Published in final edited form as:

Am J Prev Med. 2007 December ; 33(6): 479–485. doi:10.1016/j.amepre.2007.08.004.

Serosorting Sexual Partners and Continued Risk for HIV Transmission among Men who have Sex with Men

Lisa Eaton, MA, Seth C. Kalichman, PhD, Demetria Cain, MPH, Chauncey Cherry, MA, Heidi Stearns, Christina Amaral, Jody Flanagan, and Howard Pope

Abstract

Objective—The purpose of the current study was to assess whether or not men who have sex with men who limit their unprotected anal sexual partners to those who are of the same HIV status (serosort) differ in their risk for HIV transmission than MSM who do not serosort.

Methods—Cross-sectional surveys administered at a large gay pride festival (80% response rate) were collected from MSM. Univariate and multivariate logistic regressions were used to identify predictors of serosorting.

Results—Participants were self-identified as HIV negative MSM (N=628), about one third of whom engaged in serosorting (n=229). Men who serosort were more likely to believe that serosorting offered protection against HIV transmission, perceived themselves as being at no relatively higher risk for HIV transmission, and had more unprotected anal intercourse partners. Over half the sample reported their frequency of HIV testing as yearly or less frequently; this finding did not differ between serosorters and non-serosorters.

Conclusions—Men who identify as HIV negative and serosort are no more likely to know their HIV status than men who do not serosort and are at higher risk for exposure to HIV. Interventions targeting MSM must address the limitations of serosorting.

Human Immunodeficiency Virus (HIV) is the most destructive pandemic in history, with nearly 40 million people worldwide living with HIV¹. In the US it is estimated that one million people are infected with HIV and there are over 40,000 new HIV infections in the US each year, the majority of which occur among men who have sex with men². To reduce the likelihood of HIV transmission, many individuals seek out their own strategies of prevention. One such method is serosorting; the practice of limiting sexual partners to those who have the same HIV serostatus. Several studies have found that serosorting is commonly used among men who have sex with men^{3–6}. For many HIV infected and uninfected persons, serosorting is believed to reduce concerns about HIV/AIDS and make condom use less necessary. Additionally, for various reasons, people tend to dislike using condoms^{7–9} and practice behaviors they believe are protective, such as serosorting, to avoid condom use. Public health policy is also embracing serosorting as a viable alternative to condom use.¹⁰ As a result, partner HIV serostatus is often a determining factor in sexual risk decision making.^{11,12}

Multiple caveats to serosorting do exist. For uninfected persons, the effectiveness of serosorting relies on complete and open HIV status disclosure among monogamous men. Unfortunately, fear of rejection, physical threat, alcohol or drug related impairment, and the lag between HIV tests can all affect the accuracy of knowing a sexual partner's HIV status. Moreover, HIV testing is not universal among men who have sex with men (MSM).^{13–15}

Infrequent and irregular HIV testing coupled with continued unprotected sex practices decreases the likelihood of accurately knowing one's own HIV status as well as the HIV status of one's partners. Furthermore, it is possible for recently HIV infected individuals to test HIV antibody negative. These individuals are at an elevated risk for HIV transmission and are unaware of their HIV infection.¹⁶ In light of these circumstances, serosorting may be limited for preventing HIV transmission.

Beliefs about the protective benefits of serosorting are inextricably linked to risk perceptions because serosorting is a strategy aimed at reducing one's risks. Studies have demonstrated risk perceptions play an important role in predicting health-related behavior.^{17–19} Serosorting can decrease an individual's perception of risk for HIV, which supports the practice of engaging in risky sexual behaviors to compensate for the perceived lower risk of HIV transmission.²⁰ From this perspective, one's willingness to take risks is likely shaped by behaviors that are believed to be risk reducing, such as selecting partners who are believed to be safe. Unfortunately, few studies have examined risk perceptions in relation to risk reducing practices.

The purpose of the current study was to assess whether or not individuals who serosort have more partners with whom they engage in unprotected sex than individuals who do not serosort. We hypothesized that MSM who engage in serosorting will report more frequent HIV testing, have more unprotected anal sex partners, believe in the protective benefits of serosorting, and perceive themselves at less risk for HIV transmission than MSM who do not serosort.

