

Federal Ministry of Health  
General Directorate of Primary Health Care  
National Nutrition Program

# MICRONUTRIEN SURVEY SUMMARY RESULTS 2019



# **Child Indicators**

## 1. Child Anaemia

State and national level estimates of median adjusted serum haemoglobin concentration (g/dL) and prevalence of any anaemia (%)						
State	Median adjusted			Any anaemia (%)		
	serum Hb (g/dL)					
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	11.3	11.15	11.5	50.92	42.87	57.34
Al-Gazeera	11.2	10.85	11.4	47.81	40.81	54.93
Blue Nile	10.9	10.7	11.1	60.93	55.09	66.43
Central Darfur	11.1	10.55	11.8	45.25	37.32	54.45
East Darfur	10.6	10.4	10.9	66.44	60.05	73.71
Kassala	11.2	10.9	11.4	52.82	47.53	58.67
Khartoum	11.3	11	11.61	44.84	36.21	53.6
North Darfur	11.2	10.7	11.6	46.68	38.57	53.08
North Kourdofan	11.2	11	11.4	51.49	45.71	56.92
Northern	11.3	11.1	11.6	44.69	37.49	51.53
Red Sea	11	10.8	11.3	54.96	46.96	61.25
River Nile	11	10.7	11.2	55.58	47.75	62.18
Sinar	11.2	11	11.4	50.15	44.76	55.52
South Darfur	11.6	11.3	11.9	41.44	34.35	48.91
South Kourdofan	11.5	11.39	11.6	48.88	42.56	55.17
West Darfur	12	11.9	12.1	32.99	28.09	37.73
West Kourdofan	11.7	11.3	12.1	40.2	32.38	48.33
White Nile	11.4	11.1	11.6	44.19	37.26	50.95
<b>National</b>	<b>11.27</b>	<b>10.99</b>	<b>11.55</b>	<b>48.09</b>	<b>41.08</b>	<b>55.09</b>

### State and national level estimates of anaemia prevalence in pre-school age children

State	Mild anaemia (%)			Moderate anaemia (%)			Severe anaemia (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>26.4</b>	21.89	31.59	<b>21.08</b>	16.74	25.93	<b>3.22</b>	1.36	5.63
Al-Gazeera	<b>24.78</b>	19.48	30.33	<b>22.52</b>	17.49	27.77	<b>0.66</b>	0	1.85
Blue Nile	<b>27.56</b>	23.04	31.53	<b>31.22</b>	26.37	36.87	<b>2.11</b>	0.76	3.9
Central Darfur	<b>24.92</b>	19.56	30.46	<b>19.44</b>	11.72	28.74	<b>0.59</b>	0	2.55
East Darfur	<b>27.88</b>	20.4	34.64	<b>36.09</b>	27.75	45.2	<b>2.06</b>	0.3	4.27
Kassala	<b>22.34</b>	17.97	26.6	<b>28.25</b>	23.79	33.57	<b>1.99</b>	0.68	3.6
Khartoum	<b>20.26</b>	15.49	26.11	<b>22.54</b>	16.65	29.28	<b>1.76</b>	0.24	4.51
North Darfur	<b>27.04</b>	21.57	31.82	<b>17.24</b>	12.16	22.05	<b>2.03</b>	0.73	3.64
North Kourdofoan	<b>22.83</b>	18.91	27.44	<b>26.53</b>	21.87	31.34	<b>2.22</b>	0.72	4.37
Northern	<b>25.29</b>	19.5	31.99	<b>18.18</b>	13.63	23.15	<b>0.88</b>	0	2.67
Red Sea	<b>23.05</b>	19.41	27.58	<b>28.55</b>	21.48	35.03	<b>3.27</b>	1.41	5.9
River Nile	<b>27.75</b>	22.13	33.8	<b>26.71</b>	20.04	32.73	<b>1.25</b>	0.2	2.93
Sinar	<b>27.07</b>	22.06	32.16	<b>21.61</b>	17.91	25.71	<b>0.93</b>	0	2.67
South Darfur	<b>20.93</b>	15.8	27.3	<b>19.33</b>	13.37	25.95	<b>1.57</b>	0.26	3.5
South Kourdofoan	<b>21.37</b>	15.92	26.83	<b>24.29</b>	18.78	30.12	<b>2.7</b>	1.05	4.61
West Darfur	<b>15.72</b>	11.73	19.18	<b>16.49</b>	12.33	21.94	<b>0.47</b>	0	1.37
West Kourdofoan	<b>26.23</b>	20.86	32.86	<b>12.03</b>	7.91	16.81	<b>1.27</b>	0.25	2.93
White Nile	<b>25.64</b>	20.57	30.41	<b>16.77</b>	10.9	23.22	<b>1.18</b>	0	3.32
<b>National</b>	<b>23.72</b>	18.32	29.13	<b>22.52</b>	16.56	28.47	<b>1.68</b>	0.01	3.4

## 2. Child Iron

Serum ferritin (ng/mL), prevalence of iron deficiency and prevalence of iron deficiency anaemia in pre-school age children									
State	Median adjusted			Iron deficiency (%)			Iron deficiency anaemia (%)		
	serum ferritin (ng/mL)			Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL						
Al-Gadarif	11.83	9.23	15	49.08	41.36	56.6	28.01	21.09	33.68
Al-Gazeera	9.3	6.29	12.03	56.87	47.26	66.8	21.01	15.6	27.74
Blue Nile	15.3	12.6	19.2	37.04	29.09	46.72	17.39	10.81	24.81
Central Darfur	13.5	10.09	16.45	44.93	37.02	54.33	19.07	12.36	26.37
East Darfur	13.3	10.95	15.93	44.59	37.87	51.86	30.09	21.87	37.38
Kassala	6.2	4.55	8.91	67.71	58.67	75.87	25.1	17.28	33.87
Khartoum	8.4	6.11	10.65	60.24	53.05	67.44	31.3	23.86	39.83
North Darfur	13.1	10.27	16.2	46.99	40	53.29	25.19	19.89	31.11
North Kourdofofan	6.4	6	7.5	65.29	57.74	72.3	21.1	16.09	26.27
Northern	9.1	7.3	10.98	59.01	51.83	65.76	21.74	14.84	27.72
Red Sea	5.9	4.9	8.62	67.93	58.54	74.75	37.5	29.48	45.08
River Nile	7.8	6.1	10.51	62.54	54.89	69.23	24.18	16.18	33.2
Sinar	10.6	7.95	15.4	52.36	43.75	60.74	19.16	13.93	25.12
South Darfur	14.8	11.57	17.6	40.31	32.57	47.32	18.62	12.77	24.64
South Kourdofofan	11.3	7.4	14.82	51.47	44.3	60	27.19	20.48	33.65
West Darfur	20.1	17.29	24.5	28.6	23.18	34.19	10.92	7.36	14.61
West Kourdofofan	14.4	12.3	16.9	40.51	32.19	47.36	25.45	19.66	30.99
White Nile	10.65	8.2	13	51.77	45.21	59.03	22.35	17.49	27.89
National	10.52	7.88	13.15	53.55	45.96	61.14	24.63	17.84	31.41

