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Health insurance for HIV prevention & treatment: predictors of health insurance enrollment among HIV+ women in Kenya

Health Insurance for HIV Prevention & Treatment: Predictors of Health Insurance Enrollment among HIV+ Women in Kenya

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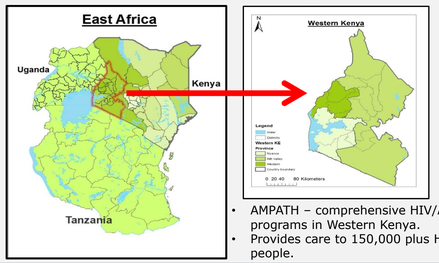
Background

- The global push to achieve the 90-90-90 targets designed to end the HIV epidemic has called for the removing of policy barriers to prevention & treatment, and ensuring financial sustainability of HIV programs.
  - This is critical for the wellbeing of HIV+ individuals.
- This is especially the case for women as:
  - HIV in Sub-Saharan Africa and Kenya is a feminized epidemic.
  - HIV+ women continue to desire children, become pregnant & give birth, making PMTCT critical.
  - Women are more likely to experience negative health & economic shocks.
- Health insurance has been identified as a means to enhance & diversify financing and access to care.
- In Kenya, the National Hospital Insurance Fund (NHIF) – the oldest SHI in Africa:
  - Is important for PLWHA
  - Covers in-patient services, institutional delivery, and caesarian sections but not ART.
  - **However, enrollment in the NHIF even for specific high-risk groups such as HIV+ persons remains low**!

Study Question:

What factors influence health insurance enrollment among HIV+ pregnant women?

Study Setting



- AMPATH – comprehensive HIV/AIDS programs in Western Kenya.
- Provides care to 150,000 plus HIV+ people.

Methods

- To determine the predictors of enrollment in NHIF we used different regression based methods.
- The methods included:

1. Univariate logistic regressions.
2. Multivariate logistic regressions.
3. Generalized Linear Models (GLM).

- The analysis was further stratified by ***HIV disease severity*** (based on CD4 cell count less than & above 350)).

Results

Table 1: Demographic and Socio-Economic Characteristics of HIV+ Pregnant Women within AMPATH Electronic Medical Records

Mean Values	Study Sample		Institutional Delivery Sample	
	NHIF	Uninsured	NHIF	Uninsured
Current Age	34.28 (5.96)	33.39 (6.39)	30.75 (4.95)	30.97 (5.55)
Age at Enrollment	29.51 (5.61)	29.03 (5.86)	26.91 (4.47)	27.42 (5.02)
Age- First Pregnant @ AMPATH	30.43 (5.92)	29.80 (6.15)	27.53 (4.74)	28.05 (5.32)
Ever Attended School (%)	97.82 (16.29)	92.17 (0.35)	98.87 (10.6)	99.30 (8.29)
Years of Schooling Completed	10.42 (3.10)	7.92 (2.92)	10.09 (2.86)	7.94 (2.82)
Number of Pregnancies at Enrollment in AMPATH	2.84 (1.72)	3.47 (1.96)	2.79 (1.29)	3.37 (1.76)
Number of Children	2.25 (1.64)	3.01 (1.86)	2.09 (1.43)	2.74 (1.68)
Enrolled Child at AMPATH (%)	66.42 (47.89)	68.06 (47.68)	76.4 (42.70)	79.45 (40.43)
Lost to Follow-up – During Pregnancy (%)	1.71 (16.67)	1.00 (15.06)	5.62 (23.16)	1.55 (12.38)
Currently on ARV Treatment	86.94 (34.76)	87.32 (33.28)	88.76 (31.76)	97.50 (15.63)
CD4 @ Enrollment	338.24 (247.14)	359.24 (307.48)	410.40 (255.90)	396.49 (327.03)
Travel Time (Hours)	1.97 (0.99)	2.05 (0.98)	1.89 (0.94)	2.00 (0.95)
# Days Pre ARV Initiation	286.46 (475.11)	271.15 (429.65)	262.07 (354.62)	227.13 (354.62)
# Days Post ARV Initiation	1828.68 (876.28)	1635.62 (784.12)	1535.34 (952.05)	1427.11 (768.71)
Urban Clinic (%)	70.06 (47.59)	44.80 (50.0)	69.70 (46.23)	42.06 (49.39)
Observations	1997 (15.86%)	10596 (84.14%)	89 (7.25%)	1159 (92.75%)
Overall N	12,593		1,248	

Table 2: Predictors of Health Insurance Enrollment among HIV+ Pregnant Women – Confirmatory Approach

	Bivariate Analysis			Multivariate Analysis		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Delivered at Health Institution	2.91 (0.92)	1.56-5.41	0.00	2.46 (0.86)	1.24-4.87	0.01
Current Age	0.99 (0.02)	0.96-1.03	0.67	0.52 (0.13)	0.31-0.86	0.01
Age at Enrollment	0.98 (0.02)	0.94-1.02	0.02	2.24 (0.62)	1.30-3.86	0.00
Age at First Pregnancy at AMPATH	0.98 (0.02)	0.95-1.02	0.32	0.86 (0.08)	0.72-1.02	0.09
Ever Attended School	0.61 (0.65)	0.08-4.95	0.65	0.10 (0.12)	0.01-0.91	0.04
Years of Schooling Completed	1.32 (0.06)	1.22-1.44	0.00	1.28 (0.06)	1.16-1.40	0.00
# of Pregnancies at Enrollment in AMPATH	0.80 (0.05)	0.71-0.91	0.00	0.91 (0.14)	0.68-1.22	0.54
Number of Children	0.76 (0.06)	0.65-0.88	0.00	1.01 (0.19)	0.70-1.45	0.98
Enrolled Child in AMPATH	0.84 (0.22)	0.50-1.40	0.50	0.78 (0.24)	0.43-1.41	0.40
Lost to Follow-up – During Pregnancy	3.77 (1.95)	1.37-10.41	0.01	9.90 (5.37)	3.42-28.67	0.00
Currently on ARV Treatment	0.21 (0.08)	0.10-0.43	0.00	0.22 (0.09)	0.10-0.49	0.00
CD4 at Enrollment	1.00 (0.00)	0.99-1.00	0.61	1.00 (0.00)	0.99-1.00	0.41
# Days Pre ARV Initiation	1.00 (0.00)	0.99-1.00	0.33	1.00 (0.00)	1.00-1.00	0.00
# Days Post ARV Initiation	1.00 (0.00)	0.99-1.00	0.29	1.00 (0.00)	1.00-1.00	0.00
Travel Time (Hours)	0.89 (0.11)	0.69-1.12	0.29	1.02 (0.14)	0.79-1.33	0.87
Enrolled in an Urban Clinic	3.16 (0.75)	1.98-5.05	0.00	2.50 (0.63)	1.53-4.12	0.00

