A GOAL SETTING GUIDE FOR REQUIRED/RECOMMENDED INTERVENTIONS

Last updated: 11/30/2010

This guide is provided to support the decision making process for prioritizing the interventions in your Enhanced Comprehensive HIV Prevention Planning and Implementation (ECHPP) plan. Your ECHPP plan should make measurable progress toward the attainment of NHAS/DHAP targets.

Instructions

Step 1: Use the process flow in *Figure 1* to determine the priority level of expanding each intervention.

1.1 Are you considering expanding intervention X? Begin by filling in *Table 2* and consult *column [i].*

- If yes, go to Step 1.2.
- If no, assign a priority level of "None" to this intervention in *Table 2*, *column [j]* and end the flow. Provide a justification, evaluate the funds expected to be released from this reduction and include them in the available budget.

1.2 Do you expect this intervention to be effective towards meeting the NHAS/DHAP targets?

- If yes, go to Step 1.3.
- If no, assign a priority level of "None" to this intervention in *Table 2*, *column [j]* and end the flow.

1.3 Determine priority level of expanding intervention X (**High, Medium, Low**). You may consult the list of considerations in *Table 1* and alter it as needed.

Note: The list in *Table 1* is provided as a suggestion only; it should be tailored to reflect your jurisdiction's needs.

1.4 Is there evidence supporting the cost-effectiveness of this intervention? Refer to *Tables 3* and *4* and the Appendix as needed.

- If yes, report the priority level established in step 1.3 to *Table 2*, *column [j]* and end the flow.
- If no, downgrade the priority level established in step 1.4 by one level and report it to *Table 2*, *column [j]* and end the flow.

1.5 Repeat **Step 1** for all interventions and move to **Step 2** when done.

Step 2: Consult *Table 2*, select the interventions in order of their assigned priority level and tally the additional funding requirements as you make your selection, stop when the additional funding requirements meet or exceed the additional funds available to your jurisdiction for expanding these interventions. **The selected interventions will help you to explain the targets you have chosen and the corresponding interventions and how your budget allocation to each intervention will help you achieve the targets.**

Figure 1. Process flow to determine the priority level (**High, Medium, Low, None**) of expanding intervention X.

For each intervention, go through the steps listed in Figure 1. The output of Figure 1 (highlighted in orange) is the priority score and it should be reported in *Table 2, Column [j]*.

