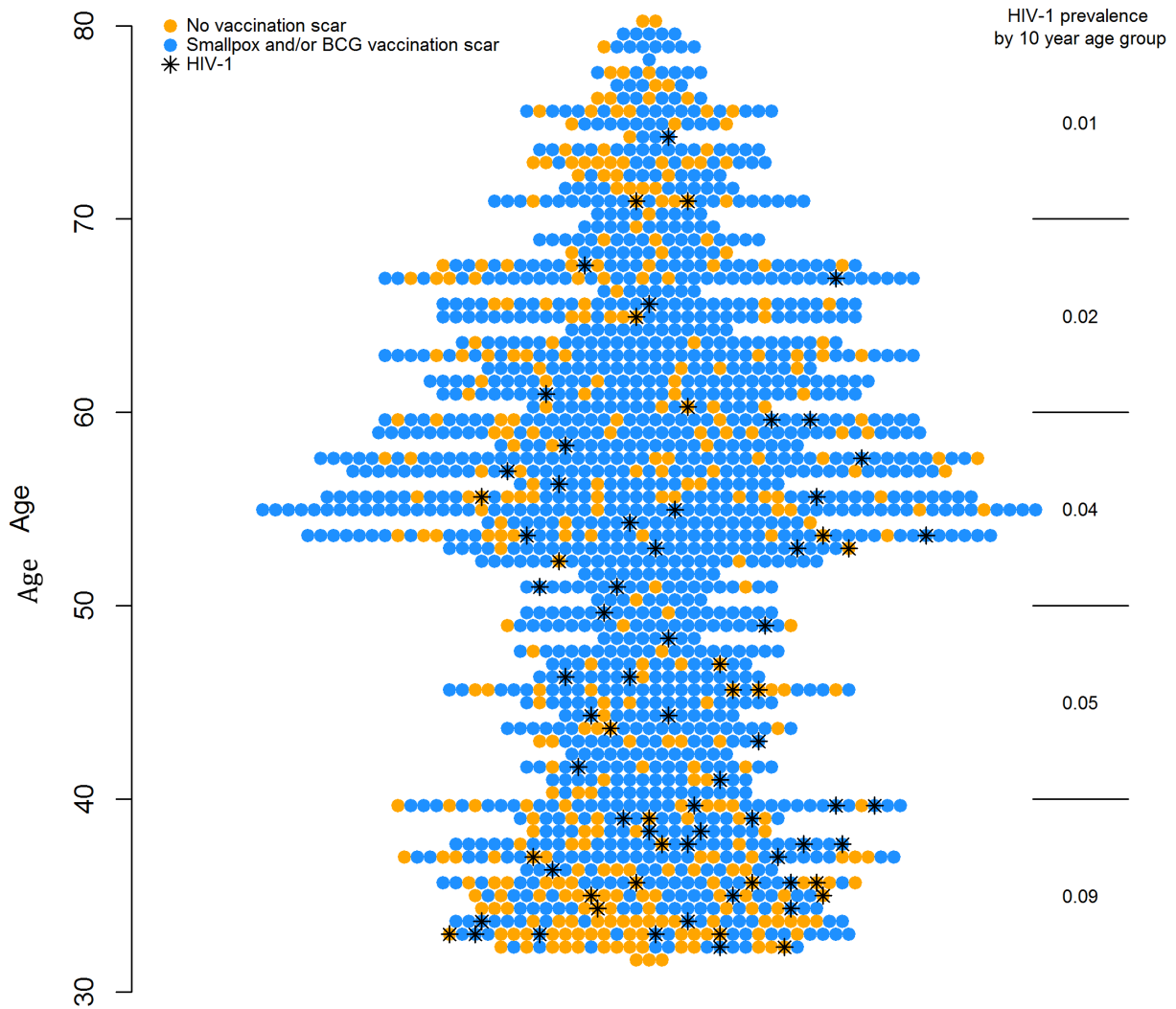


SUPPLEMENTARY MATERIAL

SUPPLEMENTARY FIGURE 1. SMALLPOX AND/OR BCG VACCINATION SCAR STATUS AND HIV-1 STATUS BY AGE OF INDIVIDUALS IN GUINEA-BISSAU



SUPPLEMENTARY ANALYSIS 1. PREVALENCE OF HIV-1 IN RELATION TO SMALLPOX AND BCG VACCINATION/SCAR STATUS USING STABILISED INVERSE PROBABILITY OF TREATMENT WEIGHTING

As a complementary analysis to our main models from the Guinean and Danish data, we used a stabilised inverse probability of treatment weighted model (sIPTW) (Hernán & Robins). This model reweights the vaccinated and not vaccinated populations to hold the same number of individuals according to their covariates to give an association measure closer to the one of a randomised controlled trial in a similar population.

