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HIV TESTING SERVICES

2019

Web Annex C. GRADE table: should social network-based approaches be offered as an additional HIV testing approach for key populations and their contacts?

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Contents

Table C1: GRADE table for social networking approaches vs. standard of care (SOC)

Author(s): David Katz, Julia C. Dettinger, Sarah Masyuko, Kennedy Muni, Luke Mair, Ruchi Tiwari, Miranda Delawalla, Wenwen Jiang, Neway Fida, Muhammad S. Jamil, Nandi Siegfried[5], Rachel Baggaley and Cheryl Johnson

Question: Social networking approaches vs. standard of care (SOC)

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	SNA	SOC	Relative (95% CI)	Absolute (95% CI)		
Uptake of HIV testing services among partners and social contacts of index clients (people diagnosed with HIV in partner notification services or key population members for social network approaches)												
2 [a]	observational studies [b]	very serious [c]	very serious [d]	not serious	not serious	none	5003/20345 (24.6%)	7406/12661 (58.5%)	**RR 0.66** (0.20 to 2.24)	**199 fewer per 1,000** (from 468 fewer to 725 more)	⊕◯◯◯ VERY LOW	CRITICAL
Reaching first time testers												
3 [e]	observational studies [f]	very serious [g]	very serious [h]	not serious	serious [i]	none [j]	3973/5921 (67.1%)	3964/5996 (66.1%)	**RR 4.11** (0.50 to 33.99)	**1,000 more per 1,000** (from 331 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Uptake of social networking approaches to HTS among index clients												
0						none			not estimable		-	CRITICAL
Reaching non-recent testers (not tested in the past year)												
1 [k]	observational studies [l]	very serious [m]	very serious [n]	not serious	not serious	none	27/114 (23.7%)	251/1205 (20.8%)	**RR 1.11** (0.78 to 1.59)	**23 more per 1,000** (from 46 fewer to 123 more)	⊕◯◯◯ VERY LOW	CRITICAL

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	SNA	SOC	Relative (95% CI)	Absolute (95% CI)		
Partners or contacts who tested for HIV and were diagnosed HIV-positive (adjusted to exclude people aware of their HIV infection)												
6 [o]	observational studies [p]	very serious [q]	very serious [r]	not serious	not serious	none	519/11952 (4.3%)	670/27955 (2.4%)	**RR 1.67** (1.16 to 2.42)	**16 more per 1,000** (from 4 more to 34 more)	⨁◯◯◯ VERY LOW	CRITICAL
Baseline CD4/VL among people diagnosed with HIV												
0									not estimable		-	IMPORTANT
Linkage to clinical assessment or antiretroviral therapy (ART) initiation among partners or contacts who tested HIV positive												
1 [s]	observational studies	very serious [t]	serious [u]	not serious	not serious	none	97/152 (63.8%)	221/406 (54.4%)	**RR 1.11** (0.92 to 1.33)	**60 more per 1,000** (from 44 fewer to 180 more)	⨁◯◯◯ VERY LOW	CRITICAL
Identification and/or linkage of people living with HIV who are not in HIV care, not on ART, or not virally suppressed												
0									not pooled	see comment	-	CRITICAL
Linkage to prevention visit if HIV negative												
0									not estimable		-	CRITICAL
Social harms or adverse events among index clients or partners/contacts												
0									not estimable		-	IMPORTANT

