Food and caloric supplementation to pregnant women in insecure households

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Description of condition and intervention

Low body mass index (BMI) is considered a proxy for undernourishment. This intervention is suited for context specific settings where there is high (20-39%) and very high (40% or more) prevalence of undernourished women. Evidence indicates that balanced intake of calories and protein-rich diet in pregnancy reduces the risk of stillbirths and small-for-gestational age (SGA) infants. This evidence brief describes the dietary supplementation in terms of sufficient calories and protein for undernourished women during pregnancy for preventing SGA neonates. Source: WHO recommendations on antenatal care for a positive pregnancy experience 28 November 2016

NUTR01-03 **Food and caloric supplementation to pregnant women**

International guidelines

Organization	Indications/recommendations	Applicability in LIC & Lower MIC settings
World Health Organization	Following the WHO guidelines, women with pre-pregnancy BMI < 18.5 kg/m2 may gain 12.5–18 kg; those with BMI 18.5–24.9 kg/m2 may gain 11.5–16 kg and with BMI 25–29.9 k g /m2 for 7–11.5 kg gain. The women with BMI > 30 kg/m2 may target gain 5–9 kg during pregnancy. Balanced-energy protein supplementation/food which provides less than 25% protein energy content should be given to women in insecure households to maintain a health pregnancy, and a positive outcomes on perinatal births	Yes

Source: World Health Organization. "Global database on Body Mass Index: BMI Classification. 2006." World Health Organization: Geneva, Switzerland (2015).

Intervention attributes

Type of interventions & delivery platform

Table 1: Type of interventions & delivery platform

Intervention	Type	Delivery platform
3. Food and caloric supplementation to pregnant women in insecure households	Prevention	Community

Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

Moderate to high level of urgency this is dependent of the mother’s nutritional status.

Population in need of interventions

Table 2: Population in need of interventions

Intervention	Treated population		Affected population		Disease addressed
	Treated age	Treated fraction	Affected age	Affected fraction	
Food to pregnant women in insecure households	Pregnancy 10 to 54 years	Pregnant women: According to Henriksen et al. The treated fraction is 0.0429, which is the proportion of pregnant women living in insecure households (Unpublished work in progress)	Neonates 0 years (within first year of life)	Both genders with the condition: According Henriksen et al. The affected fraction is 0.0429 of neonates born preterm of mothers giving birth living in insecure households (Unpublished work in progress)	Neonatal preterm birth

Disease stage addressed

Provision of food and caloric supplementation in treated population may have effects on neonates small for gestational age.

Intervention effectiveness and safety

Table 3: Effectiveness and safety of food and caloric supplementation in pregnant women

Outcome addressed by intervention & its effect (highlighted in bold)	Certainty of evidence
Incidence Ota 2015 et al. concludes that giving **balanced-energy protein** lowers the risk of having **small-for-gestational age infants** by 21% (RR 0.79, 95% CI: 0.69 to 0.9)	⊕⊕⊕⊖ Moderate

Model assumptions

Table 4: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Model parameter	Notes
Intervention	Food and caloric supplementation	
Cost calculation		
Treated population	Pregnant women	Global Burden of Disease study
Treated gender	Female	
Treated fraction age	10 to 54 years	
Treated fraction	0.0429	See table 2
Effect calculation		
Affected population	Neonates	
Affected gender	Both genders	
Affected fraction age	0 to 0 year	
Affected fraction	0.0429	
Comparison	No intervention	
Incidence Reduction (RRR) of Small for gestational age	0.21	

Intervention Cost

The total unit cost is estimated to be USD 143.38 (Year: 2020) for giving food or caloric supplementation to pregnant women in insecure households per case according to Henriksen et al. (Work in progress)

References

Organization WH. WHO recommendations on antenatal care for a positive pregnancy experience 28 November 2016

World Health Organization. "Global database on Body Mass Index: BMI Classification. 2006." World Health Organization: Geneva, Switzerland (2015).

Ota 2015: Ota E, Hori H, Mori R, Tobe-Gai R, Farrar D. Antenatal dietary education and supplementation to increase energy and protein intake. Cochrane Database Syst Rev. 2015(6):CD000032.

Henriksen ES, Økeland J, Malawim O, Said S, Kaur G, Rava` MS, et al. Economic evaluation of nutritional interventions in Zanzibar: An analysis using FairChoices – DCP analytic tool.

Appendix

Literature Review for effectiveness & safety

This literature search is an example of level 3 evidence(metaanlysis) for intervention inputs taken from DCP3. (Despite low significant level for efficacy)

Level of evidence of efficacy studies:
1. Low (expert opinions, case series, reports, low-quality case control studies)

2. Moderate (high quality case control studies, low quality cohort studies)

3. High (high quality cohort studies, individual RCTs)

4. Very high (Multiple RCTs, meta-analysis, systematic reviews, clinical practice guidelines)

An overview of all NUTR interventions in FairChoices-DCP analytical tool
(Interventions assessed in this evidence brief are marked in bold)

NUTR01-01	Daily Iron Folic acid supplementation (pregnant women)
NUTR01-02	Calcium supplementation, pregnancy
NUTR01-03	**Food and caloric supplementation to pregnant women**
NUTR01-04	Promotion of breastfeeding and/ or complementary feeding
NUTR01-05	Intermittent Iron-folic acid supplementation (Menstruating women)
NUTR01-06	Food to non-pregnant women in insecure households
NUTR01-02-01-01	Daily iron supplementation for children 6 to 23 months
NUTR01-02-01-02	Daily iron supplementation in children health center
NUTR01-02-02	Intermittent iron supplementation in children (24 -59 months)
NUTR01-02-03	Vitamin A supplementation to children 6 to 59 months
NUTR01-02-04	Zink to children 6 to 59 months
NUTR01-02-05	Food to children in insecure households
NUTR01-03-01	Management of severe acute malnutrition without medical complications
NUTR01-03-02	Management of severe acute malnutrition associated with medical complications