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INFANT AND YOUNG CHILD FEEDING UPDATE



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Infant and Young Child Feeding Update

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Infant and Young Child Feeding Update

Introduction

Adequate nutrition is critical to child health and development. The period from birth to two years of age is particularly important because of the rapid growth and brain development that occurs during this time. The period is often marked by growth faltering, micronutrient deficiencies, and common childhood illnesses such as diarrhea, as children transition from exclusive breastfeeding to solid foods in addition to breast milk. The Infant and Young Child Feeding (IYCF) Update provides data on key indicators related to optimal feeding practices. The data are taken from the results of the Demographic and Health Surveys (DHS) conducted between 1998 and 2004 in 43 countries in five regions around the world: sub-Saharan Africa, North Africa/West Asia/Europe, Central Asia, South/Southeast Asia, and Latin America and the Caribbean. Feeding practices included in this update are related to breastfeeding practices, feeding of solid and semi-solid foods to breastfed and non-breastfed children, micronutrient intake, and feeding during diarrhea.

Table 1: Initiation of breastfeeding and prelacteal feeds

Early breastfeeding practices determine the successful establishment and duration of breastfeeding. It is recommended that children be put to the breast immediately or within one hour after birth. When a mother initiates breastfeeding immediately after birth, breast milk production is stimulated. During the first few days after delivery, colostrum, an important source of nutrition and antibody protection for the newborn, is produced and should be fed to the newborn while awaiting the production of regular breast milk. Prelacteal feeding—giving liquids or foods other than breast milk prior to the establishment of regular breastfeeding—deprives the child of the valuable nutrients and protection of colostrum and exposes the newborn to the risk of infection.

Table 2: Exclusive breastfeeding and breastfeeding status of children under 6 months

UNICEF and WHO¹ recommend that children be exclusively breastfed—fed only breast milk with no other liquids (including water) or food—on demand for the first 6 months of life. Research also suggests that exclusive breastfeeding is associated with a lower risk of HIV transmission. Early introduction of foods and other liquids reduces breast milk intake, decreases the full absorption of nutrients from breast milk, and increases the risk of diarrhea and acute respiratory infections for infants. It also limits the duration of the mother's postpartum amenorrhea and may result in shortened birth intervals. Breastfeeding status for children under 6 months is determined on the basis of a mother's recall of her child's intake over the previous 24-hour period (past day and night). Children age six months or less are reported to be breastfed on demand if they are breastfed six or more times in the day and night preceding the survey.

Table 3: Duration of breastfeeding and proportion of children using a bottle

Optimal infant and young child feeding practices include continued on-demand, frequent breastfeeding for children age 6-23 months and beyond. After the initial period of exclusive breastfeeding during the first six months of life, breast milk continues to be an important source of energy, protein, and micronutrients for older infants and young children, in addition to the nutrients they require from complementary solid/semi-solid foods. The median duration of breastfeeding in this report is calculated based on the current breastfeeding status of children in the surveyed households.

Bottle-feeding is not recommended because unhygienic conditions and poor formula preparation associated with bottle-feeding can put the child at greater risk of illness and malnutrition.

Table 4: Continued breastfeeding

Continued breastfeeding is important for older infants and young children age 6-23 months, contributing significantly to overall nutrient intake. For older infants (age 6-11 months), breast milk fills most of the energy needs and remains an important source of vitamin A and C, as well as essential fatty acids. Even for young children 12-23 months of age, breast milk can provide as much as 35-40 percent of their total energy needs.

1. WHO. The optimal duration of exclusive breastfeeding: a systematic review. Geneva: World Health Organization. WHO/NHD/01.08;WHO/FCH/CAH/01.23, 2001

Table 5: Consumption of solid and semi-solid foods

Breastfeeding alone is not adequate to meet a child's nutritional needs after the first six months of life. In the transition to eating the family diet, children from the age of about 6 months are fed small quantities of solid and semi-solid foods throughout the day. During this transition period (ages 6-23 months), the prevalence of malnutrition increases substantially in many countries because of increased infections and poor feeding practices. The data presented on consumption of solid and semi-solid foods includes the mean number of times children are fed solid and semi-solid foods and the mean number of food groups children are fed over a 24-hour period.

Table 6: Infant and young child feeding (IYCF) practices

Feeding guidelines have been developed for the introduction of complementary foods to children age 6-23 months.² Although the international recommendation is that infants should be breastfed for up to two years, there are a number of infants who will not have the benefits of breastfeeding from birth, or who will have stopped breastfeeding before two years. Feeding guidelines have been developed for children who are not breastfed because their mother is HIV positive and has decided not to breastfeed, or has for other reasons chosen not to breastfeed or to stop breastfeeding.³

Based on WHO guiding principles for feeding breastfed (2003)² and non-breastfed (2005)³ children, the IYCF practices indicator is comprised of all of the following three components:

1. Continued breastfeeding or feeding with appropriate calcium-rich foods if not breastfed
2. Feeding (solid/semi-solid food) minimum number of times per day according to age and breastfeeding status
3. Feeding minimum number of food groups per day according to breastfeeding status

Feeding Practice	Breastfeeding status	
	Breastfed	Non-breastfed
Breastfed or fed appropriate calcium-rich foods if not breastfed	Continued breastfeeding	Fed milk or milk products
Fed (solid/semi-solid foods) minimum number of times per day		
6- 8 months	Two times	Four times
9-23 months	Three times	Four times
Fed minimum number of food groups*		
6-23 months	Three groups	Four groups

*Based on a 24-hour recall of food groups fed to the youngest child age 6-23 months. Although eight food groups are normally used for this indicator, the seven food groups included in this report are: a) infant formula, milk other than breast milk, cheese or yogurt or other milk products; b) foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; c) vitamin A-rich fruits and vegetables (and red palm oil); d) other fruits and vegetables; e) eggs, meat, poultry, fish, and shellfish (and organ meats); f) beans, legumes, and nuts; g) foods made with oil, fat or butter.^{4,5}

2. PAHO/WHO. 2003. Guiding principles for complementary feeding of the breastfed child. Washington, D.C./Geneva, Switzerland: PAHO/WHO.
3. WHO. 2005. Guiding principles for feeding non-breastfed children 6-24 months of age. World Health Organization. Geneva. Switzerland.
4. Modified from Arimond, M and Ruel, M. 2003. Generating indicators of appropriate feeding of children 6 through 23 months from the KPC 2000+. Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development.
5. Eggs were collected as part of a meat group in the surveys included in this report and therefore cannot be used as a separate food group.

