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GLOBAL HEALTH

Trends in U.S. Spending for Global HIV/AIDS and Other Health Assistance in Fiscal Years 2001-2008



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Highlights of [GAO-11-64](#), a report to congressional committees

Why GAO Did This Study

U.S. funding for global HIV/AIDS and other health-related programs rose significantly from 2001 to 2008. The President’s Emergency Plan for AIDS Relief (PEPFAR), reauthorized in 2008 at \$48 billion through 2013, has made significant investments in support of prevention of HIV/AIDS as well as care and treatment for those affected by the disease in 31 partner countries and 3 regions. In May 2009, the President proposed spending \$63 billion through 2014 on global health programs, including HIV/AIDS, under a new Global Health Initiative. The Office of the U.S. Global AIDS Coordinator (OGAC), at the Department of State (State), coordinates PEPFAR implementation. The Centers for Disease Control and Prevention (CDC) and the U.S. Agency for International Development (USAID), among other agencies, implement PEPFAR as well as other global health-related assistance programs, such as maternal and child health, infectious disease prevention, and malaria control, among others.

Responding to legislative directives, this report examines U.S. disbursements (referred to as spending) for global HIV/AIDS- and other health-related bilateral foreign assistance programs (including basic health and population and reproductive health programs) in fiscal years 2001-2008. The report also provides information on models used to estimate HIV treatment costs. GAO analyzed U.S. foreign assistance data, reviewed HIV treatment costing models and reports, and interviewed U.S. and UNAIDS officials.

View [GAO-11-64](#) or key components. For more information, contact David Gootnick at (202) 512-3149 or gootnickd@gao.gov.

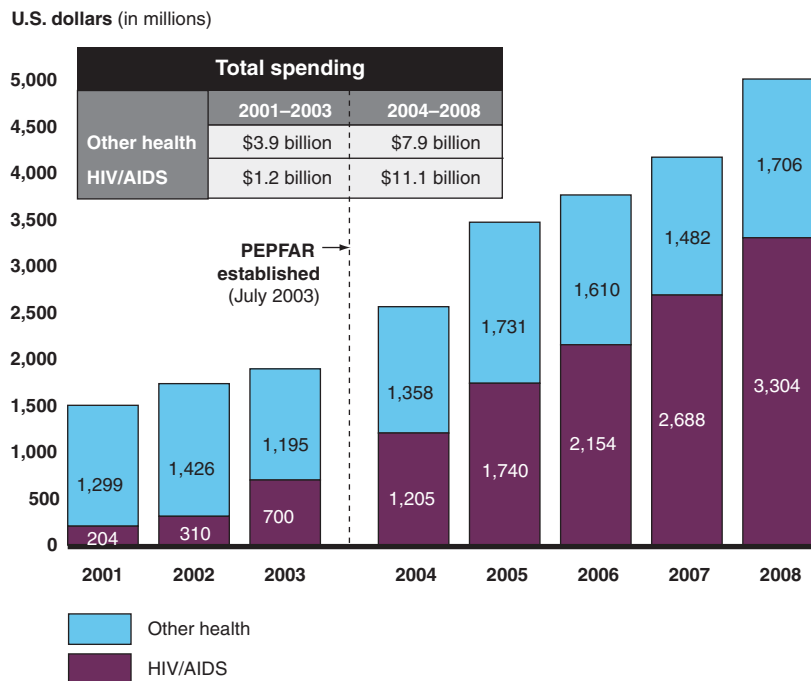
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What GAO Found

In fiscal years 2001-2008, bilateral U.S. spending for HIV/AIDS and other health-related programs increased overall, most significantly for HIV/AIDS. From 2001 to 2003—before the establishment of PEPFAR—U.S. spending on global HIV/AIDS programs rose while spending on other health programs dropped slightly. From fiscal years 2004 to 2008, HIV/AIDS spending grew steadily; other health-related spending also rose overall, despite declines in 2006 and 2007.

U.S. Health-Related Foreign Assistance Spending (Constant Dollars), Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

As would be expected, U.S. bilateral HIV/AIDS spending showed the most increase in 15 countries—known as PEPFAR focus countries—relative to other countries receiving bilateral HIV/AIDS assistance from fiscal years 2004 through 2008. In addition, GAO’s analysis showed that U.S. spending on other health-related bilateral foreign assistance also increased most for PEPFAR focus countries. Spending growth rates varied among three key regions—sub-Saharan Africa, Asia, and Latin America and the Caribbean—as did these regions’ shares of HIV/AIDS and other health foreign assistance spending following establishment of PEPFAR.

OGAC, USAID, and UNAIDS have adopted three different models to estimate and project antiretroviral therapy (ART) costs. The three models—respectively known as the PEPFAR ART Costing Project Model, the HIV/AIDS Program Sustainability Analysis Tool, and Spectrum—are intended to inform policy and program decisions related, in part, to expanding efforts to provide ART in developing countries.

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Abbreviations

ART	antiretroviral therapy
ARV	antiretroviral drugs
CD4	cluster of differentiation antigen 4
CDC	Centers for Disease Control and Prevention
COP	country operational plan
FADB	Foreign Assistance Database
GHI	Global Health Initiative
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HAPSAT	HIV/AIDS Program Sustainability Analysis Tool
HHS	Department of Health and Human Services
Leadership Act	Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria Reauthorization Act of 2008
OECD	Organisation for Economic Cooperation and Development
OGAC	Office of the U.S. Global AIDS Coordinator
PACM	PEPFAR ART Costing Project Model
PEPFAR	President's Emergency Plan for AIDS Relief
ROP	regional operational plan
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
WHO	World Health Organization

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Congressional Committees

In 2008, approximately 2 million people worldwide died of HIV-related causes, and an estimated 2.7 million people were newly infected with HIV. The first 5-year phase of the President's Emergency Plan for AIDS Relief (PEPFAR), authorized by Congress at \$15 billion for fiscal years 2004 through 2008,¹ contributed significantly to the global response to the pandemic. PEPFAR reported that in 2009, it supported treatment for more than 2.4 million patients with HIV/AIDS and care and support for more than 11 million people affected by the disease.

U.S. and other donor funding for global health increased significantly from 2001 to 2008, largely because of increases in funding for HIV/AIDS programs.² The Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis, and Malaria Reauthorization Act of 2008 (2008 Leadership Act) authorized PEPFAR at \$48 billion through fiscal year 2013 and extended the U.S. government's efforts to combat the global HIV/AIDS epidemic and other diseases.³ Among its other purposes, the 2008 Leadership Act sets new targets for treatment

¹United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003, Pub. L. No. 108-25, § 401, 117 Stat. 711, 745. Approximately two-thirds of funding appropriated for PEPFAR's first 5-year phase was directed to HIV/AIDS programs in 15 countries, known as focus countries: Botswana, Côte d'Ivoire, Ethiopia, Guyana, Haiti, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Vietnam, and Zambia. In the 2003 authorizing legislation (Pub. L. No. 108-25), Congress assigned an HIV/AIDS Response Coordinator (later called U.S. Global AIDS Coordinator) the duty of directly approving all activities of the United States related to combating HIV/AIDS in 14 of these countries. Vietnam was selected as the 15th country in 2008.

²Donor funding for health-related development assistance programs tripled between 2001 and 2007, from \$7.2 billion in 2001 to \$22.1 billion in 2007. Funding for HIV/AIDS and other sexually transmitted diseases drove growth over this period and accounted for one-third of all global health-related development assistance in 2007. This trend continued into 2008, as donors' HIV/AIDS-related development assistance commitments reached their highest levels. See *Donor Funding for Health in Low- and Middle-Income Countries, 2001-2007* (Menlo Park, CA: The Henry J. Kaiser Family Foundation, July 2009), www.kff.org/globalhealth/upload/7679-03.pdf and *Financing the response to AIDS in low- and middle-income countries: International assistance from the G8, European Commission and other donor Governments in 2008* (Menlo Park, CA: The Henry J. Kaiser Family Foundation, July 2009), www.kff.org/hivaids/upload/7347-052.pdf.

³Pub. L. No. 110-293, § 401(a), 122 Stat. 2918, 2965.

programs and calls for a plan to increase the number of individuals on antiretroviral therapy (ART) proportional to available funding and decreases in cost per patient.⁴ In May 2009, the President announced the creation of a new Global Health Initiative and proposed \$63 billion in funding for all global health programs through fiscal year 2014, including more than \$51 billion for HIV/AIDS, tuberculosis, and malaria programs. For fiscal year 2011, the President has proposed spending \$8.5 billion on global health and child survival programs, including \$5.9 billion for HIV/AIDS.

Responding to directives in the Consolidated Appropriations Act of 2008 and the 2008 Leadership Act,⁵ this report examines trends in U.S. bilateral spending for global HIV/AIDS and other global health programs in fiscal years 2001 through 2008. In addition, this report provides information on models used to estimate the cost of providing ART.

To address trends in U.S. spending on global HIV/AIDS and other health programs, we analyzed data from the Foreign Assistance Database (FADB)⁶ provided by the U.S. Agency for International Development (USAID) on U.S. spending for health-related foreign assistance programs. Specifically, we examine disbursement levels⁷ and growth trends from 2001 to 2008 for bilateral HIV/AIDS and other health-related foreign assistance programs by time period (pre-PEPFAR and first 5 years of PEPFAR for all countries); countries grouped approximately by level of PEPFAR focus and funding; and region (sub-Saharan Africa, Latin America and the Caribbean, and Asia). We determined the FADB disbursement data

⁴Pub. L. No. 110-293, § 101. ART generally involves provision of multiple antiretroviral drugs (ARV) to HIV-infected patients to suppress the virus and slow the progression of the disease. In addition to the cost of ARV drug procurement, ART-related costs also include treatment services and laboratory infrastructure.

⁵Pub. L. No. 110-161, § 668(d), 121 Stat. 1844, 2353 (2007); Pub. L. No. 110-293, § 101(d), 122 Stat. 2918, 2931. The acts directed us to assess impact of global HIV/AIDS funding and programs on other U.S. global health programming. For additional information on analysis of impact, see appendix I.

⁶The FADB is maintained by USAID's Economic Analysis and Data Services and is the source of the U.S. Overseas Loans and Grants report and the U.S. Annual Aid Review for the Development Assistance Committee of the Organisation for Economic Cooperation and Development.

⁷We focus on disbursement levels because, unlike other data, disbursements more directly reflect U.S. spending and activities in countries receiving U.S. assistance. Disbursements are amounts paid by federal agencies to liquidate government obligations. For purposes of this report, we refer to disbursements as spending. See app. I for additional details.

to be sufficiently reliable for the purposes of reporting them in this manner. For this report, we defined U.S. spending for global HIV/AIDS programs as foreign assistance for HIV/AIDS control, testing, prevention, treatment, and care; we defined U.S. spending for other global health programs as foreign assistance to support general and basic health and population and reproductive health policies and programs (except those related to HIV/AIDS). (See app. I for more information on these categories.) We converted the spending amounts provided to 2010 constant dollars to account for inflation and allow the comparison of levels of assistance in different time periods. We also consulted data on other donor and U.S. foreign assistance. In addition, we interviewed State Department, USAID, and Centers for Disease Control and Prevention (CDC) officials and representatives of research organizations. To describe three key models used to estimate costs related to providing ART in developing countries, we reviewed the models and examined reports on the models. We also interviewed officials of the U.S. government and the Joint United Nations Programme on HIV/AIDS (UNAIDS), as well as developers of the models, in Washington, D.C.; Atlanta; and Geneva, Switzerland. We conducted our work from July 2009 to October 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions. See appendix I for a more detailed description of our scope and methodology.

Background

President's Global Health Initiative

In May 2009, the President announced the creation of a new Global Health Initiative (GHI) and proposed \$63 billion in funding for all global health programs, including HIV/AIDS, malaria, tuberculosis, and maternal and child health, through 2014. According to the proposal, the majority of this funding—\$51 billion, or 81 percent—is slated for global HIV/AIDS, tuberculosis, and malaria programs. For fiscal year 2009, State and USAID allocated about \$7.3 billion for global health and child survival programs, including more than \$5.6 billion for HIV/AIDS programs. For fiscal year 2010, State and USAID allocated approximately \$7.8 billion for global health and child survival programs, including \$5.7 billion for HIV/AIDS.

