

The cost-effectiveness of HIV pre-exposure prophylaxis in men who have sex with men at high risk of HIV acquisition in eight Latin American countries

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Key takeaway: Daily tenofovir/emtricitabine PrEP for high-risk MSM is cost-effective in eight Latin American countries and remains cost-saving across plausible variations in adherence in Chile, Colombia, Costa Rica, and Mexico.



Introduction

-Men who have sex with men (MSM) in Latin America experience high rates of HIV transmission.¹ Although many countries in Latin America have made progress in improving access to pre-exposure prophylaxis, actions to reduce the new HIV infections need to continue to be implemented.²

-We examined the epidemiological and economic outcomes of implementing pre-exposure prophylaxis (PrEP) programs in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, and Peru.

Methods

-We developed a Cost-Effectiveness model to evaluate the nationwide implementation of a 5-year intervention of oral PrEP.

-HIV prevalence, incidence, and treatment coverage, among other parameters for each country, were from national-based sources.

-PrEP effectiveness (86% HIV incidence reduction) was from literature, and PrEP drug costs (\$38.93 per month)

were from the Revolving Fund of the Pan-American Health Organization.

The outcomes were \$/DALY expressed in 2023 USD dollars from a health system perspective.

Results

With a 70% level of adherence in a 100.000 MSM cohort, we estimated that PrEP implementation averted a range from 1.613 to 5.799 HIV diagnosis cases (for Ecuador and Mexico, respectively). See Figure 1. The intervention resulted in 502 to 1,433 life-years saved and between 77 and 231 deaths averted for Ecuador and Chile, respectively. The incremental cost-effectiveness ratio (ICER) ranged from \$-1,407.90/DALY for Mexico to \$2,068.39/DALY for Ecuador. The ROI was positive for Chile, Costa Rica, Mexico, and Colombia, showing a higher return on the investment. However, the ROI was negative for Argentina, Brazil, Peru, and Ecuador.

Figure 1. Cost-effectiveness of HIV pre-exposure prophylaxis in MSM at high risk of HIV acquisition in eight Latin American countries

	Argentina		Brasil		Chile		Costa Rica	
	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
HIV cases averted	1,776	-	4,054	-	4,994	-	2,116	-
Years of life saved	2,020	628	4,236	1,129	6,211	1,433	2,645	771
Disability-Adjusted Life Years averted	9,732	2,480	21,198	4,651	27,422	5,346	12,660	2,962
Deaths averted	84	-	185	-	231	-	109	-
Total cost of the intervention	17,290,920	15,394,649	14,301,281	12,733,475	21,492,519	19,135,319	19,179,596	17,076,848
Avoided costs attributable to the intervention	50,130,602	12,687,745	38,995,215	9,883,528	115,753,526	22,371,172	75,628,410	17,828,243
Cost difference from baseline	-32,839,683	2,706,904	-24,693,934	2,849,947	-94,261,007	-3,235,853	-56,448,813	-751,395
ICER per year of life saved	-16,254	4,307	-5,830	2,524	-15,176	-2,257	-21,344	-974
ICER per DALY averted	-3,374	1,091	-1,165	613	-3,437	-605	-4,459	-254
ICER per life saved	-390,625	32,198	-133,642	15,424	-408,233	-14,014	-517,241	-6,885
ROI	2	0	2	0	4	0	3	0
	Mexico		Peru		Ecuador		Colombia	
	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
HIV cases averted	5,800	-	3,627	-	1,613	-	1,937	-
Years of life saved	5,256	1,022	3,712	846	1,795	502	2,240	785
Disability-Adjusted Life Years averted	25,755	4,327	18,590	3,495	8,876	2,013	11,782	3,205
Deaths averted	223	-	162	-	77	-	104	-
Total cost of the intervention	17,142,453	15,264,684	13,534,640	12,051,738	12,782,716	11,381,920	16,653,655	14,827,552
Avoided costs attributable to the intervention	121,501,260	21,356,361	62,320,081	12,044,893	28,341,009	7,217,314	69,141,945	18,294,981
Cost difference from baseline	-104,358,808	-6,091,677	-48,785,441	6,846	-15,558,292	4,164,606	-52,488,290	-3,467,429
ICER per year of life saved	-19,855	-5,958	-13,144	8	-8,667	8,296	-23,433	-4,416
ICER per DALY averted	-4,052	-1,408	-2,624	2	-1,753	2,068	-4,455	-1,082
ICER per life saved	-468,171	-27,328	-301,269	42	-201,663	53,981	-504,401	-33,321
ROI	6	0	4	0	1	0	3	0

Conclusions:

PrEP remained cost-saving under plausible variations in PrEP adherence for Chile, Colombia, Costa Rica, and Mexico. Dailytenofovir/emtricitabine PrEP among MSM at high risk of HIV acquisition would be cost-effective (<1x GDP) in 8 countries of Latin America