

[Home](#)[Search Abstracts](#)[View Session](#)[E-mail Abstract Author](#)Session 167 *Poster Abstracts***HIV Transmission Factors**Session Day and Time: Tuesday, 1 - 4 pm
Poster Hall

971

**ART May Reduce but Did Not Eliminate Exposure to Possible Superinfection**Larry Bragg*¹, J McConnell¹, E Delwart^{2,3}, E Delwart^{2,3}, B Herring^{2,3}, B Herring^{2,3}, C Kreis¹, R Grant^{1,2}, and R Grant^{1,2}¹Gladstone Inst of Virology and Immunology, Univ of California, San Francisco, US; ²Univ of California, San Francisco, US; and ³Blood Ctrs of the Pacific, San Francisco, CA, US

Background: Case reports of superinfection have mostly involved recent seroconverters, in whom the incidence of apparent superinfection is comparable to the incidence of primary HIV infection. In contrast, apparent superinfection among chronically infected persons seems to be rare.

Methods: The Positive Partners study involves prospective follow-up of HIV⁺, sero-concordant couples in San Francisco. Eligibility was based on reported unprotected intercourse with HIV⁺ partners in the past year. We analyzed *pol* and *tat* population sequences phylogenetically and calculated expected superinfection incidence based on published infectivity statistics.

Results: We followed a cohort of 35 HIV⁺, seroconcordant couples with genetically distinguishable viruses at baseline and plasma RNA levels sufficient for viral sequence analysis. Of the cohort, 90% reported >1 year since HIV diagnosis. In the absence of mechanisms blocking HIV superinfection, we would expect superinfection to occur as commonly as primary infection given the same exposure. While in follow-up, individuals reported 6317 episodes of unprotected intercourse with their enrollment and outside partners; combined with our estimate of exposures with enrollment partner retrospectively this cohort experienced 20,725 episodes of unprotected intercourse. Eliminating exposures from partners who had viral loads <1500 copies/mL reduced the number of expected superinfections from 21 to 9.5; additionally eliminating all individuals who were on ART and possibly protected by chemoprophylactic effects reduced the expected superinfections during observation to 2.85. When adjusted for infectivity of partner and ART chemoprophylaxis, expected retrospective and prospective superinfections combined dropped from >80 to nearly 23 and 2.5, respectively. Adjusting for the protective effects ART may have against superinfections we would expect to see more than five superinfections from this cohort. No evidence of superinfection was found.

Conclusions: The incidence of systemic superinfection is less than expected (0 of 56 person-years) among these highly exposed couples, even adjusting for ART use and partner infectivity, which suggests that mechanisms other than treatment, which are not present during recent infection, are blocking superinfection in chronically infected individuals. Further research is needed to better understand these additional mechanisms.