For fiscal year 2011, the President proposed spending \$8.5 billion on global health and child survival programs, including \$5.9 billion for HIV/AIDS.⁸

In February 2010, the administration released a consultation document on GHI implementation, focusing on coordination and integration of global health programs, among other things, and setting targets for achieving health outcomes. The document also proposed selection of up to 20 countries—known as GHI Plus countries—that will receive additional funding and technical assistance under the GHI.⁹

PEPFAR

Congress first authorized PEPFAR in 2003 and, in doing so, created within State a Coordinator of the U.S. Government Activities to Combat HIV/AIDS Globally, which State redesignated the Office of the U.S. Global AIDS Coordinator (OGAC). OGAC establishes overall PEPFAR policy and program strategies; coordinates PEPFAR programs; and allocates PEPFAR resources from the Global Health and Child Survival account to U.S. implementing agencies, including USAID and the Department of Health and Human Services' (HHS) CDC.¹⁰ USAID and CDC also receive direct appropriations to support global HIV/AIDS and other global health programs, such as tuberculosis, malaria, and support for maternal and child health.

In fiscal years 2004 through 2008—the first 5 years of PEPFAR—the U.S. government directed more than \$18 billion to PEPFAR implementing agencies and the Global Fund to Fight AIDS, Tuberculosis and Malaria

⁸Amounts for fiscal years 2009-2011 include U.S. contributions to the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria, but do not include Department of Health and Human Services (HHS) appropriations for global HIV/AIDS. When HHS funding for global HIV/AIDS is included, totals for fiscal years 2009, 2010, and 2011 are \$6.5 billion, \$6.6 billion, and \$6.7 billion, respectively.

⁹On June 18, 2010, the administration announced the first set of GHI Plus countries: Bangladesh, Ethiopia, Guatemala, Kenya, Malawi, Mali, Nepal, and Rwanda. Beginning in fiscal year 2013, a second set of up to 10 Phase II GHI Plus countries will be selected.

¹⁰Other implementing agencies include the Departments of State, Defense, Labor, and Commerce and the Peace Corps. In addition, other HHS offices and agencies receiving PEPFAR resources include the Office of Global Health Affairs, the Food and Drug Administration, the Health Resources and Services Administration, the National Institutes of Health, and the Substance Abuse and Mental Health Services Administration.

(Global Fund).¹¹ In 2008, Congress reauthorized PEPFAR at \$48 billion to continue and expand U.S.-funded HIV/AIDS and other programs through fiscal year 2013.¹²

Although PEPFAR initially targeted 15 countries, known as focus countries, since its establishment PEPFAR has made significant investments in 31 partner countries and 3 regions.¹³ Representatives of PEPFAR implementing agencies (country teams) jointly develop country operational plans (COP) for the 15 focus countries and an additional 16 nonfocus countries, as well as regional operational plans (ROP) for three regions, to document U.S. investments in, and anticipated results of, U.S.-funded programs to combat HIV/AIDS. The country teams submit the operational plans to OGAC for review and ultimate approval by the U.S. Global AIDS Coordinator. As such, these operational plans serve as the basis for approving annual U.S. bilateral HIV/AIDS funding, notifying Congress, and allocating and tracking budgets and targets. Some nonfocus countries receiving U.S. HIV/AIDS funding do not submit a PEPFAR operational plan; OGAC reviews and approves HIV/AIDS-related foreign assistance funding through foreign assistance operational plans. Table 1 shows the countries and regions that received U.S. foreign assistance for HIV/AIDS programs in fiscal years 2001-2008.

¹¹The United States is the largest contributor to the Global Fund to Fight AIDS, Tuberculosis, and Malaria. From 2001 to 2008, the United States has contributed about \$3.5 billion to the organization. For 2009 and 2010, the United States has pledged \$1 billion and \$1.05 billion, respectively, to the Global Fund.

¹²Pub. L. No. 110-293.

¹³According to OGAC, for PEPFAR's second 5-year phase, no distinction exists between focus countries and other countries receiving bilateral assistance through PEPFAR. For the purposes of reporting trends for a period including the first 5-year phase of PEPFAR, we are keeping the designation for the 15 focus countries and referring to these countries as "focus" and "nonfocus" countries.

Table 1: Countries That Received U.S. Assistance for HIV/AIDS Programs, Fiscal Years 2001-2008^a

15 PEPFAR focus countries	Botswana	Kenya	South Africa
	Côte d'Ivoire	Mozambique	Tanzania
	Ethiopia	Namibia	Uganda
	Guyana	Nigeria	Vietnam
	Haiti	Rwanda	Zambia
16 nonfocus countries and 3 regions with PEPFAR operational plans	Angola	Dominican Republic	Sudan
	Cambodia	Ghana	Swaziland
	Caribbean Region ^b	India	Thailand
	Central American Region ^c	Indonesia	Ukraine
	Central Asian Region ^d	Lesotho	Zimbabwe
	China	Malawi	
	Democratic Republic of the Congo	Russia	
47 other nonfocus countries receiving U.S. foreign assistance for HIV/AIDS	Afghanistan	Egypt	Montenegro
	Albania	Eritrea	Morocco
	Armenia	Estonia	Nepal
	Azerbaijan	Gabon	Pakistan
	Bangladesh	Gambia	Papua New Guinea
	Benin	Georgia	Paraguay
	Bolivia	Guinea	Peru
	Brazil	Kosovo	Philippines
	Burkina Faso	Laos	Romania
	Burma (Myanmar)	Liberia	Sao Tome and Principe
	Burundi	Macedonia	Senegal
	Cameroon	Madagascar	Serbia
	Colombia	Mali	Sierra Leone
	Congo-Brazzaville	Mauritania	Sri Lanka
	Croatia	Mexico	Timor-Leste
	Djibouti	Moldova	

Source: GAO analysis of OGAC and Foreign Assistance Database information.

^aCountries received U.S. foreign assistance funding in any of these years. Some countries may not have received HIV/AIDS-related funding for all years.

^bCountries in the Caribbean region are Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent, Suriname, and Trinidad and Tobago.

^cCountries in the Central American region are Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. (PEPFAR funding for Belize is approved jointly through the Caribbean and Central American regional operational plans.)

^dCountries in the Central Asian region are Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

Funding for HIV Treatment

In 2009, UNAIDS estimated that \$7 billion would be needed in developing countries in 2010 to reach HIV/AIDS treatment and care program targets, which are generally defined as 80 percent of the target population requiring treatment. Sub-Saharan Africa makes up about half (49 percent) of estimated needs for all HIV/AIDS programs in developing countries. UNAIDS's estimate includes provision of ART, testing and counseling, treatment for opportunistic infections, nutritional support, laboratory testing, palliative care, and the cost of drug-supply logistics. The costs for CD4 blood tests are also included.¹⁴

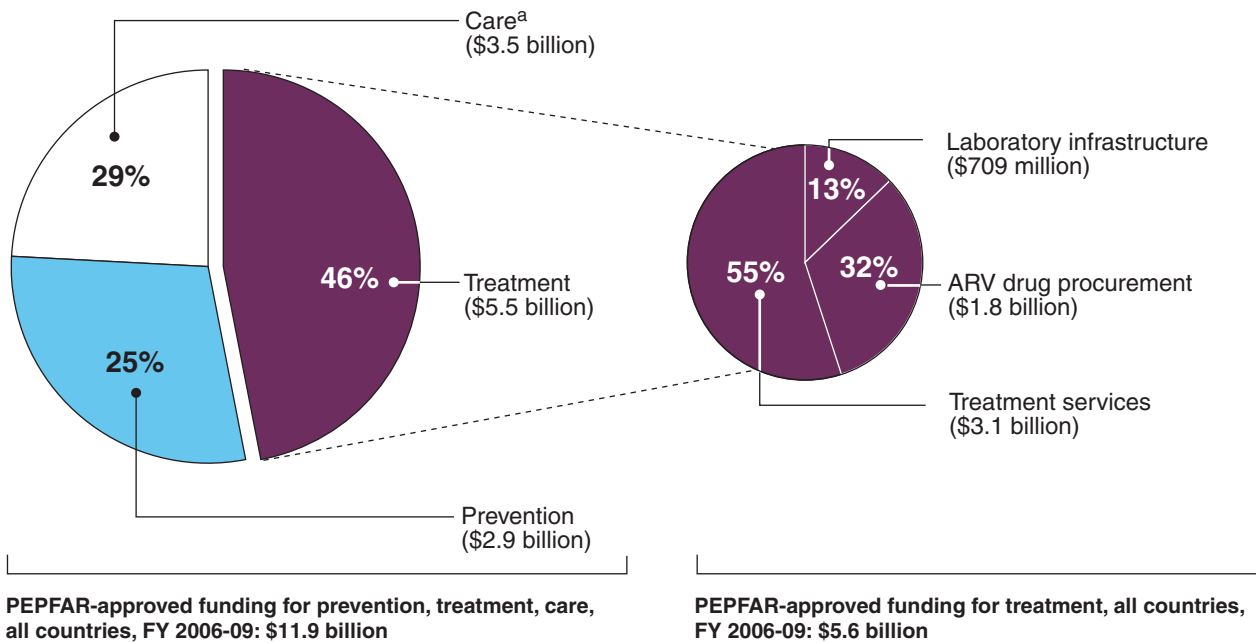
In fiscal years 2006-09, PEPFAR funding for ART made up nearly half (46 percent) of PEPFAR's approved budget for prevention, treatment, and care programs. (See fig. 1.) ART funding generally comprised treatment services¹⁵ (about 55 percent of approved treatment funding); ARV drug¹⁶ procurement (about 32 percent of approved treatment funding); and laboratory infrastructure (about 13 percent of approved treatment funding).

¹⁴CD4 (cluster of differentiation antigen 4) cells are a type of white blood cell that fights infection. The CD4 count measures the number of CD4 cells in a sample of blood. Along with other tests, the CD4 count helps determine the strength of the immune system, indicates the stage of the HIV disease, guides treatment, and predicts how the disease may progress. Normal CD4 counts range from 500-1,000 cells/mm.³

¹⁵Treatment services include both adult and pediatric treatment services.

¹⁶Although no cure exists for HIV/AIDS, the use of multiple ARVs in combination has been shown to suppress the virus and slow the progression of the disease. The World Health Organization (WHO) has recommended certain drug treatment regimens for settings in which resources are limited. For people receiving ARVs for the first time in such settings, WHO recommends one of several first-line regimens. For people who have developed strains of HIV that are resistant to their initial treatment regimen, WHO recommends one of several second-line regimens, which use a different set of ARVs. Second-line regimens can have disadvantages, which may be magnified in resource-limited settings, including the need to take more pills, potential additional side effects, the need for refrigeration during transportation and storage, and generally higher prices. See GAO, *Global HIV/AIDS Epidemic: Selection of Antiretroviral Medications Provided under U.S. Emergency Plan Is Limited*, [GAO-05-133](#) (Washington, D.C.: Jan. 11, 2005).

Figure 1: PEPFAR-Approved Funding for Prevention, Treatment, and Care Programs, Fiscal Years 2006-2009



Source: GAO analysis of OGAC information.

^aFor 2006 and 2007, PEPFAR care program figures reported by OGAC included funding for pediatric AIDS programs. In 2008 and 2009, pediatric care funding was included in care and pediatric treatment funding was included in treatment.

