

SUMMARY REPORT: DATA TRIANGULATION FOR NUTRITION ASSESSMENT 2023



**NUTRITION DIVISION
MINISTRY OF HEALTH**

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01. Introduction

In 2022 post pandemic Sri Lanka faced further challenges due to economic crisis that led to significant impact on nutritional status of the population. This was further aggravated by difficulties faced due to diminishing agriculture produce and import restrictions. The situation resulted in escalating prices of most food items with the year-on-year food inflation rate at nearly 94 percent, which further limited the purchasing power of households.

Government of Sri Lanka in collaboration with multi-stakeholder partnerships-initiated implementation of urgent interventions to address the current challenge. Formulation of Emergency Nutrition Plan 2022-24, establishing National Nutrition Council and Combined Mechanism for addressing food and nutrition security at national, provincial, district, divisional and village levels, conducting National Nutrition Month for 2022 in October to get the prevalence of malnutrition of under five-year children, additional provision of LKR 500 million for addressing child malnutrition are noteworthy.

At the end of year 2022, there were three simultaneous sources of nutrition related information which provides data around issues of food security and nutrition. These include, Food Security Assessments carried out by FAO-WFP, National Nutrition Month October 2022 (which could be compared with 2021) and National Nutrition and Micronutrient Survey in Sri Lanka: 2022.

Maternal and child Sub Committee on Nutrition recommended to organize a deep dive into some of the findings and insights offered by the various datasets and come up with summary findings as well as programmatic implications.

Objectives of the data triangulation were,

1. To compile all details pertinent to nutrition status, its determinant and service delivery
2. To review and analyze available data to identify trends in nutrition status and facilitate targeting nutrition interventions in view of increasing efficiency and cost effectiveness
3. To provide recommendations for future delivery of nutrition interventions

The triangulation also serves as a mid-point assessment for further directions to be taken in the Emergency Nutrition Plan 2022-2024

02. Methodology

Triangulation of following three data sets was carried out to accomplish the objectives

- National Nutrition Month 2022 – Family Health Bureau, Ministry of Health
- Food Security Assessments – Food and Agriculture Organization-World Food Program 2022
- National Micronutrient Survey in Sri Lanka, Medical Research Institute, Ministry of Health 2022

These data sets had been previously presented separately. It was realized that as they use different sampling frames, useful conclusions for different target groups need to be drawn

through utilizing different analytical methods, where to some degree the data sets can yield meaningful interpretation, complimented with expert opinion.

The Workshop series were planned by the Ministry of Health with the support of UNICEF. The first workshop was held on January 25th 2023. Experts from various agencies within and outside Ministry of Health, Civil Society Organizations, academia etc were divided in to four groups considering the life cycle as many existing and potential interventions can follow a lifecycle approach.

Thus, each group was allocated to focus on data in above mentioned data sets, pertaining to,

- Children under five years,
- School children and adolescents,
- Pregnant and lactating women and
- Elderly and other vulnerable populations respectively.

All groups were provided the three datasets to review the available data, to undertake further analysis and comment on the key insights and program implications for the coming two years 2023-24.

The Second workshop was held on February 14th to disseminate the findings to a wider group that included higher officials from Presidential Secretariat, Ministry of Health and other relevant ministries, Treasury, Civil Societies, Academia etc.

03. Findings

Section 1: Children under five years

Interpretation of data

- MRI data is based on a representative sample at provincial level, and the nutrition month data comprising of data collected from routine service provision at PHM level were compared to identify general trends and patterns.
- The summary observations from these data indicate that between 2021 and 2022 prevalence of underweight, stunting and wasting of children under 5 years has increased. Wasting increased with age and stunting was highest in the second year.
- A slight increase in overweight was observed in the MRI data, a decrease was seen in NM data.
- With regard to micronutrient status, the MRI survey done in 2022 indicated an increase in the prevalence of anaemia while the prevalence of Iron deficiency and Iron deficiency anemia had decreased. Multiple reasons for anaemia such as low Mean Cell Volume, infections and other factors were identified. Prevalence of anemia decreased with age
- The prevalence of vitamin D deficiency as indicated by low serum vitamin D concentration was high at 26%.
- No differences were observed between male and female in all parameters studied.
- Of the sectors, the estate sector was worst affected with malnutrition.

- The districts identified as the worst affected were as follows: Higher % of undernutrition was in Ampara, Anuradhapura, Matara, Rathnapura, Hambantota, N’eliya
- Highest numbers of undernutrition were seen in Kurunegala, Kandy, Gampaha (NM).
- Wasting % was high in Polonnaruwa, Hambanthota and Galle, Ampara, Kurunegala and Matara.
- Food insecurity was highest in Uva, Sabaragamuwa, Southern province (WFP).
- The most vulnerable for food insecurity were households with non-educated household heads, large families, low income, Samurthi beneficiaries, daily wage labourers, female headed households, with pregnant and lactating women, children under 5 or with persons with disabilities.

Recommendations based on evidence

- Further data/analysis required.
 - GIS mapping to identify “local” units such as either PHM level or GN level.
 - Nutrition data available at PHM level to be mapped with non-health data available at GN level
 - Consensus required on criteria to identify “hot spots” – Suggestion; areas demonstrating all of the following: incidence of underweight >20%, rising trends of underweight over a period of 3 months, + non health factors to be decided based on analysis above/availability of relevant non–health data
 - Same criteria to be used in monitoring
- Utilize WFP data and collaboration to develop a pool of low-cost nutritious meals by province, and disseminate this information to PHM’s in hotspots.
- Develop and disseminate simple education messages emphasizing benefits of local low-cost foods.
- Disseminate widely existing resources such as FBDG and IYCF messages.
- Develop a mechanism and platform for data sharing on a regular basis.
- Provide clear guidance for donors on hotspots as well as nutritious foods items appropriate for children
- Identify causes for anemia to better target relevant interventions

Proposed short-, medium- and long-term actions

Table 1: Proposed Short term (within 6 months) actions for children under five years