### 3. Child Acute inflammation

<b>Serum c-reactive protein concentration (mg/L) and prevalence of acute inflammation in pre-school age children</b>						
<b>State</b>	<b>Median serum</b>			<b>Acute inflammation (%)</b>		
	<b>c-reactive protein (mg/L)</b>					
	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>
<b>Al-Gadarif</b>	<b>3.7</b>	3.1	4.2	<b>30.05</b>	23.58	37.56
<b>Al-Gazeera</b>	<b>1.7</b>	1.2	2	<b>17.82</b>	12.31	23.96
<b>Blue Nile</b>	<b>2.9</b>	2.4	3.4	<b>21.69</b>	16.19	28.2
<b>Central Darfur</b>	<b>5.4</b>	5.1	6.11	<b>58.14</b>	51.07	64.59
<b>East Darfur</b>	<b>4.9</b>	4.5	5.6	<b>47.81</b>	41.03	54.73
<b>Kassala</b>	<b>5.4</b>	4.9	5.9	<b>57.27</b>	49.22	65.55
<b>Khartoum</b>	<b>4.2</b>	3.7	4.8	<b>33.75</b>	27.52	40.51
<b>North Darfur</b>	<b>4.5</b>	4.1	4.7	<b>38.79</b>	32.85	45.01
<b>North Kourdofan</b>	<b>2.4</b>	2.2	2.8	<b>17.91</b>	11.31	24.65
<b>Northern</b>	<b>1.7</b>	1.4	2	<b>10.14</b>	6.03	16.79
<b>Red Sea</b>	<b>3.9</b>	3.25	4.3	<b>32.14</b>	25.57	39.45
<b>River Nile</b>	<b>4.75</b>	3.8	5.2	<b>43.73</b>	34.99	51.18
<b>Sinnar</b>	<b>3.8</b>	3.6	4.1	<b>25.17</b>	19.09	33.01
<b>South Darfur</b>	<b>5</b>	4.4	5.5	<b>49.14</b>	42.94	56.4
<b>South Kourdofan</b>	<b>2</b>	1.7	2.4	<b>19.32</b>	13.39	24.49
<b>West Darfur</b>	<b>3.7</b>	3.5	4.3	<b>37.72</b>	31.99	43.73
<b>West Kourdofan</b>	<b>2.9</b>	2.3	3.5	<b>24.22</b>	17.49	31.26
<b>White Nile</b>	<b>3</b>	2.8	3.25	<b>14.62</b>	10.72	18.84
<b>National</b>	<b>3.67</b>	3.22	4.12	<b>31.9</b>	25.2	38.61

#### 4. Child Calcium

Estimates of median serum calcium (mg/dL) and hypo- and hypercalcaemia prevalence in pre-school age children									
State	Median serum calcium (mg/dL)			Hypocalcaemia (%)			Hypercalcaemia (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Al-Gadarif	9.3	9.2	9.4	55.23	50	61.21	2.33	0.71
Al-Gazeera	10	9.9	10.1	15.05	9.49	20.99	13.64	7.6	20.58
Blue Nile	9.4	9.2	9.5	46.31	38.71	53.9	9.71	5.37	14.65
Central Darfur	9.8	9.6	9.9	33.33	24.32	44.09	15.93	8.93	22.05
East Darfur	9.2	9	9.4	55.71	46.64	63.14	5.98	2.28	10.14
Kassala	9.4	9.2	9.6	47.37	36.77	57.99	9.57	4.64	17.19
Khartoum	-	-	-	-	-	-	-	-	-
North Darfur	9.1	9	9.3	62.47	54.08	69.88	0.45	0	1.92
North Kourdofoan	8.98	8.84	9.1	69.87	59.25	79.04	7.42	3.14	13.01
Northern	10.05	9.9	10.3	18.5	11.84	26.75	17.61	11.92	24.26
Red Sea	9.7	9.5	9.9	38.13	30.26	47.22	9.4	5.05	13.47
River Nile	9.8	9.7	10	25.38	17.8	31.8	9.9	5.88	14.88
Sinar	8.9	8.8	9.15	66.12	56.45	75.75	6.75	2.66	11.86
South Darfur	9.2	9	9.3	57	47.73	64	2.99	0.7	6.37
South Kourdofoan	9.2	9	9.36	61.77	53.07	70.48	2.64	0.5	5.6
West Darfur	9.2	9.1	9.4	57.11	49.14	63.14	7.37	4.2	10.66
West Kourdofoan	9.1	9	9.2	63.46	52.13	73.75	2.56	0.31	5.81
White Nile	9.3	9.1	9.4	57.73	49.62	65.23	1.32	0	4.25
National	7.73	7.57	7.9	39.88	32.37	47.39	5.71	1.59	9.83

