

# can cost-effectiveness analysis help in HIV prevention?

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## why invest in HIV prevention?

**H**IV prevention is still our best hope for fighting the HIV/AIDS epidemic. The estimated lifetime cost of care and treatment for just one HIV+ person is about \$195,000.<sup>1</sup> Given 40,000 new infections a year, it will cost more than \$6 billion in future years to care for everyone who gets infected this year alone.<sup>2</sup> By keeping people from becoming infected, HIV prevention not only saves lives and slows down the epidemic, it also reduces the number of persons who require expensive medical regimens to combat their HIV disease.

*The cost of the AIDS epidemic is incurred not only in dollars, but also in the suffering and death of friends, family and loved ones. The loss to society is untold. We lose productivity and creativity, as well as health and social service dollars.*

AIDS has a high cost to society because it predominantly affects young adults in their prime for work and childbearing. In 1998, HIV was the fifth leading cause of death in the US for persons aged 25-44, the leading cause of death for African American men aged 25-44 and the third leading cause of death for African American women in the same age group.<sup>3</sup>

## what is cost-effectiveness analysis?

**T**he term **cost-effectiveness analysis** refers to the economic analysis of an intervention. In HIV prevention, one measure of cost-effectiveness is the cost per HIV infection averted. This is affected by many factors: intervention cost, number of people reached, their risk behaviors and HIV incidence, and the effectiveness of the intervention in changing behavior. The purpose of cost-effectiveness analysis is to quantify how these factors combine to determine the overall value of a program.

*Cost-effectiveness analysis can determine if an intervention is **cost-saving** (cost per HIV infection averted is less than the lifetime cost of providing HIV/AIDS treatment and care) or **cost-effective** (cost per HIV infection averted compares favorably to other health care services such as smoking cessation or diabetes detection).*

Community-based organizations (CBOs), community planning groups (CPGs) and health departments often face the difficult task of choosing from a spectrum of HIV prevention strategies in order to best address the HIV prevention needs of the riskiest populations in their community. Knowing the cost-effectiveness of programs can help them decide how to save the most lives with the limited resources available.<sup>4</sup>

*Cost-effectiveness analyses also break down the costs and resources needed to implement interventions—personnel, training, supplies, transportation, rent, overhead, volunteer services, etc. This can help CBOs decide if they can implement an intervention.*

## what are the limitations?

**C**ost-effectiveness is an important consideration but is only one of many factors that should be considered when making program decisions. Cost-effectiveness models do not take everything into account—sometimes they omit important but hard to quantify factors like family stability, freedom from HIV-related stigma and social justice. In addition to helping clients reduce their HIV risk, many interventions also help clients get into stable housing, out of abusive relationships or into drug treatment programs. These outcomes are not easily quantifiable in cost-effectiveness models.

*HIV prevention cost-effectiveness estimates cannot be generalized easily because the effectiveness of programs is determined by rates of infection and risk behaviors that may vary greatly across populations. Unlike a surgical procedure, which is likely to be as effective in Cleveland as it is in Dallas, HIV prevention programs can be more or less effective depending on the status of the epidemic in a community at risk.<sup>5</sup>*

More and more, HIV prevention programs are being asked to “prove their worth” by showing they are cost-saving or cost-effective. Just because a program doesn’t save society money, doesn’t mean it’s not good or needed. A program that does not save money might still be cost-effective; or, it might not be cost-saving or cost-effective yet still be something that society wants and needs.

## Says who?

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## what programs are cost-effective?

A variety of intervention strategies for injection drug users were shown to be cost-effective: needle exchange (typically \$4,000-40,000 per HIV infection averted, or HIA), HIV testing and counseling (\$5,000-10,000 per HIA) and drug treatment (\$40,000 per HIA which may not include important benefits like crime reduction).<sup>6</sup>

*Project LIGHT, a randomized, controlled multisite HIV prevention trial, tested a seven-session small group intervention based on cognitive-behavioral therapy. Project LIGHT found the multi-session intervention to be more effective at reducing sexual risk than a comparison 1-hour videotape session. However, the seven-session intervention was also more expensive to implement. Cost-effectiveness analysis showed that the multi-session intervention was not only more effective than the videotape session in reducing risk, but also was more cost-effective.*<sup>7</sup>

Safer Choices, a school-based HIV, STD and pregnancy prevention program, achieved a 15% increase in condom use and an 11% increase in contraceptive use among sexually active students. By preventing cases of HIV, chlamydia, gonorrhea, pelvic inflammatory disease and pregnancies, Safer Choices saved \$2.65 in medical and social costs for every dollar spent on the program.<sup>8</sup>

*The Mpowerment Project is a community-level HIV prevention intervention run by and for young gay and bisexual men. Mpowerment took place in a mid-sized city with low HIV prevalence and used community building and peer influence to alter the norms of the gay community. The program proved to be cost-effective even with resource-intensive components such as personnel, renting a community space and running social events. Mpowerment was estimated to avert 5-6 HIV infections over 5 years, with cost per HIA of \$14,600-18,300.*<sup>9</sup>

In the developing world, where the need for aggressive HIV prevention efforts is profound, interventions have been found to be very cost-effective. This is because the epidemic is very severe, and because program costs (such as personnel) are low in these countries. Estimates of cost-effectiveness include: STD control and condom promotion in commercial sex workers (\$8-10 per HIA), female condom promotion in high-risk women (cost-saving), voluntary counseling and testing (about \$70 per HIA in HIV-discordant couples, \$300 overall), community STD control (\$350 per HIA), and mother-to-child transmission reduction with nevirapine (\$300-500 per HIA).<sup>10</sup>

## what does cost-effective analysis show?

- All other things being equal, **interventions targeted to high-seroprevalence areas tend to be more cost-effective** than interventions that are not targeted.
- **Low cost doesn't mean cost-effective.** If a client needs an intensive intervention, spending the money may be the most cost-effective choice in the long run.
- **Reaching more clients for the same money isn't always the best thing to do.** Giving everyone a brochure produces little behavior change, whereas working intensively to help high-risk clients use condoms correctly, communicate safer sex desires to their partners and learn to recognize and avoid high-risk situations can result in pronounced behavior change.<sup>11</sup>

## what still needs to be done?

Cost-effectiveness analyses can help determine how to save the most lives with limited funding. Neglecting cost-effectiveness information may waste scarce prevention dollars, and thereby miss the opportunity to save lives.<sup>12</sup> To this end, simpler cost-effectiveness models and improved technical assistance are needed to help public health decision-makers make better use of cost-effectiveness information.<sup>13</sup>

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### **Further reading:**

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