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	GIS mapping to identify hotspots (PHM level or GN level)	Criteria to be applied to whole country to identify vulnerable areas	Hot spots identified for targeted interventions	List of hot spots available	FHB with support from Academia/UN partners
2	Close supervision and review of implementation of existing programs	In all districts prioritizing hot spots	Identification of under nutrition at individual/areas/district levels and present		FHB, RDHS, MOH

	giving priority to hot spots at all levels -MCHR, eRHMIS, local, monthly conferences etc		/discuss follow up actions at MCHR, eRHMIS, local, monthly conferences etc		
3	Development of area specific low cost meals	By province/district	Low-cost meals by province/districts to be available esp. to hot spots	List of low cost meals published online – access to relevant stakeholders in print form or as mobile friendly form	ND to coordinate WFP to provide meal list
4	Develop and disseminate simple education messages on local low-cost foods	By province/districts	Education messages disseminated and improved awareness	Education messages available online (awareness among public need to be assessed thru surveys)	ND, HPB
5	Disseminate widely existing resources such as FBDG messages, low cost recipes etc	Island wide with prioritizing Hot spots,	Existing resources disseminated and improved awareness	Existing resources made available to relevant stakeholders – MOH, PHM etc	ND HPB
6	Provide clear guidance for donors on hotspots as well as nutritious foods items appropriate for children-regularize donations	Donors including NGO's	Clear guidance available with high level endorsement List of hotspots with a list of appropriate foods for donation identified	Online availability of hotspot list and foods list	FHB ND
7	Provide clear guidance/protocols for industry sponsored donation for children under 5 years to prevent negative impacts on mainstream	All donors	Clear guidance available with high level	Protocols for donation available and mechanism in place	MoH Presidential Secretariat

Table 2: Proposed Medium term (6 months to one year) actions for children under five years

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Address funding issues for public health programmes	MCH/Nutrition programmes at central and district levels	Dedicated budget line with adequate funds made available	Dedicated budget line and adequate funds allocated	MoH Treasury
2	Undertake orientation of the combined mechanism officials, on key nutrition outcomes, and measures that can be taken up locally.	Island wide	Orientation completed	% village committees participated in orientation program	ND Presidential Secretariat

Table 03: Proposed long term (more than 1 year) for children under five years

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Develop a mechanism and platform for data sharing on a regular basis for ongoing analysis	Health and non- health sectors that generate relevant data	Identified criteria for data sharing and mechanism developed	Protocols for data sharing and mechanism in place	Health Information Unit of MoH and relevant stakeholders
2	Identify causes for anemia to better target relevant interventions	Nationally representative – mothers and children Under 5 years	Causes for anaemia identified	Study Report detailing causes for anaemia and proposed interventions	Academia with UN support
3	Invest in strengthening facilities for improved service provision - IT, transport, fuel	Preventive and curative health staff involved in providing nutrition services island wide	Required facilities made available	% MOH/ % PHMs without transport	MoH, donor agencies
4	Increase human resources for service provision – e.g. supervisors at MOH	Preventive and curative health staff involved in providing nutrition services island wide	Adequate Human Resources in place	No. of vacant positions filled at all levels (field up to central)	MoH, Cadre commission
5	Develop mechanisms for reducing post-harvest loss, local use	Hotspot areas/vulnerable districts	Mechanisms and facilities for reducing food loss.	Reduced post - harvest loss reported by farmers.	Ministry of Agriculture, MoH (ND),

	of local produce, reducing length of supply chains		Creation of local markets. Dissemination of messages regarding low -cost regional foods	Local markets activated or newly created. Increased awareness of low-cost foods at local level (mobile apps to document)	Presidential Secretariat combined mechanism officials at all levels
6	Collect secondary data from multiple sources, organize data, conduct correlational analysis at district level to understand / explain reasons and risk factors for all forms of childhood malnutrition	Hotspots areas to study both nutrition specific and sensitive variables as well as basic, underlying and immediate causes	Reasons and risk factors for all forms of childhood malnutrition identified using the following potential data sources: eRHMS, Annual Health Statistics, Nutrition Month data, MRI Surveys, DHS, STEPS, Household Income and Expenditure, and WFP surveys	A regular report i.e. quarterly nutrition bulletin should be compiled and disseminated	MoH (ND, FHB) and academia, support from UN agencies.
7	Develop and support preschool education programmes on nutrition and home gardening through health promoting preschool concept	Preschools in Colombo municipal council area as pilot	Education messages for preschool children; increased knowledge and practices among preschool teachers and children	No./ % of health (and nutrition) promoting preschools	Children’s Secretariat, Ministry of Education, MoH (HPB, FHB)

Programme implications (existing strategies to continue or modify)

- Although in the MCH programme all relevant evidence based direct nutrition interventions are implemented wide disparities among sectors, districts as well as at MOH and PHM level are noted in quality and coverage of services. More focus needs to be paid to “hot spots” when identified in this resource limited setting. In particular, identification of area specific causes for targeted interventions, close supervision and follow up is required. Monitoring of hotspots on a regular basis and identifying new hotspots (the changing pattern of hotspots over time) through the mapping methods suggested above, would help to maximally use limited resources.
- Guide MOH areas and districts to review more closely the implementation of existing programs and review outcomes of the children who were identified as undernourished at the monthly conferences, district MCH reviews etc giving special emphasis to “hot spots”. The reviews could include status and actions related to:
 - growth monitoring and promotion including nutritional counseling
 - improvements in children identified with growth faltering and challenges
 - improvements in children with Moderate Acute Malnutrition and challenges
 - improvements in children with Severe Acute Malnutrition and challenges
 - address specific barriers and bottlenecks.
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- Undertake orientation of the combined mechanism officials, on key nutrition outcomes, and measures that can be taken up locally. Provide clear guidance/protocols for industry sponsored donation for children under 5 years to prevent negative impacts on mainstream interventions.

