

Shigellosis and Giardiasis among people living with HIV in Washington, DC, 2012-2016

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Background

- Enteric diseases are acute infections of the gastrointestinal tract that are transmitted fecal-orally.
- Frequent outbreaks of enteric diseases have been well documented in the HIV population especially among Men who have sex with Men (MSM).
- Enteric diseases are not currently surveilled in individuals with HIV and current prevalence levels are unknown.
- Rates of shigellosis within HIV populations are unknown in Washington, DC and studies assessing the burden of giardiasis in those with HIV has not been documented in the literature.
- This study examines the incidence of shigellosis and giardiasis within the HIV population from 2012-2016, identifies behavioral risk factors and clinical status at the time of coinfection.

Objectives

- Identify the incidence of shigellosis and giardiasis among people living with HIV in Washington, DC.
- Compare the incidence of shigellosis and giardiasis among people living with HIV versus HIV-uninfected individuals.
 - Hypothesis: There is a higher incidence of shigellosis and giardiasis among people living with HIV versus HIV-uninfected people in Washington, DC.
- Identify demographic or behavioral risk factors associated with shigellosis and giardiasis among people living with HIV
 - Hypothesis: HIV-positive men who have sex with men have a higher incidence of shigellosis and giardiasis versus other people living with HIV in Washington, DC.
- Identify HIV clinical factors associated with shigellosis and giardiasis among people living with HIV in Washington, DC
 - Hypothesis: CD4 cell count and HIV viral load are not associated with incident shigellosis and giardiasis.

Methods

- Incident cases of shigellosis and giardiasis reported to DC Department of Health were matched with known HIV case utilizing LinkPlus software.
- Population incidence ratios were conducted for shigellosis-HIV and giardiasis-HIV.
- Bivariate analyses were conducted on gender, race/ethnicity, and age for shigellosis-HIV, giardiasis-HIV and HIV alone.
- Among only men bivariate analyses were conducted for HIV mode of transmission.
- CD4, HIV stage, and viral load were compared among those with shigellosis-HIV vs giardiasis-HIV.

Results

- During 2012-2016, 250 DC residents were reported with shigellosis (2.1 per 100,000 in 2016) and 412 with giardiasis (7.3 per 100,000 in 2016).
- 96 individuals with either shigellosis or giardiasis were also reported to have HIV, 51 (20.4%) with shigellosis and 44 (10.6%) with giardiasis.
- Within the HIV population, the incidence of shigellosis was 53.9 compared to 2.1 in the general population (incidence ratio 25.7) and 69.4 compared to 7.2 in the general population (incidence ratio: 9.64) for giardiasis in 2016.
- 40.9% of coinfection cases, versus 15.9% HIV alone, were ages 25-34 at the end of 2016 ($p < 0.0001$) and nearly all (97.8%) coinfection cases occurred in men.
- MSM was the most common risk factor among men with shigellosis-HIV (80%) and giardiasis-HIV (64.3%) compared to HIV without enteric disease (60.4%).
- CD4 stages and viral suppression were similar between shigellosis-HIV (stage 3 HIV 25%, VS 40%) and giardiasis-HIV (stage 3 HIV 34.3%, VS 40%).

Table 1 - Shigellosis and Giardiasis among people living with HIV in Washington, DC, 2012-2016

	HIV		HIV-Shigella		HIV- Giardia		
	N= 13205		N=51		N=44		
Demographics	N	%	N	%	N	%	
Gender							
Male	9552	72.3	50	98.1	42	95.5	P<0.0001
Female	3447	26.1	1	1.9	2	4.6	
Transgender	206	1.6	0	0	0	0	
Age							
18-24	373	2.8	4	9.1	4	9.1	P<0.0001
25-34	2117	15.9	18	36	18	40.9	
35-44	2614	19.8	9	18	8	18.2	
45-64	7062	53.5	18	36	12	27.3	
65+	1039	7.9	1	2	2	4.6	
Race/ Ethnicity							
Black	9860	74.1	37	72.6	21	47.8	P<0.0001
White	2097	15.9	10	19.6	12	27.3	
Latino/Hispanic	905	6.9	2	3.9	5	11.4	
Asian/ Pacific Islander	73	0.6	0	0	0	0	
Other	213	1.6	0	0	1	2.3	
Unknown	57	0.4	2	3.9	5	11.4	

Conclusion

- PLWH in DC disproportionately acquired shigellosis and giardiasis in 2012-2016.
- Factors associated with shigellosis and giardiasis among people living with HIV (PLWH) include male gender, white race, being in the 25-34 age group, and being MSM.
- This study highlights the importance of obtaining a thorough sexual history, focused HIV prevention and antiretroviral adherence counseling, and provides information to target high risk groups in DC.