In 2008, OGAC reported that tentative approval of generic ARV drugs had generated significant savings for PEPFAR. As of September 2010, HHS’s Food and Drug Administration had approved, or tentatively approved, 116 ARV formulations under its expedited review process, which allows all ARV drugs to be rapidly reviewed for quality standards and subsequently cleared for purchase under PEPFAR.¹⁷

¹⁷See *Report to Congress by the U.S. Global AIDS Coordinator on the Use of Generic Drugs in the President’s Emergency Plan for AIDS Relief* (Washington, D.C.: Office of the Global AIDS Coordinator, May 2008), www.pepfar.gov/documents/organization/105842.pdf. In addition, PEPFAR’s 2009 annual report noted that use of generics varied by country and cited significant challenges, such as relatively high prices for pediatric and second-line medications. See *Celebrating Life: The U.S. President’s Emergency Plan for AIDS Relief: 2009 Annual Report to Congress* (Washington, D.C.: Office of the Global AIDS Coordinator), www.pepfar.gov/press/fifth_annual_report/.

According to PEPFAR's Five-Year Strategy, released in December 2009, PEPFAR plans to provide direct support for more than 4 million people on ART, more than doubling the number of people directly supported on treatment during the first 5 years of PEPFAR. The strategy seeks to focus PEPFAR support on specific individuals requiring ART by prioritizing individuals with CD4 cell counts under 200/mm³ to prevent as many immediate deaths as possible.¹⁸ In addition, in countries with high coverage rates that are expanding eligibility for treatment, PEPFAR will provide technical assistance and support for the overall treatment infrastructure. PEPFAR also will expand efforts to better link testing and counseling with treatment and care and, in conjunction with its prevention of mother-to-child transmission programs, will support expanded treatment to pregnant women.

Costing Models

As we have previously reported, federal financial standards call on agencies to use costing methods in their planning to determine resources needed to evaluate program performance, among other things.¹⁹ Program managers should use costing information to improve the efficiency of programs. In addition, such information can be used by Congress to make decisions about allocating financial resources, authorizing and modifying programs, and evaluating program performance.²⁰ In 2008, we found that PEPFAR country teams identified and analyzed program costs in varying ways, and we recommended that the Secretary of State direct OGAC to provide guidance to PEPFAR country teams on using costing information in their planning and budgeting.

¹⁸Based on evidence of improved survival and reduced HIV-related illnesses with the earlier initiation of antiretroviral therapy, as well as the impact of ART on the prevention of HIV transmission, the World Health Organization (WHO) recommended initiation of ART in all patients with HIV who have CD4 count less than or equal to 350 cells/mm³ irrespective of clinical symptoms. See *Rapid Advice: Antiretroviral therapy for HIV Infection in Adults and Adolescents* (Geneva: WHO, 2009), www.who.int/entity/hiv/pub/arv/rapid_advice_art.pdf.

¹⁹In 2008, we reported that most PEPFAR country teams were using costing information in their planning and budgeting; some country officials also reported using costing information to review implementing partner effectiveness and complement other funding sources for HIV/AIDS programs. See GAO, *Global HIV/AIDS: A More Country-Based Approach Could Improve Allocation of PEPFAR Funding*, [GAO-08-480](http://www.gao.gov/products/GAO-08-480) (Washington, D.C.: Apr. 2, 2008).

²⁰See Office of Management and Budget, *Statement of Federal Financial Accounting Standards No. 4, Managerial Cost Accounting Standards and Concepts* (Washington, D.C., 2007).

U.S. Spending on HIV/AIDS and Other Health Assistance Increased in 2001-2008 and Varied by Time Frame, Country Status, and Region

Overall, U.S. bilateral spending on global HIV/AIDS and other health programs generally increased in fiscal years 2001 through 2008, particularly for HIV/AIDS programs. From 2001 through 2003, U.S. bilateral spending on global HIV/AIDS rose, while spending on other global health programs dropped slightly. As would be expected given PEPFAR's significant investment, from fiscal years 2004 through 2008, U.S. bilateral HIV/AIDS spending showed the greatest increase in PEPFAR focus countries, relative to nonfocus countries and regions with PEPFAR operational plans and other countries receiving HIV/AIDS assistance. In addition, our analysis determined that U.S. spending for other health-related health assistance also increased most for PEPFAR focus countries. Spending growth rates varied among three key regions—sub-Saharan Africa, Asia, and Latin America and the Caribbean—as did these regions' shares of bilateral HIV/AIDS and other health spending following establishment of PEPFAR. (See app. II for additional information on U.S. bilateral foreign assistance spending on HIV/AIDS and other health programs in fiscal years 2001 through 2008.)

U.S. Spending on HIV/AIDS and Other Health Programs Grew Overall, Despite Decreases in Other Health Foreign Assistance Spending

Overall, U.S. bilateral foreign assistance spending on both global HIV/AIDS and other health programs increased in fiscal years 2001 through 2008. Although spending on other health programs decreased slightly from 2001 through 2003, U.S. spending on both HIV/AIDS and other health-related foreign assistance programs grew from 2004 through 2008, the first 5 years of PEPFAR. Annual growth in U.S. spending on global HIV/AIDS was more robust and consistent than annual growth for other global health spending (see table 2 and fig. 2).

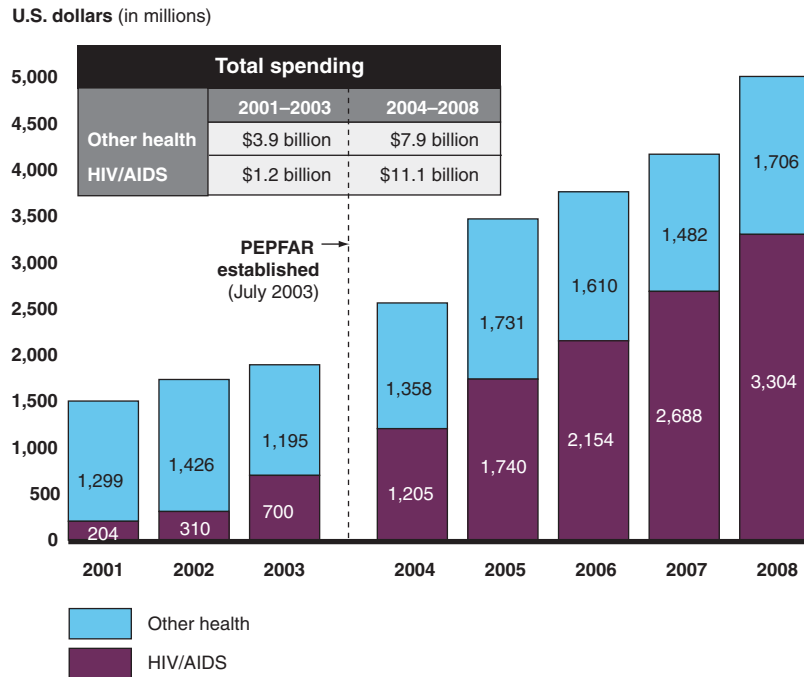
Table 2: Average Annual Growth Rates for U.S. Global HIV/AIDS and Other Health Spending, Fiscal Years 2001-2008

	Percentage growth in HIV/AIDS spending	Percentage growth in other health spending	Percentage growth in all health spending
Pre-PEPFAR period	89	- 3	12
PEPFAR period (first 5 years)	38	8	22

Source: GAO analysis of data from Foreign Assistance Database.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values

Figure 2: U.S. Health-Related Foreign Assistance Spending (Constant Dollars), Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

2001-2003. Prior to the implementation of PEPFAR, U.S. bilateral spending on HIV/AIDS programs grew rapidly, while U.S. spending on other health programs fell slightly.

- *HIV/AIDS.* The U.S. government spent less on global HIV/AIDS programs than on other health-related programs in fiscal years 2001-2003. However, spending on HIV/AIDS grew rapidly prior to implementation of PEPFAR.
- *Other health.* U.S. spending on other health-related programs decreased from 2001 to 2003. However, total spending for these programs during this period was more than three times greater than the total for HIV/AIDS-related foreign assistance programs.

2004-2008. Following implementation of PEPFAR, U.S. bilateral spending on both global HIV/AIDS and other health-related programs increased overall, with more rapid and consistent growth in spending for HIV/AIDS programs.

-
- *HIV/AIDS.* In fiscal year 2004, U.S. spending on HIV/AIDS programs was roughly equivalent to the total for the previous 3 years combined; in fiscal year 2008, annual U.S. spending on global HIV/AIDS programs was nearly three times the 2004 total. In addition, U.S. spending on HIV/AIDS programs in 2005 was, for the first time, higher than spending on other health programs. By 2008, almost twice as much was spent on HIV/AIDS programs as on other health programs.
 - *Other health.* Although U.S. spending on other health programs also increased overall from fiscal year 2004 through 2008, annual spending was less consistent and decreased in 2006 and 2007.

U.S. Spending on HIV/AIDS and Other Health Programs Grew Most Rapidly in PEPFAR Focus Countries

Our analysis shows differences in growth trends in U.S. bilateral spending on HIV/AIDS and other health programs before and after implementation of PEPFAR for three distinct groups of countries:²¹ PEPFAR focus countries, nonfocus countries and regions with PEPFAR operational plans, and all other countries receiving HIV/AIDS foreign assistance (i.e., nonfocus countries receiving HIV/AIDS assistance that do not submit PEPFAR operational plans to OGAC).²² In fiscal years 2001 through 2003, U.S. bilateral spending on global HIV/AIDS programs grew for countries in all three groups, while spending on other health programs increased at lower rates. From 2004 through 2008, the average annual growth rate in U.S. bilateral spending on global HIV/AIDS programs was, predictably, greatest in focus countries, as was spending on other health programs in these countries (see table 3).

²¹About \$4.7 billion and \$3.3 billion in foreign assistance disbursements for HIV/AIDS- and other health-related programs, respectively, from 2001 to 2008, were not specified for an individual country or region in the FADB. As such, our analysis of bilateral spending levels and growth trends by PEPFAR country status and geographical region excludes these disbursements.

²²As noted in Background, we identified 47 nonfocus, non-PEPFAR operational plan countries in the FADB that received U.S. foreign assistance disbursements for HIV/AIDS programs from 2001 to 2008.

Table 3: Average Annual Growth Rates for U.S. Global HIV/AIDS and Other Health Spending, Fiscal Years 2001-2008

	Percentage growth in HIV/AIDS spending	Percentage growth in other health spending	Percentage growth in all health spending
Pre-PEPFAR period			
Focus countries	152	21	79
Nonfocus countries and regions with PEPFAR operational plans	111	11	28
All other countries receiving HIV/AIDS foreign assistance	196	1	7
PEPFAR period (first 5 years)			
Focus countries	46	18	40
Nonfocus countries and regions with PEPFAR operational plans	12	4	6
All other countries receiving HIV/AIDS foreign assistance	7	12	11

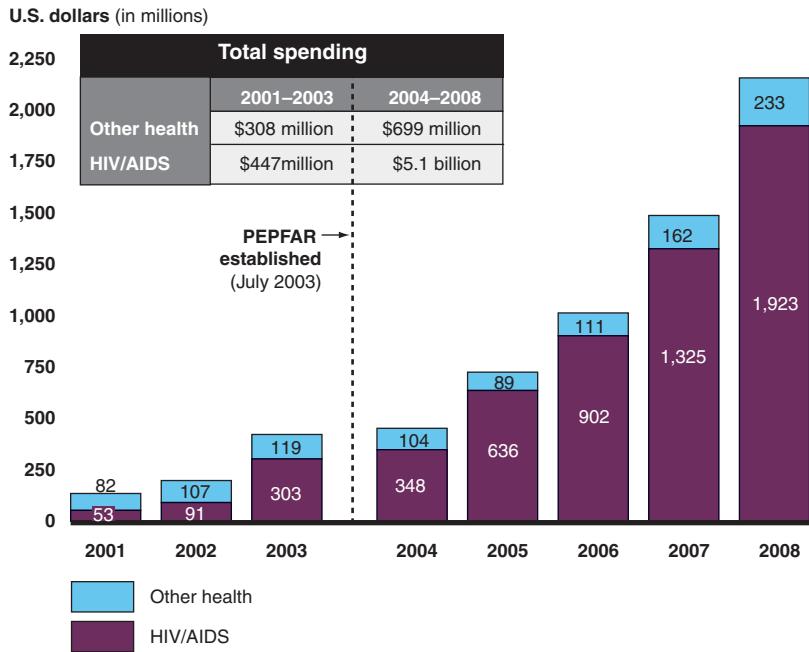
Source: GAO analysis of data from Foreign Assistance Database.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

PEPFAR Focus Countries

For the 15 countries that would become PEPFAR focus countries, U.S. bilateral spending on both HIV/AIDS and other health programs increased steadily from 2001 through 2003, with higher growth for HIV/AIDS spending. From 2004 through 2008, U.S. bilateral spending on global HIV/AIDS-related foreign assistance programs continued to increase significantly, while spending on other health programs grew modestly overall. From 2004 through 2008, total U.S. bilateral spending on HIV/AIDS-related foreign assistance programs in PEPFAR focus countries was more than seven times greater than spending on other health programs. (See fig. 3.)

