2014 Report on Costs of Treatment in the President’s Emergency Plan for AIDS Relief (PEPFAR)

Background

The rapid expansion of access to antiretroviral treatment (ART) under PEPFAR has been one of the program’s most significant achievements, reaching 6.7 million people by the end of Fiscal Year (FY) 2013. Through a robust scale-up of ART services, PEPFAR exceeded the target announced by President Obama on World AIDS Day 2011 of providing direct treatment support for 6 million people by the end of 2013.

In addition to the direct benefit in lives saved, treatment provides striking indirect benefits. For every 1,000 persons supported on treatment for one year, PEPFAR estimates that it prevents 449 children from becoming orphans. Healthier people have a positive impact on their local economies; studies on agricultural workers in Western Kenya and elsewhere in Africa have demonstrated a reversal of low productivity after HIV-infected workers are started on treatment.\(^1\) A recent study demonstrated that providing treatment to HIV-infected persons reduced their risk of transmission to their non-HIV-infected partners by 96 percent, thus adding prevention of new infections to the other proven benefits of treatment.\(^2\)

Understanding the costs of treatment programs is an essential step toward making the most of available funds and saving as many lives as possible. PEPFAR has prioritized the use of empirical data and analysis to understand treatment costs, their drivers, and how efficiencies can extend the impact of programs. PEPFAR has been at the forefront of driving the collection and use of these data for its own efforts, as well as supporting multilateral efforts to drive efficient programming.\(^3\) PEPFAR has experienced a striking decline in treatment costs over time, from more than $1100 per patient per year to approximately $315. Central to this progress, and to the program’s ongoing effort to drive costs still lower, is an explicit focus on ensuring optimal use of resources. The PEPFAR Impact and Efficiency Plan (IEAP) has made a critical contribution on multiple levels. One component of IEAP, the PEPFAR Expenditure Analysis Initiative (EA), was incorporated into routine reporting in nineteen of PEPFAR’s highest investment countries in FY2013. In these countries, all entities receiving PEPFAR funds reported their expenditures by program, expense category, and geographic region. The analysis provides expenditure breakdowns and PEPFAR unit cost data per achievement, such as

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PEPFAR expenditure per person on ART. The analyses were provided to the PEPFAR country teams to use for budget and target projections, and partner management. In addition, EA facilitates joint planning with country governments and other donors ensuring improved coordination of resources in support of national treatment goals and comprehensive HIV programming. This pioneering activity in resource tracking will be expanded to all PEPFAR country programs by FY2014. PEPFAR will continue to lead the global community in these efficiency initiatives and will expand EA and other innovations in order to save even more lives.

**Methodology**

Data from several sources inform PEPFAR’s estimates of treatment costs. Initially, PEPFAR evaluated the costs of providing comprehensive HIV treatment, which comprises all the elements of ART and associated supportive care, through a series of centrally-supported and country-initiated studies of treatment costs. Complementing these intensive studies are data gathered through newly implemented expenditure analysis activities and through tracking of current acquisition costs for antiretroviral drugs (ARVs).

PEPFAR initiated the intensive study of treatment costs in FY 2006 with the PEPFAR ART Costing Project, a centrally-funded evaluation of programs in five countries. Findings from the project, which provided detail on facility-level costs, trends and program characteristics, have been published in three peer-reviewed publications.\(^4\),\(^5\),\(^6\) This effort has been expanded over time, incorporating data from 93 sites across eight countries, with new country-level studies currently underway or in planning in two additional countries. Augmenting PEPFAR’s understanding of treatment costs is a series of completed and ongoing country-focused studies.