CI: Confidence interval; **RR:** Risk ratio

Explanations

a. Potasin, 2018 a pre/post analysis comparing SNA approaches to standard of care among MSM/TG in Thailand. Lillie, 2018 a cross sectional study comparing SNA approaches to standard of care (peer outreach) among MSM and FSW in Cote d'Ivoire.
b. Potasin, 2018 is a pre/post analysis and Lillie, 2018 is a cross-sectional study reporting programme data on SNA vs peer outreach (SOC) that compares data collected during three-month period.
c. The ROBINS-I Assessment was not able to come to a determination on risk of bias for Potasin, 2018; Lillie, 2018 had serious concerns about potential confounding. Downgraded twice.
d. High level on inconsistency across studies (I2: 99.8%). This may be due to differences in study design (cross-sectional vs pre/post studies), populations (MSM and FSW vs Transgender women), settings (Cote d'Ivoire, Thailand), or use of incentivized peer mobilizers vs trained peer mobilizers. Outcome definitions were the same across studies (HTS uptake among all contacts(proportion): Contacts tested for HIV/Total contacts).
e. Kan, 2018 (compared the effectiveness of SNS that uses Respondent Driven Sampling with Peer navigator-led outreach approach.); Lightfoot, 2018 (tested a social network–based strategy to distribute HIVST kits.); Baytop, 2014 (evaluated the effectiveness of three strategies for reaching and motivating previously undiagnosed, African American MSM.) included in meta-analysis.
f. Kan, 2018- prospective cohort; Baytop, 2014- cross sectional study; Lightfoot, 2018- non-randomized comparison group (county records)
g. Kan, and Baytop did not include information on missing data or how missing data was handled in the methods (although there was no sign of significant missing data in the results). Each study presented outcome data with a different subset of the overall study population: Baytop (first time testing among participants without a prior HIV dx), Kan (first time testers out of all study participants), Lightfoot (first time testers out of all participants who tested for HIV). Downgraded two steps as a result.
h. Very high level of inconsistency across studies (I2: 97.5%). Each study used a different study design (cross-sectional, cohort, and non-randomized comparison groups), a different approach to the SNA intervention (SNA with training for recruiters, respondent driven sampling, and SNA for HIV self-test distribution) and outcomes were measured and defined differently across studies: Baytop (First-time testers among contacts without a prior HIV dx (proportion): contacts who tested for HIV for the first time/ contacts without a prior HIV dx); Kan (First-time testers among all contacts (proportion): contacts who tested for HIV for the first time/ total contacts); Lightfoot (First-time testers among contacts who tested for HIV (proportion): contacts who tested for HIV for the first time/ contacts who tested for HIV).
i. Downgraded once due to wide confidence intervals and variability in individual study results. Kan had a significantly larger sample size (3868 intervention group events, compared to 102 in Baytop and Lightfoot combined).
j. Despite the large RR and including more than 2 studies, this analysis is not considered to have a large effect due to the wide confidence intervals.
k. Lightfoot, 2018 tested a social network–based strategy to distribute HIVST kits.
l. Non-randomized comparison group (county records)
m. Critical risk of bias due to lack of controlling of potential confounders, differential missing data between study arms, and bias in outcome ascertainment in the intervention arm. Outcome represents a subset of the overall study population (first time testers among contact who tested for HIV). Downgraded twice as a result.
n. Unable to judge inconsistency due to inclusion of a single study, and the Lightfoot study had inconsistency in methods and outcome ascertainment between study arms.
o. Kan, 2018 (compared the effectiveness of SNS that uses Respondent Driven Sampling with Peer navigator-led outreach approach); Lightfoot, 2018 (tested a social network–based strategy to distribute HIVST kits); Baytop, 2014 (evaluated the effectiveness of three strategies for reaching and motivating previously undiagnosed, African American MSM); Smyrnov, 2018 (compared three recruiting strategies to locate undiagnosed HIV positives) included in meta-analysis; Potasin, 2018 (compared SNA to SOC among MSM/TG in Thailand); Lillie, 2018 (Compared SNA to SOC among MSM and FSW in Cote d'Ivoire, Burundi, and DRC).
p. Kan, 2018- prospective cohort study; Baytop, 2014- cross sectional study; Lightfoot, 2018-non-randomized comparison group (county records); Smyrnov, 2018- retrospective cohort, Potasin, 2018- pre/Post, Lillie, 2018- cross sectional
q. Minor issues with lack of information on missing data and the handling of missing data for Kan and Baytop. Serious concerns with Lightfoot due to different procedures between study arms. Serious concerns with Smyrnov due to extremely limited data on the comparison group (lack of ability to control for potential confounding), differences in outcome ascertainment and data collection methods between arms. The ROBINS-I Assessment was not able to come to a determination on risk of bias for Potasin, 2018; and Lillie, 2018 had serious concerns of confounding. Outcomes for some manuscripts represent subsets of the overall study population (Baytop, Lightfoot, Amyrnov, Lillie). Downgraded twice.
r. Very high level of inconsistency across studies (I2: 84.1%), this could be due to differences in study design (cross sectional, cohort, pre/post), differences in study population (MSM, TG, PWID, FSW) or differences in the definition and measurement of outcome of interest- Baytop and Smyrnov (HIV positivity among contacts without prior HIV dx who were tested for HIV (proportion): Contacts without prior HIV dx who tested HIV-positive/ contacts without prior HIV dx who tested for HIV); Potasin, Lillie, Lightfoot (HIV positivity among contacts tested for HIV (proportion): contacts tested HIV-positive/ contacts tested for HIV); Kan (HIV positivity among all contacts (proportion): contacts tested HIV-positive/ total contacts)
s. Cabrera Oliva, 2018- Retrospective cohort study comparing online vs offline SNA approaches
t. The ROBINS-I Assessment was not able to come to a determination on risk of bias for Cabrera Oliva, 2018 given that this conference abstract did not include information on the handling of each of the ROBINS-I domains a determination of "Not enough information" was made based on the ROBINS-I guidance. The population for this outcome represents a subset of the overall study population (Contacts who attended HIV care after positive HIV test/contacts tested HIV-positive).
u. Unable to judge inconsistency of one study.