Method

Participants and Setting

Surveys were collected using common venue intercept procedures.^{21–25} Potential participants were asked to complete a survey concerning same-sex relationships as they walked through the exhibit and display area of a large gay community festival, where two booths were rented for the purpose of this study. Participants were told that the survey was about same-sex relationships, contained personal questions about their behavior, was anonymous, and would take 15 minutes to complete. Participants' names were not obtained at any time. Participants were offered \$4 for completing the survey and were given the option of donating their incentive payment to a local AIDS service organization. Approximately 80% of men approached agreed to complete a survey. Participants were 757 men surveyed at the Atlanta Gay Pride Festival that occurred in June of 2006.

Measures

Participants completed a self-administered anonymous survey measuring: demographic information, whether or not participants engage in serosorting, sexual partners, characteristics of last sexual act, drug and alcohol use, condom use self-efficacy, serosorting beliefs, and risk perceptions.

Demographic characteristics—Participants were asked their age, years of education, income, ethnicity, whether they identified as gay, bisexual, or heterosexual, if they were in a relationship and if so whether the relationship was exclusive or not, and how “out” they are about their sexual orientation. Participants were also asked to report their HIV status, how often they get tested and whether or not they plan to get tested again.

Engaging in serosorting—Participants were asked about the HIV status of their sexual partners. Specifically, we asked participants if they “will only have anal sex without a

condom, with a man who has the same HIV status as I do". The response was dichotomous, *yes* or *no*.

Unprotected anal sex partners—Participants were asked to report the number of sexual partners they had had in the past six months. More specifically, we asked participants to report numbers of partners, separate by HIV status, with whom they had done the following with: "Anal sex, no condom used, my partner inserted his penis in me", "Anal sex, no condom used, I inserted my penis in my partner." These items were then repeated except we asked about condom protected behaviors. Open response format was used to avoid answering biases.

Characteristics of last sexual act—To help facilitate memory of past behaviors, participants were asked to think about their last sexual act when answering questions about their sexual risk behaviors. Participants were asked to report: how well they knew their last sex partner; whether or not they or their partner were drinking or using drugs during this act; if they had anal sex with this person, and, if yes, did they or their partner use a condom.

Drug and alcohol use—Participants were asked if they had used alcohol, marijuana, nitrite inhalants (poppers), powder or crack cocaine, ecstasy, methamphetamine, Viagra or similar medication without a prescription, or any other recreational drug in the past six months and frequencies. Additionally, items from the Alcohol Use Disorders Identification Test (AUDIT)²⁶ were used to assess alcohol consumption, frequency and quantity.

Serosorting beliefs—To assess serosorting beliefs, participants were asked to complete a series of questions related to this construct. Responses to the questions were based on a 6-point Likert scale and included: 1=*strongly disagree*, 6= *strongly agree*. We asked participants to answer three questions, which included: "If my partner tells me that his HIV status is the same as mine, I am more likely to have unprotected sex with him", and "If my sex partner tells me his HIV status is the same as mine then I worry less about HIV." The scale was reliable, coefficient alpha = .82.

Condom use self-efficacy—Three individual items were used to assess participants' condom use self-efficacy. Including items such as: "If I were to suggest using a condom to a partner, I would be afraid that they would reject me" and "If I suggest using condoms my partner will think that I have an STD or HIV." Responses to these questions were on a 6-point Likert scale and included: 1=*strongly disagree*, 6= *strongly agree*.

Risk perceptions—To assess perceptions of risk, we asked participants to mark, along a visual analogue scale (VAS)²⁷, how much risk they are willing to take and how much risk they are actually taking for HIV transmission. Specifically, the first question asked, "Based on your own sex life and relationships, how much risk for HIV transmission are you willing to take? Your response should be based on how you balance HIV risk with sexual pleasure, closeness, and benefits of sex" and the second questions asked, "Think about your sex behaviors for the past 6 months, since the end of January. Based on your sex behaviors for the past 6 months, how much risk do you believe you are at for getting HIV or infecting someone with HIV? Mark a line showing how much risk you are at." The VAS consisted of a grayscale gradient on which participants marked their responses. The VAS was anchored by "No Risk, Abstinent, Not Having Sex At All" to "Extremely High Risk, Having Anal Sex Without A Condom To Ejaculation When The Top Partner is HIV Positive". Participants were instructed to answer anywhere along the 248 mm continuum, marking a line wherever it best represented their perceived risk.

