



Cost analysis of Positive Charge, a multi-site linkage to care program in the United States

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Background

The Positive Charge (PC) initiative is a multi-site HIV linkage to care program being implemented in five sites across the United States to help break down barriers to care for people living with HIV (PLWH). AIDS United granted awards to sites in Chicago, Louisiana, New York city, Oakland/San Francisco, and North Carolina to support geographically and culturally diverse organizations in the development of community-driven solutions to help enable greater access to HIV/AIDS care and treatment. While each of the five interventions is unique, all sites are implementing evidence-based strategies. We conducted an economic evaluation of PC interventions to assess the cost saving threshold and the cost effectiveness threshold of linkage to care. We reviewed what types of services were provided, and at what costs. Ultimately, we wanted to see if investment in the provision of services resulted in sufficient health gains that the services could be labeled as *cost-saving* or *cost-effective*.

Methods

We conducted a cost and threshold analysis to locally assess the:

- Cost per client and cost per contact of delivering the program,
- Economic threshold for the cost per HIV infection averted compared to current standard of care, and
- Economic threshold for cost per disability-adjusted life years (QALYs) averted.

To achieve these aims, we employed standard methods of cost and threshold analyses as recommended by the U.S. panel on Cost-effectiveness in Health and Medicine (Gold, 1996), and as adapted to HIV/AIDS programs by Holtgrave (1998) and the U.S. Centers for Disease Control and Prevention.

The four sites participated in the cost analyses and the majority of the data was collected at the site level from accounting forms and administrative records. Each site was provided with an excel spreadsheet to fill out and trained in the use of the spreadsheet.

Preliminary Results

Cost per client to locally deliver the programs, economic threshold for cost per HIV infection averted compared to the current standard of care (cost-saving), and the economic threshold for QALYs averted (cost-effectiveness) are presented below for each site:

The study included two cost threshold analyses. The cost -savings analysis determined how many HIV infections from clients living with HIV must be averted to HIV sero-negative partners in order to claim that PC program is *cost-saving*. This analysis was conducted with the assumptions that a lifetime cost for HIV care and treatment is \$355,00 USD (Farnham, Holtgrave, Sansom, Hall, 2010). The cost-effectiveness analysis determined how much improvement in the quality of life of Positive Charge clients must be realized in order to claim that the program services were *cost-effective* (even if not cost-saving) at a well-utilized standard of \$100,000 per QALY saved (Holtgrave, Wolitski, Pals, et al, Published Online). Uncertainty in any input parameters was examined via sensitivity analysis to gauge the robustness of results to changes in parameter values.

Chicago

Project Identify, Navigate, Connect, Access, Retain, and Evaluate (IN-CARE) is a multi-agency initiative to assist HIV-positive MSM at risk for delayed or interrupted care. The project includes a peer navigation component, case management, support services, and a peer-lead group intervention that focuses on treatment efficacy.

The total cost for six months of service deliver was \$291,711 with 107 clients seen and 321 contacts. The cost per client was \$2,726 and the cost per client was \$909. The project needs to avert one transmission to a negative partner to be able to claim cost-savings and to save 2.92 QALYs to claim cost-effectiveness.

Figure 1. Excerpt of cost analysis spreadsheet completed at site-level

CHICAGO	
Six-months service delivery costs	\$291,711 (\$212,000 staff)
Clients seen	107 clients
	321 contacts
Cost per client	\$2776
Cost per contact	\$909
Cost-saving threshold	0.83 HIV transmissions *
Cost-effectiveness threshold	2.92 QALYs **

New York

ACCESS New York works with low-income PLWH. Their members have access to an HIV specialist PCP, a community based case manager, a nurse Care Coordinator, peer Community Health Outreach Workers, Health Navigators, and behavioral health providers as appropriate.

The total cost for delivery ACCESS New York for six months was \$365,399. Over six months the project saw 707 client and made 4,315 contacts. The cost per client was \$517 and the cost per contact was \$85. To be cost-saving the program must avert one HIV transmission and to be cost-effective the project must save 3.65 QALYs.

NEW YORK	
Twelve-months service delivery costs	\$365,399 (\$289,000 staff)
Clients seen	707 clients
	4315 contacts
Cost per client	\$517
Cost per contact	\$85
Cost-saving threshold	1.03 HIV transmissions *
Cost-effectiveness threshold	3.65 QALYs **

Oakland/San Francisco

The Bay Area Network for Positive Health (BANPH) intervention co-ordinates the efforts of over fifteen agencies to locate highly marginalized out of care individuals and to strengthen peer/social networks to help link individuals to care.

The total cost for six months of delivery of BANPH was \$356,796. One hundred and twelve clients were seen and 727 contacts were made. The cost per client was \$3,186 and the cost per contact was \$491. To be cost-saving BANPH needs to avert one transmission and to be cost-effective BANPH needs to garner 3.57 QALYs.

OAKLAND/SAN FRANCISCO	
Six-months service delivery costs	\$356,796
Clients seen	112 clients
	727 contacts
Cost per client	\$3186
Cost per contact	\$491
Cost-saving threshold	1.01 HIV transmissions *
Cost-effectiveness threshold	3.57 QALYs **

Louisiana

Louisiana's Positive Charge initiative works with PLWH who live in New Orleans, Baton Rouge, Shreveport and Lake Charles. The project employs four strategies to link PLWH to care: patient navigation, pre/post release case management, linkage case management and linkage support from DIS.

The total cost for program delivery over six months was \$426,342 with 228 clients seen and 937 contacts made. The cost per client was \$1,870 and the cost per contact was \$455. For the program to claim cost savings 1.2 transmissions need to be averted and to claim cost-effectiveness 4.26 QALYs saved.

LOUISIANA	
Six-months service delivery costs	\$426,342
Clients seen	228 clients
	937 contacts
Cost per client	\$1870
Cost per contact	\$455
Cost-saving threshold	1.20 HIV transmissions *
Cost-effectiveness threshold	4.26 QALYs **

Conclusions

Cost per client and cost per contact results help to address important questions about the affordability of services. However, return on investment must also be taken into consideration. The threshold analyses assess if the interventions are cost-saving or cost-effective by traditional economic standards. The study found that PC's four unique evidence-based linkage to care programs appear to have highly achievable cost-saving and cost-effectiveness thresholds. There is an enormous need to scale-up successful HIV linkage to care programs, and the economic benefits of them appear promising.

Literature cited

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*The number of HIV transmissions need to be averted to be cost-saving (given lifetime HIV care costs are ~ \$355,000)
 ** The number of QALYs need be saved to be cost-effective (at \$100,000 willingness to pay per QALY)