Table C2: GRADE table for social networking approaches vs. venue-based approaches (VBA)

Author(s): David Katz, Julia C. Dettinger, Sarah Masyuko, Kennedy Muni, Luke Mair, Ruchi Tiwari, Miranda Delawalla, Wenwen Jiang, Neway Fida, Muhammad S. Jamil, Nandi Siegfried, Rachel Baggaley and Cheryl Johnson

Question: Social networking approaches vs. venue-based approaches

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	SNA	VBA	Relative (95% CI)	Absolute (95% CI)		
Uptake of HIV testing services among partners and social contacts of index clients (people diagnosed with HIV in partner notification services or key population members for social network approaches)												
1 [a]	observational studies [a]	serious [b]	serious [c]	serious [d]	not serious	none [e]	This study found that among 24 seed clients recruited in two waves, the seeds were able to recruit 103 people from their social networks for HIV testing (4.3 people recruited to HIV testing per seed). The comparison arm used a TSS to approach 1,562 participants at 34 different venues and successfully engaged 233 participants in HIV testing (14.9% uptake).				⊕◯◯◯ VERY LOW	CRITICAL
Reaching first time testers												
2 [f]	observational studies [g]	very serious [h]	serious [i]	not serious	serious [j]	none [k]	142/274 (51.8%)	94/405 (23.2%)	**RR 2.32** (0.49 to 10.91)	**306 more per 1,000** (from 118 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Uptake of social networking approaches to HTS among index clients												
1 [l]	observational studies [m]	very serious [n]	very serious [o]	not serious	not serious	none	14/36 (38.9%)		not estimable		⊕◯◯◯ VERY LOW	CRITICAL
Reaching non-recent testers (not tested in the past year)												
0							0/0	0/0	not estimable		-	CRITICAL
Partners or contacts who tested for HIV and were diagnosed HIV-positive (adjusted to exclude people aware of their HIV infection)												
4 [p]	observational studies [q]	very serious [r]	serious [s]	not serious	not serious	none	65/452 (14.4%)	86/865 (9.9%)	**RR 1.72** (0.86 to 3.41)	**72 more per 1,000** (from 14 fewer to 240 more)	⊕◯◯◯ VERY LOW	CRITICAL

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	SNA	VBA	Relative (95% CI)	Absolute (95% CI)		
Baseline CD4/VL among people diagnosed with HIV												
0							0/0	0/0	not estimable		-	IMPORTANT
Linkage to clinical assessment or antiretroviral therapy (ART) initiation among partners or contacts who tested HIV positive												
0							0/0	0/0	not estimable		-	CRITICAL
Identification and/or linkage of people living with HIV who are not in HIV care, not on ART, or not virally suppressed												
0							0/0	0/0	not estimable		-	CRITICAL
Linkage to prevention visit if HIV negative												
0							0/0	0/0	not estimable		-	CRITICAL
Social harms or adverse events among index clients or partners/contacts												
0							0/0	0/0	not estimable		-	IMPORTANT

