

# Micronutrient Update

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## TABLE 1: IODIZED SALT BY HOUSEHOLD

Iodine content of household salt is tested using a rapid-test kit provided by UNICEF. Table 6 displays the percentage of households (excluding non-tested households, non-valid tests and missing data) that use salt containing iodine. Due to testing differences between countries, some results were recorded with only a positive or negative iodine reading, while others were more specific, recording positive readings of 15 parts per million (ppm) or 25 ppm or more of iodine.

Country and Year of DHS	Positive	15+ ppm	25+ ppm	Sample size	Positive	15+ ppm	25+ ppm	Sample size	
<b>Sub-Saharan Africa</b>									
Benin 1996	78.7			4,184	Madagascar 1997	79.2		6,551	
Cameroon 1998	94.3			4,082	Malawi 2000		53.0	12,844	
CAR 1996-97	28.2			4,448	Niger 1998	73.8		5,129	
Chad 1996-97	62.3			6,083	Rwanda 2000		91.2	8,736	
Ethiopia 2000			28.4	13,812	Tanzania 1999			66.8	3,492
Gabon 2000	17.5			5,279	Uganda 2000		94.8	7,046	
Ghana 1998			27.7	5,877	Zambia 1996-97	95.8		6,252	
Guinea 1999	13.8			4,356					
<b>North Africa/West Asia/Europe</b>									
Egypt 2000			27.5*	16,940	Yemen 1997	87.8		4,761	
<b>Central Asia</b>									
Kazakhstan 1999		20.1		5,616					
<b>South/Southeast Asia</b>									
Cambodia 2000	13.9			12,107	Nepal 1996		64.7	8,063	
India 1998-99		49.7		90,586	Philippines 1998		14.0	11,540	
<b>Latin America/Caribbean</b>									
Bolivia 1998	91.0			11,291	Haiti 2000		11.7	8,817	
Brazil 1996	94.2			12,854	Nicaragua 1997-98			93.0	10,658
Dominican Republic 1996			14.2	7,985	Peru 2000	97.0		27,851	
Guatemala 1995			91.5	10,824					

\*26+ ppm

## TABLE 2: NIGHT BLINDNESS IN MOTHERS

One indicator used to classify vitamin A deficiency as a public health problem is a 5% or greater prevalence rate of reported night blindness during a mother's last pregnancy. Since some women with day vision problems may still experience night blindness, the adjusted rates may underestimate the actual prevalence of night blindness. For future reporting, an adjustment factor is currently under development that may better reflect the true situation. Table 3 represents the percentage of women who reported having trouble seeing at night during their last pregnancy up to five years before the end of the survey.

Country and Year of DHS	Percent Reporting Night Blindness	Adjusted Percent Excludes women reporting day vision problems	Sample size	Comments
<b>Sub-Saharan Africa</b>				
Ethiopia 2000	17.5	4.8	7,978	
Gabon 2000	10.4	2.2	2,766	
Madagascar 1997	9.8	3.1	722	asked only of currently pregnant women
Malawi 2000	4.3	1.4	8,057	
Rwanda 2000	7.2	3.9	5,141	
Uganda 2000	8.3	1.0	4,489	
Zimbabwe 1999	4.6	1.1	2,770	
<b>South/Southeast Asia</b>				
Cambodia 2000	8.4	1.6	5,714	
India 1998-99	12.4	3.4	28,446	three years before the end of the survey
Nepal 1996	18.7	-	3,813	three years before the end of the survey
<b>Latin America/Caribbean</b>				
Haiti 2000	9.4	0.9	4,254	
Peru 2000	8.2	1.9	9,535	

### TABLE 3: POSTPARTUM VITAMIN A SUPPLEMENTATION OF MOTHERS

Vitamin A supplementation guidelines recommend mothers receive 200,000 IUs of vitamin A orally within two months of delivery. Unless otherwise noted, Table 4 presents the percentage of mothers who received vitamin A supplementation within 2 months of their most recent birth 5 years before the end of the survey unless otherwise noted.