Table 7: Micronutrient intake

Most children are born with low stores of vitamin A. Exclusive, frequent breastfeeding from 0-5 months helps to ensure adequate vitamin A intake. After six months, infants and young children need vitamin A-rich foods daily—including animal source foods such as eggs and liver, dark yellow/red fruits and vegetables, and red palm oil—to maintain adequate stores of vitamin A. Depletion of vitamin A stores can lead to suppressed immuno-competence, potential blindness, and increased risk of dying. In areas with known vitamin A deficiency (VAD), children should receive semiannual, high-dose vitamin A supplements beginning at six months.

Iron is essential for cognitive development. The iron in breast milk is generally adequate for term infants of birthweight ≥ 2500 g who are exclusively breastfed for the first six months of life. After six months, infants and young children require iron-rich foods (such as meat, fish, poultry, organ meats, and commercially processed iron-fortified foods) daily to meet their iron needs. They may also need iron supplements. Iron requirements for infants and young children are greatest between age 6 and 11 months, when growth is extremely rapid.

Small amounts of iodine are essential for normal growth and development beginning during pregnancy. Maternal iodine deficiency can cause poor reproductive outcomes including infertility, spontaneous abortion, stillbirth, premature birth, and low birth weight. Severe and irreversible cognitive impairments, including mental retardation and cretinism, are also possible for the child in utero. Children with iodine deficiency may be stunted, apathetic and have impaired neurological and psychomotor ability. Iodine is needed throughout life and consuming iodized salt is one of the most effective ways to achieve this.

Table 8: Feeding during diarrhea

In many countries, dehydration from diarrhea is a major cause of death in children under five years. During illness, children's fluid needs increase because of fluid loss from loose and repeated stools. Typically, appetite is reduced and food intake decreases at the same time that energy needs are increased. To meet the increased fluid and energy requirements, children's fluid and food intake should be increased during diarrhea. Continued breastfeeding prevents dehydration and provides important micronutrients that assist in recovery from infection. Following the illness episode, children need increased nutrient intake to make up for the nutrient losses during the illness and to support catch-up growth.

DHS surveys included in this report

Country and year of survey	Sub-Saharan Africa	North Africa/ West Asia/ Europe	Central Asia	South/Southeast Asia	Latin America and the Caribbean
Armenia 2000		x			
Bangladesh 2004				x	
Benin 2001	x				
Bolivia 2003					x
Burkina Faso 2003	x				
Cambodia 2000				x	
Cameroon 2004	x				
Colombia 2000					x
Chad 2004	x				
Cote d'Ivoire 1998	x				
Dominican Rep 2002					x
Egypt 2003		x			
Eritrea 2002	x				
Ethiopia 2000	x				
Gabon 2000	x				
Ghana 2003	x				
Guatemala 1999					x
Guinea 1999	x				
Haiti 2000					x
India 1998/1999				x	
Indonesia 2002/2003				x	
Jordan 2002		x			
Kazakhstan 1999			x		
Kenya 2003	x				
Madagascar 2003	x				
Malawi 2000	x				
Mali 2001	x				
Mauritania 2000/2001	x				
Morocco 2003/2004		x			
Mozambique 2003	x				
Namibia 2000	x				
Nepal 2001				x	
Nicaragua 2001					x
Niger 1998	x				
Nigeria 2003	x				
Peru 2000					x
Philippines 2003				x	
Rwanda 2001	x				
Tanzania 1999	x				
Togo 1998	x				
Uganda 2000	x				
Zambia 2001/2002	x				
Zimbabwe 1999	x				
Total	25	4	1	6	7

Table 1: Initiation of breastfeeding and prelacteal feeds

Percentage of all children born in the five years preceding the survey living with their mother who were ever breastfed, and among children ever breastfed, the percentage who started breastfeeding within one hour and within one day of birth, and the percentage who received a prelacteal feed, DHS surveys 1998-2004

Country and year of survey	Percentage ever breastfed	Number of children	Percentage who started breastfeeding		Percentage who received a prelacteal feed ²	Number of children ever breastfed
			Within 1 hour of birth ¹	Within 1 day of birth		
Sub-Saharan Africa						
Benin 2001	97.1	5,305	48.6	77.1	39.4	5,151
Burkina Faso 2003	98.4	10,852	33.3	62.6	75.2	10,674
Cameroon 2004	93.6	8,097	31.9	59.6	62.2	7,581
Chad 2004	98.4	5,989	34.3	41.5	63.7	5,893
Cote d'Ivoire 1998	96.6	2,224	27.8	53.6	u	2,149
Eritrea 2002	98.0	6,156	77.9	89.5	17.2	6,029
Ethiopia 2000	96.3	12,260	51.8	75.4	u	11,809
Gabon 2000	86.2	4,031	71.4	84.0	u	3,475
Ghana 2003	97.0	3,639	46.3	75.2	19.6	3,532
Guinea 1999	92.3	5,842	26.0	55.8	u	5,389
Kenya 2003	96.8	6,102	52.3	81.7	65.0	5,906
Madagascar 2003	98.3	6,284	62.4	88.4	38.5	6,180
Malawi 2000	98.3	12,201	72.1	96.9	10.8	11,991
Mali 2001	96.9	13,218	32.3	81.8	67.7	12,804
Mauritania 2000/2001	95.2	5,088	61.0	83.3	u	4,845
Mozambique 2003	98.3	10,620	64.7	91.9	15.8	10,441
Namibia 2000	95.1	3,985	80.9	93.4	u	3,791
Niger 1998	97.9	5,007	28.3	41.6	u	4,900
Nigeria 2003	97.4	6,219	31.9	62.8	68.5	6,055
Rwanda 2000	97.1	8,188	48.1	72.8	u	7,950
Tanzania 1999	95.3	3,282	u	u	u	3,129
Togo 1998	97.4	3,978	18.9	54.7	u	3,874
Uganda 2000	98.3	7,672	31.6	86.2	63.5	7,544
Zambia 2001/2002	98.4	6,649	51.2	89.8	26.0	6,544
Zimbabwe 1999	97.7	3,559	63.0	91.5	u	3,479

Note: Niger 1998 and Togo 1998 collected data on children born during the 3 years preceding the survey

u: Unknown (not available)