While these intensive studies represent a wide range of countries and service environments, they represent only a sample of PEPFAR-supported treatment activities and are best suited to understanding costs at the facility level. To complement these site-level studies, the PEPFAR expenditure analysis will provide more rapid validation of cost estimates on a regular basis, capture developing trends in dynamic programs, and provide PEPFAR country teams with additional tools to identify and ensure efficient program implementation and management. In addition, PEPFAR actively collaborates with multilateral institutions such as the Global Fund, UNAIDS, and the

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World Bank to work towards stronger systems for tracking fiscal data and using these data for stronger programs that make maximal progress towards an AIDS-free generation.

**Results**

The chart below shows the estimated mean cost of treatment, per patient-year, to PEPFAR. These estimates are based on a sampling of PEPFAR-supported treatment sites across 12 countries and seek to capture all elements of support for treatment at the site level and above. The current cost to PEPFAR for one patient-year of treatment is estimated to have declined 6.8 percent from FY 2012. The decreased cost reflects both increased contributions from national partners in upper-middle income settings and ongoing efficiency gains in programs. Investments made by PEPFAR for scale up over the past year should also increase efficiency and reduce costs for future treatment support.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>MEAN COST TO PEPFAR</th>
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</thead>
<tbody>
<tr>
<td>Treatment, all patients</td>
<td>$315</td>
</tr>
<tr>
<td>Treatment, pediatric patients</td>
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</tr>
<tr>
<td>Treatment, adult patients</td>
<td>$312</td>
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<tr>
<td>Second-line patients</td>
<td>$657</td>
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<tr>
<td>First-line patients</td>
<td>$286</td>
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<tr>
<td>Patients in low and lower-middle income countries</td>
<td>$442</td>
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<tr>
<td>Patients in upper-middle income countries</td>
<td>$80</td>
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**Elements of support for treatment**

The estimated total mean cost per patient-year of treatment that is reported here represents the full cost of providing ART and supportive services in FY 2013, and includes all resources required to provide comprehensive treatment at and above the site level. These include:

- Antiretroviral drugs (ARVs) for patient treatment
- Non-ARV recurrent costs such as:
  - clinical staff salaries and benefits
  - laboratory and clinical supplies
- non-ARV drugs for opportunistic infections
- travel
- contracted services
- building utilities
- Investment (health system strengthening) costs such as:
  - ARV buffer stock (inventory) to support a reliable supply chain
  - laboratory and clinical equipment
  - in-service training of ART providers
- in-service training of ART providers
- contracted services
- building renovation & construction
- non-ARV recurrent costs represent 26 percent of total ART expenditures, costs above the site level for program management and support represent nearly 24 percent, and non-ARV investment (health systems) costs other than buffer stocks account for 4 percent.

With respect to these cost components and recognizing that there are other important sources of support for treatment—including the Global Fund, national and other multilateral partners—purchases of ARVs represent 46 percent of the annual cost of treatment to PEPFAR. Investment in ARV buffer stocks represents a portion of total ARV costs and is necessary to avoid drug stock-outs that would lead to poor patient outcomes, especially during periods of rapid program scale-up. Non-ARV recurrent costs represent 26 percent of total ART expenditures, costs above the site level for program management and support represent nearly 24 percent, and non-ARV investment (health systems) costs other than buffer stocks account for 4 percent.
Cost estimates

The estimated mean total cost per patient-year of treatment in the programs, including financial and in-kind contributions from all sources (including partner governments and other bilateral and multilateral donors), is $757. Excluding the contributions of partner governments and other donors, the estimated PEPFAR cost per patient-year of treatment is $315.

Available data, and data-sharing agreements with partner governments and organizations, do not permit some breakouts of costs (e.g. urban and rural providers, or providers by country) at this time, though some additional breakouts may be possible in future years. However, other key cost breakouts are currently possible.

- The mean cost per patient-year of ART for pediatric patients is estimated at $837, and the PEPFAR share of these costs at $341.
- For an adult ART patient, the mean is estimated at $747, and the PEPFAR portion at $312.