Future Steps

- Assess risk factors in those with an enteric diseases but do not have HIV.
- Identify strains of shigellosis and giardiasis within each group to ascertain if certain types are more common in one group over another.
- Gain a better understanding of biological pathways, if any, associated with HIV and enteric diseases.

References

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Figure 1-Behavioral Risk Factors Among Men 2012-2016

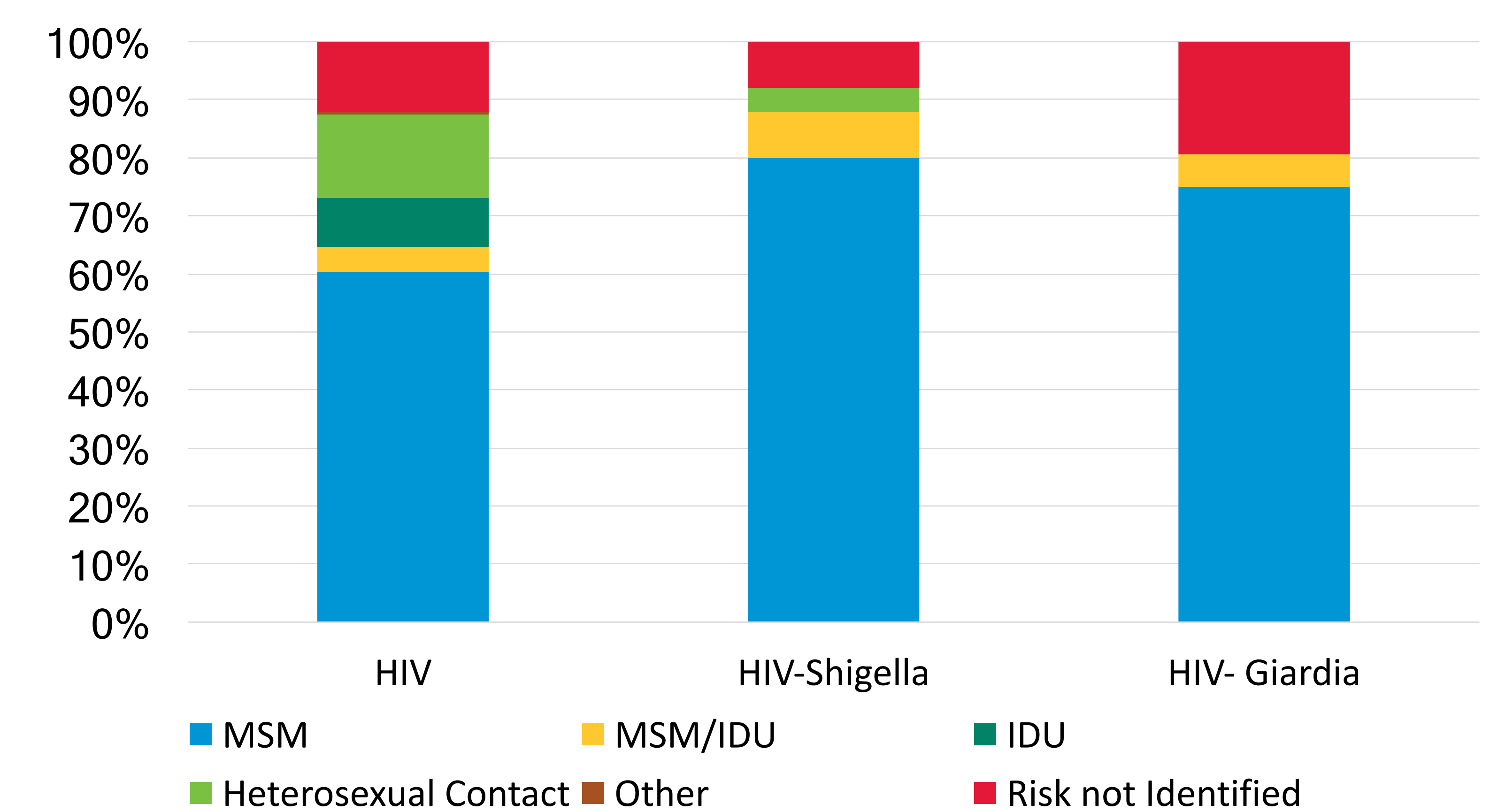


Figure 2-CD4- Stage among coinfecting cases within 8 weeks of enteric disease acquisition