1. Includes children who started breastfeeding within one hour of birth

2. Children given something other than breast milk during the first three days of life, before the child started to breastfeed regularly

Table I (continued): Initiation of breastfeeding and prelacteal feeds

Percentage of all children born in the five years preceding the survey living with their mother who were ever breastfed, and among children ever breastfed, the percentage who started breastfeeding within one hour and within one day of birth, and the percentage who received a prelacteal feed, DHS surveys 1998-2004

Country and year of survey	Percentage ever breastfed	Number of children	Percentage who started breastfeeding		Percentage who received a prelacteal feed ²	Number of children ever breastfed
			Within 1 hour of birth ¹	Within 1 day of birth		
North Africa/West Asia/Europe						
Armenia 2000	88.1	1,657	24.1	77.5	14.1	1,460
Egypt 2003	95.2	6,314	52.4	87.0	58.4	6,008
Jordan 2002	94.2	5,820	39.7	78.9	60.6	5,484
Morocco 2003/2004	95.1	6,043	52.0	89.1	64.8	5,744
Central Asia						
Kazakhstan 1999	95.2	1,449	22.1	57.7	u	1,378
South/Southeast Asia						
Bangladesh 2004	98.1	7,002	24.2	84.6	u	6,871
Cambodia 2000	95.7	8,175	11.0	24.4	93.9	7,825
India 1998/1999	96.5	32,765	16.4	38.5	u	31,606
Indonesia 2002/2003	95.9	15,089	38.7	62.1	56.0	14,474
Nepal 2001	98.0	6,978	31.1	64.9	40.9	6,840
Philippines 2003	86.5	6,954	54.0	80.4	54.6	6,017
Latin America and the Caribbean						
Bolivia 2003	97.1	10,350	60.7	84.0	34.2	10,047
Colombia 2005	97.1	13,801	48.9	70.8	29.9	13,400
Dominican Rep 2002	92.0	10,850	68.7	84.5	46.2	9,984
Guatemala 1999	96.5	4,545	48.5	77.0	u	4,383
Haiti 2000	97.4	6,491	46.7	59.8	u	6,320
Nicaragua 2001	94.5	6,526	76.3	86.8	26.7	6,168
Peru 2004	97.9	2,184	42.2	87.4	27.4	2,138

Note: India 1998/1999 collected data on children born during the 3 years preceding the survey

u: Unknown (not available)

1. Includes children who started breastfeeding within one hour of birth

2. Children given something other than breast milk during the first three days of life, before the child started to breastfeed regularly

Table 2: Exclusive breastfeeding and breastfeeding status of children under 6 months

Percentage of all children under six months living with their mother who are exclusively breastfed, and percentage of children under six months living with their mother who were breastfed six or more times in the day and night preceding the survey, DHS surveys 1998-2004

Country and year of survey	Percentage exclusively breastfed	Number of children	Percentage breastfed 6 + times in past 24 hours	Number of children ¹
Sub-Saharan Africa				
Benin 2001	37.9	527	95.4	529
Burkina Faso 2003	18.8	1,115	96.7	1,123
Cameroon 2004	23.5	788	95.6	785
Chad 2004	2.1	633	97.8	633
Cote d'Ivoire 1998	3.5	174	95.3	174
Eritrea 2002	52.0	651	97.9	655
Ethiopia 2000	54.5	1,067	96.9	1,063
Gabon 2000	5.4	401	93.6	340
Ghana 2003	53.4	308	96.9	312
Guinea 1999	11.2	662	96.8	662
Kenya 2003	12.7	607	92.1	610
Madagascar 2003	67.2	611	99.0	608
Malawi 2000	44.0	1,257	97.5	1,274
Mali 2001	25.1	1,458	97.3	1,431
Mauritania 2000/2001	20.2	493	94.4	489
Mozambique 2003	30.0	1,065	98.7	1,056
Namibia 2000	16.6	408	u	408
Niger 1998	0.8	856	95.2	861
Nigeria 2003	17.2	659	97.3	632
Rwanda 2000	83.3	775	95.6	784
Tanzania 1999	31.8	326	97.0	318
Togo 1998	10.5	657	96.0	660
Uganda 2000	63.2	705	94.3	697
Zambia 2001/2002	40.1	627	96.7	624
Zimbabwe 1999	31.9	342	94.5	345

u: Unknown (not available)

1. Excludes children for whom there was no valid answer on the number of times breastfed

Table 2 (continued): Exclusive breastfeeding and breastfeeding status of children under 6 months

Percentage of all children under six months living with their mother who are exclusively breastfed, and percentage of children under six months living with their mother who were breastfed six or more times in the day and night preceding the survey, DHS surveys 1998-2004

Country and year of survey	Percentage exclusively breastfed	Number of children	Percentage breastfed 6 + times in past 24 hours	Number of children ¹
North Africa/West Asia/Europe				
Armenia 2000	29.5	147	86.6	126
Egypt 2003	30.4	603	96.1	586
Jordan 2002	26.7	483	91.3	437
Morocco 2003/2004	31.0	540	89.1	479
Central Asia				
Kazakhstan 1999	35.8	113	94.6	107
South/Southeast Asia				
Bangladesh 2004	36.4	680	u	682
Cambodia 2000	11.4	800	98.7	798
India 1998/1999	46.8	5,555	u	5,555
Indonesia 2002/2003	39.5	1,547	96.5	1,446
Nepal 2001	68.3	648	97.5	648
Philippines 2003	33.5	602	92.5	480
Latin America and the Caribbean				
Bolivia 2003	53.6	909	93.3	873
Colombia 2005	47.0	1,311	88.4	1,203
Dominican Rep 2002	10.4	955	86.1	704
Guatemala 1999	39.2	462	91.9	453
Haiti 2000	23.7	531	92.4	533
Nicaragua 2001	31.1	540	89.9	506
Peru 2004	63.9	194	95.0	193

u: Unknown (not available)

1. Excludes children for whom there was no valid answer on the number of times breastfed

Table 3: Duration of breastfeeding and proportion of children using a bottle

Median duration of exclusive breastfeeding and any breastfeeding among all children born in the three years preceding the survey, and percentage of children under three years living with their mother using a bottle with a nipple, DHS surveys 1998-2004