Figure 3: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in PEPFAR Focus Countries, Fiscal Years 2001-2008



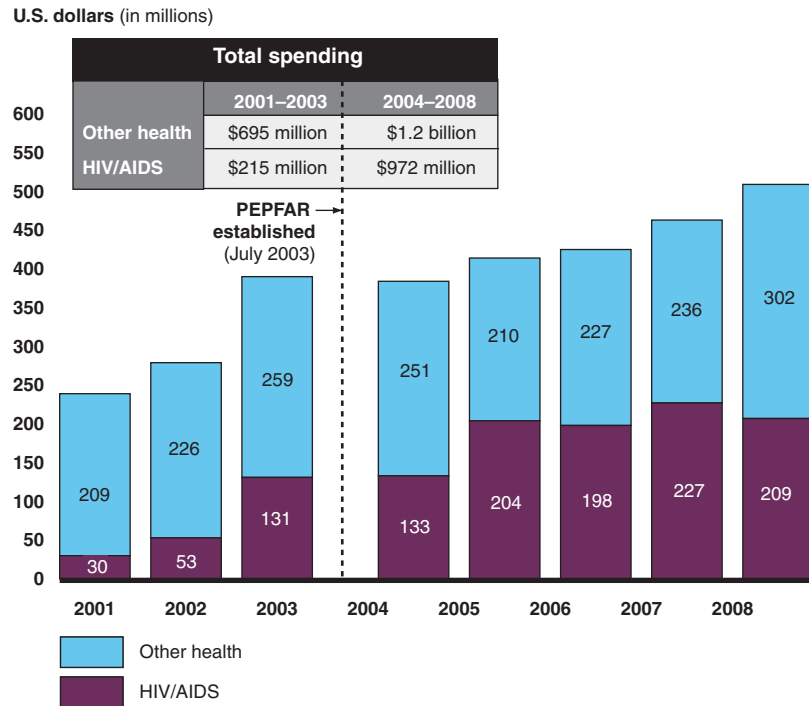
Source: GAO analysis of data from the Foreign Assistance Database.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Nonfocus Countries and Regional Programs with PEPFAR Operational Plans

For the 16 nonfocus countries and three regions that eventually would submit operational plans to receive PEPFAR funding, U.S. bilateral spending on both HIV/AIDS and other health-related foreign assistance programs increased from 2001 through 2003 (see fig. 4), but at lower rates and less consistently than for the focus countries. From 2001 through 2003, U.S. bilateral spending on other health-related foreign assistance programs was about three times greater than spending on HIV/AIDS programs in these countries and regions, although spending on HIV/AIDS programs grew more rapidly. From 2004 through 2008, U.S. bilateral spending on both global HIV/AIDS and other health programs increased overall, with greater spending on other health programs for the 5-year period.

Figure 4: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in Nonfocus Countries and Regional Programs with PEPFAR Operational Plans, Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

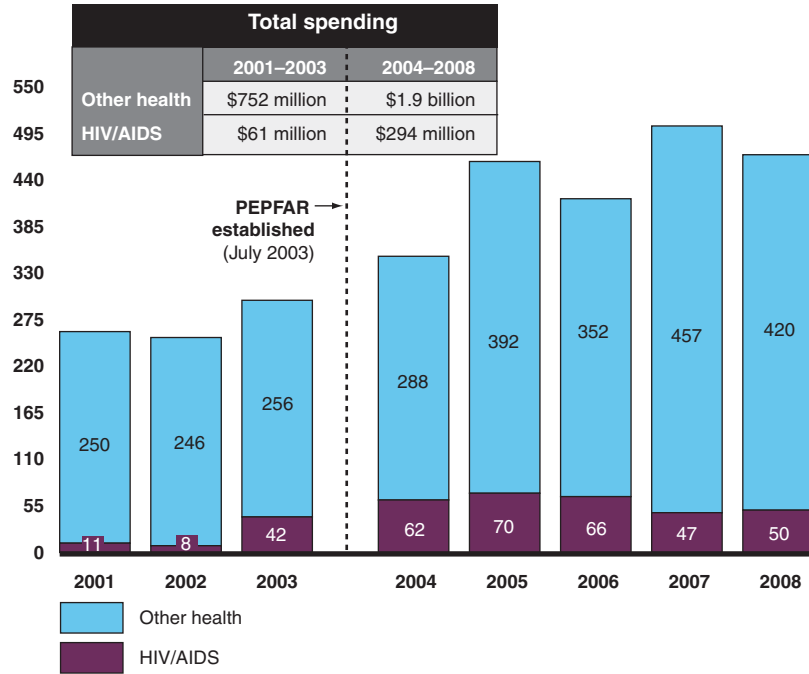
Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Other Countries Receiving U.S. Assistance for HIV/AIDS Programs

In all other countries that received some U.S. assistance for HIV/AIDS programs from 2001 through 2008 but did not submit PEPFAR operational plans—a total of 47 countries—U.S. bilateral spending on both HIV/AIDS and other health-related foreign assistance programs fluctuated from year to year but increased overall (see fig. 5). In addition, U.S. bilateral spending for other health programs greatly exceeded spending for HIV/AIDS programs both before and after the establishment of PEPFAR. From 2001 through 2003, U.S. bilateral spending on HIV/AIDS programs in these countries nearly quadrupled; spending on other health programs amounted to more than 12 times that for HIV/AIDS programs and increased slightly over the period. From 2004 through 2008, U.S. bilateral spending on other health programs continued to greatly exceed spending on HIV/AIDS-related programs in these countries; spending on both HIV/AIDS and other health programs fluctuated from year to year and grew at similar rates overall.

Figure 5: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in Other Countries Receiving HIV/AIDS Assistance, Fiscal Years 2001-2008

U.S. Dollars (in millions)



Source: GAO analysis of data from the Foreign Assistance Database.

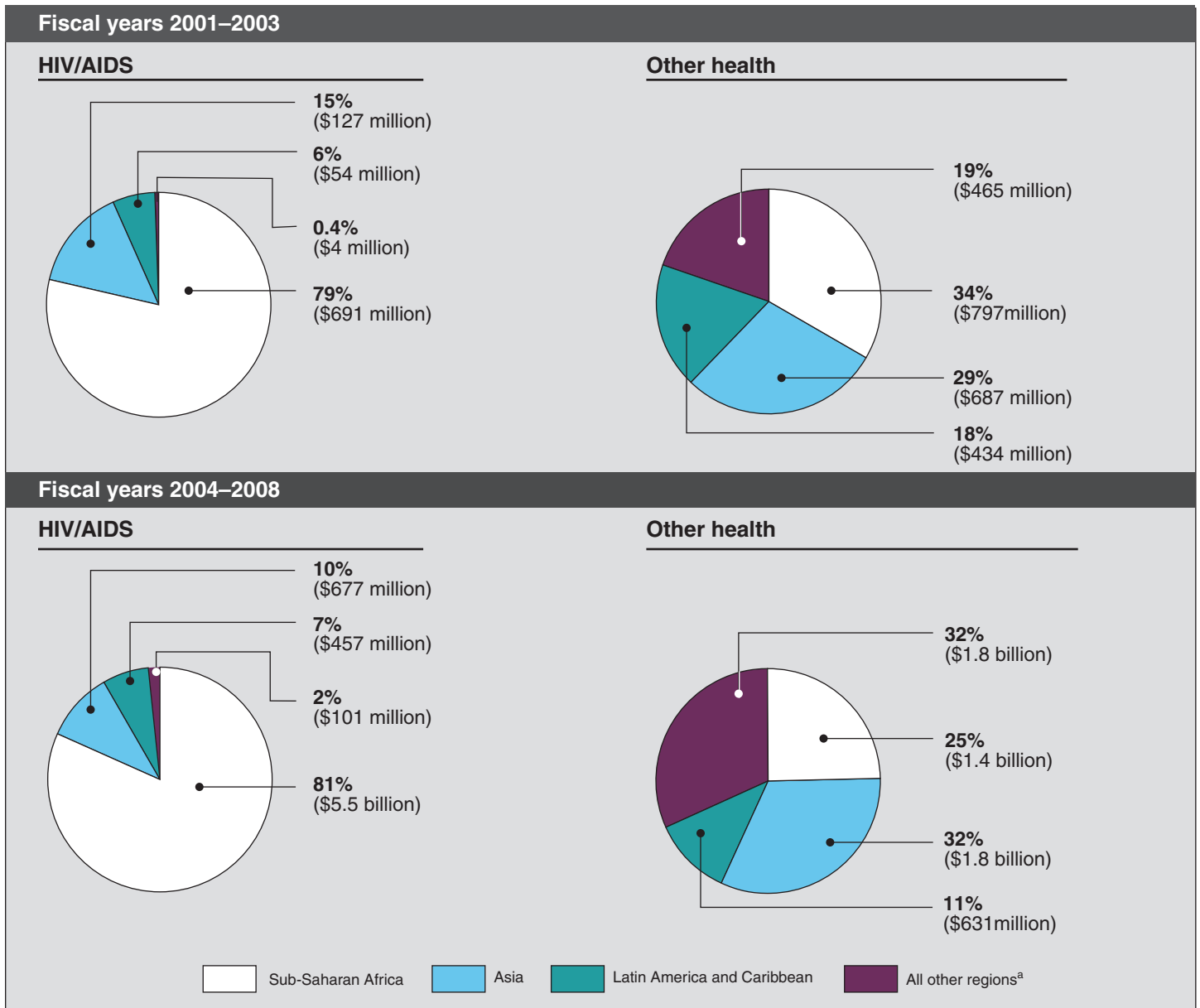
Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Spending Levels and Growth Rates Varied among Three Key Regions

In fiscal years 2001 through 2008, the majority of U.S. bilateral HIV/AIDS program spending was in sub-Saharan Africa, Asia, and Latin America and the Caribbean—three regions where the 15 PEPFAR focus countries and 14 of the 16 nonfocus countries with PEPFAR operational plans are located²³—with the greatest U.S. spending on global HIV/AIDS foreign assistance programs in sub-Saharan Africa. From 2004 through 2008, following the establishment of PEPFAR, the share of U.S. bilateral spending on other health programs directed to countries in sub-Saharan Africa and Latin America and the Caribbean declined, while the share of U.S. spending on other health programs in Asia and in other regions increased. (See fig. 6.)

²³From 2001-2008, U.S. disbursements for HIV/AIDS programs in Europe and Eurasia were less than 2 percent of all U.S. disbursements for HIV/AIDS programs worldwide and in North Africa and the Middle East were less than 1 percent of all U.S. disbursements for HIV/AIDS programs worldwide.

Figure 6: U.S. Health-Related Foreign Assistance Spending (in Constant Dollars), by Region, Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

Notes: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

^aOther regions include Europe, Eurasia, North Africa, and the Middle East.

Average annual growth rates in spending on HIV/AIDS and other health programs also varied significantly across these three regions (see table 4).