Data Analysis

Surveys were initially screened for participant HIV status; those participants who reported testing HIV positive were excluded from the analyses (n=129). In total, 628 participants were included in all proceeding analyses. Participants were divided into two groups based on whether or not they reported limiting their unprotected sexual partners to those of the same HIV status. Participants who limited their partners were defined as individuals who do engage in serosorting (n=229). Participants who did not limit their partners were defined as individuals who do not engage in serosorting (n=399).

Differences between men who serosort (coded as 1) versus those who do not serosort (coded as 0) were examined using univariate and multivariate logistic regression. Variables were entered into the multivariate model based on two criteria: (1) in the univariate analysis the variable significantly ($p<.05$) predicted the serosorting; or (2) due to its conceptual importance to risk behavior: age and ethnicity.

Results

Univariate Analyses

Comparisons between men who did and did not serosort showed that age and education between the groups was non-significant. In terms of ethnicity, participants who reported serosorting were more likely to be white. Income levels among participants were not significantly different, and most participants were currently working. Participants, who serosort, were more likely to report being in an exclusive relationship with one person and less likely to report not having sexual relations. There were no differences in HIV testing history between groups. A majority of participants in both groups had not been tested for HIV in at least the past six months and there was no difference in testing frequency between groups (see Table 1).

Participants were asked to report both number of sexual partners in the past six months and information about their last sexual act. Number of sexual partners with whom the participant engaged in unprotected anal intercourse (UA) as a receptive (UAR) and as an insertive (UAI) partner, were higher among men who serosort. No differences were found in the number of partners with whom they engaged in protected anal intercourse (condom protected anal intercourse as insertive partner [CAI], condom protected anal intercourse as receptive partner [CAR]; see Table 2). Men who engaged in serosorting were more likely to report having had anal sex during their last sexual act. For the participants who had engaged in anal intercourse at last sexual act, men who serosort were less likely to have used a condom during this act. No differences were found between groups in terms of how well a participant knew his last sexual partner, whether or not it was the first time a participant had had sex with his partner, or whether a participant or his partner were drinking or using drugs the last time they had sex.

In terms of condom use self-efficacy, participants who engaged in serosorting were more likely to report barriers to using condoms. Being concerned about how a sexual partner might perceive the suggestion of using condoms for intercourse was more of a concern among men who engage in serosorting (see Table 3). Men who engaged in serosorting were also more likely to endorse beliefs that knowing a partner's HIV status can provide some form of protection from HIV, and that it can make condom use less of a concern. Overall, serosorting men thought that HIV was less of a worry if their sex partner was of the same HIV status as themselves (see Table 3; serosorting beliefs scale).

Perceptions of actual risk being taken were higher in men who engage in serosorting. Regardless of either group, risk willing to be taken was reported as being higher than risk

actually being taken, $t(613) = 4.86$, $p < .001$. Additionally, there were no differences in terms of risk willing to take, between groups (see Table 3).

Multivariate Analyses

Multivariate logistic regression, which included five blocks of variables entered hierarchically, was used to identify unique predictors of men who report engaging in serosorting versus men who report not engaging in serosorting. The first block included: age, ethnicity, and relationship status. None of these variables significantly predicted serosorting. The second block included the serosorting beliefs scale, and the three condom use self-efficacy items. The responses to the scale predicted serosorting. One of the three condom use self-efficacy items, "I would not feel confident suggesting using condoms with a new partner", also predicted serosorting. The third block included the substance use variables: drug use and alcohol consumption. These variables were all non-significant. For the fourth block, having engaged in anal sex at last sexual act predicted serosorting. Also, participants who did *not* use a condom during anal sex at last sexual act were more likely to engage in serosorting. Number of partners with whom participants engaged in UAR did not predict serosorting. However, number of the partners with whom participants engaged in UAI did predict serosorting. For the fifth block, two variables were entered: risk willing to take and risk actually being taken, neither of which predicted serosorting (See Table 4).

