

Utilization of Antenatal Care Services among Pregnant Women in an Urban Informal Settlement in Nairobi, Kenya

Alice Ouma¹, Clifford Oduor¹, George O. Agogo², Robert Mutinda¹, Samwel Kiplangat¹, Florina Serbanescu³, Patrick K. Munywoki², Godfrey Bigogo¹, Jennifer R. Verani²

¹Kenya Medical Research Institute-Centre for Global Health Research, Nairobi, Kenya, ²US Centers for Disease Control and Prevention-Division of Global Health Protection, Nairobi, Kenya, ³US Centers for Disease Control and Prevention, Division of Reproductive Health, Atlanta, USA.

Approximately 70% of women had ≥4 antenatal visits and 30% had a visit during the first trimester
Only ¼ of women met the Kenya Ministry of Health guidelines at the time for ≥4 antenatal visits with initial visit occurring in the first trimester

Background

- Antenatal care (ANC) critical for optimizing the health of pregnant women and newborns.
- Comprehensive ANC aims to identify pregnancy risks and treat conditions promptly
 - Improve outcome for both mothers and babies
 - Good indicators of access to and utilization of maternal healthcare services
 - Important for optimizing the benefits of ANC
- In 2001, the World Health Organization (WHO) recommended ≥4 ANC visits and the first visit be within the first trimester of pregnancy.
- In 2016, WHO released a new recommendation of the visits to ≥8 ANC visits for adequate coverage.
- Globally, the proportion of pregnant women with ≥4 ANC visits has increased over the past two decades.
- However, adequate and timely initiation of ANC utilization in sub-Saharan Africa, including Kenya, remains sub-optimal.

Objectives

To determine coverage and timeliness in initiation of ANC among pregnant women residing in a large urban informal settlement in Nairobi, Kenya.

Methods

- We analyzed data on women who gave birth between January 2016 – December 2019 from the Population Based Infectious Disease Surveillance (PBIDS) platform in Kibera, a densely populated urban informal settlement in Nairobi, Kenya.
- Trained community interviewers (CIs) visited each household to inquire about any pregnancies among women aged 13-49 years every 6 months. This was supplemented by Community reporters.
- Once a pregnancy was reported, data was collected on expected date of delivery, ANC visits and type of provider and location of ANC services.
- After women gave birth, the CI recorded the type, place of delivery, who assisted with delivery and pregnancy outcome.
- Calculated the proportion of women with ≥1, ≥4, and ≥8 ANC visits. Completing ≥4 visits (standard of care in Kenya during the study period) was considered adequate coverage, while initiating ANC during the first trimester of pregnancy was considered timely.
- Multivariable logistic regression was used to identify factors associated with adequate coverage and timely initiation of ANC.

