



CQUIN Differentiated MCH Workshop

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Testing and Treatment of STIs during pregnancy (HIV & STI study)

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HIV Learning Network

The CQUIN Project for Differentiated Service Delivery

Background

- In 2019, 38 million people globally were living with HIV and 510 000 of them were living in Cameroon (*Unaids, 2021*)
- STIs such as HIV and Syphilis are two of common infections which many pregnant women in Sub-Saharan African Countries are exposed to or infected with (*Mutagoma M. et al.,2017*)
- 60% to 90% of pregnant women with untreated primary or secondary syphilis will transmit syphilis to their fetus as compared to less than 10% of women with late latent syphilis (*Yeganeh N. et al., 2015*)
- Syphilis has been implicated in susceptibility to Human Immunodeficiency Virus (HIV) infection with an odds ratio of 8.5 for men and 3.3 for women (*Blocker M. E et al.,2000*)

Objectives

1. Determine the trends of seroprevalence of HIV, syphilis infection and HIV/syphilis co-infection over time using national surveillance data.
2. Explore associated risk factors.

Methodology and Design

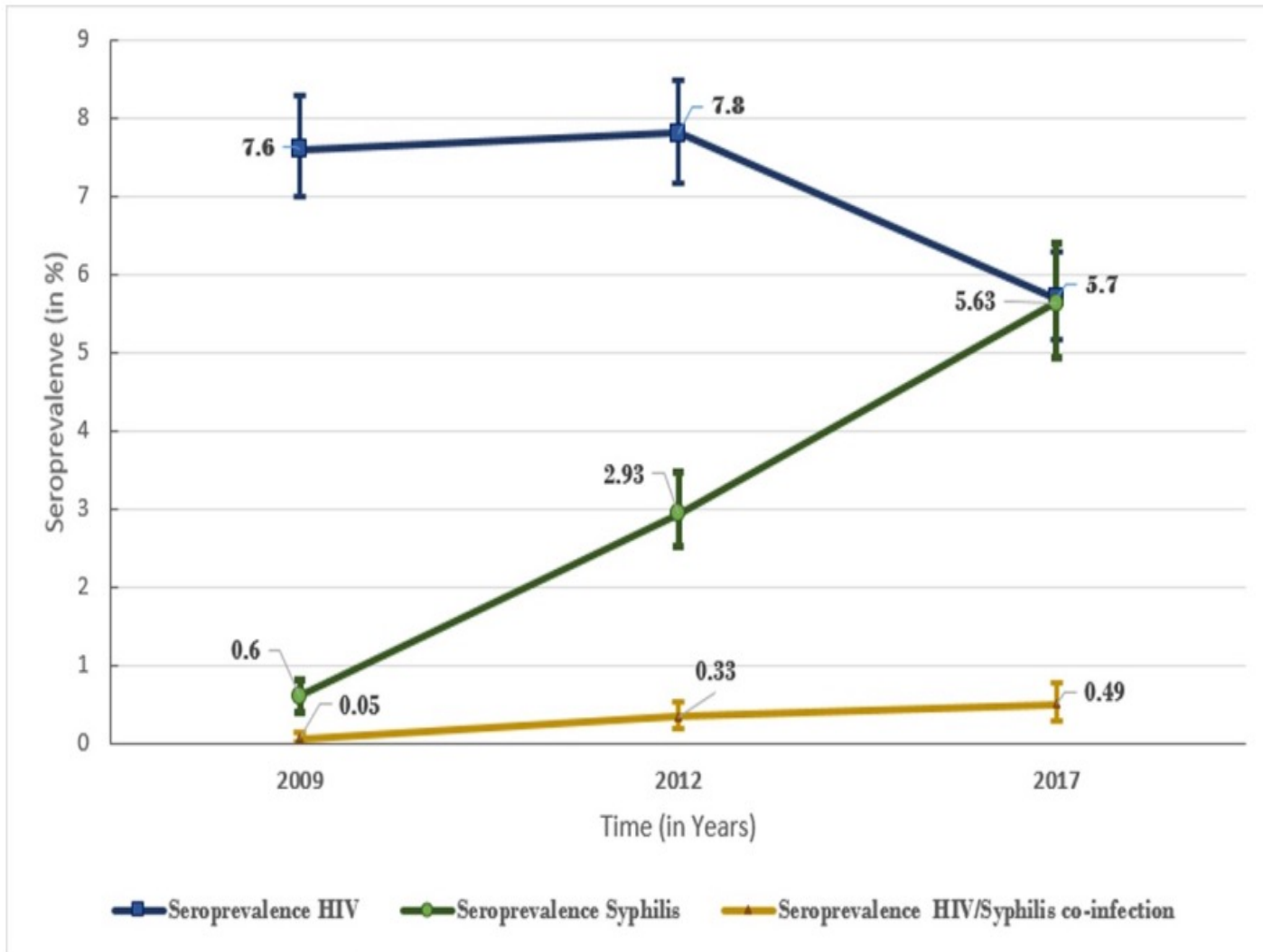
- Cross-sectional studies of HIV and syphilis, targeting each year 7000 ANC-1 attendees during the 2009, 2012 and 2017 sentinel surveillance surveys.
- HIV and Syphilis test were performed by serial algorithm as per the national guidelines.
- Trends were assessed for HIV, syphilis and HIV/syphilis by estimating seroprevalence from cross-sectional studies.
- Associated risk factors were explored using multinomial logistic regression