Table 3: Predictors of Health Insurance Enrollment among HIV+ Pregnant Women: Generalized Linear Models (GLM)

	Multivariate Analysis		
	Odds Ratio	95% CI	P-Value
Delivered at Health Institution	2.46 (0.84)	1.26-4.80	0.01
Current Age	0.52 (0.13)	0.32-0.85	0.01
Age at Enrollment	2.24 (0.63)	1.29-3.89	0.00
Age at First Pregnancy at AMPATH	0.86 (0.08)	0.71-1.04	0.12
Ever Attended School	0.10 (0.12)	0.01-1.08	0.06
Years of Schooling Completed	1.28 (0.06)	1.16-1.40	0.00
# of Pregnancies at Enrollment in AMPATH	0.91 (0.14)	0.68-1.23	0.54
Number of Children	1.01 (0.17)	0.73-1.39	0.98
Enrolled Child in AMPATH	0.78 (0.24)	0.43-1.40	0.40
Lost to Follow-up – During Pregnancy	9.90 (6.87)	2.54-38.59	0.00
Currently on ARV Treatment	0.22 (0.10)	0.09-0.56	0.00
CD4 at Enrollment	1.00 (0.00)	1.00-1.00	0.50
# Days Pre ARV Initiation	1.00 (0.00)	1.00-1.00	0.00
# Days Post ARV Initiation	1.00 (0.00)	1.00-1.00	0.00
Travel Time (Hours)	1.00 (0.13)	0.79-1.32	0.87
Enrolled in an Urban Clinic	2.50 (0.65)	1.51-4.15	0.00

Table 4: Predictors of Health Insurance Enrollment among HIV+ Pregnant Women: Stratified by HIV Disease Severity

	CD4 ≤ 350			CD4 > 350		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Delivered at Health Institution	3.69 (2.19)	1.15-11.82	0.03	1.82 (0.83)	0.75-4.45	0.19
Current Age	0.49 (0.20)	0.22-1.08	0.08	0.50 (0.18)	0.25-1.02	0.06
Age at Enrollment	2.16 (0.91)	0.94-4.94	0.07	2.92 (1.32)	1.20-7.08	0.02
Age at First Pregnancy at AMPATH	0.92 (0.10)	0.75-1.13	0.41	0.70 (0.14)	0.48-1.01	0.06
Ever Attended School	1.00			0.02 (0.03)	0.00-0.33	0.01
Years of Schooling Completed	1.10 (0.07)	0.97-1.25	0.13	1.48 (0.12)	1.28-1.71	0.00
# of Pregnancies at Enrollment in AMPATH	1.00 (0.23)	0.65-1.53	0.98	0.83 (0.19)	0.53-1.29	0.41
Number of Children	1.03 (0.27)	0.62-1.73	0.91	1.02 (0.30)	0.57-1.82	0.96
Enrolled Child in AMPATH	0.65 (0.30)	0.26-1.62	0.36	0.91 (0.42)	0.37-2.23	0.83
Lost to Follow-up – During Pregnancy	3.06 (2.50)	0.61-15.18	0.17	17.42 (14.22)	3.52-86.29	0.00
Currently on ARV Treatment	0.03 (0.04)	0.00-0.32	0.00	0.48 (0.26)	0.17-1.38	0.18
# Days Pre ARV Initiation	1.00 (0.00)	0.99-1.00	0.12	1.00 (0.00)	1.00-1.00	0.01
# Days Post ARV Initiation	1.00 (0.00)	1.00-1.01	0.03	1.00 (0.00)	1.00-1.01	0.02
Travel Time (Hours)	1.24 (0.28)	0.80-1.93	0.33	0.84 (0.14)	0.60-1.17	0.30
Enrolled in an Urban Clinic	5.71 (2.54)	2.40-13.6	0.00	1.19 (0.40)	0.61-2.31	0.62
N (Sample Size)	640			607		

Discussion

1. Among HIV+ pregnant women, delivering at a health facility, being lost to follow-up during pregnancy and seeking care at an urban clinic, positively influences health insurance enrollment.
2. However, ***being on HIV treatment is negatively associated*** with health insurance enrollment. The findings indicate that the health system in which HIV care is provided may influence health insurance enrollment.
3. Additionally, HIV+ persons could potentially be less risk-averse thus limiting their enrollment in health insurance – potential for ***adverse selection*** exists.
4. If health insurance is to be adopted as a tool for comprehensively addressing and ending the HIV epidemic in low-resource settings, then further understanding of how HIV+ persons decide whether to enroll in health insurance is needed.
5. Qualitative and Behavioral Economic research can help address the potential ***information asymmetries***.

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