Country and year of survey	Median duration (months) of breastfeeding ¹			Percentage using a bottle with a nipple	Number of living children
	Exclusive breastfeeding	Any breastfeeding	Number of children		
Sub-Saharan Africa					
Benin 2001	1.1	21.8	3,211	3.9	2,912
Burkina Faso 2003	0.5	24.5	6,294	1.1	5,720
Cameroon 2004	0.6	17.4	4,890	6.0	4,490
Chad 2004	0.4	21.3	3,537	2.2	3,115
Cote d'Ivoire 1998	0.4	20.5	1,388	3.1	1,221
Eritrea 2002	2.6	21.8	3,477	5.9	3,281
Ethiopia 2000	2.5	25.5	7,167	7.6	6,412
Gabon 2000	0.4	12.1	2,482	20.4	2,324
Ghana 2003	2.6	22.5	2,175	8.4	2,032
Guinea 1999	0.4	22.4	3,427	5.9	3,005
Kenya 2003	0.5	20.1	3,702	16.7	3,411
Madagascar 2003	3.6	21.6	3,762	2.1	3,516
Malawi 2000	2.0	23.3	7,758	3.6	6,862
Mali 2001	0.6	21.7	8,007	4.4	6,974
Mauritania 2000/2001	0.7	20.6	3,032	5.9	2,796
Mozambique 2003	0.7	22.1	6,323	7.1	5,710
Namibia 2000	0.6	18.6	2,459	28.6	2,346
Niger 1998	0.4	20.6	5,007	2.5	4,403
Nigeria 2003	0.5	18.6	3,815	12.1	3,379
Rwanda 2000	4.9	22.1	4,822	8.1	4,293
Tanzania 1999	1.1	20.9	2,029	6.1	1,817
Togo 1998	0.5	24.4	3,978	3.2	3,693
Uganda 2000	3.4	19.9	4,681	2.4	4,245
Zambia 2001/2002	1.8	21.4	4,140	2.7	3,681
Zimbabwe 1999	1.3	19.6	2,191	5.4	2,029

1. It is assumed that non-last-born children and last-born children not currently living with their mother are not currently breastfeeding.

Table 3 (continued): Duration of breastfeeding and proportion of children using a bottle

Median duration of exclusive breastfeeding and any breastfeeding among all children born in the three years preceding the survey, and percentage of children under three years living with their mother using a bottle with a nipple, DHS surveys 1998-2004

Country and year of survey	Median duration (months) of breastfeeding ¹		Number of children	Percentage using a bottle with a nipple	Number of living children
	Exclusive breastfeeding	Any breastfeeding			
North Africa/West Asia/Europe					
Armenia 2000	1.4	8.7	911	34.2	880
Egypt 2003	1.5	18.8	3,850	12.0	3,703
Jordan 2002	0.9	13.1	3,539	31.2	3,454
Morocco 2003/2004	1.3	14.2	3,508	30.1	3,371
Central Asia					
Kazakhstan 1999	1.7	14.7	827	22.3	788
South/Southeast Asia					
Bangladesh 2004	1.0	32.4	4,126	13.8	3,855
Cambodia 2000	0.5	21.2	4,657	16.7	4,232
India 1998/1999	1.9	25.4	32,765	13.7	30,668
Indonesia 2002/2003	1.6	22.3	9,119	25.5	8,788
Nepal 2001	4.1	33.7	4,096	2.3	3,840
Philippines 2003	0.8	14.1	4,145	49.4	4,011
Latin America and the Caribbean					
Bolivia 2003	2.7	19.6	5,908	34.9	5,615
Colombia 2005	2.2	14.9	8,214	49.5	8,052
Dominican Rep 2002	0.5	6.5	6,603	82.6	6,395
Guatemala 1999	0.9	19.9	2,751	46.3	2,618
Haiti 2000	0.7	17.3	3,985	17.8	3,645
Nicaragua 2001	0.7	17.0	3,930	59.6	3,807
Peru 2004	3.9	19.6	1,313	38.9	1,283

1. It is assumed that non-last-born children and last-born children not currently living with their mother are not currently breastfeeding.

Table 4: Continued breastfeeding

Percentage of youngest children age 6-11 months, 12-17 months, and 18-23 months who continue to breastfeed, among children born in the three years preceding the survey living with their mother, DHS surveys 1998-2004

Country and year of survey	Percentage of children who continue to breastfeed					
	6-11 months	Number of children	12-17 months	Number of children	18-23 months	Number of children
Sub-Saharan Africa						
Benin 2001	99.4	517	94.1	476	68.1	436
Burkina Faso 2003	99.5	1,001	97.8	1,015	85.1	804
Cameroon 2004	95.6	745	76.0	770	34.5	675
Chad 2004	98.5	516	89.9	586	72.0	339
Cote d'Ivoire 1998	98.3	232	89.8	225	57.6	204
Eritrea 2002	97.4	610	91.1	499	64.8	450
Ethiopia 2000	98.6	1,097	94.3	1,095	82.7	1,011
Gabon 2000	78.8	368	40.5	421	10.7	300
Ghana 2003	99.2	370	93.5	380	69.8	292
Guinea 1999	97.4	418	94.9	633	78.3	276
Kenya 2003	96.6	623	84.9	601	57.2	489
Madagascar 2003	99.0	604	85.8	663	67.3	581
Malawi 2000	99.4	1,226	97.1	1,124	78.8	1,070
Mali 2001	98.8	1,260	92.7	1,324	71.4	815
Mauritania 2000/2001	94.9	508	85.1	534	58.5	384
Mozambique 2003	98.4	1,005	91.9	1,015	70.8	874
Namibia 2000	81.4	378	76.9	392	49.9	330
Niger 1998	99.8	771	94.2	783	62.3	599
Nigeria 2003	97.5	647	83.5	583	39.7	388
Rwanda 2000	98.9	936	92.1	818	69.6	475
Tanzania 1999	96.5	303	89.1	295	61.9	273
Togo 1998	99.5	690	97.6	555	82.7	555
Uganda 2000	97.7	758	85.2	740	53.6	707
Zambia 2001/2002	99.5	599	93.2	647	65.7	612
Zimbabwe 1999	96.8	307	88.0	360	48.4	315

Table 4 (continued): Continued breastfeeding

Percentage of youngest children age 6-11 months, 12-17 months, and 18-23 months who continue to breastfeed, among children born in the three years preceding the survey living with their mother, DHS surveys 1998-2004

