

ONLINE-ONLY MATERIAL (Supplementary Materials)

Effects of integrated interventions on transmission risk and care continuum outcomes in persons living with HIV: Meta-analysis, 1996-2014

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Supplementary Material A: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	p.1 (due to the limit, we are not able to indicate systematic review in the title)
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	p.2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	p.3
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	p.4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	p.4
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	p.5-6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	p.5-7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Suppl Material B & C
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Figure 1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	p.6-8
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	p.6-8

Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	p.7-8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	p.8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	p.7-9
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	p.9
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	p.8-9
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Figure 1, Suppl material E
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Table 1
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Suppl material F
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	Figure 2
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	Figure 2
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	p.11, Table 2
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	p. 11, Table 2
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	p.12-13
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	p.13-14
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	p.12-15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Financial support

Supplementary Material B: List of Electronic Databases and Platforms for Automated Searches

Database	Platform	Risk Reduction (RR)	Medication Adherence (MA)	Linkage To and Retention and Re-Engagement in HIV Care (LRC)	Systematic Reviews of HIV Prevention
CINAHL	EBSCOhost		X	X	X
EMBASE	OVID	X	X	X	X
MEDLINE	OVID	X	X	X	X
PsycINFO	OVID	X	X	X	X
Sociological Abstracts	ProQuest	X			X
CAB Global Health	OVID				X

Database References:

- CAB Global Health [Database Online] New York, NY: Wolters, Kluwer. <http://www.ovid.com/site/index.jsp>. Accessed December 31, 2014.
- CINAHL-EBSCO [Database Online]. Ipswich, MA: EBSCO. <http://www.ebscohost.com/nursing/products/cinahl-databases/cinahl-complete>. Accessed December 31, 2014.
- EMBASE-OVID [Database Online]. New York, NY: Wolters, Kluwer. <http://www.ovid.com/site/index.jsp>. Accessed December 31, 2014.
- MEDLINE-OVID [Database Online]. New York, NY: Wolters, Kluwer. <http://www.ovid.com/site/index.jsp>. Accessed December 31, 2014.
- PsycINFO-OVID [Database Online]. New York, NY: Wolters, Kluwer. <http://www.ovid.com/site/index.jsp>. Accessed December 31, 2014.
- Sociological Abstracts [Database Online]. Ann Arbor, MI: ProQuest. <http://www.proquest.com/products-services/socioabs-set-c.html>. Accessed December 31, 2014.

Supplementary Material C: MEDLINE search strategy (in OVID)

Appendix a: Risk Reduction (RR) Search

HIV/AIDS/STDs MeSH

1. *HIV infections/pc
2. *Acquired Immunodeficiency Syndrome/pc
3. *Sexually Transmitted Diseases/pc
4. *Sexually Transmitted Diseases, bacterial/
5. *Sexually Transmitted Diseases, viral/
6. AIDS Serodiagnosis/ut
7. *HIV Seropositivity/
8. or/1-7

Prevention/Intervention/Evaluation/ Education MeSH and Keywords

9. Primary Prevention/
10. Preventive Health Services/
11. Health Promotion/
12. Program Evaluation/
13. Randomized Controlled Trials/
14. Evaluation Studies/
15. Contact Tracing/
16. Case management/
17. Needle-Exchange Programs/
18. Intervention Studies/
19. Follow-Up Studies/
20. Longitudinal Studies/
21. Multicenter Studies/
22. Random Allocation/
23. control group.ti,ab
24. control trial.ti,ab
25. controlled trial.ti,ab
26. (rct or rcts).ti,ab
27. case management.ti,ab
28. contact tracing.ti,ab
29. (counseling or counselling).ti,ab
30. (detox or detoxification).ti,ab
31. (drug\$ adj4 treatment\$).ti,ab
32. education\$.ti,ab
33. (effect or effects or effective or effectiveness).ti,ab
34. efficacy.ti,ab
35. evaluation\$.ti,ab
36. impact\$.ti,ab
37. intervention\$.ti,ab
38. needle exchange\$.ti,ab