Country and Year of DHS	Mother's Age at Delivery			Total %	Sample size	Comments
	< 20	20-34	35-49			
<b>Sub-Saharan Africa</b>						
Ethiopia 2000	13.1	12.3	9.5	11.8	7,978	
Ghana 1998	27.1	29.1	26.6	28.3	2,311	vitamin A given 6 weeks after last birth
Malawi 2000	41.4	42.5	38.6	41.7	8,057	
Rwanda 2000	17.5	14.8	10.6	13.9	5,141	
Tanzania 1999	8.9	11.7	9.5	10.9	2,183	
Uganda 2000	12.0	11.4	10.4	11.3	4,489	
<b>North Africa/West Asia/Europe</b>						
Egypt 2000	10.7	12.1	11.8	11.9	7,953	
<b>South/Southeast Asia</b>						
Bangladesh 1999-00	16.0	16.4	9.1	15.8	5,263	
Cambodia 2000	12.6	11.1	8.9	10.7	5,714	
<b>Latin America/Caribbean</b>						
Haiti 2000	27.6	24.6	21.8	24.5	4,254	
Peru 2000	15.0	11.2	10.3	11.6	9,535	

### TABLE 4: VITAMIN A SUPPLEMENTATION AMONG CHILDREN

Since the human body can store vitamin A, age-appropriate high dose supplements can be semiannually administered to children over six months of age. Table 5 presents the percentage of children, by age, who received a vitamin A supplement within the six months preceding the survey by either mother's recall or as written on a vaccination card. Unless noted otherwise, data pertains to all of the respondent's children aged 6-59 months.

Country and Year of DHS	Child's Age in Months		Total %	Sample size	Comments
	6-11	12-59			
<b>Sub-Saharan Africa</b>					
Benin 1996	12.7	11.5	11.8	867	children 6-35 months
Chad 1996-97	0.7	0.7	0.7	5,626	
Ethiopia 2000	55.8	60.4	59.9	9,674	
Ghana 1998	25.6	23.2	23.5	2,653	
Madagascar 1997	3.6	2.0	2.3	2,868	children 6-35 months
Malawi 2000	68.9	70.9	70.6	9,285	
Mali 1995-96	0.7	0.5	0.5	4,185	children 6-35 months (per vaccination card)
Niger 1998	1.4	0.7	0.8	3,537	children 6-35 months (per vaccination card)
Rwanda 2000	67.2	69.2	68.9	6,245	
Tanzania 1999	16.3	11.9	12.5	2,572	
Uganda 2000	28.0	39.0	37.6	6,096	
<b>North Africa/West Asia/Europe</b>					
Egypt 2000	13.1	12.5	12.6	9,641	
<b>Central Asia</b>					
Kazakhstan 1999	26.6	26.5	26.5	1,241	
<b>South/Southeast Asia</b>					
Bangladesh 1999-00	69.5	80.3	79.3	5,659	
Cambodia 2000	29.7	30.9	30.8	6,515	
India 1998-99	9.7	14.2	13.3	24,790	only for youngest two children 6-35 months
Indonesia 1997	-	-	41.6	3,457	at least one dose recorded on card anytime in life
Nepal 1996	18.1	35.7	32.2	3,386	children 6-35 months
Philippines 1998	55.2	78.3	75.6	6,550	
<b>Latin America/Caribbean</b>					
Haiti 2000	33.8	31.1	31.4	5,338	
Peru 2000	4.9	1.2	1.6	10,723	only per vaccination card

## TABLE 5: IRON DEFICIENCY ANEMIA IN WOMEN AND CHILDREN

Direct measurement of hemoglobin levels were made from samples of the general population using a drop of blood taken from a person's fingertip, or in the case of young children, the heel. Table 1 shows the percent distribution of the sample by anemia status of all women aged 15-49 and children 6-59 months unless otherwise noted. *Mild* anemia corresponds to hemoglobin levels of 10.0-10.9 grams/deciliter (g/dl) for pregnant women and children up to 59 months and 10.0-11.9 g/dl for nonpregnant women. For all groups, *moderate* anemia corresponds to hemoglobin levels of 7.0-9.9 g/dl. *Severe* anemia corresponds to hemoglobin levels of less than 7.0 g/dl. *Total* is the percentage of the sample with *any* anemia. A prevalence of severe anemia of greater than 2% denotes a public health problem.