Country and year of survey	Percentage of children who continue to breastfeed					
	6-11 months	Number of children	12-17 months	Number of children	18-23 months	Number of children
North Africa/West Asia/Europe						
Armenia 2000	53.6	150	26.4	155	16.8	136
Egypt 2003	89.4	644	78.5	555	38.3	595
Jordan 2002	71.6	656	44.3	551	18.2	526
Morocco 2003/2004	75.2	559	51.1	560	16.8	532
Central Asia						
Kazakhstan 1999	81.1	130	55.5	135	21.7	125
South/Southeast Asia						
Bangladesh 2004	97.7	586	95.7	730	91.6	521
Cambodia 2000	94.5	778	84.5	660	58.8	573
India 1998/1999	95.2	4,933	87.9	5,695	73.7	4,341
Indonesia 2002/2003	84.6	1,354	80.5	1,534	63.8	1,236
Nepal 2001	99.1	630	97.8	641	90.0	660
Philippines 2003	64.7	719	51.7	628	32.2	630
Latin America and the Caribbean						
Bolivia 2003	91.9	901	77.3	943	49.1	877
Colombia 2005	73.4	1,344	54.0	1,323	32.8	1,268
Dominican Rep 2002	46.0	999	25.6	1,002	15.0	995
Guatemala 1999	90.3	429	75.2	433	50.8	401
Haiti 2000	93.6	638	72.5	567	39.1	577
Nicaragua 2001	74.5	577	60.0	635	40.0	664
Peru 2004	93.5	195	72.0	229	47.5	234

Table 5: Consumption of solid and semi-solid foods

Mean number of times solid/semi-solid foods were consumed and mean number of food groups consumed among youngest children age 6-23 months living with their mother, by breastfeeding status, DHS surveys 1998-2004

Country and year of survey	Mean number of times solid/semi solid consumed		Mean number of food groups ¹ consumed		Number of children 6-23 months		
	Breastfed	Non-breastfed	Breastfed	Non-breastfed	Breastfed	Non-breastfed	All
Sub-Saharan Africa							
Benin 2001	1.8	3.0	3.1	4.3	1,260	172	1,432
Burkina Faso 2003	1.7	2.7	1.5	2.9	2,673	153	2,826
Cameroon 2004	2.0	2.7	3.6	4.5	1,534	724	2,258
Chad 2004	u	u	u	u	1,279	165	1,444
Cote d'Ivoire 1998	u	u	u	u	548	119	667
Eritrea 2002	2.1	3.6	2.3	3.5	1,340	221	1,561
Ethiopia 2000	2.0	2.9	3.0	3.8	2,952	265	3,217
Gabon 2000	u	u	2.8	2.9	496	669	1,165
Ghana 2003	2.0	3.1	2.5	3.5	930	120	1,050
Guinea 1999	u	u	u	u	1,225	104	1,329
Kenya 2003	2.7	3.1	3.1	2.7	1,392	340	1,733
Madagascar 2003	2.8	3.0	2.8	2.6	1,559	318	1,877
Malawi 2000	2.3	2.6	2.5	2.6	3,153	288	3,441
Mali 2001	1.4	2.4	1.6	2.5	3,066	368	3,434
Mauritania 2000/2001	u	u	1.7	2.2	1,163	276	1,438
Mozambique 2003	1.9	2.5	2.8	3.7	2,543	367	2,910
Namibia 2000	u	u	u	u	777	427	1,204
Niger 1998	3.1	3.5	1.3	1.6	1,883	296	2,179
Nigeria 2003	2.0	3.1	2.9	4.1	1,276	350	1,626
Rwanda 2000	1.2	1.6	3.4	4.6	2,010	232	2,242
Tanzania 1999	u	u	u	u	727	160	887
Togo 1998	3.7	3.9	1.5	1.9	1,690	115	1,805
Uganda 2000	1.8	2.2	3.7	3.9	1,755	480	2,234
Zambia 2001/2002	2.5	2.9	3.2	3.5	1,600	267	1,867
Zimbabwe 1999	2.1	2.1	2.7	3.0	769	234	1,003

u: Unknown (not available)

1. Food Groups:

- a. Infant formula, milk other than breast milk, cheese or yogurt or other milk products
- b. Foods made from grains, roots, and tubers, including porridge, fortified baby food from grains
- c. Vitamin A-rich fruits and vegetables (and red palm oil)
- d. Other fruits and vegetables
- e. Eggs, meat, poultry, fish, and shellfish (and organ meats)
- f. Beans, legumes and nuts
- g. Foods made with oil, fat, or butter

Table 5 (continued): Consumption of solid and semi-solid foods

Mean number of times solid/semi-solid foods were consumed and mean number of food groups consumed among youngest children age 6-23 months living with their mother, by breastfeeding status, DHS surveys 1998-2004

Country and year of survey	Mean number of times solid/semi solid consumed		Mean number of food groups ¹ consumed		Number of children 6-23 months		
	Breastfed	Non-breastfed	Breastfed	Non-breastfed	Breastfed	Non-breastfed	All
North Africa/West Asia/Europe							
Armenia 2000	1.6	2.0	3.9	4.8	144	298	442
Egypt 2003	2.1	3.0	2.2	3.1	1,239	557	1,796
Jordan 2002	2.3	3.0	4.4	5.1	810	924	1,734
Morocco 2003/2004	2.6	3.9	3.1	4.1	797	862	1,659
Central Asia							
Kazakhstan 1999	6.1	6.6	3.0	3.8	207	189	396
South/Southeast Asia							
Bangladesh 2004	3.1	3.9	3.2	3.8	1,748	91	1,840
Cambodia 2000	2.5	3.5	3.3	4.4	1,631	387	2,018
India 1998/1999	DI	DI	DI	DI	12,906	2,098	15,005
Indonesia 2002/2003	2.8	3.2	4.3	5.0	3,172	984	4,155
Nepal 2001	2.7	3.4	3.5	3.5	1,846	86	1,932
Philippines 2003	3.2	3.6	3.2	3.7	994	1,021	2,014
Latin America and the Caribbean							
Bolivia 2003	2.4	3.1	4.9	5.4	1,988	751	2,739
Colombia 2005	u	u	3.8	4.0	2,115	1,897	4,012
Dominican Rep 2002	2.0	2.3	4.4	4.8	866	2,257	3,123
Guatemala 1999	3.4	4.6	1.5	2.1	917	350	1,267
Haiti 2000	1.7	1.9	3.6	4.0	1,237	598	1,834
Nicaragua 2001	2.6	2.9	6.4	6.3	1,080	850	1,930
Peru 2004	3.0	3.5	4.9	5.4	458	202	660

u: Unknown (not available)

