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## Letter to the Editor

# Prevalence and risk factors for human immunodeficiency virus infection in pregnant women in Eastern Ghana

Dear Editor,

Determining HIV incidence is a useful tool for improving the targeting of populations for interventions and assessing the effectiveness of prevention strategies. A reduction in perinatal transmission of HIV is dependent on women seeking prenatal care, having access to an HIV test, agreeing to interventions such as antiretroviral therapy, and considering alternatives to breastfeeding. Thus, the aim of this study was to determine the seroprevalence and risk factors for human immunodeficiency virus (HIV) positivity among pregnant women in Eastern Ghana.

Between December 2008 and March 2009, a total of 1,500 apparently healthy pregnant women who visited three hospitals in Eastern Ghana – Asesewa Government Hospital (AGH) in Upper Manya Krobo district, Holy Family Hospital (HFH) in Kwahu West district, and Somanya Polyclinic (SPC) in Yilo Krobo district – were consecutively recruited for this study after obtaining their informed consent. At every visit a standardized questionnaire was interview-administered to obtain data on socio-demographics, reproductive history, job status, social support, mental health, and health care utilizations. HIV,

hepatitis B surface antigen (HBsAg), hemoglobin and sickling tests were done as a prenatal check-up. Univariate and multivariate odds ratios (OR), both with 95% confidence interval (CI), were calculated.

A total of 1,109 apparently healthy pregnant women with a mean age of  $26.85 \pm 6.71$  years were screened. Overall HIV positive rate was 8.0%. The risk factors associated with acquisition of HIV-1 in univariate analyses were older age, HBsAg positive status, and substantial alcohol use. These factors were analyzed in multiple logistic regression analysis. Age groups 25-29 (OR 2.770; 95% CI; 1.023-7.499) and > 35 (OR 3.141; 95% CI; 1.131-8.723), and HBsAg positive status (OR 2.376; 95% CI; 1.261-4.476) remained significantly associated with acquisition of HIV (Table 1).

HIV prevalence among young pregnant women (15-24 years) is used as a proxy for measuring the rate of new infections in a population.<sup>1</sup> In contrast, in this study, women aged 25-29 years were 2.77 times more likely to be infected than women of < 20 age. This suggests that women who are at the peak of their reproductive years are more prone to HIV infection. Due to shared routes of transmission,

**Table 1 - Multiple logistic regression analysis for human immunodeficiency virus (HIV) positivity in pregnant women in Eastern region of Ghana (2008-2009)**

	n	HIV positivity (%)	Adjusted OR	95% CI	
<b>Age</b>					
< 20	169	4.7	1		
20-24	267	6.7	1.891	0.669	5.346
25-29	287	9.1	2.770	1.023	7.499
30-34	183	8.2	2.077	0.709	6.082
35+	194	10.8	3.141	1.131	8.723
<b>Alcohol</b>					
No	1,011	7.4	1		
Yes	96	14.6	1.833	0.928	3.619
<b>HBsAg</b>					
Negative	873	7.0	1		
Positive	95	14.7	2.376	1.261	4.476

a frequent occurrence of HIV/hepatitis co-infections seems likely. In countries with high hepatitis B virus (HBV) endemicity such as Ghana (> 8% affected)<sup>2</sup>, the principal routes of HBV transmission are perinatal or in early childhood; thus, HBV infection usually precedes HIV infection by decades. In these countries, the majority of studies show HBV coinfection prevalence of 10-20%.<sup>3</sup> This study found 14.7% HIV seropositivity prevalence rate among the HBsAg positive pregnant women. HIV infection negatively impacts all phases of the natural course of hepatitis B. The goals of HIV treatment during pregnancy are to optimize the mother's health and to minimize the risk of vertical transmission. Therefore, determining the HIV status of pregnant women is a key factor to the success of any prevention program. Especially, focusing on the patients with high risk can save money in resource-limited countries. Facilities for early infant diagnosis using molecular techniques will help in the identification of infected children for support. As always, prevention is better than cure.

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### Conflict of interest

All authors declare to have no conflict of interest.

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