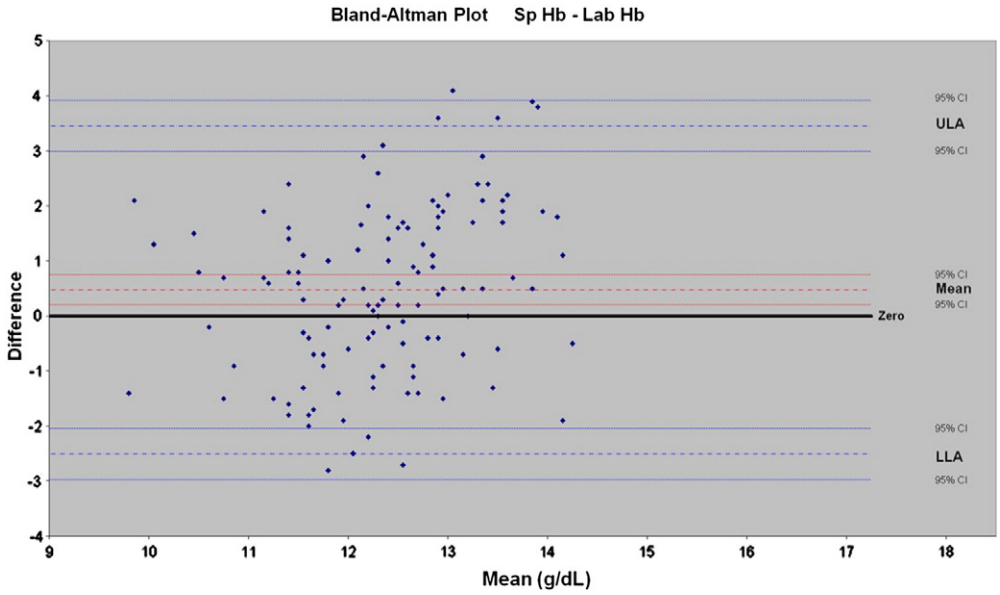

Fig. 1. Bland–Altman test for noninvasive hemoglobin assessment (SpHb) compared with laboratory hemoglobin assessment (Lab Hb). Confidence intervals (CIs) of the limits of agreement are shown. Abbreviations: LLA, lower limit of agreement; ULA, upper limit of agreement.

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Association between severe obstetric hemorrhage and HIV status

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HIV infection is a substantial risk factor for maternal death, particularly in Sub-Saharan Africa. Global estimates attribute 20% of maternal deaths to HIV [1]. Statistics from Sub-Saharan Africa show that maternal mortality among HIV-infected women is approximately 8 times higher than among uninfected women [2].

Obstetric hemorrhage is the most common cause of maternal mortality, accounting for 30% of global maternal deaths [3]. It is important to understand better the contribution of HIV to maternal death from obstetric hemorrhage. The aim of the present analysis was to investigate whether HIV infection was associated with severe obstetric hemorrhage among a group of peripartum women.

We analyzed data collected at study entry for 349 women who participated in a cluster-randomized controlled trial of the non-pneumatic anti-shock garment in Zambia (ClinicalTrials.gov: NCT00488462) [4]. The present study used de-identified data for secondary analysis.

Table 1
Patient demographics (n = 321).[a]

	HIV-positive women (n = 59)	HIV-negative women (n = 262)	*P* value
Age, y	27.5 ± 6.0	28.2 ± 7.2	0.45[b]
Parity	2.2 ± 1.7	2.8 ± 2.3	0.05[b]
Gestational age, wk	31.8 ± 9.6	33.4 ± 8.3	0.22[b]
Level of consciousness			0.38[c]
Normal	11 (19)	66 (25)	
Confused	44 (75)	186 (71)	
Unconscious	3 (5)	5 (2)	
Under anesthesia	1 (2)	5 (2)	
City			0.73[c]
Lusaka	38 (64)	158 (60)	
Kitwe	12 (20)	66 (25)	
Ndola	9 (15)	38 (15)	
Estimated blood loss ≥1000 mL	39 (66)	136 (52)	0.05

[a] Values are given as mean ± SD or number (percentage) unless otherwise indicated.
[b] *P* values calculated via 2-sided *t* test.
[c] *P* values calculated via 2-sided χ^2 or Fisher exact test.