Results

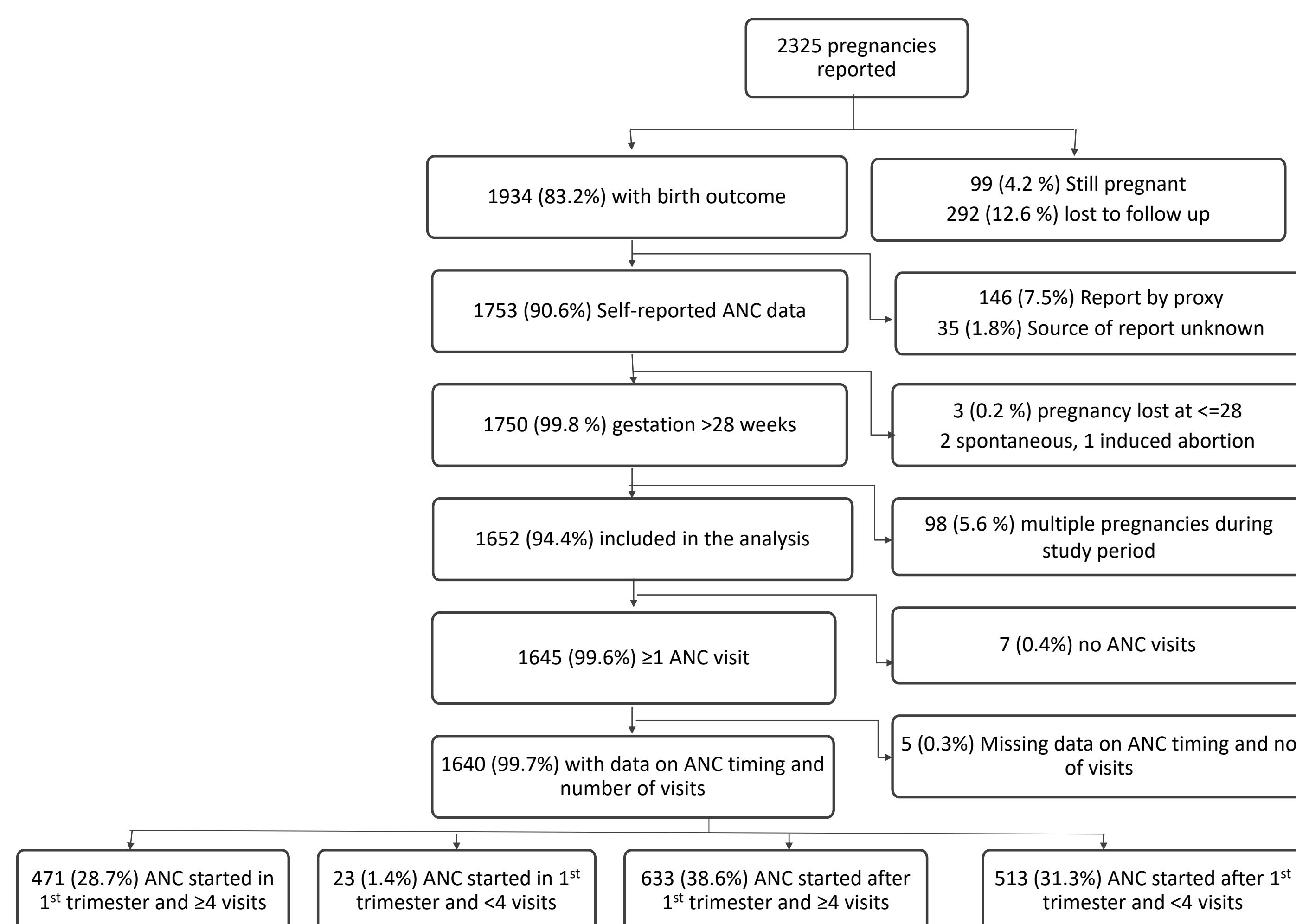


Figure 1: Flow diagram showing data collected, antenatal care (ANC) coverage including adequacy and timeliness of ANC services among pregnant women in Kibera, 2016 – 2019

* For women with more than one completed pregnancies during the study period, only most recent completed pregnancy included

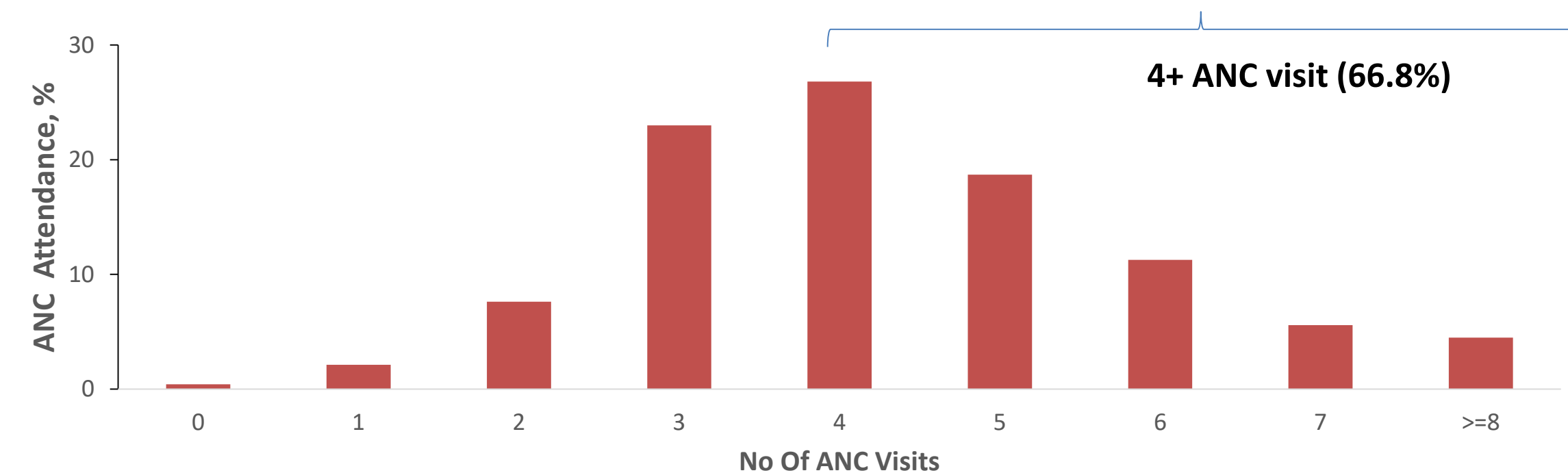


Figure 2: Total number of antenatal care (ANC) visits among pregnant women in Kibera, 2016 – 2019 (N=1652)

