

Timing and Number of Antenatal Care Contacts in Low and Middle-Income Countries: Analysis in the Countdown to 2030 Priority Countries

[Antenatal care in Countdown to 2030 priority Countries: Timing Matters]

Online Supplementary Document

Table S1: Distribution of timing of ANC initiation and median gestational age at first ANC among all women with 0-10 ANC in countries with available data.

Country	Data Source	Last birth in 2 years preceding survey * (n)	ANC4+ coverage (%)	Country group based on ANC4+ coverage	Median Gestational Age at first ANC visit (months)	Timing of ANC initiation (%)			
						1 st Trimester	2 nd Trimester	3 rd Trimester	No ANC
Afghanistan	DHS 2015	11,365	18.7	1	4	30.8	24.8	6.8	37.6
Angola	DHS 2015-16	5,653	60.3	2	4	37.9	39.8	3.9	18.5
Benin	DHS 2011-12	4,813	60.5	2	3	49.0	32.6	6.3	12.0
Burundi	DHS 2016-17	5,191	51.8	2	4	48.9	45.6	4.9	0.6
Cambodia	DHS 2014	2,871	75.5	3	2	78.3	15.6	2.4	3.7
Cameroon	MICS 2014	2,738	60.2	2	4	34.8	45.7	4.0	15.5
Chad	DHS 2014-2015	6,459	32.6	1	4	29.5	33.4	3.2	33.9
Comoros	DHS 2012	1,053	54.0	2	3	53.2	33.3	5.2	8.4
Congo	DHS 2011-12	3,811	76.4	3	4	42.3	48.0	2.5	7.2
Côte d'Ivoire	DHS 2011-2012	3,073	43.1	1	5	27.7	52.1	13.0	7.2
Democratic Republic of the Congo	DHS 2013-2014	7,213	46.5	1	5	16.6	59.8	13.7	9.9
Dominican Republic	DHS 2013	1,036	95.7	3	2	76.3	21.9	1.1	0.7
Eswatini	MICS 2014	935	77.1	3	4	36.5	56.0	6.5	1.0
Ethiopia	DHS 2016	3,982	33.2	1	4	20.7	37.3	6.6	35.4
Gabon	DHS 2012	2,473	76.3	3	3	57.3	34.7	2.3	5.7
Gambia	DHS 2013	3,465	76.7	3	4	35.1	55.8	8.1	1.0

Country	Data Source	Last birth in 2 years preceding survey * (n)	ANC4+ coverage (%)	Country group based on ANC4+ coverage	Median Gestational Age at first ANC visit (months)	Timing of ANC initiation (%)			
						1 st Trimester	2 nd Trimester	3 rd Trimester	No ANC
Ghana	DHS 2014	2,225	85.2	3	3	60.0	33.7	3.1	3.1
Guatemala	DHS 2014-2015	4,197	82.6	3	3	62.0	30.2	3.5	4.4
Guinea	DHS 2012	2,775	56.0	2	4	38.8	41.9	6.0	13.3
Guinea-Bissau	MICS5 2014	2,959	66.1	2	4	37.1	50.3	5.2	7.4
Guyana	MICS5 2014	932	91.8	3	3	49.1	44.5	4.2	2.1
Haiti	DHS 2012	2,844	64.3	2	3	54.5	30.1	5.4	10.0
Honduras	DHS 2011-2012	4,324	87.1	3	2	74.2	20.0	2.5	3.4
India	DHS 2015-16	91,614	47.0	1	3	57.0	22.0	3.6	17.4
Indonesia	DHS 2012	6,165	85.7	3	2	76.6	17.1	2.8	3.4
Kenya	DHS 2014	7,898	54.7	2	5	18.8	63.5	13.7	4.0
Kyrgyz Republic	DHS 2012	1,662	86.4	3	3	77.7	18.0	1.4	2.9
Lao People's Democratic Republic	MICS 2011-2012	4,218	36.4	1	4	23.8	26.3	6.1	43.8
Lesotho	DHS 2014	1,354	72.6	2	4	39.1	47.7	9.4	3.7
Liberia	DHS 2013	2,810	79.1	3	3	65.8	28.1	3.4	2.7
Malawi	DHS 2015-16	6,474	48.0	1	4	22.9	67.8	7.4	1.9
Mali	DHS 2012-13	3,867	40.9	1	4	33.7	35.1	6.3	24.9
Mauritania	MICS 2015	3,848	65.7	2	3	65.2	18.8	2.8	13.3
Myanmar	DHS 2015-16	1,742	56.6	2	4	36.7	41.0	10.2	12.2
Namibia	DHS 2013	1,534	77.6	3	4	36.4	51.8	7.3	4.5
Nepal	DHS 2016	1,903	70.5	2	3	65.8	27.6	2.8	3.8
Niger	DHS 2012	4,722	33.2	1	4	21.8	55.8	10.2	12.2
Nigeria	DHS 2013	10,462	45.4	1	5	12.9	39.0	8.9	39.2
Pakistan	DHS 2012-13	3,995	36.0	1	3	42.5	21.8	13.6	22.1
Paraguay	MICS 2016	1,198	91.9	3	2	75.4	20.6	2.0	2.0