Challenges and barriers encountered

- Inadequate funding for public health programmes
- Inadequate human resources for service provision – e.g. lack of supervisory officers at MOH level
- Inadequate facilities for service provision – e.g. Transport, fuel, IT
- Certain issues in data availability and sharing for further in-depth analysis e.g. PHM/GN level both health & nutrition as well as non-health related
- Industry sponsored nutritionally inappropriate donations impacting negatively on mainstream nutrition intervention

Section 2: School Children

Interpretation of data

- Both Macro-nutritional and micro-nutritional problems still exist among school children and should be considered a priority at all levels.
- **Wasting among school children** has increased in both primary and secondary grade school children (e- RHMIS). Wasting/Thinness is highest among primary school children. Wasting/Thinness is high among male school-children in both grades
- **Stunting** has increased in both Primary and secondary school children and pprevalence of stunting increased with the age. Stunting is high among female school-children
- Increasing trends of overweight and obesity should be intervened urgently and requires individual attention; Prevalence of both overweight and Obesity shows an upward trend (e- RHMIS)
- Anaemia (overall) is an increasing trend, but Iron Deficiency Anaemia (IDA) has declined.
- Both anaemia (overall) and Iron Deficiency Anaemia significantly high among secondary-grade female school-Children.
- Only a portion of iron-deficient school children were Anaemic and therefore anaemia cannot be solely explained by IDA
- Anaemia was high in socioeconomically disadvantaged populations (Allen 2017)
- Vitamin B12 Deficiency among School Children, Limited data are available for Vitamin B12 Deficiency.
- MRI survey findings indicate Vitamin B12 deficiency is 6.9% among 5-9 Year school children.
- Vitamin D deficiency is an emerging issue among school children. According to MRI survey 2017, among school children deficiency is 13.2% while 45.6% have insufficient levels. Significant factors are Male gender (p=0.001),daily milk consumption (p=0.001), residing in dry zone (p=001) (Jayatissa 2017)
- Risk of increasing stunting and wasting possibly due to the socioeconomic crisis and food insecurity.

Summary of findings

Recommendations based on evidence

- Both Macro-nutritional and micro-nutritional problems still exist among school children and should be considered a priority at all levels. Risk of increasing stunting and wasting possibly due to the socioeconomic crisis and food insecurity.
- Increasing trends of overweight and obesity should be intervened urgently and requires individual attention.
- Increasing Anaemia cannot be solely explained by IDA. Only a portion of Anaemia has been explained by IDA, therefore other etiological factors should be explored sufficiently.
- Vit B12 deficiency may go up, may be due to food insecurity in the financial crisis.
- Vitamin D deficiency is an emerging issue among school children and need proper preventive strategy

Programme implications (existing strategies to continue or modify)

- Strengthen current nutritional Interventions for school children and monitoring the nutritional status among school children needs to be considered a priority in the school health program
- Proper implementation of current school health policies guidelines and circulars
 - Healthy canteen policy
 - Circular on outdoor play activities
- Strengthen and continue the interventions on Micronutrients supplementation
Iron supplementation is to be continued till the fortification program established
- Encourage epidemiological studies to explore the etiology of anemia among school children
- Enhance awareness of Vitamin D deficiency and preventive measures
- Disparities among districts and provinces need to be paid attention in the planning and implementation of nutritional interventions
- Policy decisions are needed to increase availability and access to food with high protein sources
- Advocacy to reduce taxes for vegetables and fruits and to increase taxes for unhealthy/ highly processed food.

Table 4: Proposed Short term (within 6 months) actions for school children

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
Strengthening school nutrition interventions through					
1	Ensure regular provision of school meal by ensuring continuous funds to school nutrition programs	All School children in districts with higher prevalence of Wasting & stunting (Kalmunai Monaragala NIHS, Hambanthota, Nuwaraeliya Vavuniya Batticaloa Mullativu)	Improved access to nutritious meals for school children	Availability of funds (allocation and cash) to support current school meal programme at MOE	Ministry of Education, Finance, Health, Development agencies, Civil Society Organizations
2	Expand the school meal program to cover all vulnerable schools			100% coverage of school meal programme for all vulnerable school children in identified schools	
3	Provision of school meal with high nutritional value targeting the areas with high prevalence of undernutrition Ex ; School meal with compulsory one egg per day for 5 days per week			>90% coverage (Use) Micronutrients supplementation by school children who receive the MN	
4	Strengthen and sustain Micronutrients supplementation, till the fortification program is established			% of schools actively/explicitly promote at least 30min /day outdoor physical activity for all school children (via PHI school health survey-annually)	
5	Ensure the implementation of circulars on outdoor play activities for school children through enhanced M&E via zonal education offices				
At home /Community level					
1	Ensure meals with high nutritive value through parental awareness programs and via community sponsored initiatives Ex; Promote fresh milk 1 glass/day for the target group as a part of home meal •Promote daily use of fermented milk products (curd/ yoghurt) • Improve Freshwater fish cultivation and consumption among the target group in addition to seafood	All School children, focusing areas with higher prevalence of Wasting & stunting (Kalmunai Monaragala NIHS, Hambanthota, Nuwaraeliya Vavuniya Batticaloa Mullativu)	Improved access to nutritious meals Among school children	1.% students consume nutritious meal on the previous day 2. % of students consumed dairy / dairy product	Ministry of - Education -Finance -Health, -Development agencies -Civil society organizations -National Nutrition Secretariat (NNS) -Agriculture -Livestock -Fisheries -Trade -Finance -Media

Table 5 (a) : Proposed Medium term (6 months to one year) actions following data triangulation for school children

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Incorporate nutrition education in school curriculum to increase health literacy specially on nutrition and promotion of health and nutrition corners in all schools le: alternative foods/ low cost high nutritious healthy meal recipes /self-measuring of nutrition indicators and self-referral to the relevant officials	All school children	Increased awareness on healthy meals with low -cost and nutrition indicators	1.% students who can name 5 low cost, locally available nutritious food 2. % of students who self-measured their BMI at least once during past 6months 3.% of schools with health and nutrition corners	Ministry of Education Ministry of Health
2	Proper implementation of current school health policies guidelines and circulars -Healthy canteen policy	All schools	Improved access to nutritious meals Among school children	% of school canteens adhered to school canteen policy (grade A and B)	
3	Update annual school census with students' Nutritional status and school canteen gradings	Covering all schools	Availability of census report with nutrient indicators and canteen grading	% of students with low BMI, Overweight in Grade 1,4,7 and 10 (Male, Female)	
4	Community empowerment (including adolescents) on better cash management	All Adolescents	Availability of Cash management programs for adolescents	% of adolescents exposed to cash management workshop	

Table 5 (b) : Proposed Medium term (6 months to one year) actions following data triangulation for school children