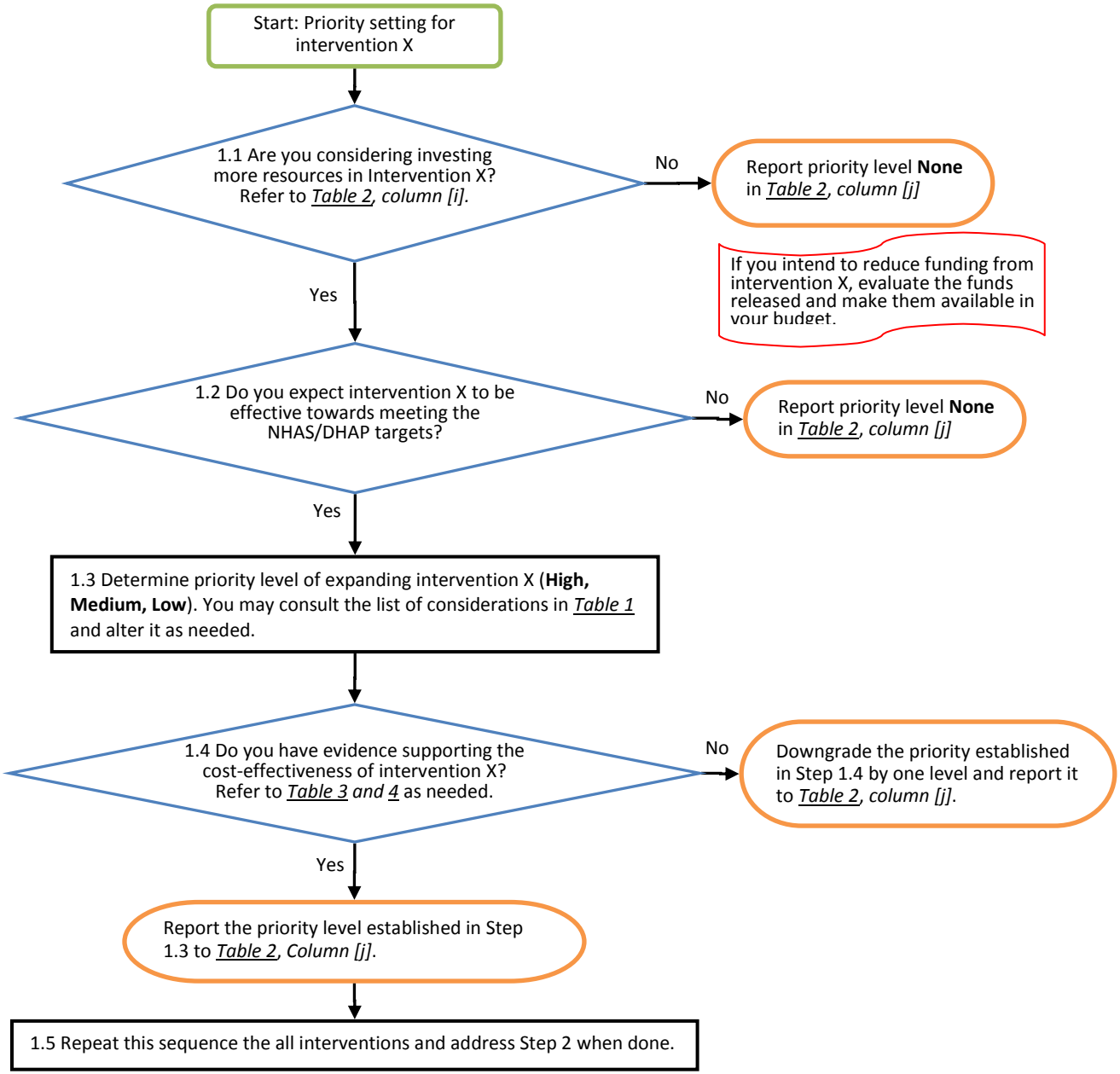

Table 1. Considerations for priority setting of expanding intervention X.
This list is provided as a suggestion only; it should be tailored to reflect your jurisdiction's needs. For each consideration, check "Pro" or "Con" as appropriate. Given your overall assessment of these considerations, determine a priority level for this intervention and return to the process flow at Step 1.4.

Priority level:

- ☐ High
- ☐ Medium
- ☐ Low
- ☐ None: Maintain or reduce the investment in this intervention

Considerations	Pro	Con
Are the activities of this intervention reaching desired numbers of PLWHA and/or at-risk populations?	☐	☐
Do you think expanding this intervention is feasible in your jurisdiction?	☐	☐
Would expanding this intervention be acceptable to the community?	☐	☐
Have the important partners been involved in making decision in expanding/implementing this intervention?	☐	☐
Is there appropriate infrastructure in your jurisdiction to support this intervention?	☐	☐
Are there monitoring activities for evaluating the effectiveness/efficacy of this intervention?	☐	☐
Does this intervention add value (improve efficiency or effectiveness) of other interventions?	☐	☐
Is this intervention scalable (i.e. is there adequate capacity in the jurisdiction to expand the intervention to the desired penetration rate)?	☐	☐
Is this intervention sustainable (i.e. is funding available and/or predicted to be available in your jurisdiction for the strategic planning horizon)?	☐	☐
Is this intervention efficient towards meeting NHAS/DHAP targets?	☐	☐
Are there policies and procedures that impede implementation of this intervention? *If yes, check Con.*	☐	☐
Does this intervention require leveraging resources across funding streams? *If yes, check Con.*	☐	☐
Other:	☐	☐
Other:	☐	☐
Other:	☐	☐
Other:	☐	☐