Discussion

Of considerable importance to this study is HIV testing history among MSM who serosort. The current findings demonstrate that roughly 88% of participants are tested for HIV every six months or less often (i.e., yearly or less than yearly). Given the HIV prevalence among MSM and the relative infrequency of HIV testing among a majority of serosorters who also have multiple unprotected sexual partners, it is likely that MSM often do not accurately know their HIV status. Furthermore, considerable sexual risk behaviors were reported as occurring in the past six months and most participants have not had an HIV test in the past six months, based on this information it is not unreasonable to, again, believe that many participants do not know their status. Therefore, engaging in serosorting may not offer preventive benefits and may actually increase risks for HIV transmission.

In our multivariate model which controlled for other variables in this study, numbers of unprotected anal sex partners-the single strongest predictor of HIV seroconversion among MSM²⁸-predicted serosorting. These behaviors included number of partners with whom participants had UA. This behavior is clearly defined as high risk for HIV transmission. Interestingly, in the multivariate model UAI predicted serosorting, while UAR did not. This finding is important because it could be indicative of a potentially related HIV prevention strategy: strategic positioning. Strategic positioning is defined as an individual taking on the role of the insertive partner in an effort to reduce his risk of being infected with HIV.^{29, 30} For example, in HIV serodiscordant couples the HIV positive partner would be the receptive partner, while the HIV negative partner would be the insertive partner. Our findings suggest there is a relationship between engaging in serosorting, engaging in strategic positioning, and increased number of unprotected sexual partners.

In terms of understanding motivations to why people serosort, it is important to understand their beliefs about serosorting. Participants who serosorted were more likely to believe that serosorting made UA less risky and were also less likely to be concerned with using condoms. Discomfort with using or even suggesting condoms was also related to relying on serosorting as a strategy to reduce risk. Additionally, although men who engaged in serosorting were taking higher risk, they did not perceive themselves to be taking higher risk

than non serosorters. This finding suggests that engaging in serosorting lowers an individual's perception of the risk he is taking for HIV transmission.

The current study was conducted using a convenience sample of men at a gay pride event in a southeastern US city. It is likely that this sample under-represents men who are not open enough about their sexual orientation to attend such an event. This study also used a cross-sectional survey method, precluding any inferences of causation regarding serosorting beliefs, condom use self-efficacy, and sexual risk behaviors. The survey method also relied on self-report of sensitive and often stigmatized experiences and behaviors. The potential for social desirability influences were minimized by anonymous survey procedures. However, research using more sensitive methods, such as in-depth interviewing techniques, is required to confirm study findings. Significant rates of high risk sexual behavior were reported by participants, which suggest that they were generally honest in their responses. Furthermore, it is possible that men who engage in serosorting may already be engaging in high risk behaviors. If this idea were true, then serosorting would be selectively adopted by men who are already at high risk.

The findings of this study have implications for HIV prevention with MSM. Opportunities to discuss sexual risk behavior with at risk men should focus, in part, on why serosorting is potentially ineffective and when it can increase HIV transmission risk. Also, serosorting appears to be a strategy used in order to not use condoms. The limitations of replacing condoms with serosorting need to be addressed. Additionally, building on the current study's findings related to perceptions of risk, further investigation into how individuals perceive risk for HIV transmission is warranted.

At present, serosorting under ideal circumstances could be an effective HIV prevention strategy; however for many individuals the circumstances are not ideal. More specifically, limitations to knowing one's own HIV status and the HIV status of one's sexual partners are apparent. A false sense of security provided by serosorting lends one to believe that they are being safe. Interventions for MSM who engage in sexual risk behaviors need to be tailored to include disseminating information about the shortcomings of serosorting.

Acknowledgments

The authors thank the AIDS Survival Project of Atlanta for their assistance with data collection. National Institute of Mental Health (NIMH) Grant RO1-MH71164 supported this research.

References

1. World Health Organization. HIV/AIDS. Global AIDS epidemic continues to grow. 2006 [Accessed on December 12, 2006]. <http://www.who.int/hiv/mediacentre/news62/en/index.html>
2. Centers for Disease Control and Prevention. Division of HIV/AIDS Prevention: Basic Statistics. 2006 [Accessed on December 12, 2006]. <http://www.cdc.gov/hiv/topics/surveillance/basic.htm>
3. Patel VL, Gutnik LA, Yoskowitz NA, O'Sullivan LF, Kaufman DR. Patterns of reasoning and decision making about condom use by urban college students. *AIDS Care*. 2006; 18:918–30. [PubMed: 17012081]
4. Centers for Disease Control and Prevention. High-risk sexual behavior by HIV-positive men who have sex with men 16 sites, United States, 2000–2002. *Morbidity and Mortality Weekly Report*. 2004; 53:891–4. [PubMed: 15457144]
5. Suarez TP, Kelly JA, Pinkerton SD, Stevenson YL, Hayat M, Smith MD, Ertl T. Influence of a partner's HIV serostatus, use of highly active antiretroviral therapy, and viral load on perceptions of sexual risk behavior in a community sample of men who have sex with men. *Journal of Acquired Immune Deficiency Syndrome*. 2001; 28:471–7.