Country and Year of DHS		ANEMIA			Total %	Sample size	Comments
		Mild %	Moderate %	Severe %			
<b>Sub-Saharan Africa</b>							
Madagascar 1997	women	30.1	11.1	0.9	42.1	3,299	women who have had a child in the past 3 years children 6-35 months
	children	21.2	44.7	7.7	73.6	2,308	
Uganda 2000	women	20.1	6.8	0.7	27.6	7,222	
	children	18.4	34.5	6.2	59.1	5,624	
<b>North Africa/West Asia/Europe</b>							
Egypt 2000	women	22.7	4.6	0.3	27.6	7,609	ever-married women 15-49 years
	children	18.8	11.4	0.2	30.4	4,630	
<b>Central Asia</b>							
Kazakhstan 1999	women	26.6	7.7	1.2	35.5	2,269	
	children	17.8	17.9	1.5	37.2	570	
Kyrgyz Republic 1997	women	27.7	9.0	1.5	38.2	3,767	
	children	23.3	21.8	1.4	46.5	843	children 6-35 months
Uzbekistan 1996	women	45.3	14.2	0.9	60.4	4,333	
	children	33.3	25.8	1.4	60.5	988	children 6-35 months
<b>South/Southeast Asia</b>							
Cambodia 2000	women	44.8	12.7	1.3	58.8	3,634	
	children	30.2	31.3	2.0	63.5	1,414	
India 1998-99	women	34.8	14.7	1.7	51.2	79,663	ever-married women 15-49 years children 6-35 months
	children	22.9	45.6	5.2	73.7	19,943	
<b>Latin America/Caribbean</b>							
Bolivia 1998	women	20.7	5.6	0.9	27.2	3,299	
	children	19.8	32.4	3.4	55.6	1,721	
Haiti 2000	women	36.9	15.7	2.8	55.4	3,138	
	children	28.3	33.0	1.7	63.0	2,428	
Peru 2000	women	25.4	5.9	0.3	31.6	6,184	
	children	23.4	24.9	1.3	49.6	2,150	

## TABLE 6: IRON SUPPLEMENTATION OF MOTHERS

Table 2 presents the percentage of pregnancies for last-born children during the five years before the survey for which the mother received, purchased or took **ANY** iron tablets (unless otherwise noted). It is recommended that women receive at least 90 tablets during their pregnancy.

Country and Year of DHS	Received Iron Tablets (%)	Sample Size	Comments	Country and Year of DHS	Received Iron Tablets (%)	Sample Size	Comments
<b>Sub-Saharan Africa</b>							
Eritrea 1995	30.2	2,202	past 3 years	Rwanda 2000	20.6	5,141	
Gabon 2000	59.7	2,766		Tanzania 1999	44.4	2,183	
Ghana 1998	78.4	2,311		Uganda 2000	51.4	4,489	
Malawi 2000	67.3	8,057		Zimbabwe 1999	59.9	2,770	
Niger 1998	11.1	4,242	past 3 years				
<b>North Africa/West Asia/Europe</b>							
Egypt 2000	26.5	7,953		Yemen 1997	22.1	7,343	
Turkey 1998	54.0	2,617					
<b>Central Asia</b>							
Kazakhstan 1999	48.1	1,129					
<b>South/Southeast Asia</b>							
Bangladesh 1999-00	36.4	5,263		Indonesia 1997	67.1	13,393	
Cambodia 2000	20.7	5,714		Nepal 1996	8.9	3,813	past 3 years
India 1998-99	57.9	28,446	past 3 years, iron and folate tablets	Philippines 1998	75.6	4,968	
<b>Latin America/Caribbean</b>							
Colombia 2000	72.0	3,547		Haiti 2000	57.1	4,254	
Dominican Republic 1996	90.9	3,067		Peru 2000	52.0	9,535	

**Table 7: Summary Information: Women 15-49 years**

(See inside tables for comments)

Country and Year of DHS	Night Blindness (Adjusted)	Received Vitamin A Supplements Postpartum	Prevalence of Anemia	Received Any Iron Supplements
<b>Sub-Saharan Africa</b>				
BENIN 1996				
BOTSWANA 1988				
BURKINA FASO 1998-99				
BURUNDI 1987				
CAMEROON 1998				
CENTRAL AFRICAN REPUBLIC 1994-95				
CHAD 1996-97				
COMOROS 1996				
COTE D'IVOIRE 1994				
ERITREA 1995				30.2
ETHIOPIA 2000	4.8	11.8		
GABON 2000	2.2			59.7
GHANA 1998		28.3		78.4
GUINEA 1999				
KENYA 1998				
LIBERIA 1986				
MADAGASCAR 1997	3.1		42.1	
MALAWI 2000	1.4	41.7		67.3
MALI 1995-96				
MAURITANIA 2000-01				
MOZAMBIQUE 1997				
NAMIBIA 1992				
NIGER 1998				11.1
NIGERIA 1999				
RWANDA 2000	3.9	13.9		20.6
SENEGAL 1999				
SOUTH AFRICA 1998				
SUDAN 1990				
TANZANIA 1999		10.9		44.4
TOGO 1998				
UGANDA 2000	1.0	11.3	27.6	51.4
ZAMBIA 1996				
ZIMBABWE 1999	1.1			59.9
<b>North Africa/West Asia/Europe</b>				
ARMENIA 2000				
EGYPT 2000		11.9		26.5
JORDAN 1997				
MOROCCO 1995				
TUNISIA 1988				
TURKEY 1998				54.0
YEMEN 1997				22.1
<b>Central Asia</b>				
KAZAKHSTAN 1999			35.5	48.1
KYRGYZ REPUBLIC 1997			38.2	
TURKMENISTAN 2000				
UZBEKISTAN 1996			60.4	
<b>South/Southeast Asia</b>				
BANGLADESH 1999-00		15.8		36.4
CAMBODIA 2000	1.6	10.7	58.8	20.7
INDIA 1998-99	3.4		51.2	57.9
INDONESIA 1997				67.1
MYANMAR 1996				
NEPAL 1996	18.7*			8.9
PAKISTAN 1990-91				
PHILIPPINES 1998				75.6
SRI LANKA 1987				
THAILAND 1987				
VIETNAM 1997				
<b>Latin America/Caribbean</b>				
BOLIVIA 1998			27.2	
BRAZIL 1996				
COLOMBIA 2000				72.0
DOMINICAN REPUBLIC 1996				90.9
ECUADOR 1987				
EL SALVADOR 1985				
GUATEMALA 1995				
HAITI 2000	0.9	24.5	55.4	57.1
MEXICO 1987				
NICARAGUA 1997-98				
PARAGUAY 1990				
PERU 2000	1.9	11.6	31.6	52.0
TRINIDAD AND TOBAGO 1987				