Table 2: Establishing funding requirements

Index	Intervention	*[a] Current Annual Budget*	*[b] Number of persons served*	*[c] Budget per person = [a]/[b]*	*[d] Maximum capacity*	*[e] Penetration rate (%) = [b]/[d]*	*[f] Desired penetration rate (%)*	*[g] Gap in penetration = [f] – [e]*	*[h] Other funding identified*	*[i] Additional funding required = [g]x[d]x[c]- [h]*	[j] Priority level (High, Medium, Low, None)
1	Routine, opt-out screening for HIV in clinical setting	*$750,000*	*10,000*	*$75*	*50,000*	*20%*	*50%*	*30%*	*$125,000*	*$1,000,000*	Medium
2	HIV testing in non-clinical settings	*$300,000*	*150*	*$2,000*	*2,000*	*7.5%*	*80%*	*72.5%*	*$800,000*	*$2,100,000*	High
3	Condom distribution to PLWH and at-risk										
4	Provision of Post-Exposure Prophylaxis to populations at greatest risk										
5	Efforts to change existing structures, policies, and regulations that are barriers*		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*			
6	Linkage to HIV care, treatment, and prevention services										
7	Interventions or strategies promoting retention in or re-engagement in care										
8	Policies and procedures that will lead to the provision of ART according to current*		*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*			
9	Interventions or strategies promoting adherence to ART										
10	STD screening according to current guidelines										
11	Prevention of perinatal transmission										
12	Ongoing partner services										
13	Behavioral risk screening for PLWH										
14	Linkage to other medical and social services										
15	Other_____										
16	Other_____										
Total			n/a	n/a	n/a	n/a	n/a	n/a			n/a

Table 2 column definitions:

[a] Current Annual Budget: What is the total amount currently spent on this intervention in your jurisdiction? Include funding from all sources. Refer to **Workbook #1** as needed.
The total row on the bottom of column [a] should approximate your existing budget for funding all the HIV interventions considered.

[b] Number of persons served: Indicate the annual number of unique persons served with the intervention. For screening, indicate the number of tests. For a risk reduction intervention, consider the number of clients served rather than the number of encounters.

[c] Budget per person: This should be calculated as [a]/[b].

[d] Maximum capacity: Assuming that resources are unconstrained, what is the maximum number of persons that could be served with the intervention? If the intervention targets PLWHA, then this would be the number of PLWHA in the jurisdiction. If the intervention targets a particular risk group, then this figure estimates the size of that risk group. For screening in clinical settings, this number could be the total number of unique person visits to all the clinical settings.

[e] Penetration rate (%): This should be calculated as [b]/[d].

[f] Desired penetration rate (%): What do you believe is the appropriate penetration rate for this intervention? You can use a consensus among experts approach to determine this rate. When compared to the current penetration rate in [e], this will represent an expansion, maintenance or reduction of the intervention.

[g] Gap in penetration: This should be calculated as [f] – [e]. If positive, this represents an expansion of the intervention. If negative, this represents a reduction in the intervention.

[h] Other funding identified: Estimate the total additional amount of non-ECHPP funds identified, beyond the current amount in [a] , available for this intervention.

[i] Additional funding required: This should be calculated as [g]×[d]×[c]-[h]. If the gap in [g] is negative, the resources are being divested and are thus available for other activities.
The total row on the bottom of column [i] should approximate the overall additional budget required for funding all the HIV interventions considered to the desired level. This total is likely to exceed the ECHPP funds available to your jurisdiction and therefore it is recommended that the interventions be funded in order or of their priority level [j].

[j] Priority level (High, Medium, Low): This priority level should be determined by following the goal setting process flow in *Figure 1*.

* Policy related efforts are difficult to quantify in the above terms. You should at least estimate the additional funds required to promote such activities and set a priority level.