6. Rietmeijer CA, Lloyd LV, McLean C. Discussing HIV serostatus with prospective sex partners: A potential HIV prevention strategy among high-risk men who have sex with men. *Sexually Transmitted Diseases*. 2007; 34:215–219. [PubMed: 17179774]
7. Kulczycki A, Kim DJ, Duerr A, Jamieson DJ, Macaluso M. The acceptability of the female and male condom: a randomized crossover trial. *Perspectives on Sexual and Reproductive Health*. 2004; 36:120–6. [PubMed: 15306270]
8. Moreau JC, Faye O, Hayatou D, Faye EO, Badiane M, Diadhiou F. Use of the male condom at schools and universities: survey with 1065 young people. *Dakar Med*. 2002; 47:229–33. [PubMed: 15776682]
9. Thomas BE, Rehman F, Malaisamy M, Dilip M, Suhadev M, Priyadarsini P, Purushotham NK, Swaminathan S. A study of condom acceptability among men in an urban population in South India. *AIDS and Behavior*. 2004; 8:215–20. [PubMed: 15187483]
10. Scott, L. *POZ Magazine*. 2007 Feb/Mar. Status seekers; p. 132
11. Bouhnik AD, Preau M, Schiltz MA, Lert F, Obadia Y, Spire B. the VESPA Study Group. Unprotected sex in regular partnerships among homosexual men living with HIV: a comparison between sero-nonconcordant and seroconcordant couples (ANRS-EN12- VESPA Study). *AIDS*. 21:S43–S48. [PubMed: 17159586]
12. Lightfoot M, Song J, Rotheram-Borus MJ, Newman P. The influence of partner type and risk status on the sexual behavior of young men who have sex with men living with HIV/AIDS. *Journal of Acquired Immune Deficiency Syndrome*. 2005; 38:61–8.
13. Do TD, Chen S, McFarland W, Secura GM, Behel SK, MacKellar DA, Valleroy LA, Cho KH. HIV testing patterns and unrecognized HIV infection among young Asian and Pacific Islander men who have sex with men in San Francisco. *AIDS Education and Prevention*. 2005; 17:540–54. [PubMed: 16398576]
14. Manning SE, Thorpe LE, Ramaswamy C, Hajat A, Marx MA, Karpati AM, Mostashari F, Pfeiffer MR, Nash D. Estimation of HIV prevalence, risk factors, and testing frequency among sexually active men who have sex with men, aged 18–64 years-New York City, 2002. *Journal of Urban Health*. 2007 Feb 13.
15. Xia Q, Osmond DH, Tholandi M, Pollack LM, Zhou W, Ruiz JD, Catania JA. HIV prevalence and sexual risk behaviors among men who have sex with men: results from a statewide population-based survey in California. *Journal of Acquired Immune Deficiency Syndrome*. 2006; 41:238–45.
16. Pilcher CD, Eaton LE, Kalichman SC, Bisol C, de Souza RS. Approaching “HIV elimination”: interventions for acute HIV infection. *Current HIV/AIDS Reports*. 2006; 3:160–8. [PubMed: 17032575]
17. Hampson SE, Andrews JA, Barckley M, Lichtenstien E, Lee ME. Conscientiousness, Perceived Risk, and Risk-Reduction Behaviors: A Preliminary Study. *Health Psychology*. 2000; 19:496–500. [PubMed: 11007158]
18. Azzarello LM, Dessureault S, Jacobsen PB. Sun-protective behavior among individuals with a family history of melanoma. *Cancer Epidemiology, Biomarkers & Prevention*. 2005; 15(1):142–145.
19. Ellen JM, Adler N, Gurvey JE, Millstein SG, Tschann J. Adolescent condom use and perceptions of risk for sexually transmitted diseases: a prospective study. *Sexually Transmitted Diseases*. 2002; 29:756–62. [PubMed: 12466716]
20. Wilde GJS. The theory of risk homeostasis: Implications for safety and health. *Risk Analysis*. 1982; 2:209–225.
21. Halkitis P, Zade D. Beliefs about HIV noninfection and risky sexual behavior among MSM. *AIDS Education and Prevention*. 2004; 16:448–458. [PubMed: 15491956]
22. Hickson F, Reid D, Davies P, Weatherburn P, Beardsell S, Keogh P. No aggregate change in homosexual HIV risk behaviour among gay men attending the Gay Pride Festivals, United Kingdom, 1993–1995. *AIDS*. 1997; 10:771–774. [PubMed: 8805869]
23. Kalichman SC, Nachimson D, Cherry C, Williams E. AIDS treatment advances and behavioral prevention set-backs: Preliminary assessment of reduced threat perceptions. *Health Psychology*. 1998; 17:546–50. [PubMed: 9848805]