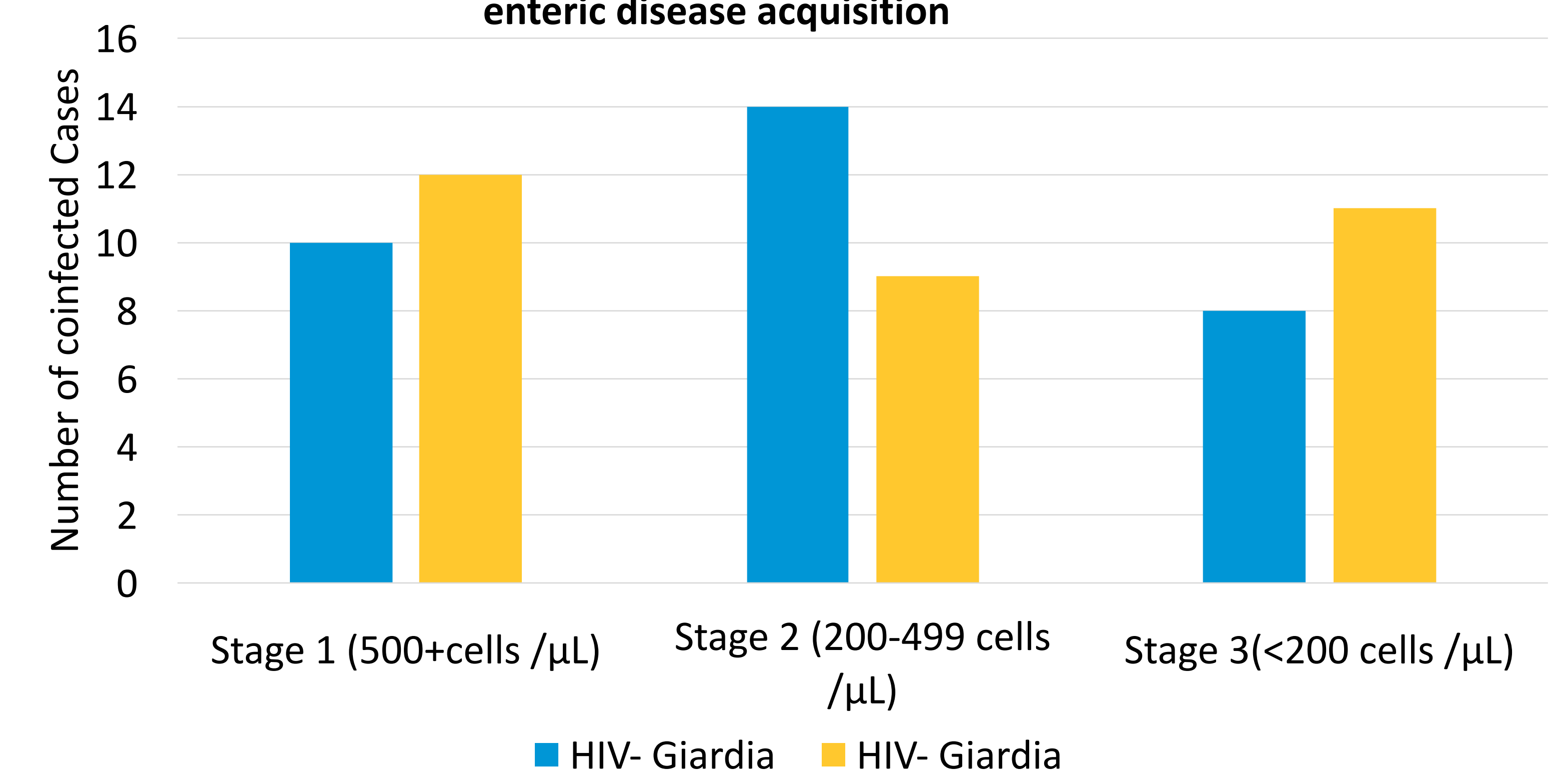
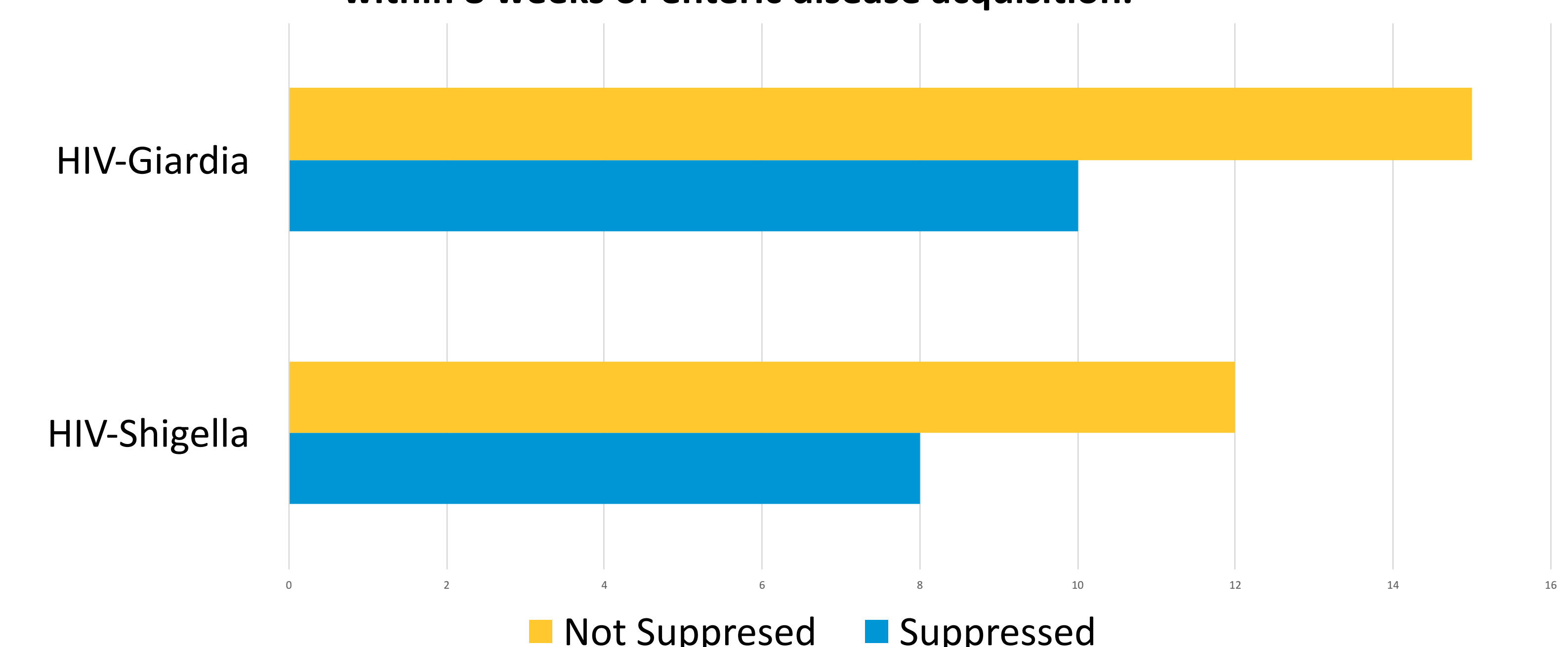


Figure 3-Viral Load (c/ml) Suppression among coinfecting cases within 8 weeks of enteric disease acquisition.



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