A similar pattern is exhibited for patients receiving second-line ARVs, which typically include more branded formulations. These drugs are usually more expensive than first-line ARVs, although costs of second-line therapy are beginning to decline with the introduction of two FDA-tentatively-approved generic formulations of second-line drugs (lopinavir/ritonavir fixed-dose combination), and new drug combinations entering the market.

- The current total cost per-patient year for second-line patients (both adult and pediatric) is estimated at $1,428, and the PEPFAR share of these costs at $657.
- This may be compared with an estimated $700 total annual cost for first-line
patients (both adult and pediatric), and a PEPFAR cost of $286.

The estimated cost per patient-year of treatment varies widely across individual patient settings, and reflects differences in program maturity and scale, as well as country settings.

- In low-income and lower middle-income countries, the mean cost per patient-year of treatment when taking into account all sources of support is $645. The PEPFAR cost for these patients is $442.
- In upper middle-income countries, the estimated mean cost from all sources of support is $964 per patient-year of treatment. The estimated PEPFAR cost is $80, reflecting the higher contribution by partner countries to the treatment program in these settings.

In terms of a comparison of PEPFAR’s costs with those of other programs, there are not sufficient comparable data to make a meaningful comparison possible. In this report, the estimated mean cost includes central support costs that occur above the level of service provision, including the resources required for national management of the program. Capturing these higher level support costs is a heightened emphasis in PEPFAR’s second phase, in which country ownership and sustainability are critical. As the vast majority of patients supported on ART through PEPFAR receive services in the public sector, revenue streams from the partner government and individual donors contribute to the overall expenditures for ART.

Additionally, as PEPFAR has evolved from an emergency response to one focused on creating sustainable, country-owned programs, PEPFAR-supported treatment programs increasingly represent the efforts and resources of multiple partners, including partner governments and the Global Fund. A recent effort by an international partner to compare the costs of PEPFAR treatment sites and those of other donors proved challenging because nearly all sites PEPFAR supports are within partner countries’ national systems and have multiple streams of resource inflows (for example, the government paying for infrastructure, the Global Fund buying ARVs, and PEPFAR paying for laboratory and health worker training). The implementers of this evaluation ultimately concluded that the comparison was no longer possible or useful. What is possible and useful is to understand cost drivers at the patient and program level. By

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7 For these studies, economies are classified according to 2010 Gross National Income (GNI) per capita, calculated using the World Bank Atlas method. The World Bank classifies countries with per capita GNI of $1,005 or less as ‘low income,’ and countries with per capita GNI of $1,006 - $3,975 as ‘lower middle income,’ (the former category includes inputs from Ethiopia, Uganda, Mozambique, Tanzania, and Rwanda; the latter includes data from Nigeria, Cote d’Ivoire, Vietnam, and Zambia). The World Bank classifies countries with per capita GNI of $3,976 to $12,275 as ‘upper middle income,’ (including data from Botswana, Namibia, and South Africa). Estimates for global mean costs and the USG share reflect weighting by the number of patients directly supported by PEPFAR that fall into each national income category.
focusing on these drivers, as described in this report, PEPFAR seeks to support the maximum number of persons on ART at minimum unit expenditure by strategically leveraging other donor contributions and building the capacity of partner nations to fund and manage ART services.

Conclusions

PEPFAR’s success in driving down unit costs maximizes the impact of taxpayer dollars to save lives and represents an important development for the landscape of global health, and for development more broadly. Ongoing work within PEPFAR will utilize expenditure analysis and focused costing studies to continue to identify cost drivers and maximize the efficiency of programs in order to continue to expand treatment programs. PEPFAR is currently the global leader in applying this type of analysis and is actively working with multilateral partners such as the Global Fund, the World Bank, UNAIDS, the Gates Foundation, and others to use these data as a basis for tracking expenditures in relation to outputs and ensuring maximal value for investment. For further information on PEPFAR’s efforts to increase impact and efficiency, see http://www.pepfar.gov/smart/index.htm and http://www.pepfar.gov/documents/organization/195700.pdf.