DI: Data insufficient for analysis

1. Food Groups:

- a. Infant formula, milk other than breast milk, cheese or yogurt or other milk products
- b. Foods made from grains, roots, and tubers, including porridge, fortified baby food from grains
- c. Vitamin A-rich fruits and vegetables (and red palm oil)
- d. Other fruits and vegetables
- e. Eggs, meat, poultry, fish, and shellfish (and organ meats)
- f. Beans, legumes and nuts
- g. Foods made with oil, fat, or butter

Table 6: Infant and young child feeding (IYCF) practices

Percentage of youngest children age 6–23 months living with their mother who were fed according to three IYCF practices, percentage fed solid/semi-solid foods the minimum number of times or more (during the previous day and night), and percentage fed the minimum number of food groups or more, by breastfeeding status, DHS surveys 1998–2004

Country and Year of DHS	Continue to breast-feed	Non-BF children consuming milk or milk products		Fed solid/semi-solid foods minimum number of times or more		Fed minimum number of food groups or more		Fed according to three IYCF practices		Number of children 6–23 months			
		Breastfed ¹	Non-breastfed ²	All	Breastfed ³	Non-breastfed ⁴	All	Breastfed ⁵	Non-breastfed ⁶	All	Breastfed	Non-breastfed	
													All
Benin 2001	88.0	34.4	37.4	37.4	51.5	62.6	52.8	26.3	9.0	24.2	1,260	172	1,432
Burkina Faso 2003	94.6	29.9	30.6	25.2	30.3	33.5	19.6	8.9	9.7	8.9	2,673	153	2,826
Cameroon 2004	67.9	27.9	41.4	25.8	36.4	64.6	63.4	32.4	9.3	25.0	1,534	724	2,258
Chad 2004	88.6	u	u	u	u	u	u	u	u	u	1,279	165	1,444
Cote d'Ivoire 1998	82.1	22.2	u	u	u	u	u	u	u	u	548	119	667
Eritrea 2002	85.8	63.8	44.3	51.6	45.3	45.3	39.8	25.4	27.6	25.7	1,340	221	1,561
Ethiopia 2000	91.8	53.5	42.5	31.0	41.5	49.7	47.9	32.5	10.1	30.6	2,952	265	3,217
Gabon 2000	42.6	59.4	u	u	u	41.8	49.2	u	u	u	496	669	1,165
Ghana 2003	88.6	34.9	43.3	27.1	41.5	55.4	45.7	25.0	10.0	23.3	930	120	1,050
Guinea 1999	92.2	21.4	u	u	u	u	u	u	u	u	1,225	104	1,329
Kenya 2003	80.4	52.9	58.4	32.9	53.4	33.7	52.6	38.4	9.9	32.8	1,392	340	1,733
Madagascar 2003	83.1	15.5	75.9	27.4	67.6	31.6	45.9	41.7	6.0	35.6	1,559	318	1,877
Malawi 2000	91.6	14.9	50.2	13.2	47.1	30.0	39.6	21.8	1.7	20.1	3,153	288	3,441
Mali 2001	89.3	31.5	23.6	19.9	23.2	29.4	24.8	7.8	3.6	7.4	3,066	368	3,434
Mauritania 2000/2001	80.8	75.8	u	u	u	u	u	u	u	u	1,163	276	1,438
Mozambique 2003	87.4	21.5	37.8	15.8	35.0	50.9	50.8	22.7	6.1	20.6	2,543	367	2,910
Namibia 2000	64.6	u	44.0	15.4	33.9	u	u	u	u	u	777	427	1,204
Niger 1998	86.4	16.7	65.7	52.2	63.9	2.2	8.8	7.6	1.4	6.8	1,883	296	2,179
Nigeria 2003	78.5	34.2	42.9	33.9	40.9	58.6	50.8	25.3	12.4	22.5	1,276	350	1,626
Rwanda 2000	89.7	28.5	14.9	6.6	14.0	65.2	59.7	12.0	2.6	11.0	2,010	232	2,242
Tanzania 1999	82.0	38.9	u	u	u	u	u	u	u	u	727	160	887
Togo 1998	93.6	19.0	77.6	48.6	75.7	3.9	13.5	11.8	0.8	11.1	1,690	115	1,805
Uganda 2000	78.5	39.7	28.9	9.4	24.7	57.9	68.8	23.5	3.4	19.2	1,755	480	2,234
Zambia 2001/2002	85.7	13.5	54.4	28.5	50.7	46.2	55.7	36.7	5.3	32.2	1,600	267	1,867
Zimbabwe 1999	76.7	30.4	41.3	10.7	34.1	38.7	44.2	21.0	4.8	17.2	769	234	1,003