## 5. Child Vit A

<i>RBP in PCS age</i>						
State	Median serum			Deficiency RBP (%)		
	RBP (mg/dL)					
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>2.23</b>	2.12	2.39	<b>65.75</b>	58.58	71.76
Al-Gazeera	<b>2.91</b>	2.58	3.17	<b>43.4</b>	35.11	51.17
Blue Nile	<b>2.33</b>	2.11	2.64	<b>57.87</b>	45.3	69.39
Central Darfur	<b>3.21</b>	3.03	3.62	<b>24.79</b>	18.52	32.35
East Darfur	<b>2.31</b>	2.14	2.63	<b>60.57</b>	49.01	69.77
Kassala	<b>1.88</b>	1.56	2.05	<b>83.73</b>	76.39	89.64
Khartoum	<b>1.81</b>	1.72	1.92	<b>75.92</b>	67.82	83.36
North Darfur	<b>2.38</b>	2.2	2.62	<b>56.56</b>	48.44	63.58
North Kourdofan	<b>3.22</b>	2.75	3.92	<b>34.33</b>	23.82	46.78
Northern	<b>2.5</b>	2.4	2.81	<b>54.55</b>	45.66	62.19
Red Sea	<b>2.63</b>	2.38	2.92	<b>48.7</b>	39.99	58.3
River Nile	<b>2.49</b>	1.85	3.09	<b>51.84</b>	38.64	63.15
Sinar	<b>2.37</b>	2.14	2.61	<b>61.03</b>	50.07	70.87
South Darfur	<b>2.36</b>	2.23	2.58	<b>59.84</b>	48.8	69.31
South Kourdofan	<b>2.23</b>	2.11	2.4	<b>72.59</b>	66.27	78.97
West Darfur	<b>4.98</b>	4.66	5.4	<b>13.45</b>	9.61	18.67
West Kourdofan	<b>1.97</b>	1.9	2.2	<b>74.34</b>	65.41	83.26
White Nile	<b>2.72</b>	2.55	2.99	<b>43.92</b>	36.83	51.92
<b>National</b>	<b>2.45</b>	2.16	2.75	<b>57.81</b>	48.62	67.01



## 6. Child Vitamin D

Vitamin D Deficiency in Pre-SCH						
State	Median serum 25-hydroxyvitamin D3 concentration (ng/ml)			Vitamin D Deficiency (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>32.53</b>	29.5	34.29	<b>11.81</b>	7.32	16.38
Al-Gazeera	<b>32.9</b>	28.4	35.73	<b>15.94</b>	9.4	22.03
Blue Nile	<b>32.45</b>	29.38	35.32	<b>10.82</b>	6.25	16.05
Central Darfur	<b>56.13</b>	50.36	63.9	<b>4.02</b>	0.96	9.61
East Darfur	<b>47.11</b>	42.66	50.19	<b>1.22</b>	0.01	3.83
Kassala	<b>32.5</b>	29.72	33.66	<b>13.39</b>	8.33	19.39
Khartoum	<b>43.16</b>	37.91	49.1	<b>8.67</b>	4.35	13.85
North Darfur	<b>54.45</b>	50.49	58.57	<b>2.44</b>	0.71	5.07
North Kourdofofan	<b>33.12</b>	30.91	35.63	<b>12.34</b>	7.41	18.36
Northern	<b>59.9</b>	54.7	64.1	<b>1.99</b>	0.31	4.42
Red Sea	<b>42.21</b>	39.28	45.84	<b>9.92</b>	6.12	14.08
River Nile	<b>29.53</b>	26.67	31.04	<b>23.42</b>	16.11	31.33
Sinar	<b>33.65</b>	31.3	35.38	<b>12.25</b>	7.07	17.68
South Darfur	<b>43.15</b>	40.59	47.88	<b>0.8</b>	0.01	3.76
South Kourdofofan	<b>46.1</b>	43.3	48.29	<b>3.16</b>	0.97	6.73
West Darfur	<b>51.64</b>	48.62	53.36	<b>3.67</b>	1.66	6.11
West Kourdofofan	<b>55.1</b>	52.7	60.8	<b>0.01</b>	0.01	0.6
White Nile	<b>29.57</b>	27.81	31.21	<b>18.91</b>	13.34	25.54
<b>National</b>	<b>40.57</b>	36.5	44.65	<b>8.97</b>	4.15	13.79

# **Non-Pregnant Women Indicators**

## 1. Non-Pregnant Women Anaemia

Estimates for median adjusted serum haemoglobin and prevalence of any anaemia in non-pregnant women of reproductive age						
State	Median adjusted			Any anaemia (%)		
	serum Hb (g/dL)			Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL			
Al-Gadarif	13	12.7	13.2	30.27	23.48	38.09
Al-Gazeera	13	12.7	13.3	25.94	19.59	34.09
Blue Nile	12.5	12.2	12.8	37.79	30	45.94
Central Darfur	12.3	11.6	12.9	36.36	29.09	44.96
East Darfur	12.5	12.2	12.7	40.28	33.16	47.68
Kassala	12.6	12.2	12.7	39.25	32.37	47.64
Khartoum	13.2	13	13.4	19.88	14.23	26.2
North Darfur	12.7	12.4	13.1	37.18	29.56	43.63
North Kourdofofan	13	12.7	13.2	30.58	24.93	36.24
Northern	13.1	12.9	13.3	21.9	16.44	27.73
Red Sea	12.4	12	12.6	46.36	39.43	53.37
River Nile	12.7	12.3	12.9	34.48	27.12	43.92
Sinar	12.7	12.6	12.9	31.73	25.73	38.77
South Darfur	12.9	12.7	13	31.87	24.72	40.28
South Kourdofofan	13.1	12.9	13.35	29.36	23.56	36.1
West Darfur	13.2	13	13.4	24.66	18.18	31.48
West Kourdofofan	13.2	12.9	13.4	24.61	17.47	32.52
White Nile	12.9	12.7	13	22.41	17	28.65
National	12.9	12.62	13.18	29.66	22.62	36.69

**Estimates of mild, moderate and severe anaemia in non-pregnant women of reproductive age**

State	Mild anaemia (%)			Moderate anaemia (%)			Severe anaemia (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	18.48	12.62	23.59	11.98	7.37	17.3	0.47	0	1.43
Al-Gazeera	18.18	12.65	24.47	7.56	3.59	11.91	0	0	0
Blue Nile	22.68	15.26	29.56	14.79	10.02	19.01	0.58	0	2.17
Central Darfur	20.21	14.66	25.94	15.65	10.47	21.94	0.37	0	2.39
East Darfur	17.36	12.53	22.87	20.8	15.21	26.2	2.77	0.58	5.94
Kassala	21.44	16.86	26.83	16.59	11.28	21.92	1.61	0.24	3.53
Khartoum	13.2	8.9	18.96	5.76	2.37	9.19	0.54	0	2.48
North Darfur	17.91	12.04	23.8	16.55	11.84	22.29	2.09	0.54	4.44
North Kourdofoan	16.86	13.22	21.18	12.35	7.69	17.65	1.44	0.25	3.32
Northern	10.2	6.19	14.91	11.73	7.22	16.58	0.28	0	1.62
Red Sea	22.77	16.62	29.91	21.18	15.6	26.91	2.33	0.68	4.88
River Nile	22.52	16.89	29.18	11.17	6.19	16.75	0.5	0	1.83
Sinar	19.39	14.02	25.26	11.61	7.14	17.23	0.55	0	2.24
South Darfur	20.75	15.18	27	10.38	6.48	15.06	0.59	0	2.31
South Kourdofoan	18.16	13.17	23.1	10.87	6.64	15.23	0.5	0	1.93
West Darfur	14.35	9.74	19.22	10.73	7	14.89	0	0	0.9
West Kourdofoan	14.64	9.69	21.37	8.79	4.89	13.91	0.92	0	2.59
White Nile	14.44	9.67	20.06	7.5	3.91	12.15	0	0	0.88
National	17.52	11.95	23.08	11.21	6.55	15.87	0.83	0.01	2.21