Country	Data Source	Last birth in 2 years preceding survey * (n)	ANC4+ coverage (%)	Country group based on ANC4+ coverage	Median Gestational Age at first ANC visit (months)	Timing of ANC initiation (%)			
						1 st Trimester	2 nd Trimester	3 rd Trimester	No ANC
Philippines	DHS 2013	2,521	82.1	3	3	55.6	36.1	3.7	4.6
Rwanda	DHS 2014-2015	3,166	43.4	1	3	54.4	39.8	5.0	0.8
Senegal	DHS_2016	2,559	53.0	2	3	58.8	33.3	4.8	3.2
Sierra Leone	DHS 2013	3,258	83.4	3	4	40.3	54.1	3.2	2.4
Sudan	MICS 2014	5,316	51.0	2	3	46.7	26.9	6.6	19.8
Tajikistan	DHS 2012	1,889	52.1	2	3	51.8	24.0	5.4	18.8
Tanzania	DHS 2015-2016	4,119	48.0	1	5	21.9	65.3	10.6	2.2
Timor Leste	DHS 2016	2,772	76.1	3	3	56.9	27.3	1.8	14.0
Togo	DHS 2013-2014	2,766	55.4	2	5	26.0	57.1	9.4	7.5
Turkmenistan	MICS 2015-2016	1,301	96.2	3	2	89.6	9.7	0.6	0.1
Uganda	DHS 2016	5,890	60.3	2	4	28.8	61.3	8.1	1.7
Yemen	DHS 2013	6,079	24.3	1	4	30.1	19.5	11.0	39.3
Zambia	DHS 2013-2014	5,040	53.3	2	4	23.7	68.9	5.9	1.5
Zimbabwe	DHS 2015	2,254	72.9	2	4	36.1	46.3	9.3	8.4
Total	-	290,783	60.6	-	3	44.3	38.5	6.0	11.2

*n unweighted and restricted to last birth 2 years preceding survey with 0-10 reported ANC contacts

Table S2: Predictors of timely ANC initiation by ANC4+ country groups among women with at least one ANC contact.

Women's characteristics		Country Group 1 (<50% ANC4+)	Country Group 2 (50%- 74% ANC4+)	Country Group 3 (≥75% ANC4+)
		aOR	aOR	aOR
Demographic and Socio-Economic				
Mother's age at birth	(years)	1.01*	1.01*	1.02*
Residence	Urban (ref)			
	Rural	0.85*	1.05	1.25*
Education	No education (ref)			
	Primary	1.19*	1.16*	1.11*
	Secondary	1.33*	1.32*	1.22*
	Higher	2.23*	2.13*	1.90*
Number of HH members	1-4 (ref)			
	5-6	0.88*	0.88*	0.89*
	7+	0.83*	0.81*	0.83*
Marital status	Single (ref)			
	Married	1.73*	1.63*	1.70*
	Other	1.46*	1.35*	1.32*
Sex of head of household	Male (ref)			
	Female	1.08*	1.01	0.98
Wealth Index	Q1 (poorest) (ref)			
	Q2	1.04	0.98	1.14*
	Q3	1.21*	1.10*	1.26*
	Q4	1.30*	1.25*	1.33*
	Q5 (richest)	1.81*	1.86*	1.86*
Birth order	1 (ref)			
	2-4	0.89*	0.92	0.91
	5+	0.73*	0.75*	0.68*
Preceding Birth Interval	First child (ref)			
	≤2 years	0.81*	0.80*	0.73*
	3-4 years	0.92	0.86*	0.93
	5+ years	-	-	-

* significant at P<0.05

Figure S2: ANC content received by timing of ANC initiation.

