HIV Prevention: Partner Services Interventions to Increase HIV Testing

Summary Evidence Tables – Systematic Economic Review

This table outlines information from the studies included in the Community Guide economic review of Partner Services Interventions to Increase HIV Testing. It details study design and economic analysis, population and intervention characteristics, and economic outcomes considered in this review. Complete references for each study can be found in the Included Studies section of the [review summary](#).

Abbreviations Used in This Document:

- Economic outcomes:
  - QALY: quality-adjusted life year

- Effectiveness outcomes:
  - HIV: Human Immunodeficiency Virus

- Other terms:
  - ART: antiretroviral therapy
  - IDU: people who inject drugs
  - MSM: gay, bisexual, and other men who have sex with men
  - NA: not applicable
  - NR, not reported
  - STD: sexually transmitted disease

Notes:

Quality of economic estimates – Studies are assessed to be of good, fair, or limited quality. This valuation is based on two domains: [Quality of Capture](#), and [Quality of Measurement](#).

Race/ethnicity of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.

HIV Prevention

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness Findings	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Ahrens et al. (2007) **Design:** Post to post **Economic Method:** Intervention cost **Funding Source:** San Francisco Department of Public Health **Monetary Conversions:** Index year assumed 2005 in US dollars	**Location:** San Francisco, California, USA **Setting:** Public health department **Eligibility:** Index patients were newly identified at municipal STD clinic with acute or non-acute HIV. **Sample Size:** 428 index patients and 354 named partners **Characteristics:** Index patients Female 5.1% MSM 82.2% White 47.2% African American 17.3% Hispanic 25.5% **Time Horizon:** Observation period: January 2004 through December 2006	Existing partner service programs within Department of Public Health. Provider referral by trained public health department staff. Self-referral available if index patient chose the option. Named partners were offered fast-tracked STD/HIV medical evaluation, including HIV testing at municipal STD clinics. Array of services offered to HIV-infected individuals, including: counseling; referrals to social services, mental health, and substance use treatment; linkage to HIV primary care. **Comparison:** No partner services	There were 16 new HIV infections identified from the 354 named partners. **Data Source:** Program records **Measure Type:** Pre to post	Total cost $113,298 Cost per newly diagnose HV $7081 **Components:** Disease investigator labor, test kits **Data Source:** Program records **Quality:** Good	**Healthcare cost:** NR **Productivity:** NR **Quality:** NA	No summary economic outcomes reported

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness Findings	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Cohen et al. (2004) **Design:** Modeled based on trial outcomes **Economic Method:** Model **Funding Source:** Centers for Disease Control and Prevention **Monetary Conversions:** Index year assumed 1996 in US dollars	**Location:** Based on trials in South Carolina, Ft Lauderdale, Florida and Peterson, New Jersey **Setting:** Public health departments **Eligibility:** NR **Sample Size:** 280 persons reached **Characteristics:** NR **Time Horizon:** Modeled over 12 months	Existing partner service programs within 3 public health departments Described in Wykoff (1991) and Toomey (1998) No description provided for conduct of the partner services programs **Comparison:** Modeled for no partner services	The model predicted 11.56 prevented HIV infections. Bernoulli process modeled over 12 months with parameters of condom use, number of partners, number of sex encounters for HIV positive and HIV negative partners Sensitivity analysis varying above parameters and HIV prevalence **Data Source:** Records from 3 trials and modeled **Measure Type:** Model	Cost per person reached per year $250 Cost per averted case of HIV $3200 **Components:** Details not provided **Data Source:** Program records and modeled **Quality:** Good	**Healthcare cost:** NR **Productivity:** NR **Quality:** NA	Averted healthcare cost per averted case of HIV (lifetime cost of treatment) greater than program cost per averted case of HIV of $3200. Note: Modeled outcome for number of HIV infections averted and the program cost from 3 trials based on change in sexual behavior of partners. Study states HIV lifetime treatment cost of $195,188 (1996 dollars) per Holtgrave 1997. **Quality:** Good

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness Findings	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Johnson et al. (2014) **Design:** Cross-sectional **Economic Method:** Intervention cost **Funding Source:** Robert Wood Johnson Foundation **Monetary Conversions:** Index year assumed 2014 in US dollars	**Location:** New York counties outside New York City, USA **Setting:** State public health departments **Eligibility:** Patients newly diagnosed with HIV at public health departments and their partners. **Sample Size:** 711 index patients and 408 notified partners **Characteristics:** NR **Time Horizon:** Observation during 2014	Existing partner service programs within department of public health Activities included interviewing and counseling individuals with HIV infection, delivering risk reduction messages, distributing condoms, eliciting partner information, and notifying, testing, and treating exposed partners. **Comparison:** None	There were 711 index patients. Out of 408 notified partners, 38 newly tested positive for HIV infection. **Data Source:** Program records **Measure Type:** Pre to post	Total cost $789,949 Cost per index patient $1111 Cost per partner notified $1936 Cost per newly diagnosed HIV $20,255 **Components:** Staff salary and benefits, equipment and supplies, travel, administrative costs including overheads and training **Data Source:** Program records **Quality:** Good	**Healthcare cost:** NR **Productivity:** NR **Quality:** NA	No summary economic outcomes reported