To create the sIPTW, we used the following information for the study in Guinea-Bissau: year of birth, sex, field worker, place of birth, schooling, religion, ethnicity, employment, socio-economic status, travelled abroad, and lived abroad with houses as clusters with robust variance estimates.

To create the sIPTW, we used the following information for the study in Denmark: family social class, sex, immigration, birth year with clusters for birth year and sex with robust variance estimates. Since the Danish data is a case-base study, we used method C by Månsson et al. inflating the dataset to represent the background cohort to apply the inverse probability of treatment weights (Månsson et al. 2007). We also applied inverse probability of being censored weights like the main approach for non-HIV cases.

Supplementary Analysis Table 1. Prevalence of HIV-1 in relation to smallpox and BCG vaccination/scar status using stabilised inverse probability of treatment weighting

	% (HIV-1/all)	sIPTW OR (95% CI)
Guinea-Bissau, smallpox and/or BCG vaccination	N = 1,747.9	
- / -	5.5% (21.4/387.5)	1 (ref)
Either or	3.8% (52.0/1360.4)	0.68 (0.40-1.16)
Denmark, smallpox and/or BCG vaccination	N = 43,449.1	
- / -	0.4% (26.5 / 7,466.6)	1 (ref)
Either or	0.2% (81 / 35,982.6)	0.63 (0.32-1.26)

Hernán, M. A. & Robins, J. M. *Causal Inference*. (Boca Raton: Chapman & Hall/CRC).

Månsson, R., Joffe, M. M., Sun, W. & Hennessy, S. *On the estimation and use of propensity scores in case-control and case-cohort studies*. Am. J. Epidemiol. 166, 332–339 (2007).

SUPPLEMENTARY TABLE 2. SMALLPOX AND BCG VACCINATION STATUS AND HIV-1 ANALYSED USING COX PROPORTIONAL HAZARDS MODEL IN DENMARK

Sub-cohort (n=5506), HIV cases (n=104)	HIV-1 Cases (n=104)	Risk time in the sub-cohort (person years)	All		Women				Men			
			Unadjusted HR (95% CI) ^a	Adjusted HR (95% CI) ^b	HIV-1 Cases (n=21)	Risk time in the sub-cohort (person years)	Unadjusted HR (95% CI) ^c	Adjusted HR (95% CI) ^d	HIV-1 Cases (n=83)	Risk time in the sub-cohort (person years)	Unadjusted HR (95% CI) ^c	Adjusted HR (95% CI) ^d
Smallpox / BCG vaccinated												
-/-	16	24557	1 (ref)	1 (ref)	5	11975	1 (ref)	1 (ref)	11	12582	1 (ref)	1 (ref)
+/-	6	11780	0.52 (0.17-1.58)	0.52 (0.17-1.59)	2	5902	0.56 (0.10-3.18)	0.53 (0.09-3.02)	4	5878	0.53 (0.14-1.95)	0.50 (0.13-1.86)
-/+	22	38859	0.74 (0.38-1.45)	0.70 (0.35-1.39)	4	17987	0.47 (0.13-1.73)	0.45 (0.12-1.69)	18	20872	0.83 (0.37-1.85)	0.82 (0.37-1.81)
+/+	60	78169	0.73 (0.34-1.56)	0.74 (0.34-1.60)	10	40132	0.38 (0.12-1.20)	0.37 (0.12-1.17)	50	38036	0.95 (0.39-2.29)	0.90 (0.37-2.19)
Either or	88	128808	0.72 (0.38-1.37)	0.70 (0.37-1.33)	16	64021	0.41 (0.15-1.15)	0.40 (0.14-1.13)	72	64787	0.86 (0.4-1.85)	0.84 (0.39-1.78)
Proportional hazards, p-value				0.050				0.829				0.518

Analysed with the Prentice method using robust variances. Prentice, R. L. *A case-cohort design for epidemiologic cohort studies and disease prevention trials*. Biometrika 73, 1-11 (1986).

a) Hazard Ratio (HR) and 95% confidence intervals (95% CI) estimated by Cox proportional hazards model stratified by year of birth.

b) Hazard Ratio (HR) and 95% confidence intervals (95% CI) estimated by Cox proportional hazards model adjusted for sex, family social class and immigration and stratified by year of birth.

c) Hazard Ratio (HR) and 95% confidence intervals (95% CI) estimated by Cox proportional hazards model with an interaction with sex and stratified by year of birth

d) Hazard Ratio (HR) and 95% confidence intervals (95% CI) estimated by Cox proportional hazards model with an interaction with sex, adjusted for family social class and immigration and stratified by year of birth.