

**PREVALENCE OF VITAMIN AND MINERAL DEFICIENCIES IN CANCER DIAGNOSIS AT TWO  
PAEDIATRIC ONCOLOGY UNITS IN SOUTH AFRICA**

**Supplementary Table 1: The Ranges for Vitamin and Iron Levels.**

	<b>Decreased levels</b>	<b>Normal range</b>	<b>Increased levels</b>
Vitamin A	<0.70 $\mu\text{mol/L}$	0.70 - 1.50 $\mu\text{mol/L}$	>1.50 $\mu\text{mol/L}$
Vitamin D	<72.5 $\text{nmol/L}$	$\geq 72.5 \text{ nmol/L}$	N/A
Vitamin B12	<209.9 $\text{pmol/L}$	209 -1190 $\text{pmol/L}$	>1190 $\text{pmol/L}$
Folate	<29.7 $\text{nmol/L}$	$\geq 29.7 \text{ nmol/L}$	N/A
Iron	<9.0 $\mu\text{mol/L}$	9.0 - 21.5 $\mu\text{mol/L}$	>21.5 $\mu\text{mol/L}$

**Supplementary Table 2: Diagnosis of study patients in each POU**

Diagnosis	Steve Biko Academic Hospital	Tygerberg Childrens Hospital	TOTAL
	Percentage (n)	Percentage (n)	Percentage (n)
<b>Acute lymphoblastic leukemia</b>	19.5% (30)	26.2% (28)	22.2% (58)
Nephroblastoma	15,6% (24)	12.2% (13)	14.2% (37)
Hodgkin's lymphoma	12.3% (19)	3.7% (4)	8.8% (23)
Rhabdomyosarcoma	7.1% (11)	7.5% (8)	7.3% (19)
Retinoblastoma	9.1% (14)	3.7% (4)	6.9% (18)
<b>Acute myeloid leukemia</b>	3.2% (5)	8.4% (9)	5.4% (14)
Non-Hodgkin's lymphoma	5.8% (9)	3.7% (4)	5% (13)
Brain tumour	2.5% (4)	6.5% (7)	4.2% (11)
Osteosarcoma	3.2% (5)	5.6% (6)	4.2% (11)
Hepatoblastoma	3.2% (5)	4.6% (5)	3.8% (10)
Germ cell tumor	5.8% (9)	0% (0)	3.4% (9)
Neuroblastoma	3.2% (5)	2.8% (3)	3.4% (9)
Burkitt Lymphoma	1.3% (2)	4.6% (5)	2.7% (7)
Other	0% (0)	6.5% (7)	2.7% (7)
Ewing's sarcoma	1.9% (3)	1.9% (2)	1.9% (5)
Carcinoma	1.9% (3)	0.9% (1)	1.5% (4)
Nasopharyngeal carcinoma	1.9% (3)	0% (0)	1.1% (3)
Sarcoma	0.6% (1)	0.9% (1)	0.8% (2)
<b>Chronic myeloid leukemia</b>	0.6% (1)	0% (0)	0.4% (1)
Total	(154)	(107)	100% (261)

**Supplementary Table 3: Associations of food insecurity and risk of living in poverty with decreased levels of vitamins and iron**

	Vit D (N=184)			Vit A (N=157)			Vit B12 (N=200)			Folate (N=199)			Iron (N=210)		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
≤50%	18	24.3	(15.9-35.2)	20	29.9	(20.2-41.7)	17	20.2	(13.0-30.0)	31	36.5	(27.0-47.1)	46	52.3	(41.9- 62.4)
>50%	42	38.2	(29.7-47.5)	28	31.1	(22.5-41.3)	11	9.5	(5.4-16.2)	28	24.6	(17.6-33.2)	54	44.3	(35.8-53.1)
P-value	0.108			0.911			0.090			0.103			0.360		
Food insecurity	22	28.1	(19.4-39.0)	18	26.9	(17.7-38.5)	16	19.8	(12.5-29.7)	37	46.3	(35.8-57.1)	44	53.0	(42.4-63.4)
Risk for food insecurity	29	37.7	(27.7-48.8)	24	36.9	(26.2-49.1)	11	12.2	(6.9- 20.6)	15	17.1	(10.6-26.2)	43	46.7	(36.9-56.9)
Food security	9	31.0	(17.3-49.2)	6	24.0	(11.5-43.4)	1	3.5	(0.6-17.2)	7	22.6	(11.4-39.8)	13	37.1	(23.2-53.7)
P-value	0.648			0.612			0.220			<b>← 0.0001</b>			0.150		