CI: Confidence interval; **RR:** Risk ratio

Explanations

a. Clark, 2014, prospective cohort study comparing convenience sampling (CS), time space sampling (TSS), and two waves of respondent driven sampling (RDS) for recruitment of MSM and transgender women.
b. Concerns about handling of missing data and levels of missingness not presented. Downgraded once
c. Unable to judge consistency of a single study.
d. Downgraded once due to back calculations of data from adjusted results presented in Clark, 2014.
e. Effect size not considered large as this effect is based on a single study (definition for large or very large effect requires 2 or more studies)
f. Baytop, 2014 (evaluated the effectiveness of three strategies for reaching and motivating previously undiagnosed, African American MSM) and Clark, 2014 (compared convenience sampling (CS), time space sampling (TSS), and respondent driven sampling (RDS) for recruitment of MSM and transgender women) included in meta-analysis.
g. Baytop, 2014- Cross sectional study; Clark, 2014- Prospective cohort study
h. Clark and Baytop did not include information on missing data or how missing data was handled in the methods (although there was no sign of significant missing data in the results). Outcome for Baytop represents a subset of the overal study population (first time testers among those without a prior HIV dx). Downgraded two steps as a result.
i. Very high level of inconsistency (I2: 97.3%). This may be due to differences in study design (cross sectional, cohort), differences in intervention (SNA with recruiters, respondent driven sampling), study location (USA, Peru), or differences in outcome definition and measurement: Baytop (First-time testers among contacts without a prior HIV dx (proportion): contacts who tested for HIV for the first time/ contacts without a prior HIV dx); Clark (First-time testers among all participants (proportion): contacts who tested for HIV for the first time/ total participants). Also note that data in Clark was back calculated from weighted estimates.

j. Downgraded once due to wide confidence intervals in meta-analysis and variability in individual study results.
k. Despite RR >2.0 with more than two studies included in meta-analysis, the confidence interval suggests wide variability so the association was not marked up.
l. Ellen, 2013 compared the effectiveness of alternate venue testing (AVT), social network strategy (SNS) and provider referral (PR) for identifying previously undiagnosed HIV-infected MSM. Note: Ellen, 2013 only had numbers available for the intervention group (no equivalent to Uptake of SNA in the comparison group)
m. Ellen, 2012- purposively selected (non-randomized) comparison group
n. Downgraded twice: Lack of controlling for potential confounding in Ellen 2013 with small sample size is a critical risk of bias.
o. Unable to just inconsistency of a single study, and this single study (Ellen) has a limited sample size.
p. Baytop, 2014 (evaluated the effectiveness of three strategies for reaching and motivating previously undiagnosed, African American MSM); Guo, 2011 (examined the difference in rates of HIV infection among migrant MSM in China recruited with four different sampling methods); Halkitis, 2011 (a prospective study evaluated the effectiveness of three HIV testing strategies- social networks strategy, alternate venue testing, and partner counselling and referral services); Clark, 2014 (compared convenience sampling (CS), time space sampling (TSS), and respondent driven sampling (RDS) for recruitment of MSM and transgender women) included in meta-analysis. Smyrnov, 2018; Katz, 2016, Kan, 2018, Lightfoot, 2018 not included due to differences in comparison group.
q. Baytop, 2014; Clark, 2014, Guo, 2011, Halkitis, 2011- Prospective cohort
r. Downgraded twice due to lack of information on handling missing data in Baytop, Halkitis, and Clark. Serious concerns about potential confounding in Guo. Several studies (Baytop, Halkitis) presented outcome data for a subset of study participants (contacts without a prior HIV dx or contacts tested for HIV).
s. Moderate level of inconsistency (I2: 73.9%). This could be due to differences in population (MSM, TG, PWID), location (USA, Peru, China) of differences in outcome definition and measurement: Baytop (HIV positivity among contacts without prior HIV dx who were tested for HIV (proportion): Contacts without prior HIV dx who tested HIV-positive/ contacts without prior HIV dx who tested for HIV); Clark (HIV positivity among all participants: contacts tested HIV-positive/ all participants); Guo (HIV positivity among all contacts (proportion): contacts tested HIV-positive/ total contacts); Halkitis (HIV positivity among contacts tested for HIV (proportion): contacts tested HIV-positive/ contacts tested for HIV). The exact reason for heterogeneity could not be explained by a single sub-group resulting in down-grading once.