## 2. Non-Pregnant Women Iron

### *Iron deficiency and iron deficiency anaemia in non-pregnant women of reproductive age*

State	Median adjusted			Iron deficiency (%)			Iron deficiency anaemia (%)		
	serum ferritin (ng/mL)			Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL						
Al-Gadarif	21.2	18.2	26.8	<b>36.93</b>	30.43	44.57	<b>15.83</b>	10.48	22.03
Al-Gazeera	17	13.1	21.3	<b>46.12</b>	36.61	54.73	<b>12.59</b>	7.72	17.88
Blue Nile	27.95	24	31.3	<b>36.3</b>	27.53	47.81	<b>14.92</b>	9.78	20.41
Central Darfur	20.3	18.6	24.38	<b>32.89</b>	24.11	41.07	<b>10.31</b>	6	15.69
East Darfur	19.5	14.81	24.5	<b>49.03</b>	40.66	57.48	<b>19.67</b>	14.19	25
Kassala	12	9.5	15.1	<b>56.34</b>	47.42	64.47	<b>27.14</b>	19.67	35.31
Khartoum	16.83	13.79	20.16	<b>46.75</b>	38.1	55.32	<b>12</b>	7.67	17.12
North Darfur	22.4	17.03	24.77	<b>40.39</b>	33.62	48.64	<b>20</b>	14.58	25.83
North Kourdofofan	15.1	11.2	17.89	<b>51.33</b>	43.07	60.05	<b>17.22</b>	12.46	22.66
Northern	20.1	14.9	23.11	<b>42.06</b>	33.11	51.21	<b>14.48</b>	9.4	19.18
Red Sea	10.65	8.14	12.6	<b>63.76</b>	55.55	72.07	<b>34.73</b>	27.68	43.25
River Nile	12.1	9.6	16.64	<b>54.65</b>	46.75	62.11	<b>22.31</b>	16.31	29.55
Sinar	20.86	17.74	24.2	<b>43.73</b>	35.24	52.73	<b>14.29</b>	9.97	19.04
South Darfur	17.44	12.7	22.5	<b>58.26</b>	47.98	71.08	<b>15.61</b>	10.88	21.7
South Kourdofofan	20.54	14.89	27.3	<b>42.37</b>	34.97	51	<b>17.17</b>	11.94	22.91
West Darfur	30.58	22.89	34.06	<b>28.25</b>	22.45	35.67	<b>9.78</b>	6.49	13.47
West Kourdofofan	26.2	19.6	32.8	<b>38.36</b>	29.35	50.66	<b>10.09</b>	5.36	15.39
White Nile	17.03	14	19.82	<b>46.54</b>	39.32	54.17	<b>9.94</b>	6.03	14.37
<b>National</b>	<b>18.24</b>	14.18	22.31	<b>47.07</b>	38.21	55.92	<b>16.06</b>	10.73	21.39

### 3. Non-Pregnant Women Acute inflammation

<b>Estimates of median serum c-reactive protein (mg/L) and prevalence of acute inflammation in non-pregnant women of reproductive age</b>						
<b>State</b>	<b>Median serum</b>			<b>Acute inflammation (%)</b>		
	<b>c-reactive protein (mg/L)</b>					
	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>
<b>Al-Gadarif</b>	<b>3.7</b>	3.3	4.3	<b>30.65</b>	22.3	39.08
<b>Al-Gazeera</b>	<b>1.85</b>	1.4	2.6	<b>17.96</b>	12.49	24.91
<b>Blue Nile</b>	<b>2.7</b>	2.19	3.1	<b>19.38</b>	14.14	24.94
<b>Central Darfur</b>	<b>5.2</b>	4.9	6	<b>53.03</b>	42.67	62.33
<b>East Darfur</b>	<b>4.7</b>	4.1	5.2	<b>46.51</b>	38.85	53.86
<b>Kassala</b>	<b>5.2</b>	4.7	6	<b>51.08</b>	40.13	61.92
<b>Khartoum</b>	<b>4.6</b>	4	5	<b>41.61</b>	34.1	50.01
<b>North Darfur</b>	<b>4.6</b>	4.2	5	<b>41.85</b>	35.3	49.29
<b>North Kourdofan</b>	<b>2.52</b>	2.13	3.15	<b>24.48</b>	18.89	30.43
<b>Northern</b>	<b>1.8</b>	1.5	2	<b>10.86</b>	6.28	17.13
<b>Red Sea</b>	<b>3.8</b>	3.2	4.4	<b>35.85</b>	29.14	44.51
<b>River Nile</b>	<b>5.1</b>	4.4	5.6	<b>51.57</b>	44.94	58.71
<b>Sinar</b>	<b>4.25</b>	4	4.6	<b>31.74</b>	25.61	39.42
<b>South Darfur</b>	<b>4.85</b>	4.1	5.3	<b>47.81</b>	41.01	54.73
<b>South Kourdofan</b>	<b>1.94</b>	1.46	2.4	<b>15.62</b>	10.4	21.83
<b>West Darfur</b>	<b>4.6</b>	4.1	5.05	<b>44.06</b>	37.92	50
<b>West Kourdofan</b>	<b>2.5</b>	1.86	3.03	<b>24.31</b>	17.84	32.78
<b>White Nile</b>	<b>3.05</b>	2.9	3.5	<b>19.3</b>	13.3	26.64
<b>National</b>	<b>3.77</b>	3.3	4.23	<b>34.37</b>	26.55	42.2