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
To prevent overweight and obesity					
1	Compulsory outdoor play activities for the target group	All School children focusing areas with higher prevalence of Overweight and obesity Batticaloa CMC Colombo Anuradhapura Kaluthara	Improved level of physical activity among school children	1% of schools practice recommended outdoor physical activity levels in school time (via PHI annual surveys)	Ministry of Education Ministry of Health
2	Ensure the implementation of circulars on outdoor play activities for school children by education authorities through zonal education offices			% School inspection /supervision reports with reference to policy practice on physical activity and canteen	

Table 06. Proposed long term (more than 1 year) actions for school children

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Establish a mechanism to include unhealthy, healthy food identification into food act & Regulate the promotion of unhealthy food through media	Food manufacturers and distributors	Availability of safe food for consumption are made available to all children	Number of prosecutions done for violation of advertising regulations /food act	Ministry of Health Legal Consumer Affairs Authority Media
2	Increase taxation of unhealthy food and control the price of healthy food.	Nationally representative – mothers and children Under 5 years	Affordability of quality and healthy food to all is ensured.	% tax increase on SSB Vs previous year	Ministries of Finance, Trade, Consumer Affairs, Health, Agriculture, Livestock, Fisheries

3	Establish tools to measure Medicinal/ Nutritional value of commonly available local food, and unprocessed Foods		Survey reports with nutritional value of local unprocessed food		Health Indigenous Medicine Academics
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Challenges faced

- Lack of government funds to continue school nutrition programs
- Advertising on unhealthy food items through mass media and availability of unhealthy food items for a relatively cheap prize
- Household food insecurity with the ongoing economic crisis
- Academic stress and competition among children lead to lack of physical activities

Section 3: Pregnant and lactating women

Interpretation of data

- Percentage of pregnant women with low BMI has increased from 13.9% in 2021 to 14.6% 2022.
- High prevalence MOH areas with low BMI can be mapped.
- High rates of LBW are also seen in areas where a higher percentage of mothers have a low BMI
- Percentage of mothers with overweight is lesser in 2022 than in 2021- 31.4%
- Anaemia – Almost static, wide variation in rates in the districts, MOH areas
 - Percentage of pregnant mothers with Hb less than 11g/dl at less than 12 weeks of POA in 2022, were high in Jaffna, Vavuniya, Colombo MC, Ampara, Kurunegala (eRHMS, FHB)
- Rates of anaemia increases in the 3rd trimester (almost double)

Table 07: Summary of distribution of anaemia, iron deficiency anaemia and Vitamin B12 deficiency among pregnant mothers according to age, Trimester and sector

	Anaemia	ID	IDA	Vit B12	Vit D	Zn	Iodine
Age	Extremes of age	Younger age	Extremes of age	Middle age	Middle age	Middle age	Younger age
Trimester	T3	T3	T3	T3	T3	T3	T3
Sector	Urban	-	Urban	Estate	Estate	Urban	Estate

Table 8: Number of deficiencies including anaemia, iron deficiency anaemia and Vitamin B12 deficiency among pregnant mothers according to Province

Province	Anaemia	ID	IDA	Vit B12	Vit D	Zn	Iodine	Number of deficiencies
Western	1	1	1	0	1	1	0	5
Central	0	1	0	0	1	0	0	2
Southern	1	0	0	0	0	0	0	1
Northern	1	0	0	0	0	1	0	2
Eastern	0	1	1	1	0	0	0	3
North-Western	1	1	0	1	0	1	0	4
North-Central	1	1	0	0	1	0	1	4
Uva	0	0	0	1	0	0	0	1
Sabaragamuwa	0	1	1	1	1	1	1	6

- Based on Food availability and price, Nuwara Eliya and Batticaloa are identified as very high -risk areas for malnutrition

Food prices – Very high -risk areas

- Anuradhapura, Polonnaruwa
- Trincomalee
- Mannar, Kilinochchi, Mullaitivu
- Kegalle, Embilipitiya
- Nikaweratiya
- Bandarawela

Table 09(a): Proposed Short term (within 6 months) actions for pregnant and lactating women

Strategic area 1: Food insecurity

	Activity	Target areas/ Groups	Output	Output Indicator	Responsibility
1	Targeted food/ cash voucher system for mothers	Very high-risk areas for food prices	Essential food items are available for pregnant mothers	% of pregnant mothers receiving vouchers in selected areas	Ministry of Women, Child Affairs and Social Empowerment
2	Targeted distribution of Thriposha in case of short supply	Very high -risk areas for food prices and availability	Uninterrupted supply of Thriposha for mothers in high - risk areas	% of target areas where there were stockouts	Nutrition Division
3	Promotion of establishment of community kitchens	Very high risk areas for food prices and availability	Decrease of low BMI prevalence	% of pregnant mothers with low BMI	Donor agencies

Table 9 (b): Proposed Short term (within 6 months) actions following data triangulation for pregnant and lactating women

Strategic area 2: Micronutrient deficiency

	Activity	Target areas/ Groups	Output	Output Indicator	Responsibility
1	Strengthen the supply chain of nutrition commodities	All pregnant and lactating mothers	Stockouts not experienced at the MOH level for micronutrients for mothers	% of areas where there were no stockouts of maternal micronutrients	MSD
2	Increase awareness on appropriate use of micronutrient supplementation	All pregnant and lactating mothers	Awareness programmes are conducted in all MOH areas	% of areas where awareness programmes are conducted	MOOH
3	Provision of multiple micronutrient supplementation for pregnant and lactating mothers	All pregnant mothers	Pregnant mothers receive MMN	% of pregnant mothers who received MMN	MSD

Table 9 (C): Proposed Short term (within 6 months) actions following data triangulation for pregnant and lactating women

Strategic area 3: Information and intervention monitoring

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Monitor the Gestational Weight Gain of pregnant mothers through a sample survey initially	Areas with highest prevalence of low BMI	The survey is completed in all target areas	% of target areas where the survey is completed	FHB
2	Adequate stocks of printed formats made available for monitoring purposes	All island	Adequate stocks of printed material are made available in all MOH areas	% of MOH areas where adequate stocks of printed material are available	FHB

Table 10 (a): Proposed medium term (6 months) actions for pregnant and lactating women