Table 3: Summary for Cost-Effectiveness Studies of HIV Prevention Interventions (Required in FOA)

	Required Interventions	No. of Study	Type of CE Outcomes	No. of Result	Median	Inter-Quartile Range	Comment
1	**Routine opt-out HIV screening in clinical settings**	6	Cost/QALY	1	$34,411		Testing in primary care settings
			Cost/LY	1	$27,528		Testing in primary care settings
			Cost/new diagnosis	1	$4,286		Testing in primary care settings
				2	$4,441	($3,472 - $5,410)	Testing in urgent care centers
				4	$6,307	($1,972 - $11,019)	Testing in emergency departments
				3	$2,158	($2,158 - $3,228)	Testing in STD clinics
	1` Evaluation of expanded HIV screening based on prevalence in general pop.	3	Cost/QALY	7	$46,000	($40,500-$56,922)	Prevalence-based studies (range of undiagnosed seroprevalence: 0.05 % to 3 %)
	We identified 6 US-based studies evaluating the cost-effectiveness of routine opt-out HIV screening in clinical settings. These settings included emergency departments, primary care settings, and STD clinics. Generally, results of these 6 studies were consistent with one another and the median cost per diagnosis among the studies ranges from $2,158 to $6,307. This intervention can be considered cost-effective. *There are three other studies evaluating HIV screening based on varying prevalence assumption. The median cost per QALY for those prevalence-based studies was $ 46,000. Those studies also supported the cost-effectiveness of routine rapid screening.*						
2	**HIV testing in non-clinical settings**	3	Cost/new diagnosis	8	$12,211	($7,845 - $16,657)	Testing by CBOs or in prisons/jails
	We identified three studies evaluating the cost-effectiveness of HIV testing in different non-clinical settings (Golden, 2006; Shrestha, 2007; Shrestha, 2008). Golden (2006) evaluated bathhouse testing program and CBO testing program. Shrestha (2007) evaluated the HIV testing programs in US jails. Shrestha (2008) evaluated the cost per diagnoses for rapid HIV testing in outreach settings. The median cost per new HIV diagnosis is $12,211 and can be considered cost-effective.						
3	**Condom distribution for HIV-positive and high-risk population**	1	Cost/HIA	2	$24,000	($23,000 - $25,000)	Targeting at-risk women in the southern US
	We identified one study estimating the cost-effectiveness of condom availability and a media campaign that promoted condom use targeting at-risk women in the southern US. The study reported an increase of condom use of 8-12%, and a cost per HIV infection prevented to be $24,000, suggesting a cost-saving intervention.						
4	**Non-occupational post-exposure prophylaxis (PEP)**	3	Cost/QALY	2	$24,367	($23,482 - $25,251)	Overall sexual/IDU exposure (46% source known HIV+)
			Cost/HIA	2	$520,135	($513,497 - $526,772)	Overall sexual/IDU exposure (46% source known HIV+)
			Cost/QALY	13	$1,026,085	($180,552 - $1,123,239)	Different risk groups/exposure types (12%-90% source known HIV+)
			Cost/HIA	13	$8,033,023	($1,691,526 - $12,030,387)	Different risk groups/exposure types (12%-90% source known HIV+)
	We identified 3 studies evaluating the cost-effectiveness of PEP after sexual or injection-drug exposure to HIV by exposure type (sex v needle) and prevalence of infection among source partners. For both exposure types combined, and when 46% of exposure sources were known to be HIV-infected, the PEP intervention was cost-effective given the median cost $24,367 per QALY gained. However, PEP was not shown to be cost-effective ($1,026,085/QALY) when a high percentage of exposure sources had unknown HIV status.						
5	**Structural interventions**	1	Cost/HIA	2	$3,800	($3,700 - $3,900)	Targeting at risk women in the southern US
	We identified 1 study that estimated the cost-effectiveness of needle deregulation and alcohol taxes targeting at-risk women in the southern US. The median cost was $3,800 per HIV infection prevented. The cost per HIV infection prevented for needle deregulation and for alcohol taxes policy was $ 4,000 and $ 3,600, respectively.						
For HIV-positive persons (6-14):							
6	**Linkage to HIV care, treatment, and prevention services**	1	Cost/person linked to care	2	$1,164	($976 - $1,352)	Strategy: a case management intervention to improve linkage to care
	The identified study assessed a case management intervention to improve linkage to care for persons recently receiving an HIV diagnoses. The estimated program cost per person linked to care was $1,164.						
7	**Retention or re-engagement in care**	0					
8	**Early initiation of HAART**	3	Cost/QALY	7	$17,617	($11,064 - $34,000)	General HIV-infected adults and uninsured HIV-infected adults
			Cost/LY	4	$12,189	($7,340 - $25,529)	General HIV-infected adults and uninsured HIV-infected adults
	We identified 3 studies evaluating the provision of HAART in the early stage of HIV infection. Early initiation of HAART is cost-effective given the median cost $17,617 per QALY compared to deferred treatment.						
9	**Adherence to antiretroviral medications**	5	Cost/QALY	10	$34,500	($13,650 - $52,000)	Patients with early stage and advanced stage of HIV infection
	Efforts to improve adherence to antiretroviral medication is considered cost-effective with its median cost $34,500 per QALY gained among 5 studies we identified in this category. The interventions become more cost-effective when the intervention targets patients earlier in their HIV infection.						
10	**STD screening according to guidelines**	0					