39. network\$.ti,ab
40. outreach\$.ti,ab
41. partner notification.ti,ab
42. (partner\$ adj4 contact\$ adj4 referral\$).ti,ab
43. (notif\$ adj4 partner\$).ti,ab
44. prevention\$.ti,ab
45. program\$.ti,ab
46. random\$.ti,ab
47. rehab\$.ti,ab
48. skill\$.ti,ab
49. syringe exchange\$.ti,ab
50. methadone.ti,ab
51. test\$.ti,ab
52. training.ti,ab
53. trial\$.ti,ab
54. or/9-53

Behavior/Outcomes MeSH and Keywords

55. Behavior/
56. Behavior Therapy/
57. Health Behavior/
58. Risk Reduction Behavior/
59. Risk-Taking/
60. Contraception Behavior/
61. Coitus/
62. Sexual Abstinence/
63. Sexual Behavior/
64. Sexual Partners/
65. Safe Sex/
66. Unsafe sex/
67. Heroin Dependence/pc
68. Needle Sharing/
69. Condoms/ut
70. Condoms, female/ut
71. Contraceptive devices, male/ut
72. Contraceptive devices, female/ut
73. Substance abuse, intravenous/pc
74. Substance-related disorders/pc
75. Cocaine-related disorders/pc
76. Health services/ut
77. heroin.ti,ab
78. cocaine.ti,ab
79. opiate\$.ti,ab
80. opium.ti,ab
81. paraphernalia.ti,ab
82. (treatment\$ adj2 entry).ti,ab
83. (treatment\$ adj2 enter\$).ti,ab

- 84. (abstin\$ or abstain\$).ti,ab
- 85. drug\$.ti,ab
- 86. substance.ti,ab
- 87. (idu or idus or ivdu or ivdus).ti,ab
- 88. ((behavior\$ or behaviour\$ or activit\$ or access\$ or utiliz\$ or use\$ or using\$ or test\$ or risk\$ or outcome\$) adj4 (reduc\$ or declin\$ or chang\$ or effect\$ or increas\$ or decreas\$ or impact\$ or modif\$ or lower\$ or maintain\$ or maintenance)).ti,ab
- 89. bleach\$.ti,ab
- 90. clean\$.ti,ab
- 91. condom\$.ti,ab
- 92. contracept\$.ti,ab
- 93. crack\$.ti,ab
- 94. disclos\$.ti,ab
- 95. incidence.ti,ab
- 96. inject\$.ti,ab
- 97. intention\$.ti,ab
- 98. intercourse.ti,ab
- 99. needle\$.ti,ab
- 100. infect\$ adj4 (new\$ or rate\$ or declin\$ or reduc\$ or prevent\$ or lower\$ or decreas\$).ti,ab
- 101. partner\$.ti,ab
- 102. seroconver\$.ti,ab
- 103. sex\$.ti,ab

- 104. syring\$.ti,ab
- 105. test\$.ti,ab
- 106. or/55-105
- 107. 8 and 54 and 106

Key

\$ = truncation

* = focus

ab = abstract

ti = title

/ut = utilization subheading

/pc = prevention and control subheading

Limits

No Language Limits Applied

Publication Limits: Clinical Trial, Controlled Clinical Trial, Corrected and Republished Article, Evaluation Studies, Journal Article, Meta-Analysis, Multicenter Study, Published Erratum, Randomized Controlled Trial, Retraction of Publication, Review, Review Literature, Technical Report, Validation Studies

Supplementary Material C: MEDLINE search strategy (in OVID)

Appendix b: Medication Adherence (MA) Search

HIV/AIDS MeSH and Keywords

1. HIV Infections/
2. AIDS/
3. HIV Seropositivity/
4. (living adj4 (hiv or aids)).ti,ab
5. HIV positiv\$.ti,ab
6. HIV infected.ti,ab
7. or/1-6

Intervention MeSH and Keywords

8. Intervention Studies/
9. Case management/
10. Directly Observed Therapy/
11. intervention\$.ti,ab
12. (therapy or therapies).ti,ab
13. (treatment or treatments).ti,ab
14. medication event monitor\$.ti,ab
15. mems.ti,ab
16. modified directly observed.ti,ab
17. mdot.ti,ab
18. directly administered.ti,ab
19. daart.ti,ab
20. directly observed therapy.ti,ab
21. dot.ti,ab
22. or/8-21

