

Identifying Persons Living with HIV Infection through Social Network HIV Testing – a Cost Effectiveness Analysis



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ABSTRACT

BACKGROUND: The authors compared the cost effectiveness of 3 HIV testing and counseling (HTC) scenarios: a social network HIV testing (SNT) research study, a hypothetical SNT program conducted outside the research setting, and conventional client-initiated and/or outreach-based HTC.

METHOD: Outcomes and cost data were collected from research study records and key informant interviews. For each approach, the cost per HIV test and the cost per person living with HIV (PLHIV) identified were computed. Sensitivity analyses explored the effect of varying costs and effectiveness.

RESULTS: Cost per HIV test was 340% greater in the SNT research study and 282% greater in the hypothetical SNT program compared to conventional HIV (\$99.42, 82.44, and \$29.22, respectively). However, cost per PLHIV identified was 39.7% less in the SNT research study and 50% less in the hypothetical SNT program than conventional HTC (\$2,684.42, \$2,225.79, and \$4,450.46, respectively). The hypothetical SN program could be roughly twice as costly as estimated (or half as effective) and remain more cost-effective than conventional HTC.

CONCLUSION: Social network approaches to HTC are cost-effective strategies for identifying PLHIV and should be considered for wider implementation.

STUDY OBJECTIVES

- * Compute and compare the CE of 3 HTC strategies: a SNT research study, a conventional HTC program, and a hypothetical SNT program conducted outside of the research setting.
- * Examine the effect of uncertainties in measurements of costs and effectiveness for the hypothetical SNT program.