Table 3 (continue): Summary for Cost-Effectiveness Studies of HIV Prevention Interventions (Required in FOA)

	Required Interventions	No. of Study	Type of CE Outcomes	No. of Result	Median	Inter-Quartile Range	Comment
11	**Prevention of perinatal transmission**	8	Cost/QALY	3	$0	($0 - $9,234)	Treatment on HIV positive pregnant women
			Cost/HIA	3	$46,314	($44,492 - $3,547,705)	Treatment on HIV positive pregnant women
			Cost/QALY	6	$4,939	($1,214 - $6,904)	Elective C-section on HIV positive pregnant women
			Cost/HIA	2	$98,524	($77,677 - $119,370)	Elective C-section on HIV positive pregnant women
			Cost/QALY	1	$0		Testing on high risk pregnant women
			Cost/HIA	2	$90,678	($90,277 - $91,080)	Universal screening on pregnant women
			Cost/LY	1	$68,270		Second testing on high risk pregnant women during the third trimester
	Among the 8 cost-effective studies we identified, there were 3 strategies to prevent perinatal transmission, including HIV screening during pregnancy, treatment for the infected women and prophylaxis for the infant and elective C-section. All three strategies appear to be highly cost-effective.						
12	**Partner services**	9	Cost/new diagnosis	12	$7,824	($6,054 - $14,045)	
	We identified 9 studies assessing partner services, that is, partner notification, consulting and testing. The settings included STD clinics, hospitals, state health departments, and community-based organizations. The median cost per new HIV diagnosis was $7,824. At the higher end of the range the cost was $14,045 per new HIV diagnosis.						
13	**Behavioral interventions for people living with HIV**	2	Cost/QALY	2	$55,762	($27,881 - $83,642)	Targeting HIV-positive youth and HIV-positive IDU
			Cost/HIA	2	$737,065	($518,694 - $955,436)	
	The two identified studies in this category differ in terms of target populations, intervention strategies and intervention periods, resulting a wide range in very different cost-effectiveness ratios. Lee's study (2005) evaluated the change of condom use among seropositive youth and determined the intervention to be cost-saving. Tuli's study (2005) assessed the effect of sexual risk reduction among seropositive injection drug users and determined the cost per QALY saved was $111,523.						
14	**Linkage to other medical and social**	0					