24. Kelly JA, Hoffman RG, Rompa D, Gray M. Protease inhibitor combination therapies and perceptions of gay men regarding AIDS severity and the need to maintain safer sex. *AIDS*. 1998; 12:F91–F95. [PubMed: 9677158]
25. Vanable PA, Ostrow DG, McKirnan DJ, Taywaditep KJ, Hope BA. Impact of combination therapies on HIV risk perceptions and sexual risk among HIV-positive and HIV-negative gay and bisexual men. *Health Psychology*. 2000; 19:134–45. [PubMed: 10762097]
26. Saunders JB, Aasland OG, Babor TF, De La Fuente JR, Grant M. Development of the Alcohol Use Disorders Screening Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*. 1993; 88:791–804. [PubMed: 8329970]
27. Kalichman SC, Cain D, Fuhrel A, Eaton L, Di Fonzo K, Ertl T. Assessing medication adherence self-efficacy among low-literacy patients: development of a pictographic visual analogue scale. *Health Education Research*. 2005; 20:24–35. [PubMed: 15253999]
28. Centers for Disease Control and Prevention. Incorporating HIV prevention into the medical care of persons living with HIV. *Morbidity and Mortality Weekly Report*. 2003; 52:1–32.
29. Van de Ven P, Kippax S, Crawford J, Rawstone P, Prestage G, Grulich A, Murphy D. In a minority of gay men, sexual risk practice indicates strategic positioning for perceived risk reduction rather than unbridled sex. *AIDS Care*. 2002; 14:471–80. [PubMed: 12204150]
30. Parsons JT, Schrimshaw EW, Wolitski RJ, Halkitis PN, Purcell DW, Hoff CC, Gomez CA. Sexual harm reduction practices of HIV-seropositive gay and bisexual men: serosorting, strategic positioning, and withdrawal before ejaculation. *AIDS*. 2005; 19:S13–S25. [PubMed: 15838191]

NIH-PA Author Manuscript

NIH-PA Author Manuscript

	Men who do not serosort		Men who do serosort		OR	95%CI
	M	SD	M	SD		
Bisexual	25	6.6	13	5.8	.86	.46–1.74
How Out						
Definitely closeted	14	4.1	8	3.9	[†]	
Closeted some of the time	100	29.2	72	35	1.3	.90–1.90
Definitely out	229	66.8	126	61.2	.78	.55–1.12
How often do you get HIV tested?						
Less than yearly	90	25.1	59	28.0		
Yearly	118	33.0	67	31.8		
Every 6 months	110	30.7	58	27.5		
Every 3 months	35	9.8	24	11.4		
Monthly	5	1.4	3	1.4	.97	.82–1.15
Do you plan to get tested again?						
Yes	336	93.1	195	90.3	1.45	.79–2.65
When was your last HIV test? (reported in months since last HIV test)						
How many times have you been tested for HIV?	M	SD	M	SD	OR	95%CI
	13.6	25.2	16.4	29.9	1.00	.99–1.01
	6.0	7.1	5.7	5.9	.92	.97–1.02

[†] Reference Group,

p<.01

Table 2

Sexual partners and most recent sexual behaviors among MSM who do and do not serosort anal sex partners