Strategic area 1: Food insecurity

	Activity	Target areas/ Groups	Output	Output Indicator	Responsibility
1	Promote home gardening by providing technical guidance by Field Agriculture Officers and field officers at GN level (1.5.2 ENAP)	Very high risk areas for food prices and availability	Pregnant mothers in target areas engaged in home gardening	% of pregnant mothers in target areas engaged in home gardening	Divisional Secretariat
2	Empower communities on home gardening through community mobilization by ground level CBO, CSO, NGO etc (1.5.3 ENAP)	Very high risk areas for food prices and availability	CBOs, CSOs and NGOs in target areas engaged in empowering communities on home gardening	% of target areas where CBOs, CSOs and NGOs are engaged in empowering communities on home gardening	Ground level CBO, CSO, NGO

Table 10 (b): Proposed medium term (6 months) actions for pregnant and lactating women

Strategic area 2: Micronutrient deficiency

	Activity	Target areas/ Groups	Output	Output Indicator	Responsibility
1	Develop capacities of health staff to identify nutrition problems of pregnant mothers early and provide client specific management	To be initiated at areas with the highest prevalence of low BMI	Capacity development programmes conducted at MOH level in target areas	% of target areas where capacity development programmes are conducted	FHB

Table 10 (C): Proposed medium term (6 months) actions for pregnant and lactating women

Strategic area 3: Information and intervention monitoring

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Introduce a sample survey method to district level to monitor the	All areas	District and MOH staff trained on sample surveys on essential nutritional activities	% of areas where the staff is trained on monitoring programme delivery	FHB

	programme delivery				
2	Assess the nutrition status of lactating mothers	District level	A study report available at the national level	Availability of a study report on nutrition status of lactating mothers	MRI

Table 11: Proposed long term (more than 1 year) actions following data triangulation for pregnant and lactating women

Strategic area 3: Information and intervention monitoring

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Monitor the Gestational Weight Gain of pregnant mothers through the RH.MIS	National level	GWG is included in the RH.MIS as an indicator	Inclusion of GWG in the RH.MIS as an indicator	FHB
2	Determine the status of maternal micronutrient deficiencies	All the districts	A study report is made available at the national level	Availability of the study report	MRI

Section 4: Elderly and other vulnerable populations respectively

Interpretation of data

- Availability of data is limited related to older persons, persons with disabilities, adult (18-59 years), and other vulnerable populations.
- 12% of total elderly population had thinness and it is high among middle and old elderly [> 70 yrs and above] (15.9%) when compared to young elderly [60-69 yrs] (10.2%). (MRI Data-2022). Thus, wasting is high among middle and old elderly.
- Mineral and micronutrient intake among elderly population is insufficient.
 - Among the minerals, all minerals were below AR except Selenium intake.
 - Adults aged >60 years of age taken supplements (vitamins or food) during last one month was 11.9%.
- Almost 1/3 of the elderly population are anemic.
 - Anemia prevalence young elderly [60-69 yrs], old elderly [> 70 yrs and above] is 54.3% and 42.3% respectively.
- Elderly in residential care institutions had poor nutritional support.
 - 8.0% of elder homes have a mechanism to assess the nutritional status of the elderly on admission.

- 6.0% elder homes are carrying out periodical nutritional assessment.
- In 24.0% elder homes, there were elders with feeding difficulties at the time of the survey.
- 14.5% elder homes have a referral mechanism for the elders with identified nutritional problems.
- 10% of elder homes have a mechanism for a medical or related professional to advise on special meal preparation
- 26.0% of elder homes have an institutional food purchasing policy.
- 87.0% of elder homes accept donor food.
- Most of the elder homes do not even have basic physical resources in providing nutritional care support for elders to cater for their specific nutritional need.
- Having a disabled person is a risk factor for household food insecurity.
- Vulnerability for the household food insecurity is increased by 1.13 times if there is a disabled person in the household, while it is increased by 1.67 times if there is two disable persons in the household.

Speculative causes for Malnutrition & Micronutrients deficiencies among elderly

- Household food insecurity
- Frailty
- Multiple Comorbidities
- Alteration of food habits due to Poly-pharmacy
- Low physical activity
- Financial insecurity
- Myths and rumors
- Level of education
- Living alone and left behind due to migration
- Negligence and abuse
- Social isolation

Recommendation based on evidence

- Conduct community based nutritional surveys among elderly population.
- Conduct nutritional assessment among elderly in residential care institutions.
- Conduct nutritional surveys among estate and urban under settle population.
- Assess nutritional status of formal and informal occupational groups.
- Most vulnerable elderly/disabled or respective household need to be identified with the assistance of grass-root level field offices (GN, PHM, PHI, Samurdhi Offices) and nutritional/financial aids can be allocated.
- Regional-level foster scheme can be introduced to vulnerable households with elderly or disabled.
- Nutritional literacy among elderly population, disabled and their caregivers can be enhanced through community organization such as mother support groups, Elders clubs, pensioners societies, “maranaadhara samithi”.

- Empowerment of elderly can be done via such organizations with the assistance of MOH, Divisional Elderly Rights Promoting Offices, Social workers, PHI, PHM, and NGOs.
- Advocacy programs need to be conducted to increase elderly allowance to financially vulnerable elders (Current Rs. 2000 is highly inadequate).
- Register all institutions with long-term care facilities for elders.
- All institutions with LTCF need to be empowered on National Nutrition Quality Standards (NNQS) and a monitoring mechanism need to be implemented.
- Advocacy and Promotion of income generation specially among young elderly.
- Empower and mobilize young elderly to provide nutritional care services for old elderly.
- Strengthening of the registration of long-term care facilities for older person.
- Established legal support for elderly and disabled.
- Primary Health Care system needs to be further strengthened to cater the nutritional needs of elderly and disabled people.
- MOs in the PMCIs and PHNOs can be further empowered on providing nutritional related services for the elders and disable in the respective catchment zone.
- Cash management and awareness programs can be conducted for the all people, while putting special attention to estate and urban under settle population.
- Alternative food items which are specific to given geographical area can be identified and community awareness sessions can be conducted at ground level.
- Low-cost meal with alternative food items and cost-effective methods of food preparation such as one pot dish, leftover curries can be further popularized among vulnerable groups.
- Food baskets can be distributed among more vulnerable households.
- Local food exchange points can be established at grass-root level to enhance food availability at a relatively low cost.
- 'Community Kitchen' can be further expanded among vulnerable pockets. Provision of at least one cooked meal for isolated frail elders (identified by Grama Niladharis); as a social support mechanism to assist them.
- Strengthen a sustainable intersectoral collaboration.
- Monitoring and evaluation mechanism need to be established to monitor nutritional activities conducted for the elderly, disabled and other vulnerable population.