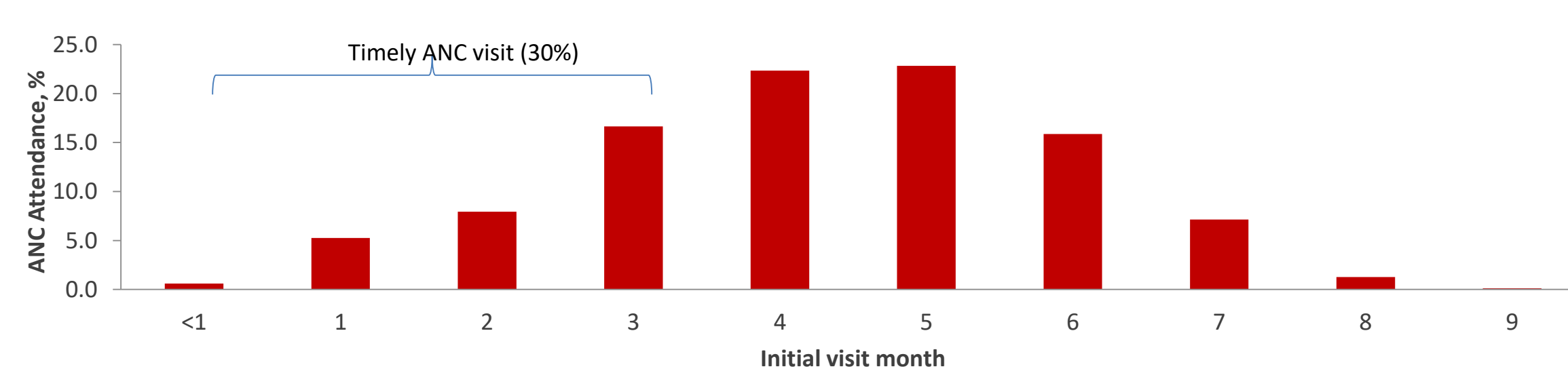


Figure 3: Timing of initial ANC visit by month among pregnant women in Kibera, 2016 – 2019 (N=1643)

*9 (2 women with missing data and 7 did not visit ANC) were excluded

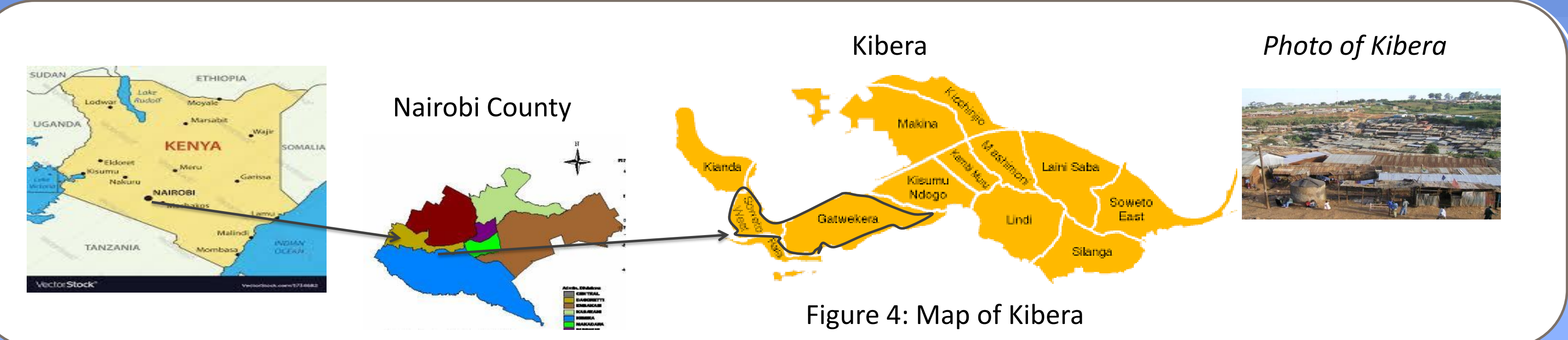


Figure 4: Map of Kibera

Results

Table 1 : Factors associated with having adequate number of ANC visits among pregnant women in Kibera, Nairobi, Kenya, 2016-2019

