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

Nicole Crepaz, Brittney N. Baack, Darrel H. Higa, and Mary M. Mullins

Contents
Supplementary Material A:
  PRISMA checklist 
  Page 30-31
Supplementary Material B:
  List of electronic databases and platforms for automated searches 
  Page 32
Supplementary Material C:
  MEDLINE search as an example 
  Appendix a: Risk Reduction Search (RR) 
  Appendix b: Medication Adherence Search (MA) 
  Appendix c: Linkage to, Retention in and Re-engagement in HIV Care Search (LRC) 
  Appendix d: Overview of Review Search (ORP) 
  Page 33-37
Supplementary Material D:
  List of 60 journals used in Manual Search 
  Page 38
Supplementary Material E:
  List of 133 studies excluded from the review 
  Page 39-49
Supplementary Material F:
  Risk of Bias Assessment (Study Level) 
  Page 50
## Supplementary Material A: PRISMA Checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>#</th>
<th>Checklist item</th>
<th>Reported on page #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TITLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>1</td>
<td>Identify the report as a systematic review, meta-analysis, or both.</td>
<td>p.1 (due to the limit, we are not able to indicate systematic review in the title)</td>
</tr>
<tr>
<td><strong>ABSTRACT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured summary</td>
<td>2</td>
<td>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.</td>
<td>p.2</td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>3</td>
<td>Describe the rationale for the review in the context of what is already known.</td>
<td>p.3</td>
</tr>
<tr>
<td>Objectives</td>
<td>4</td>
<td>Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).</td>
<td>p.4</td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protocol and registration</td>
<td>5</td>
<td>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.</td>
<td>p.4</td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>6</td>
<td>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.</td>
<td>p.5-6</td>
</tr>
<tr>
<td>Information sources</td>
<td>7</td>
<td>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.</td>
<td>p.5-7</td>
</tr>
<tr>
<td>Search</td>
<td>8</td>
<td>Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.</td>
<td>Suppl Material B &amp; C</td>
</tr>
<tr>
<td>Study selection</td>
<td>9</td>
<td>State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).</td>
<td>Figure 1</td>
</tr>
<tr>
<td>Data collection process</td>
<td>10</td>
<td>Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.</td>
<td>p.6-8</td>
</tr>
<tr>
<td>Data items</td>
<td>11</td>
<td>List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.</td>
<td>p.6-8</td>
</tr>
<tr>
<td>Title</td>
<td>Section</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Risk of bias in individual studies</td>
<td>12</td>
<td>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.</td>
<td>p.7-8</td>
</tr>
<tr>
<td>Summary measures</td>
<td>13</td>
<td>State the principal summary measures (e.g., risk ratio, difference in means).</td>
<td>p.8</td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>14</td>
<td>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.</td>
<td>p.7-9</td>
</tr>
<tr>
<td>Risk of bias across studies</td>
<td>15</td>
<td>Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).</td>
<td>p.9</td>
</tr>
<tr>
<td>Additional analyses</td>
<td>16</td>
<td>Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.</td>
<td>p.8-9</td>
</tr>
</tbody>
</table>

**RESULTS**

<table>
<thead>
<tr>
<th>Title</th>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study selection</td>
<td>17</td>
<td>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.</td>
<td>Figure 1, Suppl material E</td>
</tr>
<tr>
<td>Study characteristics</td>
<td>18</td>
<td>For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.</td>
<td>Table 1</td>
</tr>
<tr>
<td>Risk of bias within studies</td>
<td>19</td>
<td>Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).</td>
<td>Suppl material F</td>
</tr>
<tr>
<td>Results of individual studies</td>
<td>20</td>
<td>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.</td>
<td>Figure 2</td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>21</td>
<td>Present results of each meta-analysis done, including confidence intervals and measures of consistency.</td>
<td>Figure 2</td>
</tr>
<tr>
<td>Risk of bias across studies</td>
<td>22</td>
<td>Present results of any assessment of risk of bias across studies (see Item 15).</td>
<td>p.11, Table 2</td>
</tr>
<tr>
<td>Additional analysis</td>
<td>23</td>
<td>Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).</td>
<td>p.11, Table 2</td>
</tr>
</tbody>
</table>

**DISCUSSION**

<table>
<thead>
<tr>
<th>Title</th>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of evidence</td>
<td>24</td>
<td>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).</td>
<td>p.12-13</td>
</tr>
<tr>
<td>Limitations</td>
<td>25</td>
<td>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).</td>
<td>p.13-14</td>
</tr>
<tr>
<td>Conclusions</td>
<td>26</td>
<td>Provide a general interpretation of the results in the context of other evidence, and implications for future research.</td>
<td>p.12-15</td>
</tr>
</tbody>
</table>

**FUNDING**

<table>
<thead>
<tr>
<th>Title</th>
<th>Section</th>
<th>Description</th>
<th>Financial support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding</td>
<td>27</td>
<td>Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Database References:
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

9. network$.ti,ab
10. outreach$.ti,ab
11. partner notification.ti,ab
12. (partner$ adj4 contact$ adj4 referral$).ti,ab
13. (notif$ adj4 partner$).ti,ab
14. prevention$.ti,ab
15. program$.ti,ab
16. random$.ti,ab
17. rehab$.ti,ab
18. skill$.ti,ab
19. syringe exchange$.ti,ab
20. methadone.ti,ab
21. test$.ti,ab
22. training.ti,ab
23. trial$.ti,ab
24. 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$).ti,ab
(abstin$ or abstain$).ti,ab

drug$.ti,ab

substance.ti,ab

(idu or idus or ivdu or ivdus).ti,ab

((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

bleach$.ti,ab

clean$.ti,ab

condom$.ti,ab

contracept$.ti,ab

crack$.ti,ab

disclos$.ti,ab

incidence.ti,ab

inject$.ti,ab

intention$.ti,ab

intercourse.ti,ab

needle$.ti,ab

infect$ adj4 (new$ or rate$ or declin$ or reduc$ or prevent$ or lower$ or decreas$).ti,ab

partner$.ti,ab

seroconver$.ti,ab

sex$.ti,ab

syring$.ti,ab

test$.ti,ab

or/55-105

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 compliant$ti,ab
43. noncompliant$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
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

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 treatment$)).ti,ab
17. (enroll$ 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

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

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

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

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
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
13. Annals of Behavioral Medicine
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
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


Murphy DA, Lu MC, Martin D, Hoffman D, Marelich WD. Results of a pilot intervention trial to improve antiretroviral adherence among HIV-positive patients. *J Assoc Nurses AIDS Care* 2002; **13**:57-69.


3 integrated interventions are not randomized controlled trial


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

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Participant Selection</th>
<th>Blinding</th>
<th>Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sequence Generation</td>
<td>Allocation Concealment</td>
<td>Outcome Assessors</td>
</tr>
<tr>
<td>Holstad, 2011</td>
<td>✓</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Kalichman, 2011</td>
<td>✓</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Konkle-Parker, 2012</td>
<td>?</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Konkle-Parker, 2014</td>
<td>✓</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Kurth, 2014</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MacGowan, 2014</td>
<td>?</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Naar-King, 2006</td>
<td>✓</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Naar-King, 2009</td>
<td>✓</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Healthy Living Project Team, 2007</td>
<td>✓</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Purcell, 2007</td>
<td>✓</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Reznick, 2013</td>
<td>✓</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Rotheram-Borus, 2004</td>
<td>?</td>
<td>?</td>
<td>✓</td>
</tr>
<tr>
<td>Wolitski, 2010</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
</tbody>
</table>