**Supplementary Table 4: Association of diagnosis and different vitamin and iron levels**

Diagnosis	Vit D (N=184)						Vit A (N=157)						Vit B12 (N=200)						Folate (N=199)						Iron (N=210)						
	DEC		NOR		INC		DEC		NOR		INC		DEC		NOR		INC		DEC		NOR		INC		DEC		NOR		INC		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Acute Lymphoblastic leukemia	17	41.5	23	56.1	1	2.4	41	25.8	19	61.3	4	12.9	31	20	29	64.4	7	15.6	19	42.2	25	55.6	1	2.2	3	5.8	21	40.4	28	53.9	52
Acute myeloid leukemia	5	45.5	6	54.6	0	0	11	62.5	3	37.5	0	0	8	18.2	5	45.5	4	36.4	5	55.5	4	44.4	0	0	1	7.7	8	61.5	4	30.7	13
Brain tumor	1	25	3	75	0	0	4	0	2	66.7	1	33.3	3	0	6	100	0	0	0	0	6	100	0	0	2	33.3	4	66.7	0	0	6
Burkitt lymphoma	1	25	3	75	0	0	4	33.3	2	66.7	0	0	3	0	4	80	1	20	1	20	4	80	0	0	2	40	2	40	1	20	5
Carcinoma	2	50	2	50	0	0	4	50	2	50	0	0	4	25	1	25	2	50	1	33.3	2	66.7	0	0	2	66.7	0	0	1	33.3	3
CML	0	0	1	100	0	0	1	0	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0	0	0	0	1	100	0	0	1
Ewing sarcoma	1	33.3	2	66.7	0	0	3	25	2	75	0	0	3	0	5	100	0	0	1	20	4	80	0	0	4	80	1	20	0	0	5
Germ cell tumor	1	12.5	7	87.5	0	0	8	16.7	5	83.3	0	0	6	22.2	7	77.8	0	0	2	22.2	7	77.8	0	0	8	88.9	1	11.1	0	0	9
Hepatoblastoma	0	0	7	100	0	0	7	0	4	80	1	20	5	0	7	100	0	0	1	14.3	6	85.6	0	0	5	71.4	2	28.6	0	0	7
Hodgkin's lymphoma	5	23.8	15	71.4	1	4.8	21	41.2	9	52.9	1	5.8	17	10	16	80	2	10	8	36.4	14	63.4	0	0	13	61.9	7	33.3	1	4.8	21
Nasopharyngeal carcinoma	1	33.3	2	66.7	0	0	3	33.3	2	66.7	0	0	3	0	2	66.7	1	33.3	2	66.7	1	33.3	0	0	3	100	0	0	0	0	3
Nephroblastoma	3	13	19	82.6	1	4.4	23	37.5	14	58.3	1	4.2	24	20.8	19	79.2	0	0	4	16	20	80	1	4	20	90.9	1	4.6	1	4.6	22
Neuroblastoma	2	33.3	4	66.7	0	0	6	85.7	1	14.3	0	0	7	37.5	5	62.5	0	0	4	50	4	50	0	0	6	75	2	25	0	0	8
Non-hodgkin's lymphoma(not Burkitt lymphoma)	4	40	6	60	0	0	10	37.5	3	37.5	2	25	8	15.4	9	69.3	2	15.4	5	41.7	7	58.3	0	0	8	66.7	3	25	1	8.3	12
Osteosarcoma	7	77.8	2	22.2	0	0	9	14.3	5	71.4	1	14.3	7	0	8	88.9	1	11.1	1	10	9	90	0	0	5	50	4	40	1	10	10
Retinoblastoma	4	36.4	7	63.6	0	0	11	16.7	8	66.7	2	16.7	12	0	11	91.7	1	8.3	1	7.7	12	93.3	0	0	5	41.7	7	58.3	0	0	12
Rhabdomyosarcoma	3	25	9	75	0	0	12	0	8	66.7	4	33.3	12	15.4	9	69.2	2	15.4	3	25	9	75	0	0	9	60	6	40	0	0	15
Sarcoma	1	50	1	50	0	0	2	0	1	100	0	0	1	0	2	100	0	0	1	50	1	50	0	0	2	100	0	0	0	0	2
Other (specify)	2	50	2	50	0	0	4	50	0	0	1	50	2	0	1	33.3	2	66.7	0	0	0	0	0	0	2	50	1	25	1	25	4
<b>P- value</b>	0.869						0.127						0.038						0.739						< 0.000						