



Nutrition Surveillance System in Georgia (2015-2020)

In 2015, National Centre for Disease Control and Public Health of Georgia (NCDC), in collaboration with the Centers for Disease Control and Prevention (CDC) Atlanta, launched the project “Strengthening surveillance of micronutrient deficiency in Georgia”.

Objectives of the project: 1. studying of micronutrient deficiency prevalence in children and pregnant women, and 2. establishing and strengthening nutrition surveillance system in Georgia.

The sentinel nutrition surveillance system was established in multiple stages:

Stage 1 was the selection of the sentinel sites.

Sentinel sites selection has been undertaken considering the main characteristics of representativeness (geographical, social, ethnical, urban/rural, religion, etc.) and existing information about malnutrition and dietary habits. 8 sentinel sites (health facilities) in four Regions of Georgia (Adjara, Samegrelo, Tbilisi, Kakheti) were selected for this project. 4 sites were chosen for gating nutritional status data from children and, another 4 sites to obtain data from pregnant women. All people living in the selected region had an equal opportunity to participate in the study.

The 2nd stage was selection of the target groups

3 Target groups from whom data were collected included:

- 1) pregnant women (enrolled 1203 pregnant)
- 2) children under 2 years (specifically 12-23 months age), (enrolled 1,261 children),
- 3) school age children (12 years old) (enrolled 479 children).

Stage 3 – selection of nutritional indicators

Five nutritional (biochemical) indicators: Iron (ferritin), Folate, Ca, vitamin “D”, and Iodine, were chosen for this project.

Data Analysis: For the data analysis were used Statistic Package for the Social Sciences (SPSS), and Anthro and Anthro+.

Laboratory tests and data collection were conducted by the following scheme:

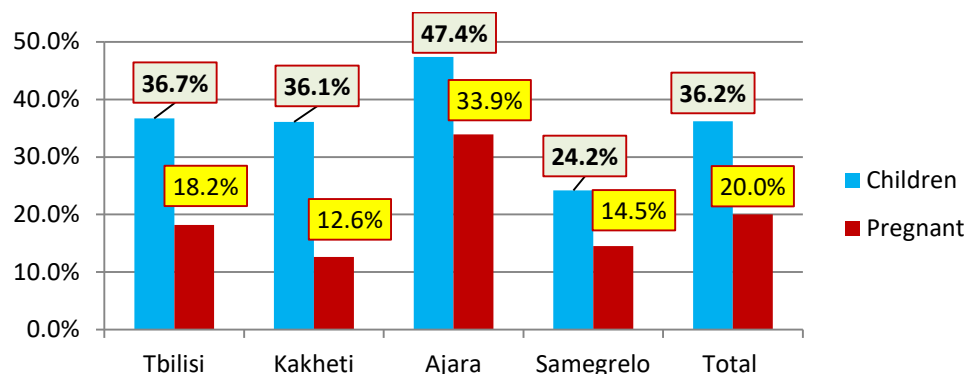
1. Haemoglobin, Iron, folate deficiencies (vein blood tests), and Iodine deficiencies (urine tests) were studied in pregnant women in the 1st trimester of pregnancy;
 2. Anthropometric measurement, Haemoglobin, Iron, Ca and vitamin “D” deficiencies (vein blood tests) were studies in children 12-23 months of age;
 3. Anthropometric measurement and iodine (urine tests) were used in school age (12y) children.
 4. NTDs prevalence monitoring is also involved in surveillance system.
- Laboratory tests were conducted in Tbilisi reference Laboratories.

Monitoring: During the implementation process, project manager and local consultants were conducting trainings for sentinel site medical personnel on Nutrition Status Surveillance, preparation of the data base on e-forms, and management.

Results:

From this study, we found that about 37% of the studied children (1261 children) under the year two (12-23 months) were confirmed to be anemic; 74% - was identified as iron deficient. Hemoglobin was tested in 1203 pregnant women, and about 20 % of them were found anemic; 57% were iron deficient, and 28% tested positive for folate deficiency. Neural tube defects (NTDs) prevalence per 1000 live births registered in sentinel sites was high – 3.73.