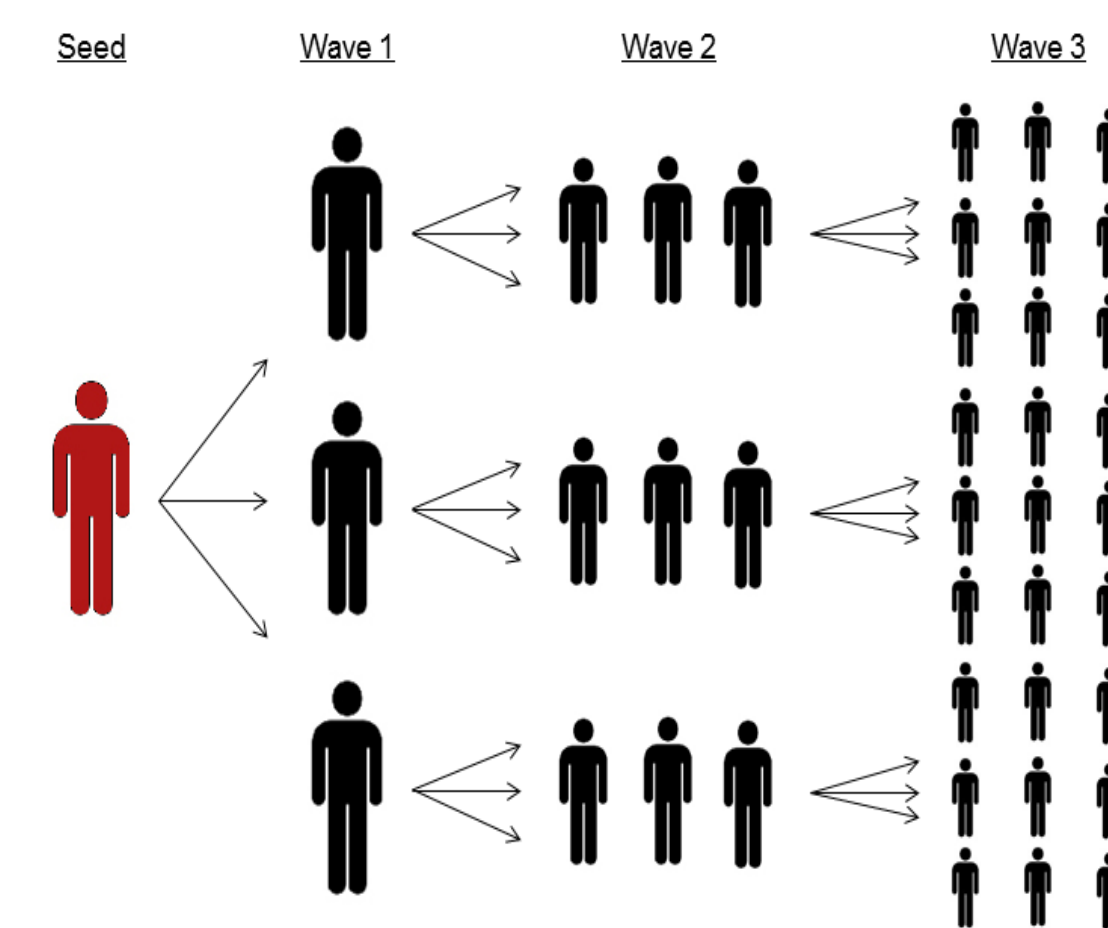
BACKGROUND

- * CDC's "High Impact Prevention" approach to reducing HIV incidence in the U.S. prioritizes strategies that are the most cost-effective.¹
- * Cost effectiveness (CE) analyses have long been used to compare HIV interventions as they allow heterogeneous approaches to be evaluated with a common measure.
- * Emerging prevention efforts such as social network HIV testing (SNT) have been demonstrated to be able to identify a higher proportion of HIV infections, new or previously reported, than conventional HIV testing and counseling (HTC).²⁻⁴
- * SNT aims to expand access to HTC services through harnessing individuals' social contacts. In general, participants serve as temporary recruiters (seeds) and enlist members of their social network (affiliates) to receive HTC services (Figure 1).
- * Although SNT has traditionally been used to reach "hidden populations" (e.g., injection drug users, sex workers) who may not access health services, it has been shown to be efficient for identifying HIV infections in the general population.
- * Despite growing popularity, a shortage of information about the costs of SNT remains.
- * Rigorous examinations of the cost effectiveness of SNT is critical in evaluating the strategy's role in the future of HIV prevention.

METHODS

- * Costs for each of the 3 scenarios analyzed were collected in 4 categories: HTC, peer recruitment, SNT training, and supplies (Table 1).
- * CE ratios in terms of "cost per HIV test" and the "cost per PLHIV identified" were calculated for each of the 3 scenarios.
- * Sensitivity analyses varied the cost or effectiveness of the hypothetical SNT program to identify the points at which SNT would "cross over" to become less cost-effective than conventional HTC.

FIGURE 1: SNT RECRUITMENT SCHEMATIC



RESULTS

- * The cost per HIV test in the SNT research study was roughly 3 times greater than that of conventional HTC (\$99.42 v. \$29.22) (Figure 2).
- * The cost per PLHIV identified in the SNT research study was 40% less than conventional HTC (\$2,684.42 v. \$4,450.46) (Figure 2).
- * The cost per HIV test (\$82.44) and cost per PLHIV identified (\$2,225.79) of the hypothetical SNT program were 17% less than the SNT research study (Figure 2).
- * Given no change in its effectiveness (i.e., number of PLHIV identified), the hypothetical SNT program can be as much as 210% more costly than estimated and remain more cost-effective than conventional HTC.
- * Given no change in its costs, the hypothetical SNT program can be 52% less effective than estimated and remain more cost effective than conventional HTC.
- * When the number of affiliates recruited per seed and the proportion of PLHIV among affiliates are both varied, there is a "break-even" curve above which the hypothetical SNT program is more cost-effective than conventional HTC. (Figure 3).