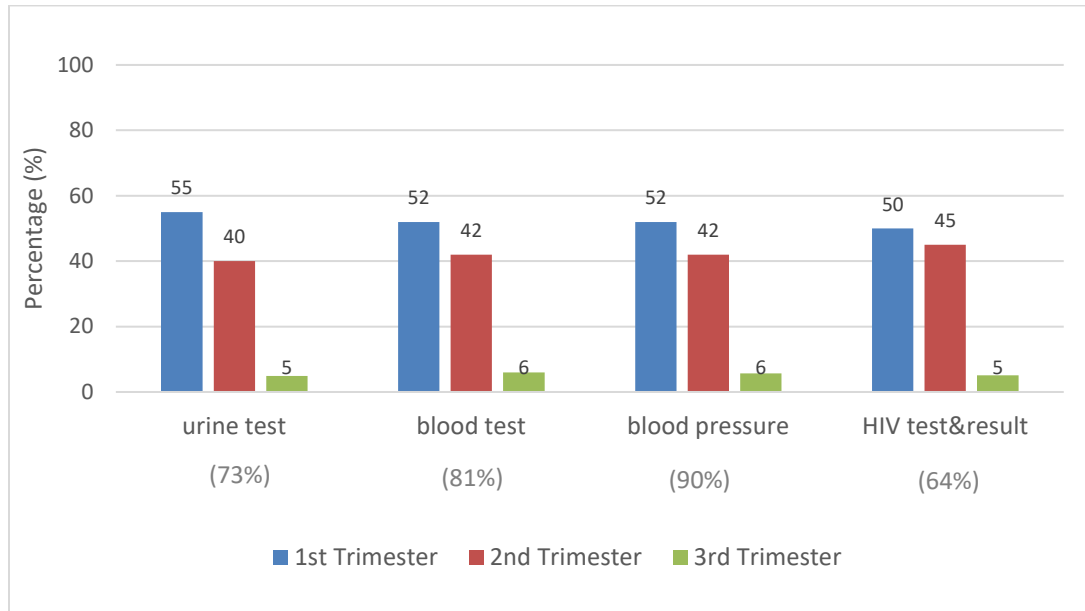


Table S3: Distribution of demographic, socio-economic and health systems characteristics of women achieving 8-10 ANC among women with at least one ANC contact.

ANC4+ coverage level		Country Group 1 <50% ANC4+ (n=133,064)		Country Group 2 50%-74% ANC4+ (n=61,749)		Country Group 3 ≥75% ANC4+ (n=49,154)		Pooled (n=243,967)	
Women's characteristics		1-7 ANC	8-10 ANC	1-7 ANC	8-10 ANC	1-7 ANC	8-10 ANC	1-7 ANC	8-10 ANC
Demographic and Socio-Economic									
Median age at birth	Median (IQR)	24 (21-29)	25 (22-28)	26 (21-31)	26 (22-31)	25 (21-31)	26 (22-31)	25 (21-30)	25 (22-30)
Residence	Urban	25.2	53.0*	33.2	54.0*	39.0	50.3*	32.8	51.3*
	Rural	74.8	47.0*	66.8	46.0*	61.0	49.7*	67.2	48.7*
Education	No education	41.5	21.3*	30.7	18.3*	15.5	8.6*	28.8	11.7*
	Primary	36.5	18.9*	36.7	27.0*	27.9	22.8*	33.8	23.3*
	Secondary/Higher	21.9	59.8*	32.7	54.6*	56.7	68.5*	37.4	65.0*
Number of HH members	1-4	25.5	27.6	24.9	28.5*	26.7	32.8*	25.7	31.4*
	5-6	28.3	29.8	28.2	28.6	30.1	33.2*	28.9	32.0*
	7+	46.1	42.6*	46.9	42.8*	43.2	34.0*	45.5	36.6*
Sex of head of household	Male	86.5	87.9	77.8	74.7*	73.6	74.6	79.0	76.0*
	Female	13.5	12.1	22.2	25.3*	26.4	25.4	21.0	24.0*
Wealth Index	Q1 (poorest)	20.2	5.9*	21.5	9.6*	25.4	15.9*	22.4	13.6*
	Q2	20.8	11.7*	21.7	11.9*	22.6	18.5*	21.7	16.5*
	Q3	20.4	17.6*	21.2	17.2*	20.8	20.1	20.9	19.3*
	Q4	20.5	23.9*	19.8	25.2*	18.2	22.5*	19.5	23.2*
	Q5 (richest)	18.1	40.8*	15.8	36.1*	13.0	23.1*	15.5	27.5*
Birth order	1	23.8	34.9*	26.0	34.6*	29.2	34.2*	26.4	34.4*
	2-4	47.4	49.6	48.9	49.4	52.9	54.4	49.8	52.9*
	5+	28.7	15.4*	25.1	16.0*	17.9	11.3*	23.9	12.7*
Preceding Birth Interval	First child	23.9	35.1*	26.1	35.0*	29.3	34.5*	26.5	34.6*
	≤2 years	16.4	14.4	14.2	10.2*	13.8	11.4*	14.7	11.4*
	3-4 years	47.5	36.7*	47.1	36.7*	39.5	32.5*	44.8	33.8*
	5+ years	12.2	13.8	12.6	18.0*	17.4	21.6*	14.0	20.1*
Marital status	Single	4.3	1.8*	6.2	4.8*	11.4	6.7*	7.3	5.8*
	Married	80.5	93.7*	78.2	83.0*	60.5	66.1*	73.3	72.2
	Other	15.2	4.6*	15.7	12.3*	28.1	27.2	19.4	22.0*