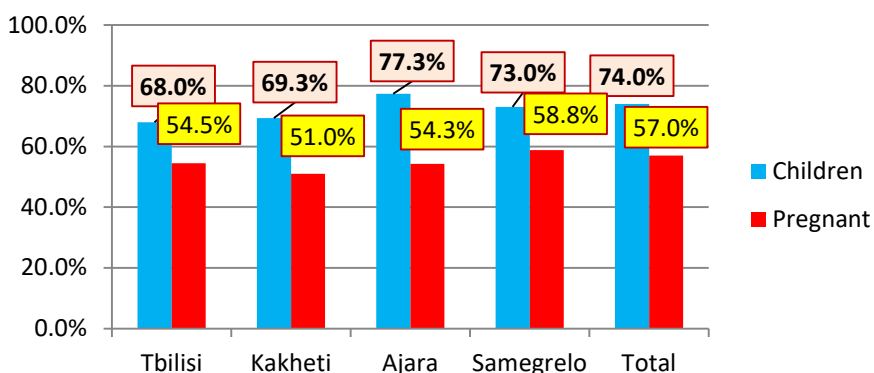
Figure 1. Anaemia prevalence (percentage) by regions and target groups



Severe anaemia cases were not identified in toddlers and pregnant women.

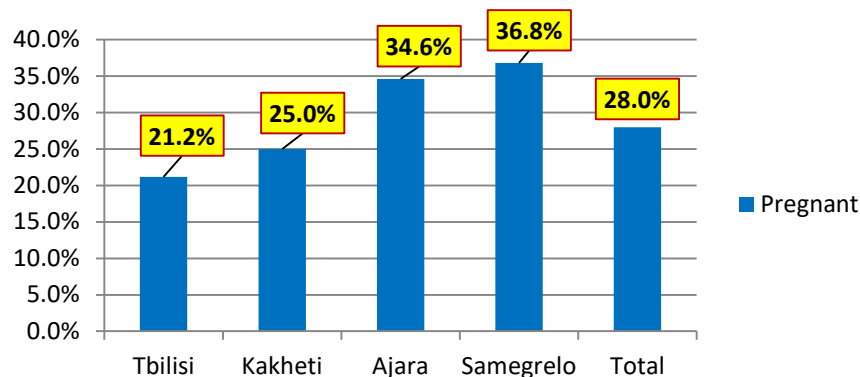
Regarding the differences by regions, we detected that the prevalence of anaemia in toddlers in Samegrelo region (24.2%) is 1.5 - 2 times less than in other three regions, especially when comparing with Ajara (47.4%).

Figure 2. Iron deficiency prevalence (percentage) by regions and target groups



Reviewing regional profiles for Iron deficiency, showed that prevalence in studied four regions is almost the same, and that all regions have a high prevalence. (Results by years are presented in Figure #2).

Figure 3. Folate deficiency prevalence (percentage) by regions and target group



There were significant regional differences in folate deficiency between the east (Tbilisi and Kakheti) and west (Ajara and Samegrelo) regions of Georgia. The east region (21.2-25%) had a lower prevalence than the west (34.6-36.8%).

Results by TABLES

Surveillance system revealed high rate of NTDs prevalence (4 per 1000 live-birth) (Table #4).

Vitamin "D" deficiency and inadequacy is estimated at 25% in children aged 12-23 months (Table #5). And "Ca" Deficiency consists about 16% of 12-23 months aged children in Georgia (Table #6).

The prevalence of other forms of malnutrition (stunting, wasting, etc.) is showed in Table #7.

Overweight and obesity is quite problematic issues for Georgia for the both preschool and school age children.

Results in table#8 demonstrate that Iodine deficiency problem is not an issue in Georgia, as a result of mandatory import and consumption of fortified salt (with iodine).