Table 4: Average Annual Growth Rates for Global U.S. HIV/AIDS and Other Health-Related Foreign Assistance Spending, by Region, Fiscal Years 2001-2008

	Percentage growth in HIV/AIDS spending	Percentage growth in other health spending
Pre-PEPFAR period		
Sub-Saharan Africa	104	- 2
Asia	182	9
Latin America and the Caribbean	187	- 7
PEPFAR period (first 5 years)		
Sub-Saharan Africa	37	18
Asia	13	10
Latin American and the Caribbean	29	1

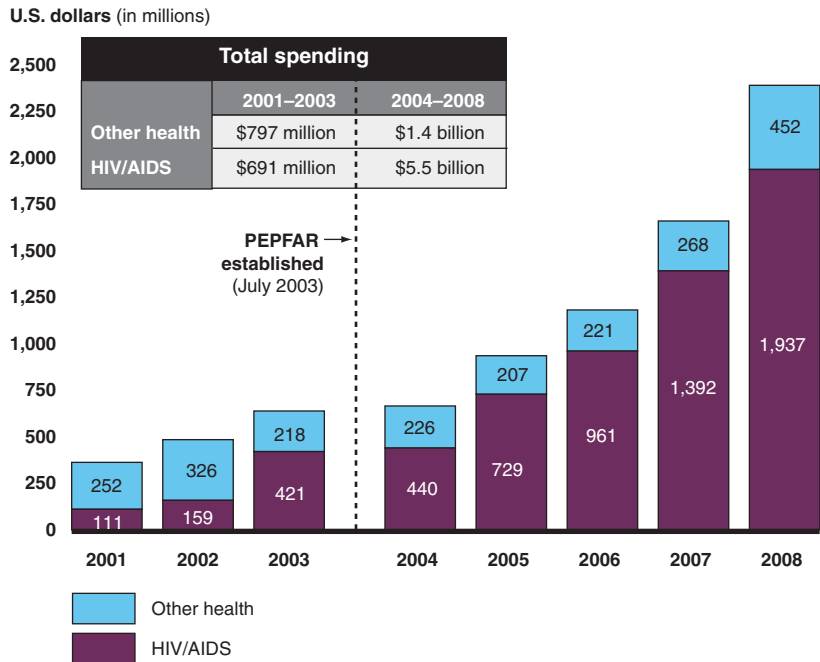
Source: GAO analysis of data from Foreign Assistance Database.

Sub-Saharan Africa

U.S. bilateral foreign assistance spending on HIV/AIDS programs in sub-Saharan Africa—which includes 12 of the 15 focus countries and 8 of the 16 nonfocus countries with PEPFAR operational plans²⁴— increased rapidly both before and after the establishment of PEPFAR. In 2003, U.S. bilateral spending on HIV/AIDS programs was nearly two times greater, and by 2008 was more than four times greater than spending on other health programs. U.S. bilateral spending on other health programs declined overall from 2001 to 2003 and remained steady from 2004 to 2007, but began to grow substantially in 2008. (See fig. 7.)

²⁴Sub-Saharan African focus countries are Botswana, Côte d'Ivoire, Ethiopia, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia. Countries in sub-Saharan Africa that submit COPs are Angola, the Democratic Republic of the Congo, Ghana, Lesotho, Malawi, Sudan, Swaziland, and Zimbabwe.

Figure 7: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in Sub-Saharan Africa, Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

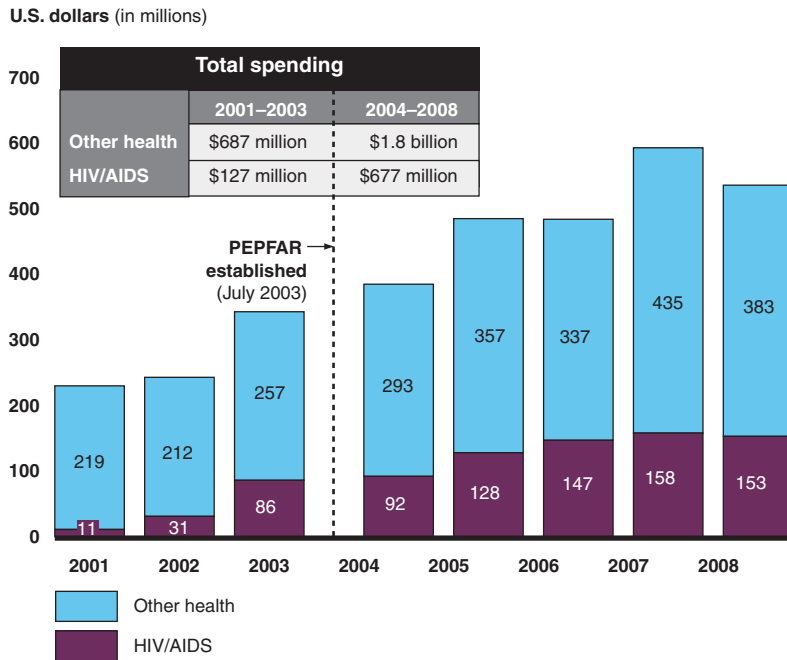
Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Asia

U.S. bilateral foreign assistance spending on both HIV/AIDS and other health-related foreign assistance programs in Asia—where 1 of the 15 focus countries as well as 5 nonfocus countries and 1 region that submit PEPFAR operational plans are located²⁵—increased overall from 2001 to 2008. Overall bilateral spending on other health programs was three times larger than spending on HIV/AIDS programs throughout the period. (See fig. 8.)

²⁵Vietnam is the only focus country in Asia. Nonfocus countries with COPs are Cambodia, China, India, Indonesia, and Thailand. In addition, countries in Central Asia (Tajikistan, Uzbekistan, Kazakhstan, Kyrgyz Republic, and Turkmenistan) submit a ROP.

Figure 8: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in Asia, Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

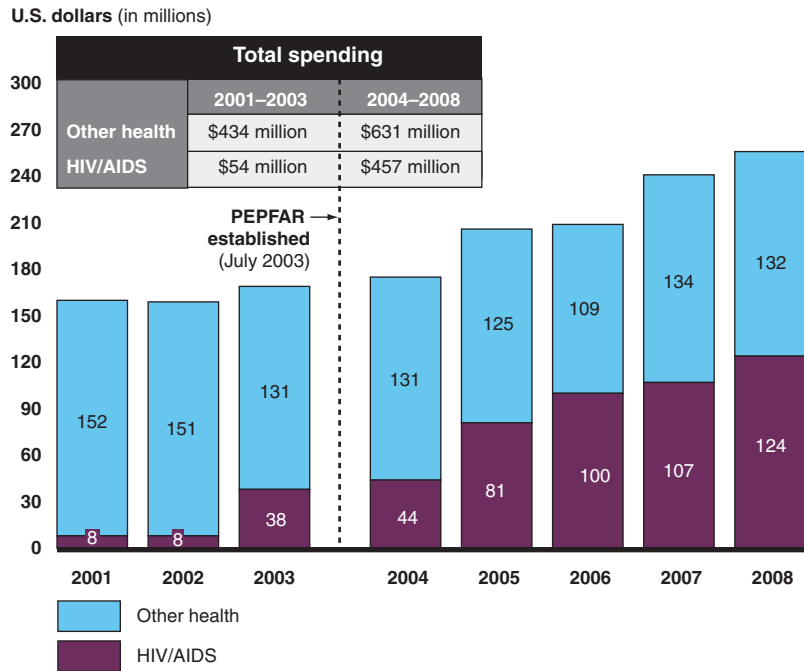
Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Latin America and the Caribbean

From 2001 through 2008, total U.S. bilateral foreign assistance spending on HIV/AIDS programs in Latin American and the Caribbean—where 2 of the 15 focus countries as well as a nonfocus country and two regions with PEPFAR operational plans are located²⁶—increased continuously. During this period, U.S. bilateral spending on other health programs in these countries and regions fluctuated from year to year and declined overall. Bilateral spending on other health programs was consistently greater than spending on HIV/AIDS programs during this period; however, in 2008, annual spending on HIV/AIDS programs was nearly equal to spending for other health programs (see fig. 9).

²⁶Focus countries in Latin American and the Caribbean are Guyana and Haiti. The Dominican Republic is the only nonfocus country in Latin America and the Caribbean that submits a COP. In addition, countries in Central America (Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama) and the Caribbean (Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent, Suriname, and Trinidad and Tobago) submit ROPs.

Figure 9: U.S. Health-Related Foreign Assistance Spending (Constant Dollars) in Latin American and the Caribbean, Fiscal Years 2001-2008



Source: GAO analysis of data from the Foreign Assistance Database.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Three Key HIV Treatment Costing Models Used to Inform Policy and Program Decisions

To inform policy and program decisions related, in part, to expanding efforts to provide ART in developing countries,²⁷ OGAC, USAID, and UNAIDS have adopted three different models for ART cost analyses.

- OGAC uses the PEPFAR ART Costing Project Model (PACM) to estimate and track PEPFAR-supported ART costs in individual PEPFAR countries and across these countries.²⁸

²⁷As previously noted, the 2008 Leadership Act called for a plan to increase the number of individuals on ART proportional to available funding and cost per patient. In addition, UNAIDS estimated that significant resources would be required to meet developing countries' HIV treatment and care goals in 2010.

²⁸Using PACM, PEPFAR reported on average HIV treatment costs in July 2010. See *Report to Congress on Costs of Treatment in the President's Emergency Plan for AIDS Relief (PEPFAR)*, www.pepfar.gov/documents/organization/144993.pdf.

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- USAID and its partners use the HIV/AIDS Program Sustainability Analysis Tool (HAPSAT) to estimate resources needed to meet individual countries' ART goals, among other things.
 - UNAIDS and USAID use a suite of models referred to as Spectrum²⁹ to project ART costs in individual countries and globally.

Table 5 provides information on the three costing models. For additional information on the components of these three models, see appendix III.

²⁹Spectrum is an integrated policy modeling software system, composed of several models that interact with one another to produce various health- and HIV/AIDS-related projections and estimates. The Spectrum system includes, for example, a demographic projection module (DemProj); a module for estimating key HIV/AIDS trends in new infections, deaths, treatment needs, and AIDS orphans (AIM); and a module for estimating the impact of prevention and treatment interventions on HIV incidence (Goals). For the purposes of this report, we refer to the Spectrum system as a single model.

Table 5: HIV Treatment Costing Models Used by OGAC, USAID, and UNAIDS

	PACM	HAPSAT	Spectrum
Background	OGAC began using PACM in 2008. PACM was developed by CDC and its implementing partner ICF Macro as part of the PEPFAR ART Costing Project, a public health evaluation intended to guide PEPFAR in program and policy development, inform the global community, and identify areas for possible further research.	USAID began using HAPSAT in Zambia in 2008. HAPSAT was created by Abt Associates as part of USAID’s Health Systems 20/20 program, which aims to strengthen health systems in developing countries by addressing financing, governance, operational, and capacity constraints of developing countries’ health systems.	UNAIDS began using Spectrum in 2001. Spectrum comprises a suite of policy models that UNAIDS and The Futures Group, with USAID’s support, integrated as part of USAID’s Health Policy Initiative. ^a The initiative aims to improve the policy environment for health in partner countries, specifically in family planning and reproductive health, HIV and AIDS, and maternal health.
Scope and purposes	<p><i>Scope</i></p> <ul style="list-style-type: none"> Individual PEPFAR countries (4 countries to date) All PEPFAR countries <p><i>Purposes</i></p> <ul style="list-style-type: none"> Estimate average annual per-patient costs of current HIV treatment programs Project cost of program expansion Estimate PEPFAR and non-PEPFAR shares of treatment costs Explore financial effects of potential program and policy changes 	<p><i>Scope</i></p> <ul style="list-style-type: none"> Individual countries (10 to date) <p><i>Purposes</i></p> <ul style="list-style-type: none"> Identify differences between total financial and human resources needed and those currently available (i.e., gap analysis) Assist partner country policymakers in assessing the financial and human resources required to deliver HIV treatment services, among other things^b 	<p><i>Scope</i></p> <ul style="list-style-type: none"> Individual countries (132 countries to date) Global <p><i>Purposes</i></p> <ul style="list-style-type: none"> Estimate the need for HIV treatment and other HIV/AIDS services Report on the status of the global HIV/AIDS epidemic^c
Data sources	PEPFAR-supported studies and expenditure analyses	Various sources, including implementing partners, partner country information, and international, regional and national studies	Various sources, including UNAIDS Reference Group on Estimates Modeling and Projections, ^d UNAIDS, and national and international studies

Source: GAO synthesis of information from OGAC, CDC, USAID, and The Futures Institute.

