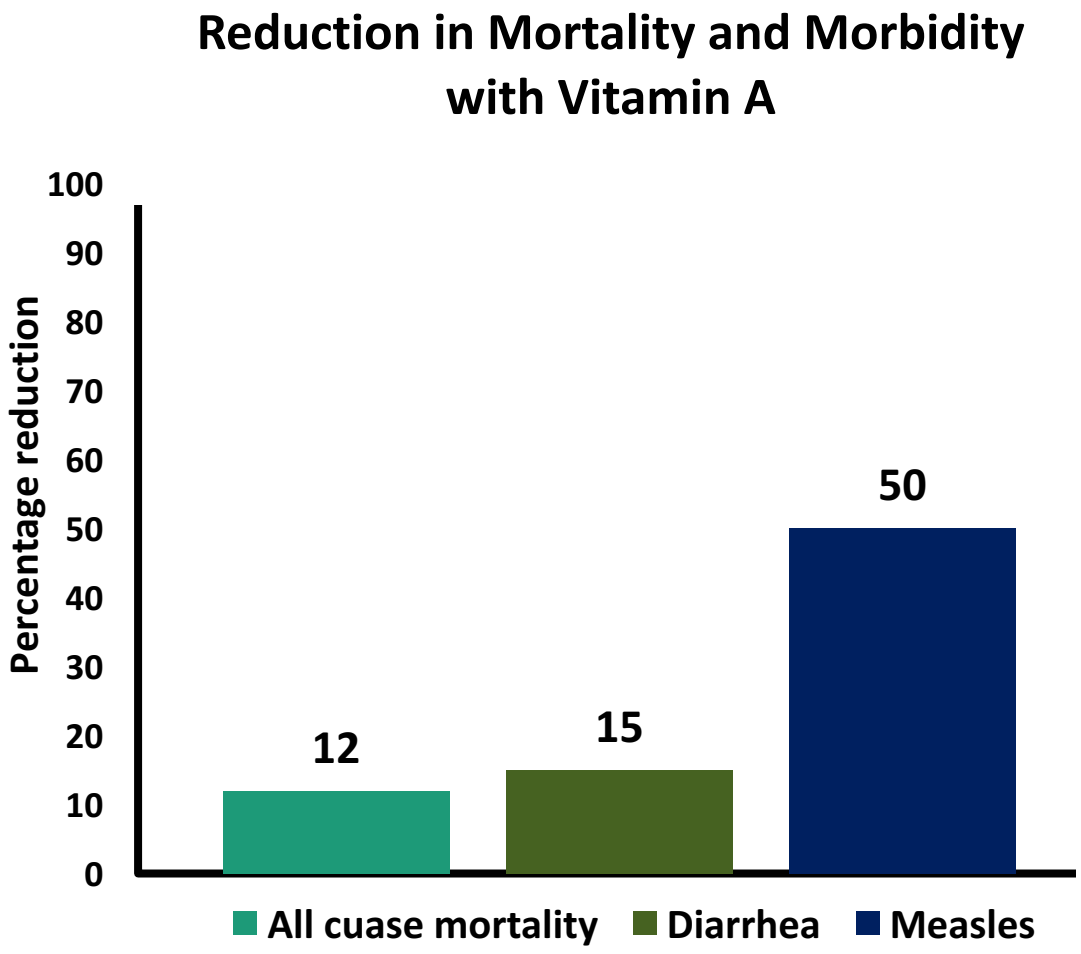
- Prevention can reduce incidence and prevalence of acute malnutrition
  - **Chad** – reduced incidence and prevalence of MAM
  - **Sudan** –reduced prevalence of children at risk of acute malnutrition
- Greater benefit when nutrition sensitive action was paired with nutrition specific
  - **Niger** – livelihood activity linked to food-based response resulted in 19% increase in MAM recovery
  - **Mali** – households receiving >1 food of assistance showed greater likelihood of improved growth in young children

*Kaul et al 2018

Food assistance for nutrition can be effective for prevention to alleviate suffering and sustainably reduce malnutrition

Addressing micronutrient deficiency

- Vit A reduces mortality & morbidity in children at risk*
- Iron provision improves iron status, reduces risk of anemia#
- Iodization of salt reduces risk of iodine deficiency disorders##



*Imdad 2017 #WHO 2011, 2016 ##Aburto et al 2014

Additional Benefits

- Optimal infant and young child feeding and care practices
- Integrate key hygiene actions
- Supporting local production of nutritious foods
- Support preventive and curative health and nutrition services

Example: Malawi

Program components

Core activities
- SQ-LNS to all children 6 – 23 months
- Social and behavior change communication
- Expanded MAM treatment

Support to Government programmes
- Vit A, folic acid & iron for PLW
- Deworming for PLW
- Food production (small-livestock and homestead gardening)
- WASH infrastructure

Advocacy and partnership
- Malaria control/prevention
- Vit A and zinc for children
- Deworming for children
- Others

Results

- Increased handwashing 0.26 points
- Increased dietary diversity 20pp
- Reduced malaria 20pp and fever 15pp
- Reduced underweight 7.5%
- Reduced acute malnutrition 2.6%
- Increased linear growth 0.34 LAZ

Food Assistance for Nutrition:

The evidence on which we can agree

- There is a clear need to act
- Food assistance, including specialized nutritious food, works to treat wasting
- Food assistance can promote healthy growth
- Food assistance can be effective to address micronutrient deficiency
- Robust research is needed for better, more cost effective, context specific integrated programming

Food assistance as part of comprehensive programming can impact nutrition and make a difference in communities

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FOOD ASSISTANCE FOR NUTRITION EVIDENCE SUMMIT

Organized by the Food Aid Quality Review Project