HAART MeSH and Keywords

23. Anti-HIV agents/
24. Anti-Retroviral Agents/
25. Antiviral Agents/
26. Antiretroviral Therapy, Highly Active/
27. haart.ti,ab
28. arv.ti,ab
29. art.ti,ab
30. antiretroviral\$.ti,ab
31. anti retroviral\$.ti,ab
32. antiviral\$.ti,ab
33. anti viral\$.ti,ab
34. (medication or medications).ti,ab
35. or/23-34

Adherence MeSH and Keywords

36. Patient Compliance/
37. Medication Adherence/
38. adher\$.ti,ab
39. nonadher\$.ti,ab
40. non adher\$.ti,ab
41. complian\$.ti,ab
42. non complian\$.ti,ab
43. noncomplian\$.ti,ab
44. viral load.ti,ab
45. (cd4 adj2 (count or counts)).ti,ab
46. or/36-45
47. 7 and 22 and 35 and 46

Limits

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Key:

/ = Index Term
\$ = truncation
ab = abstract
ti = title
adj2 = within 2 words
adj4 = within 4 words

Supplementary Material C: MEDLINE search strategy (in OVID)

Appendix c: Linkage to, Retention in, and Re-engagement in Care (LRC) Search

HIV POSITIVE PERSON MESH AND KEYWORDS

1. HIV infections/co, dt, di, nu, pc, px, th, tm
2. HIV infect\$.ti,ab
3. (HIV adj4 diagnos\$).ti,ab
4. HIV positiv\$.ti,ab
5. (HIV adj4 care).ti,ab
6. (HIV adj4 treatment\$).ti,ab
7. living with HIV.ti,ab
8. or/1-7

LINKING AND RETENTION IN CARE MESH AND KEYWORDS

9. (access\$ adj4 care).ti,ab
10. (access\$ adj4 barrier\$).ti,ab
11. (access\$ adj4 (treatment or service\$)).ti,ab
12. (barrier\$ adj4 care).ti,ab
13. case management.ti,ab
14. case manager\$.ti,ab
15. (decreas\$ adj4 barrier\$).ti,ab
16. (engag\$ adj4 (care or service\$)).ti,ab
17. (enroll\$ adj4 care).ti,ab
18. ((enter\$ or entry) adj4 care).ti,ab
19. ((enter\$ or entry) adj4 service\$).ti,ab
20. (improv\$ adj4 access\$).ti,ab
21. (improv\$ adj4 retention).ti,ab
22. ((kept or keep\$ or return\$) adj4 appointment\$).ti,ab
23. (link\$ adj4 (retain\$ or retent\$)).ti,ab
24. (link\$ adj4 care).ti,ab
25. (link\$ adj4 case).ti,ab
26. (link\$ adj4 treatment).ti,ab
27. (link\$ adj4 service\$).ti,ab
28. (outreach adj4 (care or link\$ or program\$)).ti,ab
29. ((provision or provid\$) adj4 (care or service\$)).ti,ab
30. (reduc\$ adj4 barrier\$).ti,ab

31. ((re engag\$ or reengag\$) adj4 (care or treatment or service\$)).ti,ab
32. ((re enter\$ or reenter\$) adj4 (care or treatment or service\$)).ti,ab
33. ((refer or refers or referred or referral\$) adj4 (care or medical or treatment or clinic or service\$)).ti,ab
34. ((retain\$ or retent\$) adj4 care).ti,ab
35. (seek\$ adj4 (care or treatment\$)).ti,ab
36. (utiliz\$ adj4 (treatment or care or service\$)).ti,ab
37. (medical adj4 (care or treatment or service\$)).ti,ab
38. (gap\$ adj2 care).ti,ab
39. (visit adj2 (constan\$ or consist\$)).ti,ab
40. (appointment\$ adj2 adher\$).ti,ab
41. ((follow-up or follow up) adj2 discontin\$).ti,ab
42. ((miss\$ or schedul\$) adj2 (visit\$ or appointment\$)).ti,ab
43. (\$contin\$ adj2 care).ti,ab
44. or/9-43
45. 8 and 44

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Key:

\$ = truncation

ab = abstract

ti = title

/co = complications

/dt = drug therapy

/di = diagnosis

/nu = nursing

/pc = prevention and control

/px = psychology

/th = therapy

/tm = transmission

Supplementary Material C: MEDLINE search strategy (in VOID)

