



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health, Nutrition & Indigenous Medicine

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## Vitamin D deficiency, a less addressed health issue in Sri Lanka Part I

### Introduction

Vitamin D is a micronutrient required in sufficient amounts for optimal health. Multiple health benefits of Vitamin D are available from various research conducted globally. Vitamin D is responsible for the regulation of calcium and phosphate metabolism and for maintaining a healthy mineralized skeleton. It is also known as an immune-modulatory hormone. Vitamin D deficiency is linked to a wide range of chronic and infectious diseases. The conditions with solid evidence for a protective effect of vitamin D include several bone diseases, muscle weakness, more cancers, multiple sclerosis, and type 1 diabetes mellitus. Association between low levels of serum Vitamin D (25-hydroxyvitamin D) and increased risk of developing several immune-related diseases and disorders, including psoriasis, type 1 diabetes, multiple sclerosis, rheumatoid arthritis, tuberculosis, sepsis, respiratory infection, and COVID-19, has been observed.

Vitamin D can be obtained from sun exposure/ solar UVB irradiation or diet naturally. Sources of vitamin D are Oily fish (i.e. Sallaya, Sudaya, Hurulla, Bolla), Egg yolks, Red meat, Liver, and Mushrooms. The Daily requirement of Vitamin D depends on age. Babies up to the age of 1 year need 8.5 to 10 micrograms of vitamin D a day. Children from the age of 1 year and adults need 10 micrograms of vitamin D a day.

Vitamin D deficiency is a nutritional condition (under ICD10, Code E 55 it has defined as a disease) occurred by a deficiency of vitamin D in the diet, insufficient production of vitamin D in the skin, inadequate absorption of vitamin D from the diet, or abnormal conversion of vitamin D to its bioactive metabolites. Vit D deficiency

(VDD) is defined as less than 20 ng/ml of serum vitamin D level [serum 25-hydroxyvitamin D (25OHD)]. Vitamin D insufficiency (VDI) is in the range from 20-30 ng/mL, sufficiency in the range from 30-80 ng/mL, and excess greater than 100 ng/mL.

Vitamin D status depends on the production of vitamin D<sub>3</sub> in the skin under the influence of ultraviolet radiation from the sun and vitamin D intake through diet or vitamin D supplements. Exposure to sunshine each day from 10 am-3 pm for 15 to 20 minutes daily, with 25% of the skin surface exposed helps the human body to manufacture the required amount of vitamin D. Solar ultraviolet-B (UVB) irradiation was the primary source of vitamin D for most people in the past. At present, modern-day lifestyle changes have resulted in inadequate solar UVB irradiation due for many reasons. Lifestyle and behavioural changes have led people to be more indoor-bound. The proportion of the population working indoors has increased. Further, the clothing patterns and conscious avoidance of the sun due to fear of developing skin cancer, using sunblock, and UVB-protected common window glass in homes or cars, all effectively block UVB radiation. Therefore the production of Vitamin D by the skin is reduced. Further poor accessibility, availability, and affordability of vitamin D-enriched food items also added to vitamin D insufficiency among a majority of people. This leads to increased mortality and poor quality of life due to the attributable risk of inadequate vitamin D levels for the occurrence of many disease conditions which ultimately increase the healthcare burden.

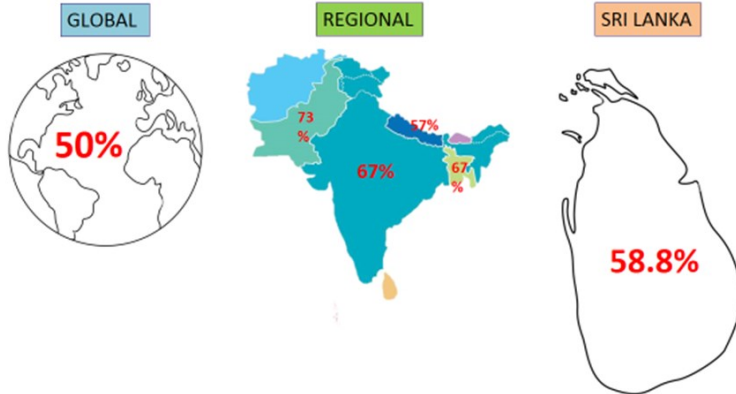
### Global situation

The increased prevalence of Vitamin D

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deficiency is evidenced by the latest research. Concerning the global situation, Vitamin D insufficiency affects almost 50% of the population worldwide. An estimated 1 billion people worldwide, across all ethnicities and age groups, have a vitamin D deficiency.