#### 4. Non-Pregnant Women Calcium

Estimates of hypo- and hypercalcaemia in non-pregnant women of reproductive age									
State	Median serum			Hypocalcaemia (%)			Hypercalcaemia (%)		
	calcium (mg/dL)			Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL						
Al-Gadarif	8.9	8.8	9.1	81.66	73.63	88.37	9.77	4.09	17.51
Al-Gazeera	9.7	9.5	9.8	17.89	8.92	27.43	74.74	61.6	84.56
Blue Nile	8.9	8.7	9.1	85.13	78.46	91.39	10.81	4.91	17.81
Central Darfur	9.6	9.2	9.8	39.73	25.45	55.68	53.72	36.47	67.78
East Darfur	8.8	8.6	8.9	82.06	71.25	90.5	16.49	8.13	28.02
Kassala	9.2	8.9	9.3	65.19	50.58	77.28	32	21.83	45.59
Khartoum	-	-	-	-	-	-	-	-	-
North Darfur	8.8	8.7	9	89.27	82.41	95.1	8.57	4.1	14.43
North Kourdofan	8.6	8.4	8.61	88.58	81.62	94.15	10.24	6.2	15.6
Northern	9.7	9.6	9.9	23.61	14.28	33.85	68.18	56.42	77.62
Red Sea	9.4	9.3	9.7	42.23	29.53	56.25	49.51	37.77	62.02
River Nile	9.35	9.2	9.5	41.03	28.1	52.56	50	37.31	60.95
Sinar	8.7	8.6	8.8	82.27	72.93	89.53	15.32	9.22	23.77
South Darfur	8.8	8.6	8.9	80.23	71.17	88.11	19.39	11.76	28.49
South Kourdofan	8.6	8.45	8.71	92.16	85.17	97.64	7.66	2.39	15.68
West Darfur	8.8	8.6	9	80	72.79	86.18	17.51	11.76	25.2
West Kourdofan	8.7	8.4	8.9	88.14	80.09	94.51	9.94	4.16	17.26
White Nile	8.9	8.8	9	83.25	75.45	90.51	11.33	5.35	18.2
National	7.44	7.29	7.59	55.22	47.03	63.41	23.76	15.47	32.04

## 5. Non-Pregnant Women Iodine

State	Estimates of median urinary iodine concentration in non-pregnant non-lactating women of reproductive age			Estimates of median urinary iodine concentration in non-pregnant lactating women of reproductive age		
	Median urinary			Median urinary		
	iodine ( $\mu$ /L)			iodine (microgram/L)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	94.35	79.52	115.2	77.22	56.51	93.57
Al-Gazeera	102.22	81.07	126.75	82.54	65.87	97.58
Blue Nile	125.52	83.95	161.47	77.1	57.55	98.56
Central Darfur	34.32	11.75	67.49	20.15	10.64	24.12
East Darfur	44.74	21.01	63.33	10.42	0	26.79
Kassala	183.87	136.25	227.13	120.44	97.29	158.48
Khartoum	166.01	118.08	204.16	110.81	89.88	155.52
North Darfur	39.56	19.52	71.29	42.68	26.19	60.73
North Kourdofan	90.79	61.29	118.86	75.07	69.18	92.62
Northern	147.45	119.57	163.48	101.87	84.79	121.66
Red Sea	257.79	236	270.42	194.52	181.45	207.68
River Nile	129.75	114.75	154.8	97.18	66.67	124.7
Sinar	74.57	56.73	106.91	57	41.12	68.68
South Darfur	67.84	37.86	129.82	63.81	46.82	97.52
South Kourdofan	33.82	19.35	60.99	34.67	24.79	46.55
West Darfur	23.13	8.8	44.61	35.9	8.5	55.11
West Kourdofan	56.19	43.8	70.83	34.09	20.04	39.95
White Nile	101.82	74.31	138.81	99.2	70.32	126.8
National	108.38	74	142.76	81.53	57.86	105.19



## 6. Non-Pregnant Women Vit A

Percentage of RBP in non-pregnant women of reproductive age						
State	Median serum			Deficiency RBP (%)		
	RBP (mg/dL)					
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>2.98</b>	2.84	3.19	<b>34.08</b>	26.83	41.67
Al-Gazeera	<b>3.1</b>	2.9	3.4	<b>28.91</b>	20.55	36.25
Blue Nile	<b>3.39</b>	3.29	3.6	<b>20.58</b>	15.72	26.66
Central Darfur	<b>3.93</b>	3.55	4.09	<b>6.09</b>	1.87	12.09
East Darfur	<b>2.94</b>	2.77	3.11	<b>36.29</b>	28.52	43.69
Kassala	<b>1.98</b>	1.72	2.29	<b>74.29</b>	63.09	83.09
Khartoum	<b>1.97</b>	1.82	2.2	<b>64.02</b>	56.68	72.1
North Darfur	<b>3.2</b>	2.97	3.59	<b>27.65</b>	20.49	36.43
North Kourdofofan	<b>4.19</b>	3.74	5.29	<b>18.89</b>	11.11	27.08
Northern	<b>3.6</b>	3.3	3.73	<b>19.11</b>	11.45	25.6
Red Sea	<b>2.88</b>	2.58	3.09	<b>40.78</b>	29.03	50.95
River Nile	<b>2.5</b>	2.21	2.9	<b>54.45</b>	43.44	65.13
Sinar	<b>3.32</b>	3.17	3.67	<b>24.08</b>	16.69	31.57
South Darfur	<b>3.07</b>	2.93	3.29	<b>31.1</b>	24.57	38.89
South Kourdofofan	<b>2.81</b>	2.61	3.13	<b>39.62</b>	30.01	49.77
West Darfur	<b>5.95</b>	5.39	6.37	<b>13.37</b>	8.54	18.72
West Kourdofofan	<b>3.08</b>	2.9	3.16	<b>32.61</b>	25.7	38.57
White Nile	<b>3.43</b>	3.2	3.7	<b>24.57</b>	17.59	31.3
<b>National</b>	<b>3</b>	2.7	3.29	<b>37.69</b>	29.27	46.11

