Interventions to Reduce Sexual Risk Behaviors or Increase Protective Behaviors to Prevent Acquisition of HIV in Men Who Have Sex with Men: Individual-, Group-, and Community-level Behavioral Interventions

Summary Evidence Table

Individual-level Interventions

Author(s) & Date (Study period) Evaluation setting Design suitability: Design Quality of execution	Intervention description and other information	Effect measure	Results OR (95% CI)	Follow-up
Dilley et al., 2002[1] (1997-2000) San Francisco, CA Greatest: RCT Good	Intervention: Single-session cognitive-behavioral intervention counseling + sex diary Theory: Gold's theory of online versus offline thinking, cognitive theory Comparison: Treatment (standard HIV C&T only) Sample Size: 124 Race: 74% white* Baseline serostatus: 3% HIV+*	% unprotected anal intercourse (UAI) with nonprimary partner of unknown HIV status	0.36 (0.15-0.86)	6[†] and 12 mo
Dilley et al., 2002[1] (1997-2000) San Francisco, CA Greatest: RCT Good	Intervention: Single-session cognitive-behavioral intervention counseling only Theory: Gold's theory of online versus offline thinking, cognitive theory Comparison: Treatment (standard HIV C&T only) Sample Size: 124 Race: 74% white* Baseline serostatus: 3% HIV+*	% UAI with nonprimary partner of unknown HIV status	0.24 (0.10-0.56)	6[†] and 12 mo

Dilley et al., 2002[1] (1997-2000) San Francisco, CA Greatest: RCT Good	Intervention: Sex diary only Theory: Gold's theory of online versus offline thinking, cognitive theory Comparison: Treatment (standard HIV C&T only) Sample Size: 124 Race: 74% white * Baseline serostatus: 3% HIV+*	% UAI with nonprimary partner of unknown HIV status	0.74 (0.34-1.60)	6[†] and 12 mo
Rosser, 1990[2] (1987-1988) Auckland, New Zealand Greatest: RCT Limited	Intervention: individual HIV prevention counseling (1 session, 20-30 min, 1 d) Theory: Not reported Comparison: Wait-list Sample Size: 57 gay men (25% bisexual*) Race: 91% white* Baseline serostatus: 4% HIV+*	Inverse of % safe sex (number UAI + CU + monogamous relationship)	0.83 (0.15-4.57)	6 mo
Picciano et al., 2001[3] (1998-1999) Seattle, WA Greatest: RCT Fair	Intervention: telephone-based motivation enhancement intervention included immediate counseling by telephone (1 session, 90-120 min, 1 d) Theory: Motivational enhancement Comparison: Wait-list Sample Size: 89 MSM Race: 76% white Baseline serostatus: 19% HIV+, 78% HIV-	Mean number UAI Mean number of partners Mean CU during anal intercourse Mean unprotected oral intercourse	0.60 (0.28-1.27) 0.96 (0.45-2.06) 1.54 (0.73-3.33) 0.58 (0.27-1.24)	6 wk
Koblin et al., 2004[4] (1999-2004) Boston, MA Chicago, IL	Intervention: 10 one-on-one counseling sessions followed by maintenance sessions every 3 months Theory: Information-motivation-behavioral skills	% UAI % UAI with serodiscordant partners	0.81 (0.71-0.93) 0.81 (0.71-	12[†] and 18 mo

			0.93)	
Denver, CO New York, NY San Francisco, CA Seattle, WA Greatest: RCT Fair	model (IMB), social learning theory, motivational enhancement Comparison: Treatment (2 HIV C&T sessions per year with Project RESPECT individual counseling) Sample Size: 4295 Race: 72.5% white, 15.2% Hispanic, 6.5% African American Baseline serostatus: 100% HIV-	% receptive UAI Incident HIV infection	0.77 (0.65-0.92) 0.62 (0.36-1.06)	