Proposed short term, medium- and long-term actions following data triangulation for elderly population

Table 12: Proposed Short term (within 6 months) actions for Elderly population

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Most vulnerable older persons / disabled or respective household need to be identified	Elderly population live in a given GND area	Data base on vulnerable elderly/ disabled	Proportion of elderly/ disable person with nutritional vulnerability	PHM, PHI, GN, Economic Development Officer
2	Regional level foster scheme can be introduced to vulnerable household with elderly or disable	Elderly/ disable live in Divisional Secretary area	Availability of foster scheme	Proportion of elderly/ disable person supported with foster scheme	Divisional Secretary, MOH, Elderly Right Promoting Officer
3	Advocacy program need to be conducted to increase elderly allowance to financially vulnerable elders	Elderly who needs financial aids	Sufficient elderly allowance	Amount of funds allocated for an elder	Elderly Secretariate

Table 13: Proposed medium term (6 months to one year) actions following data triangulation for Elderly population

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Conduct nutritional survey among elderly population including elderly living in the Long-Term Care Facilities (LTCF)	Elderly population in each division including in the LTCF	Nutritional data base of elderly	Proportion of elderly with poor nutritional status	MOH, Elderly Right Promoting Officer (ERPO)/ PHM/PHI/ PH Nursing Officers
2	Advocacy and Promotion of income generation specially among young elderly	Young elderly population	Availability of advocacy program	Number of advocacy program conducted for young elderly	YED/ MOH/ERPO

3	Nutritional literacy among elderly population, disabled and their caregivers can be enhanced through community organization	Members in such as mother support groups, Elders clubs, pensioners societies. "maranaadhara samithi"	Availability of nutritional awareness program	Number of nutritional awareness program conducted	YED/MOH/ERPO/PHM/PHI
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Table 14: Proposed Long term (above one year) actions following data triangulation for Elderly population

	Activity	Target areas/ groups	Output	Output Indicator	Responsibility
1	Primary Health Care system need to be further strengthened to cater the nutritional needs of elderly and disable people	Health care workers in PMCI	Availability of training program	Number of HCWs participated in elderly health program	MoH/ PDHS/RDHS/YED
2	Strengthening of the registration of long-term care facilities for older person	Elderly live in institutions with LTCF	Availability of registration mechanism	Number of centers with LTCF registered	Elderly Secretariate
3	Monitoring and evaluation mechanism need to be established to monitor nutritional activities conducted for the elderly, disable and other vulnerable population	Elderly/persons with disabilities/ nutritionally vulnerable household	Availability of Monitoring and evaluation mechanism	Number of elderly identified and facilitated	Elderly secretariate/YED/Estate and Urban Health

Annexure I

National Nutrition Month 2022

Assessment of children under 5 years has been carried out since 2006 by Family Health Bureau to obtain comprehensive prevalence data on child nutrition, which enables to assess the annual trends as well. Each year a month was dedicated for this purpose initially and subsequently, Nutrition Division declared a “National Nutrition Month” each year with a theme selected to address a particular nutritional problem that need public attention and to promote positive behavioral change. During this month, the anthropometric measurements, namely the length/ height and weight of all the children under 5 years of age are measured as an island wide activity and subsequently was expanded to include pregnant mothers, school going children and children not attending school.

In 2022, Family Health Bureau conducted refresh training on IYCF guidelines, anthropometric measurements, recording and assuring quality of data for Public Health Midwives and supervising staff categories and all measures were taken to achieve the maximum coverage of children under 5 years of the whole country.

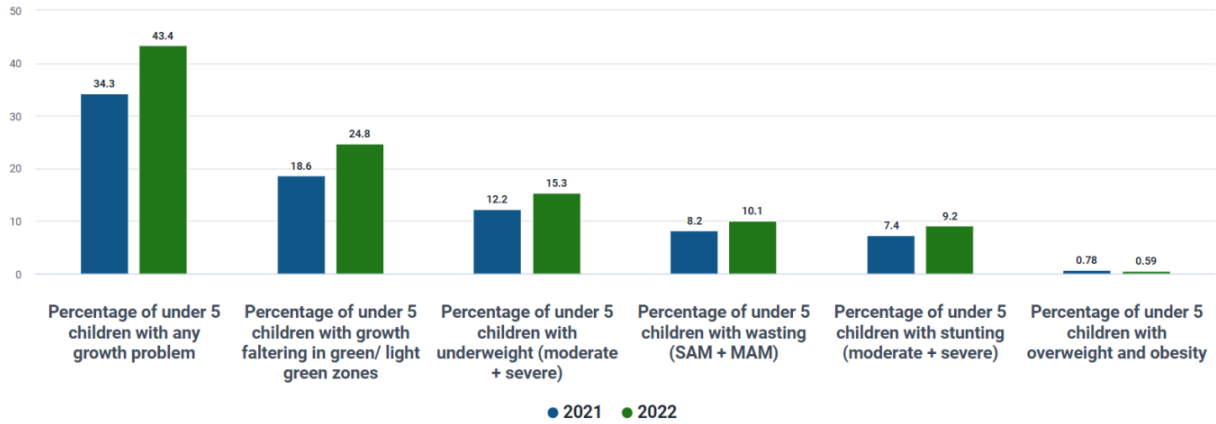
In addition, all Medical Officers of Health were instructed to measure nutrition status in their school children by Public Health Inspector areas, making sure that at least one school with less than 200 children and one with more than 200 children in each PHI area are covered during the month of October.