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Institutional review board approval for the parent study was provided by the University of California San Francisco, San Francisco, USA, and University Teaching Hospital, Lusaka, Zambia; all women gave informed consent. Study participants presented with hypovolemic shock secondary to obstetric hemorrhage at 3 tertiary care facilities in Zambia. Trial inclusion criteria included at least 2 of the following indicators of hemodynamic instability: systolic blood pressure below 100 mm Hg; pulse higher than 100 beats per minute; and estimated blood loss (EBL) of at least 1000 mL. Owing to the composite nature of the eligibility criteria, it was possible for women to be included in the study with an EBL of less than 1000 mL. Data on demographic characteristics, level of consciousness, EBL at study entry, obstetric history, and HIV status were retrospectively reviewed. The primary outcome—severe hemorrhage—was defined as an EBL of at least 1000 mL.

We estimated multivariable logistic regression models to evaluate the relationship between HIV infection and severe hemorrhage, adjusting for age, parity, and study site. Data were analyzed using Stata version 12.1 (StataCorp, College Station, TX, USA). Differences were considered statistically significant at $P < 0.05$.

HIV status was missing for 28 (8%) of the 349 women, leaving 321 women in the present analysis. There were no significant differences across HIV status with regard to age, duration of pregnancy, level of consciousness, or study site. HIV-negative women had marginally higher parity than HIV-positive women (2.82 vs 2.19; $P = 0.05$) (Table 1). HIV-positive women in hypovolemic shock had nearly double the odds of severe hemorrhage compared with HIV-negative women in hypovolemic shock, after controlling for age, parity, and study site (odds ratio 1.92; 95% confidence interval, 1.05–3.50; $P = 0.03$). Sensitivity analysis confirmed no difference in results when women for whom HIV status was missing were assigned to either HIV-positive or HIV-negative status.

The results of the present study indicate that HIV might affect hemorrhage-related maternal mortality by increasing blood loss. While an underlying mechanism of this association could not be investigated in the present analysis, it is possible that the observed association could be attributable to iron-deficiency anemia, which can be exacerbated in HIV-positive patients [5].

These results are an important step toward elucidating the impact of HIV on hemorrhage-related maternal mortality; however, there were limitations to the present study. Because the parent study was not designed to explore this association, we were unable to investigate any potential underlying mechanisms; furthermore, HIV status might have been underreported owing to missing HIV data. Another limitation was the overlap between inclusion criteria and the characterization of EBL (mild, 500–999 mL vs severe, ≥1000 mL) across HIV status. The composite nature of the inclusion criteria added a degree of complexity to the analysis.

Despite the limitations, the present analysis adds to a growing body of literature characterizing the impact of HIV on maternal health and has generated an interesting and testable hypothesis. An association between these 2 conditions has direct clinical implications for the care of HIV-positive pregnant women. Furthermore, it would highlight dual gains that could be achieved through integrating HIV and maternal healthcare services.

Conflict of interest

The authors have no conflicts of interest.

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Familial hypertriglyceridemia in pregnancy

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Familial hypertriglyceridemia is not often seen in pregnancy, and case reports are scarce. The goal for pregnant patients with familial hypertriglyceridemia is to maintain low levels of triglycerides and prevent complications such as acute pancreatitis.

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Table 1
Triglyceride levels and clinical information/intervention.

Gestational age, wk	Triglyceride level, mg/dL	Clinical information/intervention
2	1580	Pancreatitis
5	211	Hyperglycemia
7	206	Discontinued fenofibrate
9	109	
10	288	
11	293	
13	461	Started gemfibrozil
16	1248	Discontinued gemfibrozil; started fenofibrate
19	624	
22	942	
24	295	
29	463	Diagnosis of severe pre-eclampsia
31		Delivery owing to severe pre-eclampsia
2 weeks postpartum	179	