Author (Year): Li et al. (2018) **Design:** Modeled **Economic Method:** Modeled **Funding Source:** Centers for Disease Control and Prevention **Monetary Conversions:** Index year assumed 2015 in US dollars	**Location:** Rhode Island, USA **Setting:** Public health department **Eligibility:** Index patients are those who recently tested positive for HIV at state health department. High-risk partners were identified by index patients. Some referrals also from health professionals and social workers. **Sample Size:** 158 tests in 2012-2014 **Characteristics:** Data for all programs including partner services in Rhode Island Female 35% White 47% African American 16% Hispanic 27% Native American 1% Asian 3%	Existing Partner Notification Services (PNS) for Rhode Island Department of Health (DOH). Rapid HIV tests at DOH-funded entities administered by persons trained and licensed by DOH. Information about partner provided by index patients for those they thought were at risk. Referrals for testing also provided by health professionals or social workers for high risk patients. Clients with reactive tests were referred to a physician or medical clinic for a confirmatory test. Results from reactive and confirmatory tests into EvaluationWeb, a CDC-supported database for counseling, testing, and referrals. **Comparison:** Modeled for no partner services	There were 11 patients newly diagnosed with HIV out of 158 tested. Modeled averted infections was 0.86. **Data Source:** Program records and modeled **Measure Type:** Pre to post and modeled	Total cost $372,000 Cost per test $2354 Cost per newly diagnosed HIV $33,818 **Components:** All labor **Data Source:** Program records **Quality:** Fair	**Healthcare cost:** NR **Productivity:** NR **Quality:** NA	Number of averted cases of HIV 0.86 QALYs gained 5.83 Lifetime treatment Cost per HIV case $34,7719 Net cost per QALY gained $14,725 = ($372,000/0.86- $347,719)/5.83 **Data Source:** Modeled and program records **Quality:** Fair **Notes:** HIV cases averted calculated as (number of newly identified cases) X (difference in transmission rate for those unaware of HIV status [0.108] and those aware [0.03])

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	Low-risk heterosexual 46% IDU 4% MSM 31% MSM and IDU 1% **Time Horizon:** Observation during January 2012-2014					

Author (Year): Lin et al. (2016)	Location: Modeled for National, USA with program efficacy from Ahrens (2007) trial in San Francisco, California.	Partner services intervention modeled for nation	Rate of partners who newly test positive for HIV 0.1804	Partner services cost per index patient $837	Healthcare cost: Averted lifetime cost of HIV treatment $418,000	Partner services cost per HIV averted: MSM $116,118
Design: Modeled		**Comparison:** Modeled for no partner services	Reduced transmission from decreased unprotected sex acts, decrease in number of sexual encounters, increased probability of being prescribed ART and achieving viral load suppression	Cost per Antiretroviral Therapy (ART) per year $3,288	**Productivity:** NR	Heterosexuals $349,397 Heterosexuals high risk $110,050 IDUs $263,308
Economic Method: Modeled				**Components:** Labor, testing, and ART	**Data Source:** Literature review Pinkerton 2001 and Farnham 2013	Averted lifetime cost of HIV treatment $418,000
Funding Source: Centers for Disease Control and Prevention	**Setting:** Public health departments			**Data Source:** CDC's Enhanced Comprehensive HIV Prevention Planning and Implementation for Metropolitan Statistical Areas Most Affected by HIV/AIDS (ECHPP)	**Quality:** Good	Lifetime QALY gained from each HIV averted 4.45
Monetary Conversions: Index year 2012 in US dollars	**Eligibility:** Index patients and partners identified from HIV testing and partner services at public health department		**Rate of HIV infection prevented:** MSM 0.035 Heterosexual 0.012 IDU 0.016			**Cost per QALY gained** [(Partner services cost + ART cost) - HIV lifetime treatment cost)]/QALY were: MSM -$67,839 IDU -$34,762 Heterosexual -$15,416
	Sample Size: Modeled			**Quality:** Good		In sensitivity analysis with 1-year intervention duration: MSM still cost-saving (-$48,178); IDU $9866; heterosexuals $43,804
	Characteristics: NR		**Data Source:** Partner services efficacy from Ahrens (2007) and modeled for national prevalence			**Data Source:** Modeled and trial efficacy
	Time Horizon: Analyses in 2014 and 2015		**Measure Type:** Modeled			**Quality:** Good
						Notes: Bernoulli transmission process, with cost and intervention efficacy from trial (Ahrens

Study Information	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness Findings	Intervention Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
						2007) and model parameters from review of literature

Author (Year): Shrestha et al. (2009) **Design:** Observational post only **Economic Method:** Intervention cost **Funding Source:** Centers for Disease Control and Prevention **Monetary Conversions:** Index year assumed 2007 in US dollars	**Location:** Colorado, USA New Orleans and Baton Rouge, Louisiana, USA **Setting:** Public health departments **Eligibility:** Index patients with HIV infection who were identified from existing partner services for sexually transmitted diseases in public health departments **Sample Size:** Annual number of index patients Colorado 320 Louisiana 81 Annual number of partners identified Colorado 253 Louisiana 138 **Characteristics:** MSM 83% IDU 2% Heterosexual 15%. **Time Horizon:** Observation during April 2004	Partner notification and referral services with rapid HIV tests. Index patients interviewed and asked to identify partners from past 12 months who were then searched for in public health records. Health department staff provided counseling and rapid testing to partners in their homes, workplaces, or in health department facilities or vehicles. Post-test counseling and referrals provided. **Comparison:** No partner services	New HIV infections found: Colorado 3 (6.6% of tested partners) Louisiana 8 (9.9% of tested partners) **Data Source:** Program records **Measure Type:** Post only	Annual program cost Colorado $62,802 Louisiana $59,161 Cost per partner tested Colorado $1459 Louisiana $714 Cost per HIV positive result notified Colorado $22,243 Louisiana $7231 Largest variable cost components were index patient identification, partner notification, and counseling. **Components:** Labor, equipment, test kits, travel, program management, supervision, overheads **Data Source:** Program records **Quality:** Good	**Healthcare cost:** NR **Productivity:** NR **Quality:** NA	No summary economic outcomes estimated or reported

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	to August 2005 in Colorado and Louisiana April 2004 to January 2006 in Louisiana					