**Prevalence of Vitamin D Deficiency among adults**



**Regional situation**

A systematic review done in five South Asian countries reported the prevalence of Vitamin D deficiency was 68% [95% CI: 64 to 72%]. The highest prevalence of vitamin D deficiency was found in Pakistan (73%; 95% CI: 63 to 83%) followed by Bangladesh (67%; 95% CI: 50 to 83%), India (67%; 95% CI: 61 to 73%), Nepal (57%; 95% CI: 53 to 60%) and Sri Lanka (48%; 95% CI: 41 to 55%), respectively. Gender-wise analysis suggested that in South Asia, the prevalence of vitamin D deficiency was higher in females than males. Despite the ample sunshine, a high prevalence of vitamin D deficiency was seen among most tropical countries. The main causes for this pandemic of vitamin D deficiency were found mainly attributed to modern lifestyle and environmental factors that reduce exposure to sunlight and inadequate dietary intake in these countries. High concentrations of melanin in dark skin which was evident to slow the production of vitamin D by research and ageing which greatly reduces skin production of vitamin D also added to the high burden of Vitamin D deficiency.

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**Table 1 : Water Quality Surveillance  
Number of microbiological water samples January 2023**

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	NR
Gampaha	15	90	NR
Kalutara	12	72	NR
Kalutara NIHS	2	12	NR
Kandy	23	138	NR
Matale	13	78	0
Nuwara Eliya	13	78	NR
Galle	20	120	NR
Matara	17	102	50
Hambantota	12	72	NR
Jaffna	12	72	NR
Kilinochchi	4	24	NR
Manner	5	30	5
Vavuniya	4	24	NR
Mullatvu	5	30	39
Batticaloa	14	84	NR
Ampara	7	42	0
Trincomalee	11	66	0
Kurunegala	29	174	NR
Puttalam	13	78	NR
Anuradhapura	19	114	NR
Polonnaruwa	7	42	NR
Badulla	16	96	NR
Moneragala	11	66	NR
Rathnapura	18	108	NR
Kegalle	11	66	28
Kalmunai	13	78	NR

\* No of samples expected (6 / MOH area / Month)  
NR = Return not received

**Table 1: Selected notifiable diseases reported by Medical Officers of Health 11<sup>th</sup>-17<sup>th</sup> Feb 2023(7<sup>th</sup> Week)**