Group-level Interventions

Author(s) & Date (Study period) Evaluation setting Design suitability: Design Quality of execution	Intervention description and other information	Effect measure	Results OR (95% CI)	Follow-up
Carballo-Dieguez et al., 2004[5] (1998-2002) New York, NY Greatest: RCT Fair	Intervention: Latinos Empowering Ourselves – exercises/games, group discussions, role play/practice, sex diary, cultural competency, and stories (8 sessions,2 h per session, 8 wk) Theory: Freire's theory of HIV prevention; Empowerment Comparison: Wait-list Sample Size: 180 Race: 100% Hispanic Baseline serostatus: Not reported	% UAI % insertive UAI % receptive UAI % UAI with nonprimary partner	0.87 (0.46-1.67) 1.07 (0.57-2.04) 0.47 (0.24-0.91) 0.83 (0.42-1.62)	2, 4[†] and 6 mos.
Choi et al., 1996[6] (1992-1994) San Francisco, CA	Intervention: API Living Well Project - brief counseling, social support, safe sex education, eroticizing and negotiating safe sex (single, 3 h	% UAI Mean number of	0.81 (0.47-1.41)	3 mos.

		partners	0.44 (0.28-0.69)	
Greatest: RCT Fair	session) Theory: Health belief model, theory of reasoned action, social cognitive theory Comparison: Wait-list Sample Size: 329 Race: 37% Chinese, 34% Filipino, 10% Japanese, 8% Vietnamese, 11% Other Baseline serostatus: Not reported	partners	0.44 (0.28-0.69)	
Imrie et al., 2001[7] (1995-1998) London, England Greatest: RCT Good	Intervention: Gay Men Project: cognitive-behavioral intervention with standard STD counseling (2 sessions, 8 h 20 min, 2 d) Theory: Transtheoretic model of behavior change, relapse prevention, social cognitive theory, motivational interviewing Comparison: Treatment (standard STD counseling) Sample Size: 338 Race: 91% White Baseline serostatus: 2% HIV +, 58% HIV −	% UAI % UAI with serodiscordant partner New STD infections New bacterial STD infections	0.50 (0.30-0.86) 0.52 (0.20-1.34) 1.66 (1.00-2.74) 1.84 (0.85-3.99)	6[†] and 12 mos. 12 mos.
Kelly et al., 1989[8] (1987) Jackson, MS Greatest: RCT Good	Intervention: Project ARIES: AIDS risk education, cognitive-behavioral self-management, sexual assertion training, development of relationship skills (12 sessions, 15-18 h, 12 wk) Theory: Social learning theory Comparison: Wait-list Sample Size: 104 Race: 87% White, 13% African American/Hispanic Baseline serostatus: Not reported	Mean UAI Number of casual partners % CU during anal intercourse Mean unprotected oral intercourse	0.66 (0.30-1.44) 1.18 (0.55-2.56) 8.33 (3.12-25.00) 1.26 (0.58-2.72)	Immediate post-intervention
Peterson et al., 1996[9]	Intervention: Triple session intervention on AIDS	% any UAI	0.47 (0.19-	12[†] and 18

(1989-1992) San Francisco, CA Greatest: RCT Fair	risk education, cognitive-behavioral self-management, assertiveness training, self-identity and support (3 sessions, 9 h, 3 wk) Theory: AIDS risk reduction model Comparison: Wait-list Sample Size: 217 Race: 100% African American Baseline serostatus: Not reported		1.17)	mos.
Peterson et al., 1996[9] (1989-1992) San Francisco, CA Greatest: RCT Fair	Intervention: Single session intervention on AIDS risk education, cognitive-behavioral self-management, assertiveness training, self-identity and support (1 session, 3 h, 1 d) Theory: AIDS risk reduction model Comparison: Wait-list Sample Size: 200 Race: 100% African American Baseline serostatus: Not reported	% any UAI	1.07 (0.45-2.54)	12[†] and 18 mos.
Roffman et al., 1997[10] (1992-1993) United States, Puerto Rico, Canada Greatest: RCT Fair	Intervention: Relapse prevention counseling by telephone to develop coping, relaxation skills, and motivational enhancement (14 sessions + 5 events, min. 21 hours, 14 wk) Theory: Relapse prevention Comparison: Wait-list Sample Size: 293 (19% bisexual) Race: 87% White Baseline serostatus: 14% HIV+	% any UAI Mean number of partners % CU % any unprotected oral intercourse	0.56 (0.33-0.94) 0.80 (0.56-1.14) 1.89 (1.16-3.03) 1.22 (0.73-2.04)	Immediate post-intervention
Roffman et al., 1998[11]	Intervention: Cognitive-behavioral group	Mean occasions of UAI	0.68 (0.36-	Immediate