Appendix d: Systematic Reviews of HIV Prevention Search

HIV/AIDS /STD MESH AND KEYWORDS

1. *HIV infections/
2. *AIDS/
3. *Sexually transmitted diseases/
4. *HIV Seropositivity/
5. *AIDS Serodiagnosis/
6. HIV infect\$.ti,ab
7. HIV positiv\$.ti,ab
8. HIV care.ti,ab
9. (HIV adj4 incidence).ti,ab
10. (HIV adj4 prevent\$.ti,ab
11. (HIV adj4 risk\$.ti,ab
12. (HIV adj4 prevalen\$.ti,ab
13. (HIV adj4 new\$ infect\$.ti,ab
14. (HIV adj4 new\$ diagnos\$.ti,ab
15. (HIV adj4 transm\$.ti,ab
16. Sexually transmitted disease\$.ti,ab
17. Sexually transmitted infection\$.ti,ab
18. (STD or STDs or STI or STIs).ti,ab
19. (living adj4 HIV).ti,ab
20. (living adj4 (AIDS not hearing)).ti,ab
21. or/1-20

SYSTEMATIC REVIEW MESH AND KEYWORDS

22. Review/ OR Review.pt (Same Search)
23. Meta Analysis/ OR Meta-Analysis.pt
24. 22 OR 23
25. (MEDLINE or MEDLARS or EMBASE or PubMed or Cochrane).ab
26. (PsychINFO or PsycINFO).ab
27. (Sociofile or Sociological Abstracts).ab
28. CINAHL.ab
29. ((hand adj2 search\$) or (manual\$ adj2 search\$)).ab
30. ((electronic or bibliographic or computer\$ or online or automat\$) adj3 database\$.ab
31. or/25-30
32. 24 and 31

33. (meta-anal\$ or meta anal\$ or metaanal\$).ti,ab
34. (systematic\$ adj4 review\$).ti,ab
35. (systematic\$ adj4 overview\$).ti,ab
36. (systematic\$ adj4 synthes\$).ti,ab
37. literature review.ti,ab
38. (literature\$ adj4 overview\$).ti,ab
39. (literature\$ adj4 synthes\$).ti,ab
40. (quantitativ\$ adj4 review\$).ti,ab
41. (quantitativ\$ adj4 overview\$).ti,ab
42. (quantitativ\$ adj4 synthes\$).ti,ab
43. (qualitative\$ adj4 review\$).ti,ab
44. (qualitative\$ adj4 overview\$).ti,ab
45. (qualitative\$ adj4 synthes\$).ti,ab
46. (methodolog\$ adj4 review\$).ti,ab
47. (methodolog\$ adj4 overview\$).ti,ab
48. (methodolog\$ adj4 synthes\$).ti,ab
49. (review\$ adj4 article\$).ti,ab
50. (review\$ adj4 (study or studies)).ti,ab
51. (review\$ adj4 evidence).ti,ab
52. (review\$ adj4 updat\$).ti,ab
53. (review\$ adj4 (analy\$ or anali\$)).ti,ab
54. (research adj4 review\$).ti,ab
55. (research adj4 overview\$).ti,ab
56. (research adj4 synthes\$).ti,ab
57. or/33-56
58. 32 or 57
59. 21 and 58

Limits

No Language Limits Applied

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Key

* = focus MeSH term
adj = adjacency search
ti = title
pt = publication type
ab = abstract
/ = MeSH term
\$ = truncation