Summary of findings

- In 2022, percentages of children under 5 years with any form of undernutrition (growth faltering, underweight, wasting and stunting) has increased up to 42.9% in 2022 compared to in 2021. Ampara, Anuradhapura, Matara, Ratnapura and Hambanthota districts are recorded as the highest risk districts.
- Regarding underweight prevalence of children under 5 years in 2022, which has increased up to 15.3% in 2022 compared to 12.2 in 2021. Highest risk districts were Nuwaraeliya, Kilinochchi, Badulla, Anuradhapura and Trincomalee.
- Wasting (low weight-for-length/height (< -2SD) indicates recent and severe weight loss, which usually occurs when a child has not had food of adequate quality and quantity and/or they have had frequent or prolonged or severe illnesses. In 2022, percentages of children under 5 years with wasting has increased up to 10.5% in 2022 compared to 8.2% in 2021. Polonnaruwa, Galle, Hambanthota, Ampara, and Kurunegala districts were recorded as the highest risk districts.
- Severe acute malnutrition or SAM (very low weight for length/height (< -3SD) recorded a total of 18,420 children under five years have been reported in October 2022 which has increased up to 1.4% in 2022 compared to 1.1% in 2021. Highest risk districts were Polonnaruwa, Colombo CMC area, Nuwaraeliya, Kurunegala, Badulla, Putlam and Ratnapura.
- Stunting (low length/height for age (< -2SD) is the result of chronic or recurrent undernutrition, usually associated with poverty, poor maternal health and nutrition, frequent illness and/or inappropriate feeding and care in early life. In 2022, percentages of children under 5 years with stunting has increased up to 9.2% in 2022 compared to 7.4% in 2021. Nuwaraeliya, Trincomalee, Ratnapura, Kandy and Kilinochchi districts were recorded as the highest risk districts.

- In all districts except Mullativu, overweight and obesity has decreased compared to 2021 which has decreased to 0.59% in 2022 from 0.78% in 2021.
- This trend is seen in all age categories [infant, 1-2 years, 2-5 years] and in all three sectors [urban, rural & estate].

Figure 1 - Summary of findings in Nutrition Month 2022



Reference : Nutrition Month Summary Report 2022, Family Health Bureau, Ministry of Health, 2022

Annexure II

Food and Nutrition Assessments carried out by World Food Program 2022

At the request of the Government, a joint FAO/WFP Crop and Food Security Assessment Mission (CFSAM) took place in June and July 2022 to analyse the country's agricultural production in 2022, particularly of the main staple cereals, and to assess households' food security conditions.

The mission analyzed official data of cereal production for the 2021/22 main "Maha" crops, harvested by March 2022, forecasted the production of the 2022 "Yala" crops, to be harvested by September 2022, and estimated the cereal import requirements for the 2022 marketing year (January/December). The mission assessed market conditions and households' food security and nutrition situation.

To estimate the number, location and characteristics of acutely food insecure households, a face-to-face (F2F) household food security assessments of 2970 households generating representative findings covering the whole country.

Structured interviews with district level authorities, farmers, fishing communities and livestock owners. Visits to retail and wholesale food markets including "Sathosa", and interviews with rice millers, rice traders and merchants, were conducted.

The mission triangulated field observations with official data provided by government agencies. Satellite based imagery (VCI and estimated rainfall amounts) was used to retrospectively validate the official information on the production of the main 2022 "Maha" season crops that were harvested prior the arrival of the mission in the country.

Then the mission held technical meetings with officials from the MoA, Food Commissioner Department, MRI, Trade Ministry and the International Monetary Fund (IMF) with the aim to gain in-depth knowledge on some specific issues and to collect additional information.

Summary of findings

- A severe macroeconomic crisis caused acute shortages and spikes in the prices of essential products, bringing the overall economic activities to a standstill, with major disruptions to agricultural production.
- Import shortages, soaring prices, livelihood disruptions, reduced household purchasing power and exhaustion of less severe household coping strategies lead to dramatic rise of acute food insecurity.
- Production of paddy, forecasted a 42 percent decline year-on-year and the lowest level since the 2017 drought-affected output, mostly due to low yields following reduced application of agrochemicals.
- Production of maize, mostly used as feed, is about 40 percent below the last five-year average, with negative effects on poultry and livestock production.
- Total cereal import requirements in 2022 are estimated at 2.2 million tonnes. In the first six months of 2022, about 932 000 tonnes of cereals were imported, leaving an outstanding import

requirement of 1.27 million tonnes. Given persisting macroeconomic challenges, there is a high risk that the full import requirement could not be met.

- Production of vegetables, fruits and export-oriented crops, such as tea, rubber, coconut and spices, is well below the average levels, causing a significant decline in households' income and export revenues.
- Prices of most food items have been on a steady increase since the last quarter of 2021 and reached record or near-record highs in July 2022, with the food inflation rate 90 percent higher year-on-year.
- Over 6.2 million people (28 percent of the population) are estimated to be moderately acute food insecure and 66 000 people to be severely acute food insecure.
- Estate sector records the highest level of acute food insecurity and among female-headed households, households with no education, Indian Tamil population and Samurdhi programme beneficiaries.
- Food and livelihood-related coping strategies such as cutting the number of meals consumed in a day, reducing meal sizes, spending savings, and purchasing food on credit are being widely adopted. As households exhaust these strategies, more of them are likely to engage in severe means of coping with negative knock-on consequences for food security over the medium term.
- The situation is likely to deteriorate during the lean season from October 2022 to February 2023. Immediate food assistance and livelihood programmes are essential for moderately and severely acute food insecure populations, including through existing social assistance mechanisms, to improve household purchasing power to access nutritious food.
- In order to avert a further deterioration of food security conditions and to support the restoration of agricultural production, livelihood assistance targeting smallholder farmers should remain a priority. Improving the production capacity of farmers would ultimately boost the resilience of the agricultural sector.

Reference: SPECIAL REPORT FAO/WFP CROP AND FOOD SECURITY ASSESSMENT MISSION (CFSAM) TO THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA September 2022 Food and Agriculture Organization of the United Nations World Food Programme Rome, 2022

Annexure III

National Nutrition and Micronutrient Survey in Sri Lanka: 2022

Micronutrition deficiencies or “hidden Hunger” is one aspect of the triple burden of malnutrition, in Sri Lanka. Ministry of Health is being implementing several evidence -based interventions to address the identified issues. To address the unavailability of recent data on important micronutrient deficiencies Medical Research Institute carried out a comprehensive assessment to determine the prevalence of anaemia, iron deficiency, vitamin A deficiency, vitamin D deficiency, vitamin B12 deficiency, folic acid deficiency and zinc deficiency among different age categories of population groups in households including pregnant women and to determine the provincial level prevalence of wasting / thinness / underweight, stunting, overweight and obesity among them.