(1989-1991) Seattle, WA Greatest: Non-RCT Fair	counseling on HIV education, motivational enhancement and goal setting (17 sessions, unspecified duration, 18 wk) Theory: Reasoned action, health belief model, protection motivation theory, relapse prevention Comparison: Wait-list Sample Size: 129 (6% bisexual) Race: 91% White Baseline serostatus: 62% HIV-	Mean number of male partners Mean occasions CU during anal intercourse Mean occasions unprotected oral intercourse	1.28) 0.81 (0.43-1.54) 1.82 (0.95-3.45) 0.56 (0.30-1.05)	post-intervention
Rosser, 1990[2] (1987-1988) Auckland, New Zealand Greatest: RCT Limited	Intervention: Eroticizing Safer Sex workshop (1 session, 2-2.5 h, 1 d) Theory: Not reported Comparison: Wait-list Sample Size: 52 Race: 91% White Baseline serostatus: 4% HIV+*	Inverse of % safe sex (no UAI + CU + monogamous relationship)	1.83 (0.38-8.81)	6 mos.
Rosser, 1990[2] (1987-1988) Auckland, New Zealand Greatest: RCT Limited	Intervention: StopAIDS workshop Theory: Not reported Comparison: Wait-list Sample Size: 54 Race: 91% White Baseline serostatus: 4% HIV+*	Inverse of % safe sex (no UAI + CU + monogamous relationship)	3.08 (0.61-5.50)	6 mos.
Sampaio et al., 2002[12] (1998-1999) Bahia, Brazil Greatest: RCT	Intervention: Projeto Contato workshop, including skills training and discussions of feelings and difficulties (1 session, 3-4 h, 1 d) Theory: Not reported	% UAI with any partner	1.40 (0.41-4.71)	3[†] and 6 mos.

Fair	Comparison: Treatment (class lecture on AIDS, information and condoms; 1 session, 1 h, 1 d) Sample Size: 227 Race: 66% Non-white Baseline serostatus: 69% HIV-			
Shoptaw et al. 2005[13] (1998-2002) Los Angeles, CA Greatest: RCT Fair	Intervention: Cognitive HIV risk reduction intervention group (unspecified sessions and duration, 16 wk) Theory: Relapse prevention Comparison: Treatment (cognitive behavioral therapy) Sample Size: 82 Race: 80% White, 13% Latino Drug Use: 100% methamphetamine users Baseline serostatus: 61% HIV+	% any UAI % insertive UAI % receptive UAI Mean number partners	0.57 (0.22-1.49) 0.41 (0.16-1.05) 0.82 (0.32-2.13) 1.07 (0.40-2.82)	2.5[†] and 8 mos.
Stall et al., 1999[14] (1992-1993) San Francisco, CA Greatest Fair	Intervention: Enhanced continuing recovery groups received standard drug treatment plus coping skills, interpersonal skills, and discussion of sexual issues (32 sessions, 96 h, 16 wk) Theory: Social learning theory, ARRM, relapse prevention Comparison: Treatment (standard continuing recovery groups) Sample Size: 147 Race: 78% White Drug Use: 100% recovering substance users Baseline serostatus: 38% HIV-	% UAI with non-monogamous partner	1.30 (0.50-3.38)	2, 5[†] and 8 mos.
Tudiver et al., 1992[15] (1990)	Intervention: Serial session group emphasizing relationships, expression of emotions and coping	% any UAI	0.98 (0.53-1.83)	3 mos.