Notes

- *This table summarizes the cost-effectiveness (CE) of HIV prevention from existing published studies. Studies are excluded if they are outdated, or if their outcomes don't fit in the current guidelines,* e.g., Sander's 2008 study evaluated HIV screening for patients older than 65 yr of age.
- *CE is expressed in terms of a ratio between the costs and the health benefits (effectiveness) resulting from an intervention strategy. In this table, the medians of the CE ratios allow comparison across different intervention strategies; the inter-quartile ranges reflect the variance between studies within each intervention category.*
- *Definition of the outcome measures in this table:*
  - *o Cost/QALY: dollars expended per quality-adjusted life-year (QALY) gained. QALY is a measure of disease burden, including both quality and quantity of life lived.*
  - *o Cost/HIA: dollars expended per HIV infection averted (HIA).*
  - *o Cost/LY: dollars expended per life-year (LY) gained. Cost/LY is typically less than cost/QALY.*
  - *o Cost/new diagnosis: dollars expended per new HIV case identified*
  - *o Cost/person linked to care: dollars expended per linking one person to HIV care*
- *A very conservative and dated threshold for determining when an intervention is cost-effective is when the cost is equal to or less than $50,000 per QALY. More recent thresholds of $100,000 to $200,000 have been published. An intervention is cost-saving when the medical and other expenditures saved exceed the cost of providing the intervention. In this table, cost-saving interventions are reported as zero cost/QALY.*
- *All the dollar values in this table are inflated to 2009 US dollars.*

Table 4: Summary for Cost-Effectiveness studies of HIV Prevention Interventions (Recommended in FOA)

	Recommended Interventions	No. of Study	Type of CE Outcomes	No. of Result	Median	Inter-Quartile Range	Comment
1	**Condom distribution for the general population**	2	Cost/QALY	1	$0		Strategy: mass media campaigns to make condoms available
			Cost/HIA	2	$39,545	($35,818 - $43,273)	Strategy: mass media campaigns to make condoms available
	There are two studies evaluating the cost-effectiveness of the increase availability of condom to the general population. The median cost is $39,545 to prevent one HIV infection with condom distribution.						
2	**HIV and sexual health communication or social marketing campaigns**	2	Cost/HIA	2	$21,500	($19,750 - $23,250)	Targeting general population or at-risk women in the southern US
	There are two studies evaluating the cost-effectiveness of mass media campaigns promoting safe sexual behavior. The median cost per HIV infection averted among the studies is $21,500. More economic evaluations are needed for social marketing campaigns.						
3	**Clinic-wide or provider-delivered evidence-based HIV prevention interventions for HIV-positive and high-risk patients**	2	Cost/HIA	2	$14,880	($9,790 - $19,969)	Strategy: video in STD clinic
	We identified 2 studies evaluating the cost-effectiveness of video-based interventions in STD clinics aiming at-risk populations. The strategy can be considered cost-effective given the median cost $14,880 per QALY gained.						
4	**Community interventions that reduce HIV risk**	15	Cost/QALY	8	$0	($0 - $11,620)	Strategies: workshops, events, opinion leader, information
			Cost/HIA	6	$584,304	($63,939 - $1,014,000)	Strategies: workshops, events, opinion leader, information
			Cost/QALY	9	$0	($0 - $0)	Strategies: Syringe Exchange Programs
			Cost/HIA	9	$60,000	($38,091 - $83,444)	Strategies: Syringe Exchange Programs
	We identified 15 studies that assessed the cost-effectiveness of community-level interventions, including behavioral interventions and syringe exchange programs (SEP). Both types of interventions were reported to be cost-saving (zero cost/QALY) in terms of gaining QALYs. In terms of preventing HIV infection, SEP is deemed a cost-effective strategy given the median cost $60,000 per HIV infection averted.						
5	**Behavioral risk screening followed by individual and group-level interventions**	8	Cost/QALY	12	$29,000	($0 - $99,011)	Targeting persons with high-risk or mental illness
			Cost/HIA	7	$160,325	($95,650 - $1,327,601)	Targeting persons with high-risk or mental illness
	We identified 8 studies in this category evaluating the cost-effectiveness of individual or group-level behavioral interventions. Those studies vary by target populations, e.g., MSM, mentally ill patients, or persons at high risk, thereby showing a wide range in the cost per QALY gained and cost per HIV infection prevented.						
6	**Integrated hepatitis, TB, and STD testing, partner services, vaccination, and treatment for HIV-infected and HIV-negative with high risk persons**	1	Cost/HIA	1	$12,000		Strategies: STD screening at HIV clinics
	One study was identified in this category evaluating STD screening at HIV clinics targeting on general population. The cost was $12,000 with STD screening intervention per QALY gained.						
7	**Targeted use of HIV and STD surveillance data to prioritize risk reduction counseling and partner services for HIV or STD patients who receive a new STD diagnosis**	0					
8	**Broadened linkages to and provision of services for social factors impacting HIV incidence such as mental health, substance abuse, housing, and others**	0					
9	**Brief alcohol screening and interventions for HIV-positive person and HIV-negative persons at high risk**	0					
10	**Community mobilization to create environments that support HIV prevention**	0					