Country and year of survey	Continue to breast-feed	Non-BF children consuming milk or milk products		Fed solid/semi-solid foods minimum number of times or more		Fed minimum number of food groups		Fed according to three YCF practices		Number of children 6-23 months				
		Breastfed ¹	Non-breastfed ²	All	Breastfed ³	Non-breastfed ⁴	All	Breastfed ⁵	Non-breastfed ⁶	All	Breastfed	Non-breastfed		
													Breastfed ¹	Non-breastfed ²
North Africa/West Asia/Europe														
Armenia 2000	32.6	89.1	30.4	20.2	23.6	76.7	75.6	75.9	27.9	15.1	19.2	144	298	442
Egypt 2003	69.0	79.1	46.4	27.6	40.5	42.6	44.2	43.1	25.7	13.0	21.7	1,239	557	1,796
Jordan 2002	46.7	90.6	57.0	24.4	39.6	82.0	80.9	81.4	51.2	20.3	34.8	810	924	1,734
Morocco 2003/2004	48.1	85.3	62.5	61.8	62.1	64.6	70.3	67.6	46.5	42.8	44.6	797	862	1,659
Central Asia														
Kazakhstan 1999	52.4	100.0	91.7	94.4	92.9	70.5	66.9	68.7	67.9	62.0	65.1	207	189	396
South/Southeast Asia														
Bangladesh 2004	95.0	75.8	70.5	56.1	69.8	70.7	71.7	70.8	56.8	34.7	55.7	1,748	91	1,840
Cambodia 2000	80.8	24.4	56.3	40.1	53.2	61.0	57.9	60.4	41.7	6.2	34.9	1,631	387	2,018
India 1998/1999	86.0	83.2	DI	DI	DI	DI	DI	5.8	DI	DI	DI	12,906	2,098	15,005
Indonesia 2002/2003	76.3	62.6	66.5	20.4	55.6	72.3	67.4	71.1	49.9	11.1	40.7	3,172	984	4,155
Nepal 2001	95.5	40.1	67.5	48.6	66.1	62.4	41.1	61.4	48.8	14.4	47.3	1,846	86	1,932
Philippines 2003	49.3	75.0	79.3	36.7	57.7	61.4	54.5	57.9	51.8	20.3	35.8	994	1,021	2,014
Latin America and the Caribbean														
Bolivia 2003	72.6	69.4	51.5	36.1	47.3	85.3	80.0	83.9	48.3	25.5	42.0	1,988	751	2,739
Colombia 2005	52.7	81.2	u	u	u	79.8	69.4	74.9	u	u	u	2,115	1,897	4,012
Dominican Rep 2002	27.7	84.8	42.0	14.4	22.0	75.8	72.7	73.5	36.4	10.6	17.8	866	2,257	3,123
Guatemala 1999	72.4	63.2	77.7	60.5	73.0	24.5	10.7	20.7	22.6	8.1	18.6	917	350	1,267
Haiti 2000	67.4	41.1	21.4	4.0	15.7	72.8	62.3	69.4	16.8	0.2	11.4	1,237	598	1,834
Nicaragua 2001	56.0	81.2	67.5	23.2	48.0	87.6	79.1	83.9	63.8	17.7	43.5	1,080	850	1,930
Peru 2004	69.4	76.0	75.0	43.1	65.2	88.6	83.4	87.0	69.9	28.7	57.3	458	202	660

u: Unknown (not available) DI: Data insufficient for analysis

1. Infants 6-8 months fed two or more times a day and infants 9-23 months fed three or more times a day

2. Infants 6-23 months fed four or more times a day

3. Fed three or more food groups

4. Fed four or more food groups

5. Fed solids/semi-solids minimum number of times (two/three or more) and fed minimum number of food groups (three or more)

6. Received milk or milk products in addition to being fed minimum number of times (four or more) and fed minimum number of food groups (four or more)

Table 7: Micronutrient intake

Percentage of youngest children age 6-35 months living with their mother who consumed foods rich in vitamin A and foods rich in iron in the 24 hours preceding the survey, the percentage of all children 6-59 months who live in households using adequately iodized salt, and percentage who received vitamin A supplements during the six months preceding the survey, DHS surveys 1998-2004

Country and year of survey	Last-born children 6-35 months			Children 6-59 months			
	Consumed foods rich in vitamin A ¹	Consumed food rich in iron in past 24 hours ²	Number of children	Living in HH using adequately iodized salt ³	Number of children living in the HH ⁴ tested for iodine	Received vitamin A supplement in past 6 months	Number of children
Sub-Saharan Africa							
Benin 2001	68.2	54.3	2,228	71.5	4,450	16.1	4,738
Burkina Faso 2003	42.0	23.1	4,442	48.0	9,088	28.8	9,669
Cameroon 2004	73.4	53.4	3,320	78.0	6,482	33.4	7,268
Chad 2004	u	u	u	u	u	29.2	5,307
Cote d'Ivoire 1998	u	u	u	u	u	u	u
Eritrea 2002	46.3	29.7	2,466	65.3	5,622	35.4	5,471
Ethiopia 2000	28.8	13.6	5,039	28.0*	10,163	52.3	11,090
Gabon 2000	65.2	65.2	1,771	u	u	u	u
Ghana 2003	70.5	53.5	1,600	21.1	3,191	71.8	3,302
Guinea 1999	u	u	u	1.6*	4,706	u	u
Kenya 2003	76.5	25.7	2,540	u	u	30.2	5,460
Madagascar 2003	78.3	29.6	2,659	65.4	5,522	70.8	5,631
Malawi 2000	74.6	38.1	5,222	48.4	10,057	60.5	10,838
Mali 2001	39.8	27.6	5,147	71.5	10,594	34.0	11,610
Mauritania 2000/2001	50.0	50.0	2,137	u	u	u	u
Mozambique 2003	72.2	30.3	4,398	50.4*	8,954	43.7	9,482
Namibia 2000	u	u	u	56.7	3,046	36.5	3,546
Niger 1998	41.7	41.7	3,344	u	u	u	u
Nigeria 2003	66.5	52.9	2,470	93.4	5,066	28.7	5,507
Rwanda 2000	70.6	13.2	3,227	84.2	6,833	58.6	7,347
Tanzania 1999	u	u	u	u	u	u	u
Togo 1998	60.7	60.7	2,911	70.6*	3,511	u	u
Uganda 2000	69.8	28.8	3,145	87.6	6,197	33.1	6,917
Zambia 2001/2002	79.1	44.3	2,875	65.8	5,475	58.0	5,988
Zimbabwe 1999	84.9	47.2	1,539	u	u	u	u

Note: Niger 1998 and Togo 1998 collected data on children born during the 3 years preceding the survey

u: Unknown (not available)

* Iodine present but level not specified.

1. Includes meat (and organ meat), fish, poultry, eggs, pumpkin, red or yellow yams or squash, carrots, red sweet potatoes, dark green leafy vegetables, mango, papaya, and other locally grown fruits and vegetables that are rich in vitamin A
2. Includes meat (including organ meat), fish, poultry, and eggs
3. Salt containing 15 ppm of iodine or more, excludes children in households in which salt was not tested
4. Living with mothers who are usual residents of the household

Table 7 (continued): Micronutrient intake

Percentage of youngest children age 6-35 months living with their mother who consumed foods rich in vitamin A and foods rich in iron in the 24 hours preceding the survey, the percentage of all children 6-59 months who live in households using adequately iodized salt, and percentage who received vitamin A supplements during the six months preceding the survey, DHS surveys 1998-2004