## 7. Non-Pregnant Women Vitamin D

Prevalence of vitamin D Deficiency in Non- Pregnant Women						
State	Median serum 25-hydroxyvitamin D3 concentration (ng/ml)			Vitamin D Deficiency (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>16.73</b>	15.14	19.26	<b>62.4</b>	53.79	71.48
Al-Gazeera	<b>27.1</b>	24.3	31.77	<b>23.9</b>	16.37	32.2
Blue Nile	<b>23.69</b>	22.08	27.03	<b>35.71</b>	28.86	43.58
Central Darfur	<b>36.18</b>	34.44	40.8	<b>5.08</b>	1.59	10.26
East Darfur	<b>32.48</b>	29.1	35.55	<b>11.55</b>	7	16.86
Kassala	<b>14.56</b>	12.78	16.4	<b>76.34</b>	69.56	82.39
Khartoum	<b>31.01</b>	27.1	38.95	<b>27.98</b>	19.1	37.71
North Darfur	<b>36.8</b>	34.76	40.23	<b>6.45</b>	2.8	11.48
North Kourdofofan	<b>20.03</b>	17.88	23.46	<b>49.25</b>	39.58	58.02
Northern	<b>32.8</b>	30.77	35.2	<b>11</b>	6.08	17.39
Red Sea	<b>27.09</b>	24.68	29.3	<b>26.92</b>	19.42	34.95
River Nile	<b>16.47</b>	14.78	18.13	<b>68.02</b>	60.6	74.57
Sinar	<b>16.9</b>	14.32	19.44	<b>59.2</b>	51.03	67.07
South Darfur	<b>26.7</b>	25.18	28.86	<b>26.42</b>	19.09	33.84
South Kourdofofan	<b>28</b>	26	30.36	<b>17.04</b>	10.91	23.22
West Darfur	<b>39.11</b>	38.2	41.59	<b>6.23</b>	2.78	10.16
West Kourdofofan	<b>38.2</b>	35.1	42.01	<b>0.77</b>	0.01	2.92
White Nile	<b>13.36</b>	9.84	16.35	<b>74.72</b>	64.65	82.52
<b>National</b>	<b>26.44</b>	22.42	30.46	<b>33.2</b>	25.33	41.07

# **Pregnant Women Indicators**

## 1. Pregnant Women Anaemia

Estimates of median adjusted serum haemoglobin (g/dL) and prevalence of any anaemia						
State	Median adjusted			Any anaemia (%)		
	serum Hb (g/dL)					
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	11.7	11.5	12.2	<b>28.24</b>	16.84	40.26
Al-Gazeera	11.6	11.4	12	<b>34.44</b>	24.65	45.97
Blue Nile	11.3	11.1	11.8	<b>51.61</b>	38.75	65.32
Central Darfur	10.6	9.7	11.5	<b>58.33</b>	46.82	71.26
East Darfur	11.1	10.7	11.2	<b>58.67</b>	43.92	75.26
Kassala	11.4	11.1	11.9	<b>46.05</b>	31.73	62.94
Khartoum	12	11.6	12.2	<b>26.19</b>	12.33	40.88
North Darfur	11.3	10.99	11.65	<b>52.22</b>	39.64	64.97
North Kourdofan	11.7	11.4	11.9	<b>38.67</b>	27.13	51.68
Northern	11.5	11.25	11.8	<b>32.91</b>	19.7	47.83
Red Sea	11.6	10.79	12	<b>44</b>	28.19	61.79
River Nile	12.1	11.6	12.4	<b>23.19</b>	11.49	39.4
Sinar	11.9	11.55	12.2	<b>25.21</b>	16.03	35.12
South Darfur	11.55	11.2	12	<b>41.56</b>	28.56	54.13
South Kourdofan	11.4	11	11.6	<b>51.88</b>	39.1	64.77
West Darfur	12.1	11.8	12.6	<b>25.88</b>	13.84	39.8
West Kourdofan	11.75	11.5	12	<b>35.4</b>	24.03	49.23
White Nile	11.8	11.5	12.3	<b>22.22</b>	13.83	31.22
<b>National</b>	<b>11.65</b>	<b>11.19</b>	<b>12.11</b>	<b>36.61</b>	<b>23.89</b>	<b>49.32</b>

### Estimates of anaemia in pregnant women

State	Mild anaemia (%)			Moderate anaemia (%)			Severe anaemia (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	22.5	13.55	34.52	6.02	0	13.35	0	0	0
Al-Gazeera	26.15	16.49	35.26	8.13	2.92	15.39	0	0	0
Blue Nile	33.7	23.91	43.64	17.02	7.77	29.08	0	0	4.17
Central Darfur	32.2	18.32	47.45	25.62	15.78	35.03	0	0	3.87
East Darfur	38.93	26.39	52.96	18.55	10.52	31.41	0.89	0	5.62
Kassala	25.76	14.26	38.89	18.97	8.82	32.2	0	0	5.12
Khartoum	21.25	6.98	37.51	4.71	0	12.24	0	0	0
North Darfur	30.11	20.2	43.4	20.25	10.53	29.55	0.94	0	4.4
North Kourdofoan	20.86	13.42	29.92	17.33	8.78	26.73	0	0	2.76
Northern	17.65	8.21	28.8	13.85	5.39	24.15	0	0	5.8
Red Sea	18.33	5.76	31.72	24.44	13.03	36.73	0	0	4.35
River Nile	17.57	7.25	30.54	5.75	0	15.5	0	0	0
Sinar	10.87	3.95	20.17	14.41	7.2	22.46	0	0	0
South Darfur	19.51	10.11	32.24	16.47	6.57	27.4	4.88	1.06	12.66
South Kourdofoan	28.07	19	39.63	20.16	10.09	31.18	3.36	0	7.93
West Darfur	10.84	4.38	19.36	11.22	4.76	20	2.97	0	8.33
West Kourdofoan	23.42	13.54	33.35	11.61	4.41	19.7	0	0	0
White Nile	16.22	9.55	23.97	5.73	1.9	12.06	0	0	0
National	22.75	11.48	34.02	12.67	4	21.35	0.72	0.01	3.11

## 2. Pregnant Women Iron

*Estimates of median adjusted serum ferritin (ng/mL), iron deficiency and iron deficiency anaemia in pregnant women*