Toronto, Canada Greatest: RCT Fair	strategies (4 sessions, 8 h, 4 wk) Theory: Not reported Comparison: Wait-list Sample Size: 299 Race: Not reported Baseline serostatus: 11% HIV+, 27% HIV-*	% CU during anal intercourse	1.16 (0.69-1.92)	
Tudiver et al., 1992[15] (1990) Toronto, Canada Greatest: RCT Fair	Intervention: Single-session AIDS education group (1 session, 3 h, 1 d) Theory: Not reported Comparison: Wait-list Sample Size: 201 Race: Not reported Baseline serostatus: 11% HIV+, 27% HIV-*	% any UAI % CU during anal intercourse	0.63 (0.37-1.06) 1.16 (0.79-1.72)	3 mos.
Valdiserri et al., 1989[16] (1986-1987) Pittsburgh, PA Greatest: RCT Fair	Intervention: Small group lecture plus skills training (2 sessions, 2 h, 1 d) Theory: Not reported Comparison: Treatment (small group lecture only) Sample Size: 584 Race: 95% White, 2.5% African American Baseline serostatus: 15% HIV-	Mean number of receptive anal sex partners CU during receptive anal intercourse	0.90 (0.64-1.26) 1.39 (0.99-1.92)	6[†] and 12 mos.

Community-level Interventions

Author(s) & Date (Study period) Evaluation setting	Intervention description and other	Effect measure	Results OR (95% CI)	Follow-up

Design suitability: Design Quality of execution	information			
Kegeles et al., 1996[17] (NR) Eugene, OR Santa Barbara, CA Greatest: RCT Fair	Intervention: Mpowerment Project: peer-led intervention, including outreach, small groups, community mobilization, and publicity campaign (ongoing sessions and duration; 8 mo) Theory: Diffusion of innovations Comparison: Wait-list Sample Size: 188 Race: 81% White Baseline serostatus: 3% HIV+	% any UAI	0.59 (0.32-1.07)	4 mos.
Kelly et al., 1991[18] (1989-1992) Biloxi, MS Hattiesburg, MS Monroe, LA Greatest: RCT Fair	Intervention: Popular opinion leader: peer leaders endorse behavior change messages (training involved 4 sessions, 6 h; interventions delivered over 4 mo) Theory: Diffusion of innovations Comparison: Wait-list Sample Size: 659 Race: 86% White Baseline serostatus: Not reported	% any UAI % insertive UAI % receptive UAI % multiple partners CU with any anal intercourse	0.72 (0.51-1.03) 0.60 (0.41-0.87) 0.75 (0.55-1.01) 0.66 (0.48-0.92) 1.64 (1.20-2.33)	4 mos.
Kelly, 1997[19] (1991-1994) 2 cities in each of the following states: WI, NY, WV, WA	Intervention: Popular opinion leader: popular men advocated benefits of behavior change to peers and HIV education materials placed in bars (training involved 5 sessions, 10 h; intervention delivered over 9 wk)	% any UAI Mean number of partners % CU	0.48 (0.21-0.91) 0.97 (0.67-1.41)	12 mo

Greatest: RCT Fair	Theory: Diffusion of innovations Comparison: Treatment (educational materials only) Sample Size: 442 Race: 90% White, 3% African American, 3% Native American, 2% Hispanic Baseline serostatus: Not reported		1.56 (1.07-2.26)	

* Denotes statistics for overall study
† Follow-up used to calculate effect size

Abbreviations: CU, condom use; C&T, counseling and testing; OR, odds ratio; RCT, randomized controlled trial; UAI, unprotected anal intercourse

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