Comparative Rates of Perinatal and Postpartum Linkage to Care for Pregnant Patients, by Human Immunodeficiency Virus (HIV) or Hepatitis B Virus (HBV) Infection Status

M. Elle Saine[1,2]; Robert Gross[1,2]; William R. Short[1,4]; H. Nina Kim[5]; Julia E. Szymczak[1,6]; Celeste P. Durnwald[4]; Jessie Torgersen[1,2]

1. Department of Medicine, Division of Infectious Diseases, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
2. Department of Biostatistics, Epidemiology, and Informatics, Center for Clinical Epidemiology and Biostatistics, Center for Real-world Effectiveness and Safety of Therapeutics, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
4. Department of Obstetrics and Gynecology, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
5. Department of Medicine, Division of Allergy & Infectious Diseases, University of Washington, Seattle, WA, USA.
6. Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City, UT, USA

Background: Pregnancy is a key time to identify patients with HIV and/or chronic hepatitis B virus (HBV) infections and link them to care. The World Health Organization recommends integrated care delivery strategies to address these perinatally-transmitted infections. Differences in HIV or HBV care linkage during pregnancy may identify opportunities to optimize targeted, integrated strategies. To evaluate this potential, we compared baseline rates of care utilization during and after pregnancy among people with HIV or HBV.

Methods: We conducted a retrospective cohort study among pregnant patients with HIV or HBV presenting for outpatient obstetric care (1/1/18-12/31/22) at two academic obstetric clinics in Philadelphia. All patients with ≥1 outpatient visit were included; follow-up continued through 12 months postpartum. Only the first pregnancy during this period was included. Between-group differences in baseline characteristics and within-group differences in postpartum follow-up were compared using t-tests for continuous variables and Chi-square or Fisher's exact for categorical variables, as appropriate.

Results: We identified 160 pregnant patients with HIV (n=77 [48%]) or HBV (n=83 [52%]). Baseline characteristics differed significantly between patients with HIV versus HBV (**Table 1**). Notably, a substantial number of patients were newly diagnosed with HIV (16%) or HBV (24%) during the index pregnancy. Pregnant patients with HIV were significantly more likely than those with HBV to see a specialist during pregnancy (94% vs 64%, p<0.001) or within 12 months postpartum (66% vs 30%, p<0.001; **Fig 1**). All patients who received HIV care during pregnancy had subsequent follow-up care within 12 months postpartum, though only 7.8% had follow-up within the recommended four weeks post-delivery. Among patients with HBV, receipt of care during pregnancy was not associated with postpartum follow-up (**Table 2**).

Conclusions: While patients with HIV were more likely than those with HBV to be linked to care during and within 12 months after pregnancy, significant gaps exist in timely postpartum care linkage for both. To close these care gaps and improve long-term outcomes, strategies are needed to facilitate postpartum linkage and longitudinal retention for HIV and HBV care.

Characters: 1929/1950 without spaces

Table 1: Baseline Characteristics of Pregnant Patients with HIV or HBV

Characteristic	HIV[1] (n=77)	HBV[2] (n=83)	*P*-value[3]
Age in years (mean [SD])	31.29 (5.8)	31.75 (5.6)	0.610
Race & Ethnicity			**<0.001**
Asian & Pacific Islander	-	21 (25.3%)	
Black, non-Hispanic	67 (87.0%)	56 (67.5%)	
White, non-Hispanic	5 (6.5%)	3 (3.6%)	
Hispanic or other	5 (6.5%)	3 (3.6%)	
Medicaid insurance	62 (80.5%)	49 (59.0%)	**0.003**
Employment status			
Unemployed	46 (59.7%)	41 (49.4%)	0.189
Employed or in school	31 (40.3%)	42 (50.6%)	
Marital status			**0.002**
Single	55 (71.4%)	39 (46.9%)	
Married/partnered	22 (28.6%)	44 (53.0%)	
Obstetric clinic			
Teaching clinic (Resident/Attending or APP)	72 (93.5%)	61 (73.5%)	**0.001**
Non-teaching clinic (Attending or APP)	5 (6.5%)	22 (26.5%)	
Nulliparous	3 (3.9%)	11 (13.3%)	**0.036**
Timing of HIV/HBV diagnosis			0.179
Diagnosed prior to index pregnancy	65 (84.4%)	63 (75.9%)	
Newly diagnosed during index pregnancy	12 (15.6%)	20 (24.1%)	

Abbreviations: APP=advanced practice practitioner; HBV=hepatitis B virus, HIV=human immunodeficiency virus; SD=standard deviation

[1]Patients with coinfection with HIV and HBV were included in the HIV group in analyses.