State	Median adjusted			Iron deficiency (%)			Iron deficiency anaemia (%)		
	serum ferritin (ng/mL)			Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL						
Al-Gadarif	11.7	8.6	13.2	<b>69.05</b>	55.22	82.72	<b>23.17</b>	12.36	34.2
Al-Gazeera	14.2	10.7	19.52	<b>54.1</b>	41.06	67.96	<b>20.16</b>	12.67	29.51
Blue Nile	<b>24.15</b>	13.7	61	<b>45.45</b>	31.5	62.72	<b>21.28</b>	9.87	32.86
Central Darfur	14.5	10.4	17.54	<b>76.19</b>	53.34	98.17	<b>27.78</b>	16.41	40.9
East Darfur	8.5	7.3	13.3	<b>69.35</b>	55.14	88.11	<b>39.09</b>	27.58	54.13
Kassala	5.39	3.77	8.9	<b>75.44</b>	60.65	88.68	<b>40.98</b>	27.42	56.95
Khartoum	10.1	8.5	20.8	<b>57.35</b>	43.02	71.65	<b>12.66</b>	4.21	22.82
North Darfur	<b>14.76</b>	9.36	24.98	<b>52.81</b>	37.76	68.44	<b>27.91</b>	17.99	38.89
North Kourdofofan	6.8	6	15.37	<b>62.3</b>	49.52	75.44	<b>21.77</b>	13.14	33.02
Northern	10.2	7.85	14.61	<b>65.33</b>	50.74	77.23	<b>25.64</b>	13.02	41.28
Red Sea	10.3	5.4	16.3	<b>64.58</b>	44.99	78.96	<b>31.82</b>	16.65	48
River Nile	12	10.2	16.18	<b>56.72</b>	41.51	71.93	<b>18.18</b>	9.74	31.15
Sinar	10.14	8.1	14.43	<b>63.44</b>	51.91	77.57	<b>14.74</b>	6.66	24.16
South Darfur	<b>17.05</b>	12.2	28.14	<b>54.17</b>	38.2	72.1	<b>13.4</b>	5.38	22.83
South Kourdofofan	10.4	6.24	18.1	<b>67.31</b>	49.98	87.26	<b>27.64</b>	15.68	40.17
West Darfur	32.8	21.3	38.16	<b>25.45</b>	13.68	41.07	<b>3.49</b>	0	10.35
West Kourdofofan	13.1	9.3	19.7	<b>51.72</b>	41.81	63.97	<b>20.91</b>	11.65	30.78
White Nile	13.97	12.5	20.39	<b>53.17</b>	42.13	66.45	<b>10</b>	4.19	17.02
<b>National</b>	<b>12.54</b>	5.92	19.16	<b>58.44</b>	43.55	73.32	<b>20.63</b>	10.04	31.23

### 3. Pregnant Women Acute inflammation

<b>Estimates of median c-reactive protein concentration (mg/L) and prevalence of acute inflammation in pregnant women</b>						
<b>State</b>	<b>Median serum</b>			<b>Acute inflammation (%)</b>		
	<b>c-reactive protein (mg/L)</b>					
	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>	<b>Estimate</b>	<b>95% LCL</b>	<b>95% UCL</b>
<b>Al-Gadarif</b>	<b>5.3</b>	<b>3.4</b>	<b>6.11</b>	<b>50.62</b>	<b>35.58</b>	<b>64.09</b>
<b>Al-Gazeera</b>	<b>2.6</b>	<b>1.6</b>	<b>3.3</b>	<b>15.04</b>	<b>7.02</b>	<b>24.17</b>
<b>Blue Nile</b>	<b>3.2</b>	<b>2.6</b>	<b>4.8</b>	<b>32.84</b>	<b>16.84</b>	<b>48.28</b>
<b>Central Darfur</b>	<b>6.45</b>	<b>5</b>	<b>8.03</b>	<b>60</b>	<b>47.82</b>	<b>71.43</b>
<b>East Darfur</b>	<b>4.6</b>	<b>4</b>	<b>5.11</b>	<b>40.48</b>	<b>30.63</b>	<b>51.43</b>
<b>Kassala</b>	<b>4.9</b>	<b>3.7</b>	<b>5.9</b>	<b>47.37</b>	<b>30.35</b>	<b>67.9</b>
<b>Khartoum</b>	<b>4.6</b>	<b>3.9</b>	<b>4.7</b>	<b>33.73</b>	<b>22.89</b>	<b>46.58</b>
<b>North Darfur</b>	<b>5.6</b>	<b>4.45</b>	<b>6</b>	<b>54.81</b>	<b>40.21</b>	<b>68.23</b>
<b>North Kourdofoan</b>	<b>4.1</b>	<b>3.11</b>	<b>4.83</b>	<b>36.05</b>	<b>24.6</b>	<b>47.6</b>
<b>Northern</b>	<b>2.1</b>	<b>1.7</b>	<b>2.35</b>	<b>11.43</b>	<b>3.88</b>	<b>20.9</b>
<b>Red Sea</b>	<b>3.3</b>	<b>2.7</b>	<b>4.5</b>	<b>19.51</b>	<b>7.14</b>	<b>34.91</b>
<b>River Nile</b>	<b>8.8</b>	<b>6.6</b>	<b>10.11</b>	<b>73.17</b>	<b>59.21</b>	<b>85.73</b>
<b>Sinar</b>	<b>4.7</b>	<b>3.95</b>	<b>5.1</b>	<b>43.43</b>	<b>31.49</b>	<b>56.75</b>
<b>South Darfur</b>	<b>5.2</b>	<b>4.4</b>	<b>6.2</b>	<b>51.11</b>	<b>37.47</b>	<b>65.56</b>
<b>South Kourdofoan</b>	<b>2.72</b>	<b>1.6</b>	<b>4.62</b>	<b>28.57</b>	<b>17.14</b>	<b>42.06</b>
<b>West Darfur</b>	<b>5.1</b>	<b>3.1</b>	<b>6.5</b>	<b>52.08</b>	<b>38.95</b>	<b>62.93</b>
<b>West Kourdofoan</b>	<b>4.3</b>	<b>3.6</b>	<b>5.3</b>	<b>40.54</b>	<b>27.72</b>	<b>53.76</b>
<b>White Nile</b>	<b>4.2</b>	<b>3.7</b>	<b>4.9</b>	<b>35.77</b>	<b>26.39</b>	<b>44.68</b>
<b>National</b>	<b>4.46</b>	<b>3.5</b>	<b>5.41</b>	<b>38.28</b>	<b>25.42</b>	<b>51.13</b>