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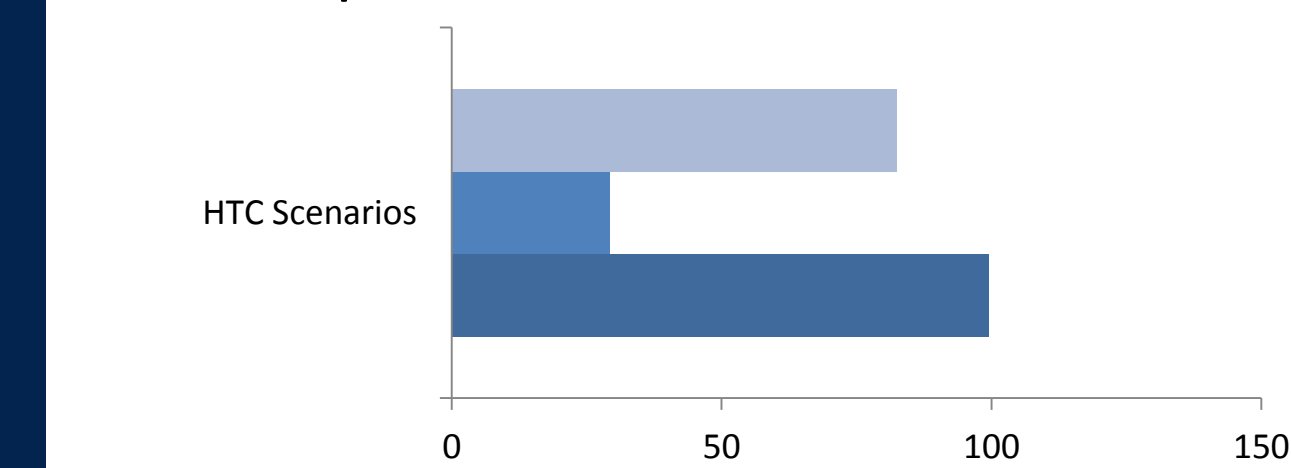
TABLE 1: COSTS & OUTCOMES OF HTC SCENARIOS

	SNT Research Study	Conventional HTC	Hypothetical SNT Program*
Costs			
HTC	\$12,391.00	\$71,151.00	\$233.88
Peer Recruitment	\$9,642.00	--	\$167.58
SNT Training	\$1,697.00	--	\$4.00
Supplies	\$430.00	--	\$6.88
Outcome			
Number of HIV Tests Conducted	243	2,437	5.06
Number of PLHIV Identified	9	16	0.19

* Costs and outcomes are calculated on a "per seed" basis.