\*Unadjusted

# Table 8: Summary Information: Children 6-59 months

(See inside tables for comments)

Country and Year of DHS	Received Vitamin A Supplements	Prevalence of Anemia	Iodized Salt (% of Households)		
			Positive	15+	25+
<b>Sub-Saharan Africa</b>					
BENIN 1996	11.8		78.7		
BOTSWANA 1988					
BURKINA FASO 1998-99					
BURUNDI 1987					
CAMEROON 1998			94.3		
CENTRAL AFRICAN REPUBLIC 1994-95			28.2		
CHAD 1996-97	0.7		62.3		
COMOROS 1996					
COTE D'IVOIRE 1994					
ERITREA 1995					
ETHIOPIA 2000	59.9				28.4
GABON 2000			17.5		
GHANA 1998	23.5				27.7
GUINEA 1999			13.8		
KENYA 1998					
LIBERIA 1986					
MADAGASCAR 1997	2.3	73.6	79.2		
MALAWI 2000	70.6			53.0	
MALI 1995-96	0.5				
MAURITANIA 2000-01					
MOZAMBIQUE 1997					
NAMIBIA 1992					
NIGER 1998	0.8		73.8		
NIGERIA 1999					
RWANDA 2000	68.9			91.2	
SENEGAL 1999					
SOUTH AFRICA 1998					
SUDAN 1990					
TANZANIA 1999	12.5				66.8
TOGO 1998					
UGANDA 2000	37.6	59.1		94.8	
ZAMBIA 1996			95.8		
ZIMBABWE 1999					
<b>North Africa/West Asia/Europe</b>					
ARMENIA 2000					
EGYPT 2000	12.6	30.4			27.5*
JORDAN 1997					
MOROCCO 1995					
TUNISIA 1988					
TURKEY 1998					
YEMEN 1997			87.8		
<b>Central Asia</b>					
KAZAKHSTAN 1999	26.5	37.2		20.1	
KYRGYZ REPUBLIC 1997		46.5			
TURKMENISTAN 2000					
UZBEKISTAN 1996		60.5			
<b>South/Southeast Asia</b>					
BANGLADESH 1999-00	79.3				
CAMBODIA 2000	30.8	63.5	13.9		
INDIA 1998-99	13.3	73.7		49.7	
INDONESIA 1997	41.6				
MYANMAR 1996					
NEPAL 1996	32.2			64.7	
PAKISTAN 1990-91					
PHILIPPINES 1998	75.6			14.0	
SRI LANKA 1987					
THAILAND 1987					
VIETNAM 1997					
<b>Latin America/Caribbean</b>					
BOLIVIA 1998		55.6	91.0		
BRAZIL 1996			94.2		
COLOMBIA 2000					
DOMINICAN REPUBLIC 1996					14.2
ECUADOR 1987					
EL SALVADOR 1985					
GUATEMALA 1995					91.5
HAITI 2000	31.4	63.0		11.7	
MEXICO 1987					
NICARAGUA 1997-98					93.0
PARAGUAY 1990					
PERU 2000	1.6	49.6		97.0	
TRINIDAD AND TOBAGO 1987					

\*26+ ppm