Supplementary Material D: List of 60 journals used in manual search

1. Academic Emergency Medicine
2. Addiction
3. African Journal of AIDS Research
4. AIDS
5. AIDS and Behavior
6. AIDS Care
7. AIDS Education and Prevention
8. AIDS Patient Care and STDs
9. AIDS Reviews
10. American Journal of Drug and Alcohol Abuse
11. American Journal of Preventive Medicine
12. American Journal of Public Health
13. Annals of Behavioral Medicine
14. Annals of Pharmacotherapy
15. Antiviral Therapy
16. BMC Health Services Research
17. BMC Infectious Diseases
18. BMC Public Health
19. BMJ
20. Clinical Infectious Diseases
21. Cochrane Database of Systematic Reviews
22. Cognitive and Behavioral Practice
23. Current HIV/AIDS Reports
24. Current Opinion in HIV and AIDS
25. Drug and Alcohol Dependence
26. Evaluation and Program Planning
27. Health Education & Behavior
28. Health Education Research
29. Health Psychology
30. HIV Medicine
31. International Journal of STD & AIDS
32. JAIDS Journal of Acquired Immune Deficiency Syndromes
33. JAMA Journal of the American Medical Association
34. JAMA Pediatrics
35. Journal of Adolescent Health
36. Journal of Consulting and Clinical Psychology
37. Journal of General Internal Medicine
38. Journal of Health Care for the Poor & Underserved
39. Journal of Health Communication
40. Journal of HIV/AIDS & Social Sciences
41. Journal of Sexually Transmitted Diseases
42. Journal of Substance Abuse Treatment
43. Journal of the Association of Nurses in AIDS Care
44. Journal of the International AIDS Society
45. Journal of the International Association of Physicians in AIDS Care
46. Journal of Urban Health
47. Lancet
48. Lancet Infectious Diseases
49. Morbidity and Mortality Weekly Report
50. Patient Education and Counseling
51. Perspectives on Sexual & Reproductive Health
52. PLoS Medicine
53. PLoS ONE
54. Psychology, Health & Medicine
55. Public Health Reports
56. Sexual Health
57. Sexually Transmitted Diseases
58. Sexually Transmitted Infections
59. Substance Use & Misuse
60. Tropical Medicine & International Health

Supplementary Material E: List of 133 studies excluded from the systematic review and meta-analysis

130 studies address and evaluate only one of the following topics: transmission risk, HIV care engagement, HIV medication adherence, and viral suppression

Altice FL, Maru DS, Bruce RD, Springer SA, Friedland GH. Superiority of directly administered antiretroviral therapy over self-administered therapy among HIV-infected drug users: a prospective, randomized, controlled trial. *Clin Infect Dis* 2007; **45**:770-778.

Andersen M, Tinsley J, Milfort D, Wilcox R, Smereck G, Pfoutz S, *et al.* HIV health care access issues for women living with HIV, mental illness, and substance abuse. *AIDS Patient Care STDS* 2005; **19**:449-459.

Andrade AS, McGruder HF, Wu AW, Celano SA, Skolasky RL, Jr., Selnes OA, *et al.* A programmable prompting device improves adherence to highly active antiretroviral therapy in HIV-infected subjects with memory impairment. *Clin Infect Dis* 2005; **41**:875-882.

Antoni MH, Carrico AW, Duran RE, Spitzer S, Penedo F, Ironson G, *et al.* Randomized clinical trial of cognitive behavioral stress management on human immunodeficiency virus viral load in gay men treated with highly active antiretroviral therapy. *Psychosom Med* 2006; **68**:143-151.

Belzer ME, Naar-King S, Olson J, Sarr M, Thornton S, Kahana SY, *et al.* The use of cell phone support for non-adherent HIV-infected youth and young adults: an initial randomized and controlled intervention trial. *AIDS Behav* 2014; **18**:686-696.

Berg KM, Litwin A, Li X, Heo M, Arnsten JH. Directly observed antiretroviral therapy improves adherence and viral load in drug users attending methadone maintenance clinics: a randomized controlled trial. *Drug Alcohol Depend* 2011; **113**:192-199.

Berrien VM, Salazar JC, Reynolds E, McKay K, HIV Medication Adherence Intervention Group. Adherence to antiretroviral therapy in HIV-infected pediatric patients improves with home-based intensive nursing intervention. *AIDS Patient Care STDS* 2004; **18**:355-363.

Bindman AB, Osmond D, Hecht FM, Lehman S, Vranizan K, Keane D, *et al.* Multistate evaluation of anonymous of HIV testing and access to medical care. *JAMA* 1998; **280**:1416-1420.

Blank MB, Hanrahan NP, Fishbein M, Wu ES, Tennille JA, Ten Have TR, *et al.* A randomized trial of a nursing intervention for HIV disease management among persons with serious mental illness. *Psychiatr Serv* 2011; **62**:1318-1324.

Claborn KR, Leffingwell TR, Miller MB, Meier E, Stephens JR. Pilot study examining the efficacy of an electronic intervention to promote HIV medication adherence. *AIDS Care* 2014; **26**:404-409.

Cleary PD, Van Devanter N, Steilen M, Stuart A, Shipton-Levy R, McMullen W, *et al.* A randomized trial of an education and support program for HIV-infected individuals. *AIDS* 1995; **9**:1271-1278.