Methodology

A representative sample of 2936 households from the 25 districts of Sri Lanka identified using a multi stage cluster sampling procedure. In 105 clusters, households were listed in the selected households, children aged 6 – 59 months, children aged 5-17 years, adult women 18-60 years, adult men 18-60 years, elderly >60 years and pregnant women were included as the study population.

The field level data collection was carried out using a pretested interviewer administered questionnaire, taking relevant anthropometric measurements, and collecting venous blood samples for the biochemical assessments ensuring quality of data.

Summary of findings

- Median household income was Rs. 40,000 (25th to 75th percentile: 25,000 – 60,000).
- Half of mothers are educated up to grade 11.

Under five-year children

- Prevalence of stunting, wasting, underweight and overweight among children 6–59 months of age were 13.7, 19.8, 22.7 and 1.7 percent respectively.
- Stunting was low during the latter half of the first year of life and highest during the second year while the prevalence of wasting showed a consistent increase up to 48-59 months.
- Stunting and wasting was higher among boys. Among this age group, comparison of prevalence between provinces showed that prevalence of stunting ranged from 6.2% in Eastern province to 21.5% in Central province with 6 provinces having prevalence at higher levels compared to the ‘national prevalence’.
- Prevalence of wasting ranged from 12.1% in Sabaragamuwa province to 27.1% in Northwestern province with 6 provinces showing higher prevalence figures compared to the ‘national prevalence’.
- Severe acute malnutrition (SAM) was present in 2.5% of the total sample.
- Prevalence of underweight ranged from 18.5% in Sabaragamuwa province to 38.0% in Northwestern province with 3 provinces showing higher prevalence figures compared to the ‘national prevalence’.
- Prevalence of overweight children was highest Western province (3.3%).

- From the total sample of children aged 6-59 months, haemoglobin (Hb) estimations were done among 1210 children. Of this group, 14.6% were anaemic. Inter provincial comparisons show the prevalence to range between a low value of 8.3% in Eastern province to 20.6% in Northcentral province.
- Prevalence of iron deficiency, iron deficiency anaemia, vitamin D deficiency and zinc deficiency was 5.4%, 1.8%, 26.2% and 15.3% respectively. Median urinary iodine concentration was 93.8 µg/dL, which is below the optimum level of 100 µg/dL.

Children 5-9 years

- Prevalence of stunting, wasting/thin, overweight and obesity among children 5-9 years were 7.7, 25.8, 4.1 and 2.6 percent respectively.
- Stunting was highest during the fifth year while the prevalence of wasting showed a consistent increase up to 9 years.
- Wasting was higher among boys.
- From the total sample, haemoglobin (Hb) estimations were done among 646 children aged 5-9 years. Of this group, 17.3% were anaemic (Hb level <11.5 gms/dl) and higher in boys. The highest prevalence of 22.5% was observed in the age group of 5 years. Inter sectoral comparisons show the prevalence to range between a low value of 6.0% in Estate sector to 18.6% in rural sector.
- Prevalence of iron deficiency, iron deficiency anaemia, vitamin D deficiency, vitamin B12 deficiency and zinc deficiency was 5.3%, 1.7%, 23.5%, 0.7% and 16.4% respectively. Median urinary iodine concentration was 101.3 µg/dL, which is just above the optimum level of 100 µg/dL.

Children 10-17 years

- Prevalence of stunting, wasting/thin, overweight and obesity among children 10-17 years were 16.5, 25.2, 7.9 and 4.3 percent respectively.
- Stunting was highest during the 14-17 years age group while the prevalence of wasting showed an increase up to 17 years.
- Wasting was higher among male children. From the total sample, haemoglobin (Hb) estimations were done among 475 children aged 10-17 years.
- Of this group, 18.3% were anaemic and higher in boys. The highest prevalence of 27.7% in the age group of 14-17 years.
- Inter sectoral comparisons show the prevalence to range between a low value of 18.0% in Rural sector to 20.0% in Urban sector.
- Prevalence of iron deficiency and iron deficiency anaemia was 5.0% and 2.2% respectively. Median urinary iodine concentration was 78.6 µg/dL, which is below the optimum level of 100 µg/dL.

Pregnant women

- Prevalence of underweight/thin, overweight and obesity among pregnant women during the first trimester were 14.2, 27.4 and 5.3 percent respectively.

- From the total sample, haemoglobin (Hb) estimations were done among 1086 pregnant women. Of this group, 15.0% were anaemic and higher during the trimester.
- The highest prevalence of 17.7% in the age group >35 years. Inter provincial comparisons show the prevalence of anaemia to range between a low value of 8.3% in Sabaragamuwa province to 22.4% in Northcentral province.
- Prevalence of iron deficiency, iron deficiency anaemia, vitamin D deficiency, zinc deficiency and vitamin B12 deficiency was 11.0%, 2.4%, 35.6%, 24.5% and 16.6% respectively.
- Median urinary iodine concentration was 77.2 µg/dL, which is below the optimum level of 150 µg/dL.

Non-pregnant adult women

- Among non-pregnant adult women aged 18-60 years living in selected households show that prevalence of underweight/thinness ranged from 20.5% to 6.3%, higher values among younger women.
- However, prevalence of overweight (34.0%) and obesity (17.8%) especially among the older age groups seem to be emerging nutritional problems. Inter provincial comparisons show the prevalence of obesity to range between a low value of 8.6% in Southern province to 17.2% in Western province.
- From the total sample, haemoglobin (Hb) estimations were done among 1527 non pregnant adult women. Of this group, 18.5% were anaemic.
- The highest prevalence of 26.6% in the age group of 40-49 years. Inter provincial comparisons show the prevalence of anaemia to range between a low value of 10.9% in Eastern province to 23.8% in Northwestern province.
- Prevalence of iron deficiency and iron deficiency anaemia was 7.2% and 3.2% respectively.
- Median urinary iodine concentration was 78.1 µg/dL, which is below the optimum level of 150 µg/dL.

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