Appendix: Understanding cost-effectiveness tables

A1. What is cost-effectiveness analysis?

Cost-effectiveness analysis is a type of economic analysis where both the cost and the outcome (impact, result, effect, benefit, health gain …) of an intervention are evaluated and then expressed in the form of a cost-effectiveness ratio. The numerator of cost-effectiveness (CE) ratio represents the cost of the intervention associated with one unit of "outcome". The denominator is the unit of outcome, which can be expressed using many types of measures including: years of life gained, quality-adjusted life years gained (QALYs), new diagnoses, infections averted, deaths averted.

In Example 1, the outcome measure chosen is "new HIV diagnosis" and the CE ratio of the programs evaluated is expressed in terms of "cost per new HIV diagnosis". The CE ratio of Program A is $41,667 per new HIV diagnosis. This ratio does not, by itself, reveal the cost of implementing the program (column [a]) or the number of new HIV diagnoses detected by program (column [b]). However, when comparing the CE ratio of Program A to that of Program B, we can say that Program B is more cost-effective than Program A when CE is measured in terms of "cost per new HIV diagnosis" because at $ 7,400 per new HIV diagnosis, Program B is less costly for the same outcome.

Example 1

	[a] Annual program cost	[b] Annual nb of new HIV diagnoses detected by program	CE ratio: Cost per new HIV diagnosis ([a]/[b])
Program A	$ 500,000	12	$ 41,667 / new HIV diagnosis
Program B	$ 37,000,000	5,000	$ 7,400 / new HIV diagnosis

A2. What is a cost per new HIV diagnosis?

HIV interventions such as screening and partner notification services are intended to identify HIV positive individuals who were previously unaware of their infection and link them to care. When evaluating several such programs in CE analysis, the outcome "new HIV diagnosis" is often used to enable a comparison across these programs.

A3. What is a cost per infection averted (IA)?

HIV prevention interventions such as syringe exchange programs, counseling for at-risk youth or post-exposure prophylaxis are intended to prevent (avert) infection in HIV negative persons. Such programs can be evaluated to determine the number of infections prevented that would have otherwise occurred had the intervention not been provided. When evaluating several such programs in CE analysis, the outcome "HIV infections averted" is often used to enable a comparison across these programs.

The lifetime treatment cost of an HIV infection can be used as a very conservative threshold value for the cost of averting one infection. Currently, the lifetime treatment cost of an HIV infection is estimated at $367,000 (in 2009 dollars), therefore a prevention intervention is deemed cost-saving if its CE ratio is less than $367,000 per infection averted.

A4. What is a cost per life year (LY) gained?

HIV treatment interventions such as ART, care and adherence to care are, in part, intended to extend the lives of HIV positive persons. Such programs can be evaluated to determine the number of additional life years gained that would have otherwise been lost to premature death had the intervention not been provided. When evaluating several such programs in CE analysis, the outcome "life years" is often used to enable a comparison across these programs; the CE ratio can expressed in terms of cost per life year gained.