Participants characteristics

Variable	2009 (n=6632)		2012 (6521)		2017 (n=6859)	
	n	%	n	%	n	%
Age						
15 – 19	1525	23.0	1193	18.3	1033	15.1
20 – 24	1990	30.0	2024	31.0	1896	27.6
25 – 29	1592	24.0	1676	25.7	1886	27.5
30 – 34	928	14.0	1041	16.0	1282	18.7
35 – 49	597	9.0	587	9.0	762	11.1
Level of education						
None	1260	19.0	1071	16.4	949	13.8
Primary	2122	32.0	2319	35.6	1712	24.9
Secondary	2852	43.0	2592	39.8	3275	47.8
University	398	6.0	539	8.3	923	13.5
Occupation						
Housewife	3774	56.9	3241	49.7	3385	49.4
Student	889	13.4	926	14.2	1168	17
Employees	1486	22.4	2152	33.0	1604	23.4
Other	484	7.3	202	3.1	702	10.2
Area of residence						
Urban	3979	60	2787	57.3	3932	57.3
Rural	2653	40	3734	42.7	2927	42.7

- High participation rate (**above 90%** for each year)
- Pregnant women enrolled across the three surveys were **relatively young** (around 50 % aged between 15–24 years for each year)
- The proportion of pregnant women who reached university **slightly increased** over the year (from 6% in 2009 to 13,5% in 2017)
- More than **half** of them were **housewife** and were living in **urban area** in all the three surveys.

Evolution of Syphilis HIV and co-infection from 2009 to 2017



Error bars represented 95% Exact Confidence Intervals

- Syphilis and HIV/Syphilis prevalence **increased hugely** overtime (almost **nine times higher** in 2017 than in 2009 5.6% vs 0.6%, $p < 0.001$ and 0.49% vs 0.05% $p < 0.001$ respectively)
- HIV prevalence **decrease significantly** from 7.6% in 2009 to 5.7% in 2017 ($p < 0.001$)
- The global **stockout of benzathine penicillin in 2016** could have play a role in the seroprevalence rate and the spread of syphilis, particularly in rural areas, as WHO guide recommended it to cure Syphilis.

Factors associated with HIV, Syphilis and HIV / Syphilis co-infection

Characteristics	Univariate Analysis			Multivariate Analysis		
	HIV/syphilis Co-infection vs No infection	HIV infection vs No infection	Syphilis infection vs No infection	HIV/syphilis Co-infection vs No infection	HIV infection vs No infection	Syphilis infection vs No infection
	OR [95% IC]	OR [95% IC]	OR [95% IC]	aOR [95% IC]	aOR [95% IC]	aOR [95% IC]
Residence						
Urban	Ref	Ref	Ref*	Ref	Ref	Ref
Rural	1 [0.4 - 2.5]	0.8 [0.7 - 1.1]	1.9 [1.4 - 2.5]	1.1 [0.4 - 2.8]	0.9 [0.7 - 1.1]	1.8 [1.3 - 2.4] ^μ
Region Group						
Northern	0.3 [0.1 - 1.4]	0.6 [0.4 - 0.8]	0.6 [0.4 - 0.9]	0.5 [0.1 - 2.1]	0.6 [0.5 - 0.9]^μ	0.6 [0.4 - 0.9]^μ
Southern	Ref	Ref	Ref*	Ref	Ref	Ref
Type of union						
Single	2.5 [1 - 6.4]	1.1 [0.8 - 1.4]	1.1 [0.8 - 1.5]	2.9 [1 - 8.2] a	1.5 [1.1 - 2.1] μ	1 [0.7 - 1.5]
Married/Cohabiting/Widow/Divorced	Ref	Ref	Ref*	Ref	Ref	Ref
Primiparous						
Yes	Ref	Ref	Ref*	Ref	Ref	Ref
No	0.9 [0.3 - 2.6]	3 [2.1 - 4.5]	0.9 [0.6 - 1.2]	0.4 [0.1 - 1.2]	2.7 [1.7 - 4.3] μ	1 [0.7 - 1.4]
Age (in years)						
15 - 24	Ref	Ref	Ref*	Ref	Ref	Ref*
25 - 49	7.2 [1.7 - 31.2]	2.4 [1.9 - 3.2]	0.8 [0.6 - 1.1]	15.1 [3 - 75.7] μ	2 [1.4 - 2.6] μ	0.8 [0.6 - 1.2]

- **Rural area** was a factor to **syphilis infection** (aOR = 1.8 [95% CI: 1.3–2.4]).
- **Unmarried** was a factor to **HIV/Syphilis Co-infection** (aOR = 2.8 [95% CI: 1.3–2.4]);
- Living in **northern regions** was not a factor to **HIV and Syphilis infection** ((aOR = 0.6 [95% CI: 0.5–0.9]) and aOR = 0.6 [95% CI: 0.4–0.9] respectively).

Conclusions and Perspectives

- HIV and syphilis infections remain common in pregnant women.
- The trends of syphilis among pregnant women
 - Growing burden of syphilis amongst pregnant women in Cameroon,
 - Need to reinforce surveillance and prevention strategies against STIs.
- Policy advocacy of systematic counseling and testing of syphilis at ANC and availability of treatment could be valuable.
- These strategies may target adult pregnant women, who are HIV-positive, single living in rural area priority in Southern Cameroon (South, East, Centre and North-West regions).

HIV & STI study in Cameroon

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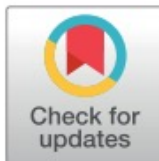
RESEARCH ARTICLE

Highlighting a population-based re-emergence of Syphilis infection and assessing associated risk factors among pregnant women in Cameroon: Evidence from the 2009, 2012 and 2017 national sentinel surveillance surveys of HIV and syphilis

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Thank you