^aThe Futures Institute currently maintains the Spectrum Policy Modeling System.

^bHAPSAT also estimates resources needed for prevention of mother-to-child transmission, HIV testing and counseling, care for orphans and vulnerable children, prevention, and care and support to people living with HIV and AIDS.

^cUNAIDS uses the Estimation and Projection Package to estimate and report on the status of the global HIV/AIDS epidemic. UNAIDS uses the Resource Needs Model to estimate and report on the resources needed to meet annual targets.

^dIn May 2008, the UNAIDS Reference Group on Estimates, Modeling and Projections, which advises UNAIDS and the World Health Organization on HIV/AIDS estimates, recommended several changes to Spectrum’s epidemiological and ART costing model components.

Although the models have different purposes, a 2009 comparison study conducted by their developers found that the three models produced similar overall ART cost estimates given similar data inputs. According to the models' developers, data used for one model can be entered into another to generate cost estimates and projections. For example, cost data collected in Nigeria for use in HAPSAT were also used in PACM to inform PEPFAR global average treatment cost estimates. Such cost projections also can help decision makers to estimate the cost-related effects of policy and protocol changes, such as changes made in response to the World Health Organization's November 2009 recommendation that HIV patients initiate ART at an earlier stage of the disease's progression.

Agency Comments and Our Evaluation

In coordination with HHS and USAID, State's OGAC reviewed a draft of this report and provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the Secretary of State, the Office of the Global AIDS Coordinator, USAID Office of HIV/AIDS, HHS Office of Global Health Affairs, and CDC Global AIDS Program. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512-3149 or gootnickd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix IV.



David Gootnick
Director, International Affairs and Trade

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Appendix I: Scope and Methodology

Responding to legislative directives, this report examines U.S. bilateral foreign assistance spending on global HIV/AIDS and other health-related programs in fiscal years 2001-2008. The report also provides information on models used to estimate HIV treatment costs.

To examine trends in U.S. bilateral spending on global HIV/AIDS- and other health-related foreign assistance programs, we analyzed data from the Foreign Assistance Database (FADB) provided by the U.S. Agency for International Development (USAID),¹ interviewed State Department, USAID, and Health and Human Services (HHS) officials in Washington, D.C., and Centers for Disease Control and Prevention (CDC) officials in Atlanta. We also interviewed representatives of the Kaiser Family Foundation who have conducted similar research and analysis. We reviewed relevant articles and reports regarding international and U.S. global health assistance funding and examined relevant data on other donor and U.S. foreign assistance.

Congress, U.S. agencies, and research organizations use varying definitions of global health programs,² with inclusion of safe water and nutrition programs being one varying factor among definitions. Congress funds global health programs through a number of appropriations accounts: Foreign Operations; Labor, Education and Health; and Defense; and through several U.S. agencies. The State Department, USAID, and the HHS' CDC are the primary U.S. agencies receiving congressional appropriations to implement global health programs, including programs to combat HIV/AIDS. Through foreign operations accounts administered by USAID and State, Congress specifies support for five key global health programs: child survival and maternal health, vulnerable children, HIV/AIDS, other infectious diseases, and family planning and reproductive

¹As required by the Foreign Assistance Act of 1961, USAID collects and reports on U.S. foreign assistance, which is defined in the Act as “any tangible or intangible item provided by the United States Government to a foreign country or international organization under this or any other Act, including but not limited to any training, service, or technical advice, any item of real, personal or mixed property, any agricultural commodity, United States dollars, and any currencies of any foreign country which are owned by the United States Government.” USAID uses the FADB to track and report U.S. foreign assistance data to the Organisation for Economic Cooperation and Development (OECD) and supply data for the U.S. Overseas Loans and Grants, Obligations and Loan Authorizations database, commonly known as the Greenbook. See <http://www.usaid.gov/policy/greenbook.html>. The FADB includes data from State, USAID, HHS, and other U.S. agencies submitting data to USAID.

²See *U.S. Global Health Assistance: Background, Priorities, and Issues for the 111th Congress*, Congressional Research Service: Washington, D.C. (July 2009).

health. In addition, Congress specifies support for five key CDC global health programs: HIV/AIDS, malaria, global disease detection, immunizations, and other global health. CDC also allocates part of its tuberculosis and pandemic flu budget for international programs, and State and USAID may transfer funds to CDC for specific activities. In addition to these programs, USAID and CDC include other programs related to global health. For example, USAID reports specific nutrition and environmental health programs in its global health portfolio. Likewise, CDC also uses its resources to provide international technical assistance when requested, such as for disease outbreak response (e.g., pandemic influenza preparedness and prevention), or reproductive health.

The Committee on the U.S. Commitment to Global Health at the Institute of Medicine (IOM) defined global health programs as those aimed at improving health for all people around the world by promoting wellness and eliminating avoidable disease, disability and death. According to the Organisation for Economic Cooperation and Development (OECD), global health includes the following components: health care; health infrastructure; nutrition; infectious disease control; health education; health personnel development; health sector policy, planning and programs; medical education, training and research; and medical services. In its report on donor funding for global health, the Kaiser Family Foundation combined data from four OECD categories to construct its definition of global health: health; population policies and programs and reproductive health (which includes HIV/AIDS and sexually transmitted diseases); water supply and sanitation; and other social infrastructure and services.³

For the purposes of this report, we defined U.S. global spending for HIV/AIDS programs as foreign assistance for activities related to HIV/AIDS control, including information, education, and communication; testing; prevention; treatment; and care. We defined U.S. spending for other health-related programs as foreign assistance for general and basic health and population and reproductive health policies and programs (except those related to HIV/AIDS). General and basic health includes health policy and administrative management, medical education and training, medical research, basic health care, basic health infrastructure, basic nutrition, infectious disease control, health education, and health

³See The Henry J. Kaiser Family Foundation, *U.S. Global Health Policy: Donor Funding for Health In Low- and Middle-Income Countries, 2001-2007* (Menlo Park, CA: July 2009).

personnel development. Population and reproductive health policies and programs include population policy and administrative management, reproductive health care, family planning, and personnel development for population and reproductive health.

The specific analyses presented in this report examine disbursement levels and growth trends from fiscal years 2001 to 2008 for bilateral HIV/AIDS and other health-related foreign assistance programs by time period (pre-PEPFAR and first 5 years of PEPFAR for all countries); PEPFAR country status (focus countries with PEPFAR operational plans, nonfocus countries with PEPFAR country or regional operational plans,⁴ and other nonfocus countries receiving HIV/AIDS-related foreign assistance from 2001 to 2008); and region (sub-Saharan Africa, Latin America and the Caribbean, and Asia, which received the majority of U.S. spending on bilateral HIV/AIDS-related foreign assistance).

We examined disbursements—amounts paid by federal agencies to liquidate government obligations⁵—of U.S. bilateral foreign assistance for global HIV/AIDS and other health programs, because, unlike other data, disbursement data directly reflect the foreign assistance reaching partner countries. We used USAID’s deflator to convert nominal dollar amounts to constant 2010 dollar amounts, which are appropriate for spending trend analysis.⁶ As such, it is important to remember that the disbursement figures for HIV/AIDS- and other health-related foreign assistance programs presented in this report differ from appropriation or commitment data which may be reported elsewhere. Because we focused on bilateral disbursements, our analysis excludes U.S. contributions to the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria. In addition, about \$4.7 billion and \$3.3 billion in disbursements for HIV/AIDS programs and other health-related foreign assistance programs, respectively, from 2001 to 2008, were not specified for an individual country or region in the FADB. As such, our analysis of bilateral spending levels and growth trends by

⁴According to OGAC, for PEPFAR’s second 5-year phase, no distinction exists between focus countries and other countries receiving bilateral HIV/AIDS-related foreign assistance.

⁵According to OECD guidelines, a disbursement is the placement of resources at the disposal of a recipient country or agency. See OECD Development Assistance Committee, *Reporting Directives for the Creditor Reporting System* (Paris: 2007).

⁶The official deflator for the U.S. Overseas Loans and Grants data is the “GDP Chain Price Index” deflator, which is produced and reported annually by the Department of Commerce, Bureau of Economic Analysis. This index is currently used by the Development Assistance Committee (DAC) of OECD to convert U.S. foreign assistance flows into constant dollars.

PEPFAR country status and geographical region excludes these disbursements.

We assessed the reliability of disbursement data from the FADB and determined them to be sufficiently reliable for the purposes of reporting in this manner. In assessing the data, we interviewed USAID officials in charge of compiling and maintaining the FADB, reviewed the related documentation, and compared data to published data from other sources.⁷ We also determined that, in general, USAID takes steps to ensure the consistency and accuracy of the disbursements data reported by U.S. government agencies, including by verifying possible inconsistencies or anomalies in the data received, providing guidance and other communications to agencies about category definitions, and comparing the data to other data sources. Although we did not assess the reliability of the data for complex statistical analyses, we determined that the data did not allow the identification of causal relationships between funding levels over time or among relevant categories; as such, we did not attempt an empirical analysis of the impact of PEPFAR on other health funding.

To describe models used to estimate the cost of providing antiretroviral therapy (ART), we interviewed State Office of the Global AIDS Coordinator, USAID and CDC officials in Washington, D.C., and Atlanta. We also interviewed Joint United Nations Programme on HIV/AIDS (UNAIDS) officials in Washington, D.C. and Geneva, Switzerland, as well as developers of the costing models. We analyzed user manuals and guides for these models, as well as spreadsheets and additional information and technical comments provided by the U.S. agencies and model developers. We reviewed relevant literature for information on ART costing models, as well as the Leadership Act and previous GAO work regarding requirements and importance of cost information for program decision making.

⁷In the course of our investigations into the reliability of the FADB data, we determined that in 2007 USAID switched from using strategic objective foreign assistance categories to F Framework categories. Despite this change, we determined that the data provided by USAID are consistently categorized across the entire 2001-2008 timeframe, as USAID uses common identifiers to match the data from the two time periods (2001-2006 and 2007-2008).

Appendix II: U.S. Spending on Global HIV/AIDS and Other Health-Related Programs

For fiscal years 2001 to 2008, U.S. bilateral foreign assistance spending for HIV/AIDS-related health programs varied significantly by country for both the 15 PEPFAR focus countries and the 16 countries and three regions with PEPFAR operational plans.

Table 6 presents U.S. bilateral foreign assistance spending in constant dollars, by country, on HIV/AIDS programs, for fiscal years 2001-2008. As noted in appendix I, we converted nominal dollar amounts to constant 2010 dollars, which are appropriate for analysis of trends in U.S. foreign assistance spending in global health, but do not represent in-year actual spending amounts.