A5. What is a cost per quality-adjusted life year (QALY)?

As an outcome, life years do not reflect any of the positive or negative effects of the intervention evaluated on the quality of life of the patients receiving the intervention. For example, drug treatment A may provide an additional 2 years of life dominated by poor health, while drug treatment B may provide an additional 1 year of life with excellent health. A quality-adjusted life year (QALY) is an outcome measure that considers both the quality and the quantity of life. The QALY is based on the number of years of life that would be added by the intervention. Each year in perfect health is assigned the value of 1.0 down to a value of 0.0 for death. If the extra years would not be lived in full health, for example if the patient would lose a limb, or be blind or have to use a wheelchair, then the extra life-years are given a value between 0 and 1 to account for this.

HIV interventions intended to improve and/or extend the lives of HIV positive persons can be evaluated to determine the number of additional QALYs gained (or saved) that would have otherwise been lost had the intervention not been provided. When evaluating several such programs, the CE ratio can be expressed in terms of cost per QALYs gained. Outcome measures including infections averted, and life years gained can sometimes be translated into QALYs thereby providing a relative measure of comparison across many different types of intervention programs. In North America, $50,000 per QALY historically has been listed at the threshold for cost-effectiveness, e.g., any intervention that cost $50,000 or less for each QALY saved, was cost-effective. More recent estimates put the threshold at $100,000 to $200,000 per QALY.

A6. What is cost analysis? How is it different from CE analysis?

Cost analysis is a type of economic analysis where the cost of an intervention is evaluated. By contrast to CE analysis, cost analysis does not attempt to measure the outcome of an intervention. Cost analyses are used as input to calculate the numerator of a CE ratio in CE analysis. In cost analysis, the results are expressed as program costs and can preferably broken down into categories including staffing, equipment and supplies, overhead, and start-up.

A7.When a program is cost-saving, what does that mean?

When 2 or more programs are being compared (intervention vs. comparator), the CE ratio of an intervention is labeled "cost-saving" when both the net outcome of the intervention is greater than that of the comparator and the cost of the intervention is less than the cost of the comparator. A program can only be deemed as cost-saving when it is compared to an alternative and only one of the two programs would be implemented. The alternative is typically the status quo or the current standard of care. In example 2, Program A is both cheaper and more beneficial than the current standard of care and is therefore a cost-saving alternative. CE ratios cannot be negative.

Example 2

	[a] Annual program cost	[b] Annual nb of QALYs gained	CE ratio: Cost per QALY gained ([a]/[b])
Program A (intervention)	$ 750,000	50	$ 15,000 / QALY gained
Standard of care (comparator)	$ 1,000,000	40	$ 25,000 / QALY gained
Difference	$ (250,000)	10	Cost-saving

A8. How do I interpret a CE ratio?

The CE ratios of interventions can be compared to determine the least expensive way of obtaining the same unit of effectiveness (such as a new diagnosis or quality-adjusted life year). There are a couple of caveats. The assumptions included in any economic evaluation that produce the program costs and effectiveness used to generate the cost-effectiveness ratio must be carefully considered. Some assumptions are more credible than others. Also, the cost-effectiveness ratio by itself does not indicate the actual cost of implementing the program or how many people are served. In Example 3, programs A and B have the same measure of cost-effectiveness in terms of cost per QALY gained, however, Program B is more costly to implement than A. Investment in Program B may nonetheless be justified depending on budgetary constraints and the absorptive capacity for the program in the population and setting considered.

Example 3

	[a] Annual program cost	[b] Nb persons served by program	[c] Sums of QALYs saved by program	Cost per person served ([a]/[b])	Cost per QALY ([a]/[c])
Program A	$ 400,000	4,000	10	$ 100	$ 40,000
Program B	$ 50,000,000	5,000	1250	$ 10,000	$ 40,000