Country and year of survey	Last-born children 6-35 months			Children 6-59 months			
	Consumed foods rich in vitamin A ¹	Consumed food rich in iron in past 24 hours ²	Number of children	Living in HH using adequately iodized salt ³	Number of children living in the HH ⁴ tested for iodine	Received vitamin A supplement in past 6 months	Number of children
North Africa/West Asia/Europe							
Armenia 2000	91.8	46.6	682	84.2	1,563	u	u
Egypt 2003	62.2	61.9	2,861	75.4	5,699	u	u
Jordan 2002	81.5	62.1	2,555	u	u	u	u
Morocco 2003	86.0	66.9	2,654	u	u	24.5	5,476
Central Asia							
Kazakhstan 1999	65.2	65.2	624	u	u	u	u
South/Southeast Asia							
Bangladesh 2004	81.9	75.4	3,052	u	u	72.6	6,279
Cambodia 2000	77.9	66.9	3,239	12.0*	7,219	27.5	7,293
India 1998/1999	u	u	u	70.8	27,123	u	u
Indonesia 2002/2003	87.6	65.3	6,904	u	u	72.2	13,462
Nepal 2001	50.0	17.0	3,003	u	u	u	u
Philippines 2003	81.1	63.7	2,993	u	u	73.3	6,336
Latin America and the Caribbean							
Bolivia 2003	85.6	73.1	4,297	u	u	56.2	9,390
Colombia 2005	84.4	79.1	6,183	u	u	u	u
Dominican Rep 2002	78.5	65.6	4,596	u	u	29.6	9,861
Guatemala 1999	67.3	67.3	1,949	u	u	u	u
Haiti 2000	69.4	36.0	2,729	11.2	5,466	28.2	5,933
Nicaragua 2001	76.7	53.3	2,958	u	u	62.9	5,967
Peru 2004	89.3	76.1	1,038	u	u	u	u

Note: India 1998/1999 collected data on children born during the 3 years preceding the survey

u: Unknown (not available)

* Iodine present but level not specified.

1. Includes meat (and organ meat), fish, poultry, eggs, pumpkin, red or yellow yams or squash, carrots, red sweet potatoes, dark green leafy vegetables, mango, papaya, and other locally grown fruits and vegetables that are rich in vitamin A

2. Includes meat (including organ meat), fish, poultry, and eggs

3. Salt containing 15 ppm of iodine or more, excludes children in households in which salt was not tested

4. Living with mothers who are usual residents of the household

Table 8: Feeding during diarrhea

Percentage of all children age 6-59 months with diarrhea in the two weeks preceding the survey, and among those with diarrhea, the percentage who received increased fluids or solid foods, DHS surveys 1998-2004

Country and year of survey	Children 6-59 months		Children 6-59 months with diarrhea		
	Percentage with diarrhea	Number of children	Percentage who received increased fluids	Percentage who received increased food	Number of children
Sub-Saharan Africa					
Benin 2001	14.2	4,163	40.7	9.9	593
Burkina Faso 2003	21.6	8,342	50.6	11.4	1,799
Cameroon 2004	16.8	6,474	49.7	10.5	1,086
Chad 2004	26.7	4,526	28.4	10.3	1,208
Cote d'Ivoire 1998	22.5	1,732	56.0	13.8	390
Eritrea 2002	14.0	5,088	39.9	12.0	712
Ethiopia 2000	24.6	9,677	36.2	2.3	2,376
Gabon 2000	16.3	3,346	62.6	23.1	546
Ghana 2003	16.3	3,026	40.0	5.7	493
Guinea 1999	22.1	4,372	53.9	15.7	964
Kenya 2003	16.2	4,941	36.0	6.9	800
Madagascar 2003	10.2	5,227	35.8	9.4	532
Malawi 2000	18.2	9,285	36.2	28.2	1,693
Mali 2001	19.3	9,667	55.7	12.9	1,864
Mauritania 2000/2001	18.4	4,155	22.8	3.9	766
Mozambique 2003	14.5	8,318	47.3	17.9	1,207
Namibia 2000	12.3	3,368	16.4	7.8	416
Niger 1998	39.7	3,537	58.1	17.8	1,403
Nigeria 2003	19.7	4,682	21.4	8.6	921
Rwanda 2000	17.3	6,245	18.2	7.6	1,080
Tanzania 1999	12.6	2,572	33.9	16.2	325
Togo 1998	33.7	3,023	64.6	20.6	1,020
Uganda 2000	19.8	6,096	29.2	4.9	1,206
Zambia 2001/2002	22.6	5,153	41.9	8.8	1,162
Zimbabwe 1999	14.8	2,918	50.9	15.7	432

Note: Niger 1998 and Togo 1998 collected data on children born during the 3 years preceding the survey.

Table 8 (continued): Feeding during diarrhea

Percentage of all children age 6-59 months with diarrhea in the two weeks preceding the survey, and among those with diarrhea, the percentage who received increased fluids or solid foods, DHS surveys 1998-2004

Country and year of survey	Children 6-59 months		Children 6-59 months with diarrhea		
	Percentage with diarrhea	Number of Children	Percentage who received increased fluids	Percentage who received increased food	Number of children
North Africa/West Asia/Europe					
Armenia 2000	7.6	1,447	53.9	4.0	110
Egypt 2003	18.8	5,446	32.2	1.3	1,021
Jordan 2002	14.4	5,185	58.0	2.9	748
Morocco 2003/2004	12.1	5,248	45.1	6.5	637
Central Asia					
Kazakhstan 1999	13.4	1,241	58.1	6.5	166
South/Southeast Asia					
Bangladesh 2004	7.9	5,811	53.2	29.8	459
Cambodia 2000	19.3	6,515	55.9	7.9	1,255
India 1998/1999	19.6	25,081	23.2	10.1	4,913
Indonesia 2002/2003	11.3	12,940	28.7	9.9	1,459
Nepal 2001	20.6	5,820	28.0	7.1	1,199
Philippines 2003	11.0	6,109	57.5	17.9	672
Latin America and the Caribbean					
Bolivia 2003	23.0	8,801	53.1	9.3	2,025
Colombia 2005	14.6	12,196	43.4	4.0	1,776
Dominican Rep 2002	14.1	9,517	36.3	6.9	1,340
Guatemala 1999	13.9	3,841	42.6	6.7	535
Haiti 2000	25.5	5,338	36.7	4.9	1,362
Nicaragua 2001	13.0	5,750	41.1	9.7	750
Peru 2004	5.4	1,934	62.7	6.5	298

Note: India 1998/1999 collected data on children born during the 3 years preceding the survey.