FIGURE 2: CE RATIOS

* Cost per HIV test conducted



* Cost per PLHIV identified

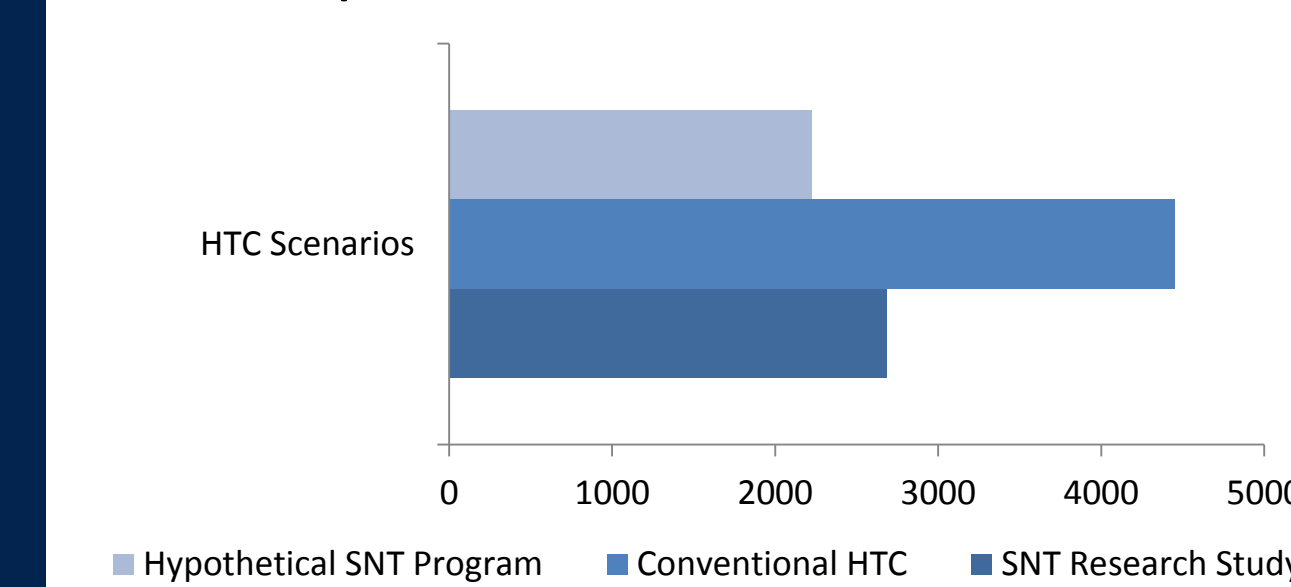
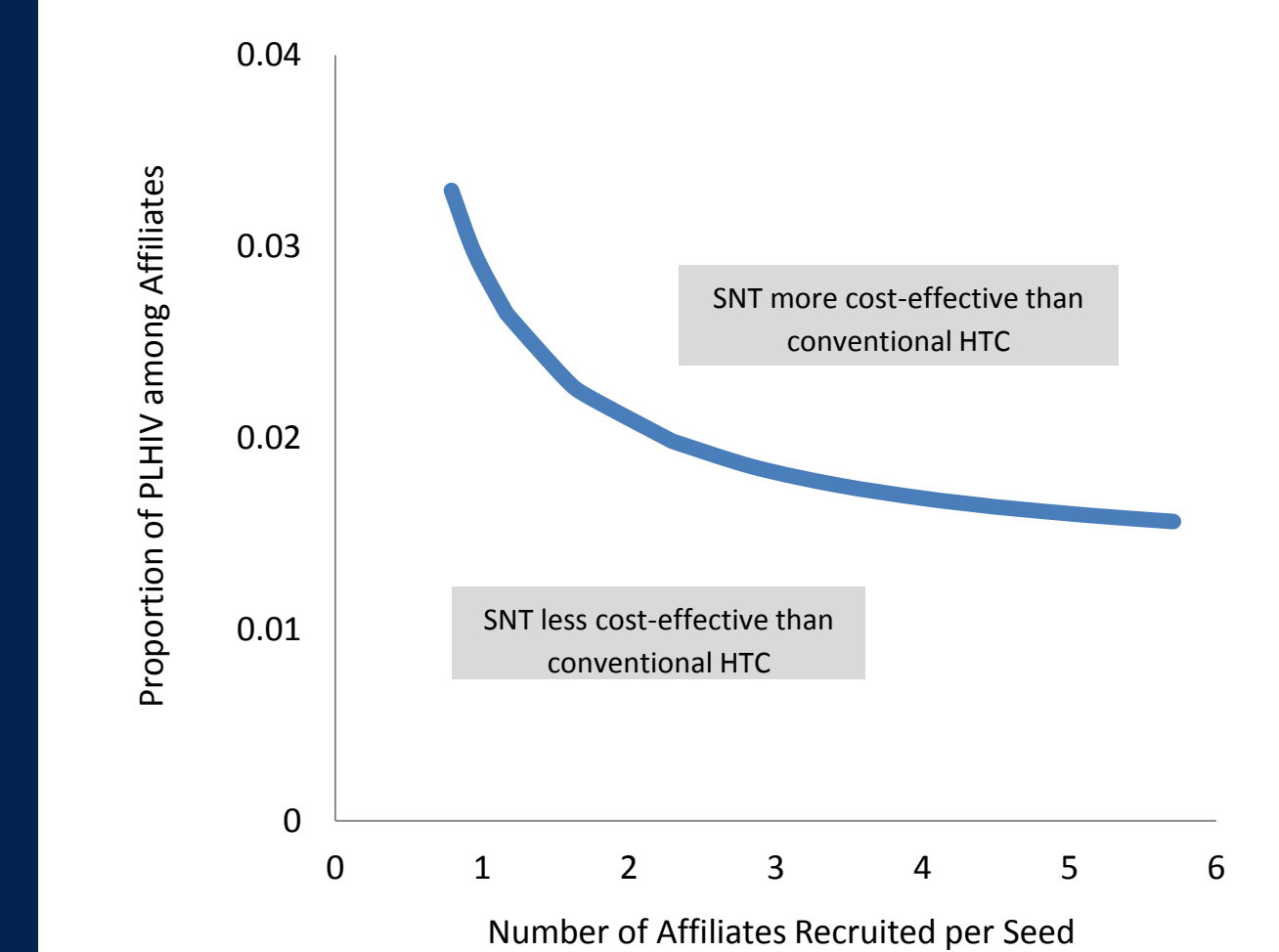


FIGURE 3: SENSITIVITY ANALYSIS



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