Table #1 Haemoglobin (anaemia)

Anaemia data (2016-2020)	Number of children (12-23 months age)	Anaemia (Hb<110 g/L)	Severe Anaemia (Hb <70 g/L)	Number of pregnant (1 st trimester)	Anaemia (Hb<110 g/L)	Severe Anaemia (Hb<70 g/L)
Total	1261	37%	0.0%	1203	20%	0.0%

Table #2 Ferritin (Iron) Deficiency

Years	Number of children (12-23 months age)	Ferritin <12.0 µg/L	Number of pregnant (1 st trimester)	Ferritin <15.0 µg/L
2016	238	84.4%	243	67.4%
2017	240	83.3%	240	54.6%
2018	303	74%	240	57.2%
2019	240	56%	240	47%
2020	240	58%	240	49%
total	1261	74%	1203	57%

Table #3 Folate Deficiency

Years	Number of pregnant (1 st trimester)	(Folate deficiency) serum folate <3.0 ng/mL
2016	243	31%
2017	240	23%
2018	240	30%
2019	240	29%
2020	240	28%
total	1203	28%

Table #4 NTDs prevalence /2016-2019/data is obtained from sentinels, only.

Years	Live births	NTDs (Neural tube defects)	NTDs per 1000 live birth
2016	2910	8	2.75
2017	2969	8	2.69
2018	2862	16	6.28
2019	3156	12	3.80
2020	3085	12	3.89
total	14982	56	3.73

Table #5. Vitamin “D” – 2018-2019/ 12-23 months age children.

Region	# of children	deficiency	inadequacy	sufficient	More than sufficient
		25(OH) D < 12 ng/ml	25(OH) D 12 - 20 ng/mL	25(OH) D 20–30 ng/mL	25(OH) D 30+ ng/mL
Total	543	6.5%	18.2%	29.4%	45.9%

Table #6. Ca – 2018-2019/ 12-23 months age children.

Region	2018-2019	
	# 12-23 months age children	Calcium < 2.20 mmol/L
Total	543	16.2%

Table # 7. Anthropometric measurements / Prevalence of other forms of malnutrition (2016-2019)

#	Target group	Percentage of children with**					
		Stunting Height-for-age	Wasting Weight-for-height	Underweight Weight-for-age	Overweight Weight-for-height		
	# Children	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	> +2 Z-scores
1	1728	12.8	0.4	1.3	0.2	1.2	24.6

* Category <-2 Z-scores includes <-3 Z-scores.

#	Target group	Percentage of children with**			
		BMI-for-age		BMI-for-age	
	# Children	< -3 Z-scores Severe thinness	< -2 Z-scores* Thinness	> +1 Z-scores Overweight	> +2 Z-scores* Obesity
1	727	0.1	1.4	44.2	18.5

* Category > +1 Z-scores includes > +2 Z-scores/

** used WHO Global Database on Child Growth and Malnutrition, and WHO growth references.

Table # 8 / Iodine Deficiency /2017 and 2019 y

Contingent	# of contingent	Median UIC (mcg/l)
school-aged children (SAC)	479	283.6
pregnant women (PW)	481	238.4

Conclusion: After reviewing of analyses of the results from this study, we conclude that: we have anaemia problem in children under two; Folate deficiency problem in pregnant women and Iron deficiency problem in the both (children and pregnant) contingents that is reflection of the general situation existing in Georgia. Estimating median of iodine deficiency in both groups (school age children and pregnant) we can conclude that iodine intake in Georgian population is appropriate, and iodine deficiency in population of Georgia does not exist anymore. It's a result of salt iodization strategy implementation since 2015.

Recommendations: The principal recommendation is to advocate with Georgian government start nutrition interventions regarding the food fortification at least with iron and folic acid. Also, promote the main principle of healthy eating by choosing iron and folate rich foods, and especially exclusive breast feeding; In addition, providing toddlers with special nutrition powder can be used to supplement feeding menus.



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