Table 6: U.S. Foreign Assistance Spending on HIV/AIDS Programs, by Country, Fiscal Years 2001-2008 (2010 constant U.S. dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	Total 2001-2003	Total 2004-2008
15 PEPFAR focus countries										
South Africa	16,048,632	18,483,702	42,365,523	38,049,723	74,108,994	122,224,063	199,153,449	293,828,532	76,897,857	727,364,762
Nigeria	1,337,867	14,295,252	47,830,438	62,885,643	74,995,768	80,850,916	158,901,929	255,684,352	63,463,557	633,318,607
Kenya	8,831,314	19,070,399	46,998,263	44,474,157	63,051,042	124,738,409	167,107,618	227,969,937	74,899,976	627,341,162
Uganda	-	-	25,560,558	44,206,989	103,268,290	108,890,976	166,286,916	190,623,547	25,560,558	613,276,718
Zambia	15,330,545	22,791,657	36,020,408	33,931,371	62,458,419	90,897,679	106,636,519	131,714,977	74,142,610	425,638,966
Tanzania	11,160,709	15,161,132	27,593,455	37,227,079	52,334,139	74,660,768	110,452,172	113,026,745	53,915,296	387,700,903
Ethiopia	15,037	467,557	19,353,078	22,041,516	39,642,795	62,021,132	72,331,271	122,474,184	19,835,672	318,510,899
Mozambique	-	361	7,516,469	15,276,546	35,750,077	39,485,643	66,382,310	102,513,531	7,516,830	259,408,108
Botswana	-	-	12,539,884	6,545,700	20,130,412	18,008,236	40,585,239	162,401,023	12,539,884	247,670,611
Rwanda	-	-	6,781,692	11,767,714	28,287,289	34,878,486	70,635,859	56,516,620	6,781,692	202,085,968
Haiti	-	73,859	5,285,590	7,107,505	24,804,871	45,064,398	52,808,689	57,850,119	5,359,448	187,635,583
Namibia	227,997	994,597	8,064,561	8,862,223	18,809,931	35,812,414	45,494,188	63,352,251	9,287,155	172,331,006
Côte d'Ivoire	-	-	9,149,444	4,153,285	12,594,137	23,422,109	26,240,893	80,191,655	9,149,444	146,602,079
Vietnam	-	-	4,045,502	7,082,079	14,362,056	24,233,691	26,026,779	40,953,716	4,045,502	112,658,322
Guyana	13,127	58,656	3,554,819	4,663,648	11,332,843	16,876,466	16,424,763	23,834,016	3,626,601	73,131,736
Other countries and regions with PEPFAR operational plans										
India	-	4,574,166	17,909,477	26,451,046	28,021,107	23,373,610	27,053,726	30,786,736	22,483,643	135,686,225
Zimbabwe	5,088,552	4,944,123	19,349,541	8,814,916	28,705,833	18,339,247	38,242,293	19,858,432	29,382,216	113,960,721
Malawi	10,852,744	21,075,277	20,290,520	19,316,688	22,752,913	24,130,246	23,833,371	21,911,449	52,218,541	111,944,665
Cambodia	1,353,765	5,824,861	16,244,556	10,174,775	21,423,537	21,606,071	25,229,684	18,779,954	23,423,182	97,214,021
Russia	-	18,922	1,218,611	4,954,941	8,947,172	16,311,757	13,094,370	11,771,196	1,237,533	55,079,436
Angola	616,384	3,934,991	8,089,555	11,365,570	13,737,866	12,162,630	7,680,294	8,170,418	12,640,929	53,116,778
Indonesia	2,302,976	6,180,037	9,449,889	12,872,946	10,859,871	9,069,841	9,357,305	9,633,627	17,932,901	51,793,590
Caribbean Region	-	1,134,134	6,309,198	5,730,494	8,661,130	8,322,490	7,189,362	10,189,546	7,443,332	40,093,022

**Appendix II: U.S. Spending on Global
HIV/AIDS and Other Health-Related Programs**

	2001	2002	2003	2004	2005	2006	2007	2008	Total 2001 -2003	Total 2004-2008
Democratic Republic of the Congo	-	-	2,977,438	5,902,646	5,457,622	7,984,419	7,436,350	8,876,260	2,977,438	35,657,296
Thailand	46,851	198,146	7,280,801	1,816,064	9,886,758	6,163,900	8,339,482	6,084,086	7,525,798	32,290,291
Central American Region	7,792,189	3,529,346	4,693,362	3,961,230	4,453,498	6,281,997	8,030,335	8,538,223	16,014,896	31,265,283
Ghana	2,217,333	586,135	5,317,071	5,653,412	4,982,731	8,855,386	6,681,921	4,197,732	8,120,539	30,371,183
Ukraine	-	-	489,945	1,216,802	4,905,134	8,068,000	5,648,097	6,815,554	489,945	26,653,587
Dominican Republic	-	545,935	3,261,054	5,529,282	6,196,222	5,770,205	4,986,430	2,559,043	3,806,989	25,041,183
Honduras	-	409,553	1,760,789	3,077,523	7,556,126	3,011,259	5,412,683	4,690,969	2,170,342	23,748,561
China	-	-	2,597,832	-	3,953,439	3,500,436	5,025,160	6,852,195	2,597,832	19,331,231
Sudan	-	-	-	114,552	1,776,580	3,240,105	5,592,162	7,438,980	-	18,162,379
Central Asian Region	-	6,865	402,535	1,709,819	1,901,328	2,954,038	2,396,795	1,748,053	409,400	10,710,033
Swaziland	-	-	-	114,552	1,471,576	343,126	2,202,730	5,310,586	-	9,442,571
Lesotho	-	-	-	114,552	1,138,509	399,764	2,856,823	4,225,066	-	8,734,715
Kazakhstan	-	-	331,547	834,161	880,922	2,406,394	783,873	1,316,426	331,547	6,221,776
Tajikistan	-	-	679,646	410,867	2,067,015	712,412	1,994,454	906,020	679,646	6,090,768
Jamaica	-	465,430	1,566,703	1,400,820	444,642	866,133	1,286,451	1,809,118	2,032,133	5,807,163
Uzbekistan	-	-	(105,763)	536,764	1,097,456	772,614	1,636,799	1,168,706	(105,763)	5,212,339
Kyrgyzstan	-	-	64,797	611,399	792,761	630,079	1,844,453	1,240,418	64,797	5,119,111
Guatemala	-	-	349,345	197,605	616,200	1,086,397	771,707	2,285,135	349,345	4,957,044
El Salvador	-	-	118,012	460,073	875,283	666,294	1,046,442	849,494	118,012	3,897,586
Nicaragua	-	-	590,059	-	334,339	396,152	947,395	896,028	590,059	2,573,914
Turkmenistan	-	-	122,543	19,795	160,387	17,142	145,069	317,816	122,543	660,209
Trinidad and Tobago	-	-	-	-	252	105,718	156,306	109,131	-	371,407
Barbados	-	-	-	-	-	68,772	130,091	63,753	-	262,615
Suriname	-	-	-	-	-	-	64,935	-	-	64,935
Panama	-	-	-	-	4,852	60,112	1,448	-	-	66,412
Spending not directed to specific country or region	73,859,916	112,633,502	150,881,844	619,850,317	783,272,254	918,934,546	1,007,153,610	1,068,106,489	337,375,262	4,397,317,218

Source: GAO synthesis of Foreign Assistance Database data.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

For fiscal years 2001 to 2008, U.S. bilateral foreign assistance spending for other health programs also varied significantly by country for both the 15 PEPFAR focus countries and the 16 countries and three regions with PEPFAR operational plans.

**Appendix II: U.S. Spending on Global
HIV/AIDS and Other Health-Related Programs**

Table 7 presents U.S. bilateral foreign assistance spending in constant dollars, by country, on other health-related (i.e., non-HIV/AIDS) programs, for fiscal years 2001-2008. As noted in appendix I, we converted nominal dollar amounts to constant 2010 dollars, which are appropriate for analysis of trends in U.S. foreign assistance spending in global health, but do not represent in-year actual spending amounts.

Table 7: U.S. Foreign Assistance Spending on Other Health-Related Programs, by Country, Fiscal Years 2001-2008 (2010 constant U.S. dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	Total 2001-2003	Total 2004-2008
15 PEPFAR focus countries										
South Africa	-	642,928	536,924	637,184	1,711,210	315,783	692,179	2,610,367	1,179,853	5,966,723
Nigeria	7,071,754	8,981,092	5,132,871	9,494,428	11,751,580	22,267,741	27,650,724	39,819,797	21,185,717	110,984,270
Kenya	-	1,307,939	596,414	871,479	6,188,546	4,155,779	7,776,767	11,438,335	1,904,353	30,430,906
Uganda	13,334,327	26,646,363	21,591,590	7,492,819	4,103,926	5,757,087	6,269,648	25,367,559	61,572,280	48,991,038
Zambia	-	-	1,130,907	970,414	6,918,035	9,010,464	15,849,677	24,603,244	1,130,907	57,351,834
Tanzania	86,967	465,462	1,180,118	1,176,758	1,772,919	9,232,670	21,394,144	29,188,137	1,732,547	62,764,630
Ethiopia	17,889,719	27,070,713	23,079,023	33,581,494	22,394,202	23,901,143	22,581,696	26,594,142	68,039,455	129,052,678
Mozambique	14,172,689	17,683,920	27,015,156	19,205,643	8,283,073	11,687,475	17,287,779	29,465,820	58,871,765	85,929,790
Botswana	-	-	-	218,190	-	-	-	1,351,797	-	1,569,986
Rwanda	8,024,114	9,885,196	8,892,109	5,176,306	3,610,692	5,207,555	11,758,852	24,993,875	26,801,419	50,747,281
Haiti	21,647,890	14,791,259	29,180,754	18,872,184	21,286,606	17,918,642	29,149,488	17,024,611	65,619,903	104,251,531
Namibia	-	-	-	-	-	-	53,977	44,292	-	98,269
Côte d'Ivoire	-	-	-	5,397,186	962,707	-	255,510	85,546	-	6,700,949
Vietnam	6,135	-	333,774	661,542	336,112	1,237,627	1,437,274	537,785	339,909	4,210,340
Guyana	-	-	-	-	-	-	-	-	-	-
Other countries and regions with PEPFAR operational plans										
India	39,436,982	38,363,965	60,811,954	45,179,946	46,575,546	51,836,433	53,668,877	51,863,556	138,612,900	249,124,358
Indonesia	20,969,410	31,158,393	36,698,269	34,366,143	19,196,268	11,300,430	8,958,503	29,507,966	88,826,072	103,329,310
Democratic Republic of the Congo	2,903,118	2,093,357	1,848,945	2,568,284	13,192,309	23,278,589	11,572,186	31,232,665	6,845,420	81,844,032
Cambodia	10,478,340	5,735,954	12,353,640	13,653,855	15,287,869	16,050,879	16,511,453	16,566,756	28,567,933	78,070,812
Russia	5,551,752	3,852,078	11,575,772	11,570,558	10,785,144	16,469,615	15,921,013	13,734,915	20,979,602	68,481,246
Ghana	8,900,493	27,922,188	16,884,294	17,564,377	11,261,719	12,430,681	9,666,559	14,993,433	53,706,974	65,916,770
Guatemala	17,953,097	13,293,495	17,305,016	13,756,172	7,378,114	11,039,665	13,286,846	16,215,611	48,551,608	61,676,409
Sudan	4,169,807	3,696,536	4,117,388	4,696,917	8,374,372	7,358,296	18,623,479	16,383,150	11,983,731	55,436,214
Ukraine	14,141,759	10,525,226	9,551,119	11,393,648	6,582,653	11,535,442	10,631,224	6,217,093	34,218,104	46,360,059
El Salvador	16,163,250	12,629,439	8,989,099	8,949,460	8,602,628	4,364,329	9,627,072	13,569,480	37,781,787	45,112,970
Nicaragua	14,340,486	14,545,548	11,721,469	9,166,913	9,121,104	7,522,834	8,256,773	7,801,058	40,607,503	41,868,682
Honduras	12,435,410	11,525,763	8,810,391	11,065,723	7,669,492	8,838,321	8,049,523	5,816,343	32,771,563	41,439,401
Uzbekistan	6,333,206	7,436,859	10,743,800	18,611,847	10,159,145	7,152,350	3,202,060	3,114,916	24,513,865	42,240,319
Angola	1,685,074	1,916,323	1,561,393	330,118	2,271,732	2,614,691	7,412,588	23,672,142	5,162,791	36,301,270