Coates TJ, McKusick L, Kuno R, Stites DP. Stress reduction training changed number of sexual partners but not immune function in men with HIV. *Am J Public Health* 1989; **79**:885-887.

Coleman CL, Jemmott L, Jemmott JB, Strumpf N, Ratcliffe S. Development of an HIV risk reduction intervention for older seropositive African American men. *AIDS Patient Care STDS* 2009; **23**:647-655.

Cosio D, Heckman TG, Anderson T, Heckman BD, Garske J, McCarthy J. Telephone-administered motivational interviewing to reduce risky sexual behavior in HIV-infected rural persons: a pilot randomized clinical trial. *Sex Transm Dis* 2010; **37**:140-146.

DiIorio C, Resnicow K, McDonnell M, Soet J, McCarty F, Yeager K. Using motivational interviewing to promote adherence to antiretroviral medications: a pilot study. *J Assoc Nurses AIDS Care* 2003; **14**:52-62.

DiIorio C, McCarty F, Resnicow K, McDonnell Holstad M, Soet J, Yeager K, *et al.* Using motivational interviewing to promote adherence to antiretroviral medications: a randomized controlled study. *AIDS Care* 2008; **20**:273-283.

Duncan LG, Moskowitz JT, Neilands TB, Dilworth SE, Hecht FM, Johnson MO. Mindfulness-based stress reduction for HIV treatment side effects: a randomized wait-list controlled trial. *J Pain Symptom Manage* 2011; **43**:161-171.

Enriquez M, Cheng AL, McKinsey DS, Stanford J. Development and efficacy of an intervention to enhance readiness for adherence among adults who had previously failed HIV treatment. *AIDS Patient Care STDS* 2009; **23**:177-184.

Feaster DJ, Mitrani VB, Burns MJ, McCabe BE, Brincks AM, Rodriguez AE, *et al.* A randomized controlled trial of Structural Ecosystems Therapy for HIV medication adherence and substance abuse relapse prevention. *Drug Alcohol Depend* 2010; **111**:227-234.

Fisher JD, Fisher WA, Cornman DH, Amico RK, Bryan A, Friedland G. Clinician initiated intervention delivered during routine clinical care reduces risky sexual behavior of HIV+ patients. *J Acquir Immune Defic Syndr* 2006; **41**:44-52.

Fisher JD, Amico KR, Fisher WA, Cornman DH, Shuper PA, Trayling C, *et al.* Computer-based intervention in HIV clinical care setting improves antiretroviral adherence: the LifeWindows Project. *AIDS Behav* 2011; **15**:1635-1643.

Freedberg KA, Hirschhorn LR, Schackman BR, Wolf LL, Martin LA, Weinstein MC, *et al.* Cost-effectiveness of an intervention to improve adherence to antiretroviral therapy in HIV-infected patients. *J Acquir Immune Defic Syndr* 2006; **43(Suppl 2)**:S113-S118.

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Supplementary Material F: Risk of Bias Assessment (Study Level)

Author, Year	Participant Selection		Blinding		Attrition			
	Sequence Generation	Allocation Concealment	Personnel	Outcome Assessors	ITT	Differences between lost and retained	Retention (>80%)	Differential Attrition (<10%)
Holstad, 2011	✓	?	?	✓	?	?	✓	✓
Kalichman, 2011	✓	?	?	✓	?	✓	✓	✓
Konkle-Parker, 2012	?	?	?	✓	X	✓	X	✓
Konkle-Parker, 2014	✓	?	?	✓	?	?	X	✓
Kurth, 2014	✓	?	✓	✓	X	✓	✓	✓
MacGowan, 2014	?	?	?	?	X	✓	✓	X
Margolin, 2003	?	?	?	?	X	?	X	X
Naar-King, 2006	✓	✓	?	?	X	✓	✓	✓
Naar-King, 2009	✓	✓	?	✓	✓	✓	✓	✓
Healthy Living Project Team, 2007	✓	✓	?	?	✓	✓	✓	✓
Purcell, 2007	✓	?	?	✓	X	✓	✓	✓
Reznick, 2013	✓	✓	?	✓	?	?	✓	✓
Rotheram-Borus, 2004	?	?	?	?	✓	?	✓	✓
Wolitski, 2010	✓	✓	X	X	✓	?	✓	✓
Wyatt, 2004	?	?	?	?	?	?	✓	X