Health Systems									
Place of ANC	Hospital	29.9	64.9*	28.9	51.1*	31.8	41.1*	30.1	45.7*
	Health Center	46.5	22.2*	42.0	25.1*	33.2	19.8*	40.7	21.1*
	Other Formal	21.7	9.9*	26.1	21.5*	33.4	37.7*	27.0	31.5*
	Other Informal	1.9	3.0*	2.9	2.3	1.6	1.5	2.2	1.8
Sector of place for ANC	Public formal	82.6	58.7*	87.7	79.4*	87.2	74.3*	85.9	73.5*
	Private formal	15.4	37.9*	9.4	18.3*	11.2	24.2*	11.9	24.6*
	Other/ informal	2.0	3.3*	2.9	2.3	1.6	1.5	2.2	1.9
ANC content (4 components)	None	9.9	2.1*	4.0	1.4*	1.8	0.9*	5.0	1.1*
	1 component	19.3	6.6*	10.2	4.5*	7.8	6.6*	12.1	6.2*
	2+ components	70.8	91.3*	85.8	94.1*	90.4	92.5*	83.0	92.7*
Place of delivery	Health Facility	64.7	84.4*	66.7	78.8*	78.8	86.7*	69.9	84.9*
	Home	34.2	15.3*	31.6	20.0*	20.2	12.4*	28.7	14.2*
	Other	1.1	0.3*	1.7	1.3	1.1	0.8	1.3	0.9*
Sector of Place of Delivery	Public formal	54.8	52.4	58.5	62.8*	68.2	68.5	60.5	65.7*
	Private formal	9.9	31.8*	8.8	16.5*	10.8	18.7*	9.7	19.6*
	Other/ informal	35.3	15.8*	32.8	20.7*	21.0	12.8*	29.8	14.7*
Skilled attendant at birth	Unskilled	32.0	12.9*	28.0	14.1*	17.0	9.3*	25.7	10.6*
	Skilled	68.0	87.1*	72.0	85.9*	83.0	90.7*	74.3	89.4*

Note: n unweighted

*Non-overlapping 95% confidence intervals between women who had 1-7 ANC contacts and those who had 8-10 ANC contacts, for that characteristic.

Table S4: Predictors of ANC8+ by ANC4+ country groups among women with at least one ANC contact

Women's characteristics		Country Group 1 (<50% ANC4+)	Country Group 2 (50%- 74% ANC4+)	Country Group 3 (≥75% ANC4+)
		aOR	aOR	aOR
Demographic and Socio-Economic				
Mother's age at birth	(years)	1.03*	1.02*	1.02*
Residence	Urban (ref)			
	Rural	0.74*	0.80*	0.96
Education	No education (ref)			1.05
	Primary	1.40*	1.30*	1.16*
	Secondary	2.02*	1.56*	1.16*
	Higher	2.61*	2.58*	1.80*
Number of HH members	1-4 (ref)			0.92
	5-6	0.85*	0.93	
	7+	0.73*	0.99	0.87*
Marital status	Single (ref)			
	Married	1.48*	1.52*	1.37*
	Other	1.03	1.26	1.21*
Sex of head of household	Male (ref)			
	Female	1.16*	1.14*	1.04
Wealth Index	Q1 (poorest) (ref)			
	Q2	1.54*	1.11	1.33*
	Q3	1.95*	1.48*	1.58*
	Q4	2.20*	1.97*	2.05*
	Q5 (richest)	3.66*	3.01*	2.87*
Birth order	1 (ref)			
	2-4	0.85	0.99	0.94
	5+	0.64*	0.77*	0.77*
Preceding Birth Interval	First child (ref)			
	≤2 years	0.82	0.68*	0.78*
	3-4 years	0.88	0.78*	0.93
	5+ years	-	-	-

* significant at P<0.05