**Appendix II: U.S. Spending on Global
HIV/AIDS and Other Health-Related Programs**

	2001	2002	2003	2004	2005	2006	2007	2008	Total 2001-2003	Total 2004-2008
Dominican Republic	6,512,502	8,469,387	7,725,266	8,544,942	7,939,986	5,816,901	6,815,686	6,701,638	22,707,155	35,819,153
Tajikistan	1,545,894	2,396,069	4,239,750	9,697,111	5,060,773	4,474,397	4,469,502	2,215,686	8,181,713	25,917,469
Malawi	284,245	103,554	581,854	468,267	728,616	1,113,923	1,504,793	19,707,663	969,653	23,523,262
Kazakhstan	8,206,508	6,806,391	9,429,147	6,509,797	5,717,303	5,613,269	4,434,685	1,941,887	24,442,046	24,216,942
Kyrgyzstan	3,541,978	4,151,040	4,579,973	5,165,386	4,407,559	5,214,893	3,362,503	4,274,822	12,272,991	22,425,164
Central Asian Region	8,163,766	6,724,978	10,488,611	8,549,673	3,499,533	3,112,175	2,810,935	2,373,481	25,377,355	20,345,796
China	1,318,618	5,373,978	3,869,050	4,411,845	1,111,719	2,145,173	6,995,093	3,786,521	10,561,646	18,450,352
Jamaica	4,028,637	5,460,021	2,895,379	2,807,180	3,048,744	2,566,568	3,060,361	1,950,008	12,384,037	13,432,861
Thailand	-	-	347,576	-	64,956	3,573,859	3,614,376	3,812,777	347,576	11,065,968
Turkmenistan	256,620	1,900,526	1,967,380	1,787,071	1,339,246	1,892,409	2,213,880	1,701,114	4,124,526	8,933,720
Central American Region	-	-	(14,918)	-	334,339	-	820,584	685,493	(14,918)	1,840,416
Costa Rica	-	-	-	-	-	-	90,366	801,184	-	891,549
Zimbabwe	-	-	-	-	-	-	10,634	860,160	-	870,794
Lesotho	-	-	-	-	-	-	181,512	562,420	-	743,932
Caribbean Region	-	-	-	-	237,718	-	-	71,736	-	309,455
Panama	-	-	-	-	-	718	-	-	-	718
Spending not directed to specific country or region	533,774,432	592,821,990	409,542,728	448,234,645	486,709,664	487,205,335	322,427,663	555,125,445	1,536,139,150	2,299,702,752

Source: GAO synthesis of Foreign Assistance Database data.

Note: For this analysis, nominal dollar amounts were adjusted to reflect 2010 constant dollar values.

Appendix III: ART Patient and Cost Categories, by Costing Model

To estimate total cost of ART, three key models—the PEPFAR ART Costing Project Model (PACM), HIV/AIDS Program Sustainability Analysis Tool (HAPSAT), and Spectrum—all consider the number of patients¹ and various drug and nondrug cost estimates. PACM and HAPSAT also address overhead costs in total cost calculations. This appendix presents the specific drug and nondrug costs that each model considers in making estimates.

PACM

PACM categorizes ART patients as adult or pediatric, new or established, receiving first- or second-line ARV drugs, receiving generic or innovator ARV drugs, and living in a low- or middle-income country. In addition, PACM considers the following cost categories:

- *Drug costs.*² PACM categorizes ARV drug costs as generic or innovator and first- or second-line.³ For each of these categories, PACM accounts for costs associated with supply chain, wastage, inflation, and ARV buffer stock.
- *Nondrug costs.* PACM categorizes nondrug costs as recurrent and investment costs. Recurrent costs include personnel, utilities, building, lab supplies, other supplies, and other drugs; facility-level management and overhead costs are also captured. Investment costs include training, equipment, and construction.
- *Overhead.* PACM categorizes above-facility-level overhead costs as U.S. government, partner government, and implementing partner overhead, as well as U.S. government indirect support to partner governments (e.g., U.S. government support for system strengthening or capacity building of the national HIV/AIDS program).

¹The number of ART patients in a given country is a subset of the number of people who are eligible to receive ART. This group is a subset of the number of people who are HIV positive, which is in turn a subset of a country's general population.

²PACM further categorizes drug and nondrug costs as costs associated with adult or pediatric patients, and costs in low- or middle-income countries. In addition, PACM monitors changes in drug and nondrug unit costs by quarter and year.

³These categories are not mutually exclusive. For example, a patient could receive ARV medication that is both first line and generic.

Appendix III: ART Patient and Cost Categories, by Costing Model

Table 8 summarizes how PACM categorizes numbers of patients and various unit costs to calculate the total cost of ART based on estimates of PEPFAR and non-PEPFAR shares of costs derived from PEPFAR-funded empirical studies.

Table 8: PACM ART Patient and Cost Categories

Further categorized by	Number of ART patients, categorized by quarter for adult or vs. pediatric and low- or vs. middle-income countries	Unit cost of ART	Cost subtotals	Total cost of ART
	Number of patients categorized as new or established	x Average annual per patient recurrent costs (including personnel, utilities, building, lab supplies, travel, contracted services, other supplies, and other drugs) for each subcategory of ART patients times annual inflation rate for non-ARV costs ^a	= Non-ARV recurrent costs	
Established	Number of established patients	x Average annual per patient investment costs (including training, equipment, and new infrastructure) for each subcategory of established ART patients times annual inflation rate for non-ARV costs	=	Nondrug costs
New	Number of new patients	x Average annual per patient investment costs (including training, equipment, and new infrastructure) for each subcategory of ART patients times the percent of future scale-up not within existing capacity times annual inflation rate for non-ARV costs	= Non-ARV investment costs ^b	
First-line and supply chain management	Number of patients receiving generic first-line ARVs	x Average cost of generic first-line ARVs for each subcategory of ART patients. (ARV wastage, ARV markup for supply chain, and annual ARV price inflation also included.)	=	Drug costs
	Number of patients receiving innovator first-line ARVs	x Average cost of innovator first-line ARVs for each subcategory of ART patients. (ARV wastage, ARV markup for supply chain, and annual ARV price inflation also included.)	= ARV costs	
Second-line and supply chain management	Number of patients receiving generic second-line ARVs	x Average cost of generic second-line ARVs for each subcategory of ART patients. (ARV wastage, ARV markup for supply chain, and annual ARV price inflation also included.)	=	

Appendix III: ART Patient and Cost Categories, by Costing Model

Further categorized by	Number of ART patients, categorized by quarter for adult or vs. pediatric and low- or vs. middle-income countries	Unit cost of ART	Cost subtotals	Total cost of ART
	Number of patients receiving innovator second-line ARVs	x Average cost of innovator second-line ARVs for each subcategory of ART patients. (ARV wastage, ARV markup for supply chain, and annual ARV price inflation also included.)	=	
Buffer stock and supply chain management ^c	Number of new patients expected to receive generic ARVs	x Average cost of generic first-line ARVs for each subcategory of ART patients	=	ARV costs (continued)
	Number of new patients expected to receive innovator ARVs	x Average cost of innovator first-line ARVs for each subcategory of ART patients	=	
				Implementing partner overhead (estimated as a percentage of non-ARV costs) ^d
				PEPFAR agency overheads, (estimated as a percentage of ARV and non-ARV costs) ^e
				Country government overheads (estimated as a percentage of ARV and non-ARV costs) ^{f,g}
				U.S. government indirect support ^h

Source: GAO synthesis of OGAC information.

^aPACM distinguishes between newly initiated ART patients and established patients because newly initiating patients represent a greater expense due to intensive clinical and laboratory follow-up in the first 6 months of ART.

^bPACM estimates non-ARV investment costs for established patients as resources needed to maintain existing capital stock, taking into consideration annual depreciation. For new patient slots, PACM estimates a unit cost of investment in new laboratories, treatment clinics, and trained personnel.

^cPACM also accounts for transition of established patients to new regimens and the addition of new patient slots.

^dPACM includes a percentage value for implementing partner overhead. OGAC officials told us they are working with PEPFAR implementing officials to better understand implementing partners' administrative expenses.

^ePACM typically leaves the value for PEPFAR agency overheads at zero within the model because PEPFAR administrative costs are budgeted across programs later.

^fPACM estimates country government overheads only for those program costs that are paid by the partner country.

^gPACM includes the percentage value for country government overheads of 25 percent for demonstrative purposes.

^hPACM does not generate an estimate for USG annual contribution for country indirect support. This is a policy input.

³PACM does not include the cost of host country government overheads when the user of the model chooses to estimate only PEPFAR funding with the model.

HAPSAT

HAPSAT categorizes current ART patients as those receiving first- or second-line ARV drugs. In addition, HAPSAT considers the following cost categories:

- *Drug costs.* HAPSAT categorizes drug costs as first- or second-line ARV drugs.
- *Nondrug costs.* HAPSAT categorizes nondrug costs as labor⁴ (e.g., doctor, nurse, lab technician salaries) and laboratory costs.
- *Overhead.* HAPSAT categorizes overhead as administrative costs, drug supply chain, monitoring and evaluation, and training, based on country data. Overhead estimates are applied at both the facility and above-facility level.

Table 9 summarizes how HAPSAT categorizes numbers of patients and various unit costs to calculate the total cost of ART.

⁴HAPSAT labor cadre categories include each type of labor required, including doctors, nurses, and pharmacists.

Appendix III: ART Patient and Cost Categories, by Costing Model

Table 9: HAPSAT ART Patient and Cost Categories

Number of ART patients	Unit cost of ART	Cost subtotals	Total cost of ART
Number of known eligible people receiving first-line ARVs	x Average first-line ARV cost per patient per year times 15% markup on drugs for supply chain management overhead and freight	=	Drugs and supplies Drug costs
Number of known eligible people receiving second-line ARVs	x Average second-line ARV cost per patient per year times 15% markup on drugs for supply chain management overhead and freight	=	
Number of known eligible people receiving ART	x Unit cost of each labor cadre times health worker annual percentage salary escalation	=	Labor Nondrug costs
Number of known eligible people receiving first-line ARVs, second-line ARVs, and number of people for whom treatment failed	x ART lab test unit cost	=	Laboratory Nondrug costs
			General overhead (estimated to be 10% of total cost of labor, drugs and supplies, and laboratory)
			Monitoring and evaluation (estimated to be 10% of total cost of labor, drugs and supplies, and laboratory)
			Drug supply chain overhead and freight (estimated to be 10% of total cost of labor, drugs and supplies, and laboratory)
			HIV service training (estimated to be 0% of total cost of labor, drugs and supplies, and laboratory)
			Implementing partner and donor overhead (estimated to be 20% or less of total cost of labor, drugs and supplies, and laboratory, depending on donor)

Source: GAO synthesis of USAID information.

Spectrum

Spectrum⁵ categorizes current ART patients as adult or pediatric and receiving first- or second-line ARV drugs. In addition, Spectrum considers the following cost categories:

- *Drug costs.* Spectrum categorizes drugs costs as first- or second-line ARV drugs.
- *Nondrug costs.* Spectrum categorizes nondrug costs as laboratory and service delivery (i.e., hospital and clinic stays). Service delivery costs include inpatient hospital and outpatient clinic costs.

Table 10 summarizes how Spectrum categorizes numbers of patients and various unit costs to calculate the total cost of ART.

Table 10: Spectrum ART Patient and Cost Categories

Number of ART patients, categorized as adult or pediatric	Unit cost of ART			Cost subtotals	Total cost of ART
Number of patients on first-line ARVs	x	Average cost of first-line ARVs per patient	=	ARVs	Drug costs
Number of patients on second-line ARVs	x	Average cost of second-line ARVs per patient	=		
Number of patients on first- and second-line ARVs	x	Average lab cost per patient	=	Laboratory	Nondrug costs
Number of days per year the average first-line patient is in the hospital	x	unit cost for the hospital	=	Service delivery	
Number of outpatient clinic visits per year for an average first-line patient	x	unit cost for the clinic services	=		
Number of days per year the average second-line patient is in the hospital	x	unit cost for the hospital	=		
Number of outpatient clinic visits per year for an average second-line patient	x	unit cost for clinic services	=		

Source: GAO synthesis of information provided by UNAIDS and the Futures Institute.

⁵Spectrum is an integrated policy modeling software system, composed of several models that interact with each other to produce various health- and HIV/AIDS-related projections and estimates. The Spectrum system includes the AIDS Impact Model and DemProj, among other components. For this report, we refer to the Spectrum system as one model.

Appendix IV: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

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