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hep-		Human		Chickenpox		Meningitis		Leishmania-		WRCD		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**	
Colombo	160	1971	0	1	0	2	0	0	0	2	1	25	0	0	0	0	0	0	0	3	19	0	4	0	3	16	80
Gampaha	179	1786	0	0	0	3	0	0	0	0	4	34	0	0	0	2	0	0	0	0	23	1	20	0	8	2	79
Kalutara	46	624	0	2	0	0	0	0	2	2	5	56	0	0	1	0	1	0	1	7	39	0	14	0	0	2	74
Kandy	53	509	0	7	0	0	0	1	0	1	5	31	0	13	0	0	0	0	0	5	42	0	3	0	4	54	100
Matale	21	183	0	1	0	0	0	1	0	1	2	12	0	1	0	2	0	0	3	8	0	1	1	1	48	26	100
NuwaraEliya	4	30	0	9	0	0	0	0	0	4	3	14	1	12	0	0	0	0	0	0	16	0	0	0	0	39	87
Galle	35	311	3	6	0	1	0	0	1	4	10	80	2	12	0	0	0	0	0	6	46	0	1	0	0	20	99
Hambantota	20	147	0	0	0	0	0	0	0	4	6	36	6	23	0	7	0	0	2	26	1	3	2	58	26	100	
Matara	38	270	0	5	0	0	0	0	0	3	9	61	0	7	0	1	0	0	10	38	1	5	4	22	40	100	
Jaffna	39	580	2	8	0	1	0	2	0	3	0	4	14	214	0	0	0	1	2	15	0	0	0	0	67	81	
Kilinochchi	2	31	0	2	0	0	0	0	0	0	2	4	0	2	0	0	0	0	0	1	0	0	0	0	12	93	
Mannar	0	16	0	3	0	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	1	0	0	24	49	
Vavuniya	0	7	0	3	0	0	0	0	0	0	0	5	0	3	0	0	0	0	0	2	0	1	0	0	0	82	
Mullaitivu	0	5	0	6	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	0	0	0	21	57	
Batticaloa	41	290	6	40	0	4	0	2	1	6	4	18	0	0	0	0	0	0	1	13	1	6	0	0	29	100	
Ampara	1	32	0	1	0	1	0	0	0	0	0	9	0	0	0	1	0	0	2	15	1	5	1	2	11	94	
Trincomalee	68	265	0	1	0	0	0	0	0	0	1	11	0	4	0	0	0	0	1	8	0	3	0	1	19	100	
Kurunegala	32	493	1	6	0	3	0	0	0	0	2	40	1	4	0	2	0	0	15	79	1	21	5	72	18	97	
Puttalam	133	1367	0	0	0	0	0	0	0	0	1	8	0	6	0	0	0	0	1	20	0	10	0	0	12	95	
Anuradhapur	11	88	0	1	0	0	1	1	0	1	5	66	1	11	0	0	0	0	8	33	0	6	7	75	19	94	
Polonnaruwa	9	133	1	2	0	2	0	0	0	1	4	27	0	2	0	3	0	0	2	13	0	8	3	62	17	92	
Badulla	35	272	0	6	1	2	0	0	0	4	10	56	0	3	2	19	0	0	5	19	1	5	0	6	46	100	
Monaragala	13	74	1	4	0	0	0	0	0	0	3	62	1	9	2	3	0	0	4	11	0	18	1	27	13	100	
Ratnapura	37	303	0	6	1	3	1	1	0	5	22	143	0	8	2	4	0	0	5	11	9	31	0	25	21	100	
Kegalle	52	418	1	1	0	0	0	0	1	1	9	50	1	5	0	1	0	0	14	62	2	8	2	3	17	100	
Kalmune	54	767	1	14	0	0	0	0	0	0	0	8	0	0	0	0	0	0	1	3	1	4	0	0	35	97	
<b>SRI LANKA</b>	<b>108</b>	<b>10972</b>	<b>16</b>	<b>135</b>	<b>2</b>	<b>22</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>42</b>	<b>10</b>	<b>868</b>	<b>27</b>	<b>343</b>	<b>6</b>	<b>46</b>	<b>0</b>	<b>2</b>	<b>97</b>	<b>564</b>	<b>19</b>	<b>178</b>	<b>26</b>	<b>416</b>	<b>26</b>	<b>93</b>	

Source: Weekly Returns of Communicable Diseases (esurveillance.epid.gov.lk). T=Timeliness refers to returns received on or before 17<sup>th</sup> Feb, 2023. Total number of reporting units 358. Number of reporting units data provided for the current week: 296. C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

11<sup>th</sup>–17<sup>th</sup> Feb 2023(7<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2023	Number of cases during same week in 2022	Total number of cases to date in 2023	Total number of cases to date in 2022	Difference between the number of cases to date in 2023 & 2022
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	00	10	09	11.11
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	00	03	00	01	00	00	00	01	05	00	25	05	400 %
Measles	00	00	00	00	00	00	00	00	00	00	01	01	05	- 80 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	01	01	0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	00	01	0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tuberculosis	101	11	31	07	11	07	09	11	20	198	21	1095	974	12.4 %

**Key to Table 1 & 2**

**Provinces:** W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.  
**RDHS Divisions:** CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.  
**Data Sources:**  
**Weekly Return of Communicable Diseases:** Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,  
**Special Surveillance:** AFP\* (Acute Flaccid Paralysis ), Japanese Encephalitis  
**CRS\*\*** =Congenital Rubella Syndrome  
**NA** = Not Available

Influenza Surveillance in Sentinel Hospitals - ILI & SARI								
Month	Human				Animal			
	No Total	No Positive		Infl A	Infl B	Pooled samples	Serum Samples	Positives
February								

Source: Medical Research Institute & Veterinary Research Institute

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