#### 4. Pregnant Women Calcium

Estimates of hypo- and hypercalcaemia in pregnant women									
State	Median serum			Hypocalcaemia (%)			Hypercalcaemia (%)		
	calcium (mg/dL)			Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
	Estimate	95% LCL	95% UCL						
Al-Gadarif	8.75	8.5	9.1	84.62	69.61	95.46	15.79	4.44	30.97
Al-Gazeera	9.2	9.1	9.4	60.34	37.12	79.65	28.95	11.76	50
Blue Nile	8.2	8	8.4	92.98	81.99	100	6.12	0	16.39
Central Darfur	9.25	8.9	9.6	62.5	38.44	85.78	32	9.95	57.14
East Darfur	8.9	8.5	9.1	79.66	63.32	93.48	18.33	6.76	31.25
Kassala	9.25	8.6	9.6	62.16	40.59	82.35	30	13.29	50.09
Khartoum	-	-	-	-	-	-	-	-	-
North Darfur	8.5	8.2	8.8	89.55	78.56	96.93	10.17	3.06	19.61
North Kourdofoan	8	7.87	8.3	93.5	85.19	99.04	6.06	0.88	14.46
Northern	8.9	8.5	9.2	66.67	46.15	83.35	32	14.57	51.29
Red Sea	9.3	8.9	9.8	43.75	20.66	69.04	50	24.94	70.99
River Nile	9.2	8.5	9.4	83.87	65.16	96.43	17.24	3.57	34.82
Sinar	8.6	8.4	8.8	83.33	71.22	92.07	16.18	6.55	27.59
South Darfur	8.5	8.2	8.8	82.86	67.74	94.83	11.29	3.33	22.96
South Kourdofoan	8.07	7.9	8.3	98.8	94.04	100	0	0	0
West Darfur	8.6	8.3	8.9	87.5	76.26	96.11	11.86	1.96	23.73
West Kourdofoan	8.44	8	9	79.01	67.03	90.13	15.91	6.88	27.33
White Nile	8.5	8.4	8.9	84.52	71.89	93.46	10.2	3.7	19.63
National	7.18	6.91	7.45	63.98	49.32	78.64	15.09	2.44	27.73



## 5. Pregnant Women Iodine

State	Estimates of iodine intake		
	Median urinary		
	iodine (microgram/L)		
	Estimate	95% LCL	95% UCL
Al-Gadarif	74.33	59.02	108.65
Al-Gazeera	100.33	76.26	124.67
Blue Nile	78.32	45.86	115.38
Central Darfur	30.42	19.99	45.77
East Darfur	18.83	11.47	27.51
Kassala	109.05	83.87	185.12
Khartoum	182.04	81.26	213.45
North Darfur	60.09	40.47	75.25
North Kourdofoan	99.39	84.83	123.26
Northern	125.34	86.66	151.84
Red Sea	199.28	126.22	247.49
River Nile	116.19	57.93	144.59
Sinar	77.63	52.15	104.04
South Darfur	49.78	33.72	76.53
South Kourdofoan	41.38	17.55	62.08
West Darfur	18.98	9.44	61.79
West Kourdofoan	39.42	26.15	63.14
White Nile	124.04	82.27	128.82
<b>National</b>	<b>101.22</b>	<b>51.2</b>	<b>151.23</b>

## 6. Pregnant Women Vit A

Percentage of RBD in pregnant women of reproductive age						
State	Median serum			Low RBP (%)		
	RBP (mg/dL)					
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	2.6	2.39	3.34	50.59	36.42	66.25
Al-Gazeera	2.94	2.81	3.24	37.25	27.06	48.12
Blue Nile	3.07	2.82	3.94	32.88	20.53	46.12
Central Darfur	3.62	3.46	3.96	10.87	4.37	19.55
East Darfur	2.82	2.61	3.11	39.1	27.85	50.45
Kassala	1.9	1.56	2.16	69.81	55.54	86.02
Khartoum	1.99	1.76	2.59	65.45	50	77.24
North Darfur	2.75	2.46	3.37	42.86	28.09	56.79
North Kourdofan	3.73	2.98	4.37	29.03	17.12	42.13
Northern	3.05	2.82	3.41	27.59	13.38	44.04
Red Sea	2.4	1.87	3.41	53.85	32.24	72.81
River Nile	2.74	2.23	3.21	46.77	25.19	65.49
Sinar	2.87	2.41	3.27	39.13	25.68	54.88
South Darfur	2.83	2.65	3.08	31.67	16.88	48.22
South Kourdofan	2.71	2.54	2.89	42.62	33.46	53.16
West Darfur	5	4.59	6.22	12.33	4.34	21.51
West Kourdofan	2.9	2.8	3.14	33.33	20.74	45.54
White Nile	3.06	2.72	3.26	33.8	24.41	43.73
<b>National</b>	<b>2.76</b>	<b>2.3</b>	<b>3.23</b>	<b>43.64</b>	<b>29.46</b>	<b>57.83</b>

## 7. Pregnant Women Vitamin D

Prevalence of vitamin D Deficiency in Pregnant Women						
State	Median serum 25-hydroxyvitamin D3 concentration (ng/ml)			Vitamin D Deficiency (%)		
	Estimate	95% LCL	95% UCL	Estimate	95% LCL	95% UCL
Al-Gadarif	<b>21.68</b>	16.47	28.15	<b>43.24</b>	30.5	58.22
Al-Gazeera	<b>30.65</b>	25.4	38.5	<b>12.87</b>	4.43	22.63
Blue Nile	<b>34.72</b>	27.89	37.32	<b>13.33</b>	5.84	22.88
Central Darfur	<b>46.21</b>	37.86	54.08	<b>0.01</b>	0.01	0.01
East Darfur	<b>43.68</b>	38.2	47.48	<b>5.56</b>	0.93	12.32
Kassala	<b>15.51</b>	12.78	18.19	<b>66.67</b>	48.34	80
Khartoum	<b>47.2</b>	33.94	57.46	<b>8.06</b>	1.6	18.9
North Darfur	<b>49.33</b>	45.07	56.77	<b>2.74</b>	0.01	9.94
North Kourdofofan	<b>26.03</b>	23.85	29.14	<b>20.56</b>	11.63	31.92
Northern	<b>39.65</b>	36	44.16	<b>4</b>	0.01	11.45
Red Sea	<b>41.41</b>	34.15	49.45	<b>14.29</b>	3.96	29.28
River Nile	<b>19.27</b>	15.28	25.31	<b>54.1</b>	37.3	70.84
Sinar	<b>24.97</b>	21.01	28.15	<b>34.69</b>	22.52	48.34
South Darfur	<b>38.73</b>	34.83	42.6	<b>6.35</b>	0.01	14.2
South Kourdofofan	<b>38.05</b>	30.5	40.8	<b>6.31</b>	0.98	13.48
West Darfur	<b>52</b>	43.4	63.58	<b>4.55</b>	0.01	11.24
West Kourdofofan	<b>43.1</b>	40.3	48.31	<b>0.01</b>	0.01	4.04
White Nile	<b>15.75</b>	12.65	18.07	<b>68.75</b>	54.56	80
<b>National</b>	<b>35.45</b>	26.29	44.61	<b>19.49</b>	9.79	29.19