Factor	Categories	<4 times (n=543) n (%)	≥4 times (n=1104) n (%)	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age(years)	Under 20	62 (11.4)	119 (10.8)	1.09 (0.70-1.71)	0.93 (0.52; 1.66)
	20-24	157 (28.9)	383 (34.7)	1.39 (0.96-2.02)	1.05 (0.65; 1.70)
	25-29	154 (28.4)	275 (24.9)	1.02(0.70-1.49)	0.72 (0.44; 1.16)
	30-34	113 (20.8)	227 (20.6)	1.14 (0.76-1.69)	0.86 (0.52; 1.44)
	35+	57 (10.5)	100 (9.1)	Ref	Ref
Marital status	Married/cohabiting	405 (78.6)	832 (78.7)	Ref	Ref
	Unmarried	110 (21.4)	225 (21.3)	1.00 (0.77-1.29)	0.85 (0.62; 1.17)
	Primary/none	221 (49.0)	422 (44.1)	Ref	Ref
Education level	Secondary	222 (49.2)	469 (49.0)	1.11 (0.88-1.39)	1.13 (0.88; 1.45)
	Post-secondary	8 (1.8)	66 (6.9)	4.32 (2.04-9.16)	4.13 (1.92; 8.93)
Ethnicity	Luo	397 (73.1)	742 (67.2)	Ref	Ref
	Luhya	92 (16.9)	212 (19.2)	1.23 (0.94-1.62)	1.33 (0.97; 1.83)
	Kisii	26 (4.8)	77 (7.0)	1.53 (0.97-2.40)	1.80 (1.02; 3.17)
Wealth status	Poorest	263 (49.2)	535 (49.0)	Ref	Ref
	Least Poor	272 (50.8)	556 (51.0)	1.01 (0.82-1.24)	0.94 (0.74; 1.19)

Table 2 : Factors associated with timely initiation of ANC attendance visit among pregnant women in Kibera, Nairobi, Kenya, 2016-2019

Factor	Categories	Timely (n=495) n (%)	Not timely (n=1152) n (%)	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age(years)	Under 20	60 (12.1)	121 (10.5)	1.61 (0.99-2.60)	2.26 (1.23; 4.14)
	20-24	194 (39.2)	346 (30.0)	1.82 (1.21-2.74)	2.05 (1.23; 3.42)
	25-29	114 (23.0)	315 (27.3)	1.17 (0.76-1.79)	1.31 (0.77; 2.21)
	30-34	90 (18.2)	250 (21.7)	1.16 (0.75-1.80)	1.39 (0.80; 2.41)
	35+	37 (7.5)	120 (10.4)	Ref	Ref
Marital status	Married/cohabiting	379 (80.0)	858 (78.1)	Ref	Ref
	Unmarried	95 (20.0)	240 (21.9)	0.91 (0.70-1.19)	0.70 (0.51; 0.97)
	Primary/none	194 (43.9)	449 (46.5)	Ref	Ref
Education level	Secondary/high	223 (50.5)	468 (48.5)	1.10 (0.87-1.38)	1.08 (0.84; 1.40)
	Post-secondary/high	25 (5.7)	49 (5.1)	1.17 (0.70-1.95)	1.22 (0.71; 2.11)
	Luo	338 (68.3)	801 (69.5)	Ref	Ref
Ethnicity	Luhya	98 (19.8)	206 (17.9)	1.13 (0.86-1.48)	1.12 (0.83; 1.52)
	Kisii	28 (5.7)	75 (6.5)	0.89 (0.56-1.38)	0.80 (0.48; 1.36)
	Other	31 (6.3)	70 (6.1)	1.04 (0.67-1.62)	0.84 (0.51; 1.38)
Wealth status	Poorest	236 (48.4)	562 (49.4)	Ref	Ref
	Least poor	252 (51.6)	576 (50.6)	1.05 (0.85-1.30)	1.02 (0.81; 1.29)

Discussion

- High utilization of ANC was observed, with 99.6% reporting at least one ANC visit.
- Only 2/3 of the women reached minimum of 4 ANC visits, and less than 5% reached at least 8 visits.
- Fewer than 1/3 of women started ANC during the first trimester.
- Women with post secondary education were more likely to have ≥4 ANC visits compared to those with primary or no education.
- Literacy, among women, is known to influence peoples perception and awareness towards utilization of ANC services.
- Efforts to improve access to education and literacy for women is critical for achieving ≥4 ANC visits, more so ≥8 ANC visits.
- Younger women more frequently had timely ANC attendance than older women.
- Due to child bearing inexperience of the adolescents.
- Unmarried women were less likely to attend ANC in the first trimester compared to married ones.
- association between marital status and ANC timing may be related to psychosocial and financial support received from the spouse/partner, planning/desirability of their pregnancy, and societal acceptability.

Conclusion

- Efforts are needed to ensure women living in urban informal settlements have access to sufficient healthcare during pregnancy to achieve Sustainable Development Goal 3 whose mandate is to ensure healthy lives and promote well-being for all at all ages.
- More sensitization on the benefits of ANC, removing misconceptions and stigma, increasing demand, and improving the availability and quality of ANC services is required.

Acknowledgements: U.S. CDC, KEMRI-CGHR, PBIDS staff and all study participants

KEMRI
Centre for Global Health Research