For the past 6 months:	Men who do not serosort		Men who do serosort		OR	95%CI
	M	SD	M	SD		
Mean number of male sex partners.	3.55	6.48	3.94	5.53	1.01	.98–1.04
Mean number of male sex partners with whom participants engaged in UAR.	.77	2.3	1.6	3.08	1.14	1.05–1.24**
Mean number of male sex partners with whom participants engaged in UAI.	.69	1.58	1.45	2.58	1.21	1.1–1.34***
Mean number of male sex partners with whom participants engaged in CAR.	1.2	2.68	1.5	4.04	1.03	.98–1.08
Mean number of male sex partners with whom participants engaged in CAI.	1.39	4.85	1.48	4.08	1.00	.97–1.04
	n	%	n	%	OR	95%CI
Think about the LAST time you had sex:						
Did you have anal sex with this person?						
Yes	246	63	161	71		
No	144	36	65	28	.69	.48–.98*
If yes, did you use condoms during anal sex?						
Yes	165	60	67	28		
No	110	40	106	61	2.4	1.61–3.5***
	Men who do not serosort		Men who do serosort			
	n	%	n	%	OR	95%CI
How well did you know that person before having sex?						
Not at all	36	9.2	17	7.6		
Only a little	75	19	46	20		
Knew a fair amount	90	23	38	17		
Knew very well	189	49	124	55	1.1	.93–1.28
Had either of you been drinking before having (or during) sex?						
I had been drinking	31	8	24	11		
My partner had been drinking	22	5.7	15	6.6		
Both of us had been drinking	98	25	69	31		
Neither of us had been drinking	238	61	118	52	.84	.71–1.02

For the past 6 months:	Men who do not serosort		Men who do serosort		OR	95%CI
	M	SD	M	SD		
Had either of you been using other drugs before having (or during) sex?						
I had been using	13	3.3	9	4		
My partner had been using	13	3.3	14	6.3		
Both of us had been using	27	6.9	11	4.9		
Neither of us had been using	337	86.4	190	84.8	.89	.71-1.12

*
p<.05,
**
p<.01,

p<.001

Table 3

Condom use self-efficacy, serosorting beliefs, and risk perceptions among MSM who do and do not serosort anal sex partners

	<u>Men who do not serosort</u>		<u>Men who do serosort</u>		OR	95%CI
	M	SD	M	SD		
Condom Use Self-Efficacy						
If I were to suggest using a condom to a partner, I would be afraid that they would reject me.	1.85	1.43	2.10	1.5	1.12	1.00–1.25*
I would not feel confident suggesting using condoms with a new partner.	1.92	1.72	1.8	1.5	.96	.87–1.07
If I suggest using condoms my partner will think that I have an STD or HIV.	1.83	1.40	2.16	1.56	1.16	1.04–1.29**
Serosorting Beliefs Scale						
	2.29	1.33	3.19	1.42	1.58	1.39–1.78***
Risk Perceptions						
Mean risk for HIV transmission participant is willing to take.	62.95	57.94	71.81	52.44	1.0	1.00–1.1
Mean risk for HIV transmission participant is actually taking.	49.91	55.81	64.16	63.12	1.0	1.01–1.1**

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 4

Multivariate model predicting MSM who serosort anal sex partners

	OR	95%CI	p
Age	1.01	.98–1.03	.63
Ethnicity	.85	.64–1.12	.24
Relationship Status	.88	.64–1.24	.45
Serosorting Beliefs	1.49	1.22–1.79	p<.01
Condom Use Self-Efficacy			
Item 1	1.05	.85–1.31	.68
Item 2	.79	.64–.98	p<.05
Item 3	1.05	.84–1.31	.67
Drug Use	.91	.76–1.01	.29
Alcohol Consumption	.99	.75–1.32	.98
Alcohol Frequency	1.03	.75–1.37	.92
Anal Sex with Last Partner	.33	.12–.91	p<.05
Anal Sex with Last Partner No Condom Used	2.16	1.25–3.72	p<.01
Sum of Unprotected Anal Receptive Sex Partners	1.01	.97–1.17	.16
Sum of Unprotected Anal Insertive Sex Partners	1.16	1.01–1.34	p<.05
Risk Perception-Willingness	1.00	.99–1.00	.86
Risk Perception-Actual	1.00	.99–1.01	.35