Table C3: GRADE table for social networking approaches from non-comparative studies

Author(s): David Katz[1], Julia C. Dettinger[1], Sarah Masyuko[1], Kennedy Muni[1], Luke Mair[2,3], Ruchi Tiwari[1], Miranda Delawalla[1], Wenwen Jiang[1], Neway Fida[4], Muhammad S. Jamil[5], Nandi Siegfried[5,6], Rachel Baggaley[5] and Cheryl Johnson[5]

Question: Social networking approaches from non-comparative studies

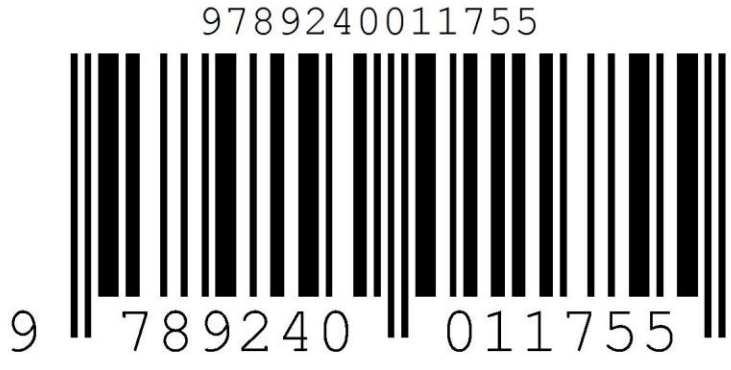
Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Social networking approaches	Non-comparative studies	Relative (95% CI)	Absolute (95% CI)		
Uptake of HIV testing services among partners and social contacts of index clients (people diagnosed with HIV in partner notification services or key population members for social network approaches)												
									not estimable		-	CRITICAL
Reaching first time testers												
									not estimable		-	CRITICAL
Uptake of social networking approaches to HTS among index clients												
									not estimable		-	CRITICAL
Reaching non-recent testers (not tested in the past year)												
									not estimable		-	CRITICAL
Partners or contacts who tested for HIV and were diagnosed HIV-positive (adjusted to exclude people aware of their HIV infection)												
									not estimable		-	CRITICAL
Baseline CD4/VL among people diagnosed with HIV												
									not estimable		-	IMPORTANT
Linkage to clinical assessment or antiretroviral therapy (ART) initiation among partners or contacts who tested HIV positive												
									not estimable		-	CRITICAL
Identification and/or linkage of people living with HIV who are not in HIV care, not on ART, or not virally suppressed												
									not estimable		-	CRITICAL
Linkage to prevention visit if HIV negative												
1 [a]	observational studies [b]	very serious [c]	serious [d]	not serious	not serious	none	531/9506 (5.6%)		not estimable		⊕◯◯◯ VERY LOW	CRITICAL

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Social networking approaches	Non-comparative studies	Relative (95% CI)	Absolute (95% CI)		
Social harms or adverse events among index clients or partners/contacts												
2 [e]	observational studies [b]	serious [f]	not serious [g]	not serious	not serious	none	7/128 (5.5%)				⊕◯◯◯ VERY LOW	IMPORTANT

CI: Confidence interval; **RR:** Risk ratio

Explanations

a. Linjongrat, 2018- a non-comparative study in Thailand
b. Non-comparative study
c. The ROBINS-I Assessment was not able to come to a determination on risk of bias given that this conference abstract did not include information on the handling of each of the ROBINS-I domains a determination of "Not enough information" was made based on the ROBINS-I guidance.
d. Unable to judge inconsistency due to inclusion of a single study.
e. Carballo-Dieguez, 2012 a non-comparative study reporting on using SNA approaches for HIV self-test kit distribution among MSM in the USA. Thirumurthy, 2016 a non-comparative study reporting on using SNA approaches for HIV self-test kit distribution among FSW in Kenya.
f. Thirumurthy, 2016 reported a serious risk of bias due to self-report of outcomes, missing data, and lack of controlling for potential confounding.
g. Similar outcome definition and measurement between studies: Social harms/Adverse events among index clients: index clients reported social harm or AE/index clients. I2 0%. 5 reports of harm in Carballo-Dieguez, 2012 were verbal arguments – no physical violence. 2 reports of physical violence among sex workers in Kenya. Authors note that high level of background IPV reported in study sample (41%).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