[2]Patients with HBV-monoinfection

[3]T-test for continuous variables, Chi-square or Fisher's exact for categorical variables

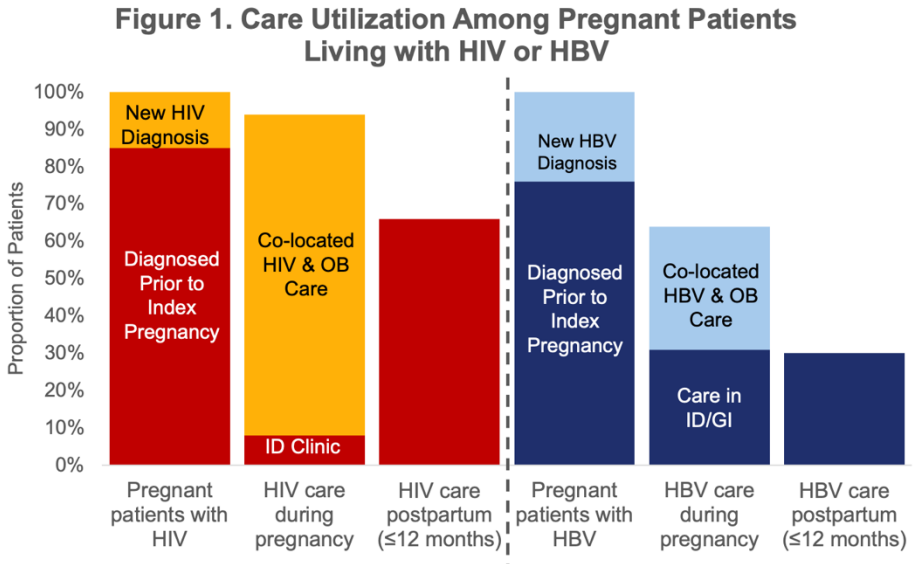

Table 2: Factors Associated with Engagement in Postpartum Care, Stratified by HIV and HBV Status

Determinant	Pregnant Patients with HIV[1]			Pregnant Patients with HBV[2]		
	No visits postpartum (n=26)	≥1 visit postpartum (n=51)	*P*-value[3]	No visits postpartum (n=58)	≥1 visit postpartum (n=25)	*P*-value[3]
Age (years)[4]	31.9 (5.0)	30.9 (6.2)	0.49	31.76 (5.2)	31.72 (6.6)	0.98
Black/African American race[5]	21 (80.8%)	46 (90.2%)	0.25	38 (65.5%)	18 (72.0%)	0.56
Medicaid insurance	22 (84.6%)	40 (78.4%)	0.76	35 (60.3%)	14 (56.0%)	0.71
Employed	12 (46.2%)	19 (37.3%)	0.45	29 (50.0%)	13 (52.0%)	0.87
Married or partnered	4 (15.4%)	18 (35.3%)	0.11	29 (50.0%)	15 (60.0%)	0.40
Obstetric care in teaching clinic	24 (92.3%)	48 (94.1%)	1.0	42 (72.4%)	19 (76.0%)	0.73
New HIV/HBV diagnosis during index pregnancy	3 (11.5%)	9 (17.7%)	0.74	12 (20.7%)	8 (32.0%)	0.27
Received care for HIV/HBV during pregnancy	21 (80.8%)	51 (100%)	**<0.003**	36 (62.1%)	17 (68.0%)	0.61

Abbreviations: HBV=hepatitis B virus, HIV=human immunodeficiency virus

[1]Patients with coinfection with HIV and HBV were included in the HIV group in analyses.

[2]Patients with HBV-monoinfection

[3]T-test for continuous variables, Chi-square or Fisher's exact for categorical variables

[4]Mean age with standard deviation

[5]Non-black race included White, Asian/Pacific Islander, Hispanic, or other/not reported for the purpose of analyses