The Impact of The President’s Emergency Plan for AIDS Relief (PEPFAR) beyond HIV and Why It Remains Essential

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Recent debate has addressed whether global health financing should prioritize interventions that maximize lives saved; focus on the young; and are most economically efficient (most cost-effective). In particular, some have argued that an expansion of the President’s Emergency Plan for AIDS Relief (PEPFAR) is not the best use of international health funding, and that extending funding to treat diarrheal and respiratory disease could save more lives at substantially lower costs. We examine the methods of cost-effectiveness analysis and why their application, without context, may not be appropriate for priority setting in this fashion. We further address the substantial impact PEPFAR has achieved in general and more specifically toward improving maternal and child health and why continued PEPFAR investment remains essential.

With new leadership in the White House and the US State Department, international aid priorities are being reassessed, including the substantial US commitment to finance prevention and treatment of human immunodeficiency virus (HIV) and AIDS through the President’s Emergency Plan for AIDS Relief (PEPFAR). In a world of multiple competing priorities and enormous unmet medical need, PEPFAR stands out for its success in terms of lives saved and benefits to maternal and child health in resource-limited countries [1–4]. In early May 2009, the Obama administration announced a renewed 6-year, $63 billion commitment to global health. Financial pledges of such magnitude offer the opportunity to revisit the most cost-effective distribution of these resources—potentially focusing on alternatives or complements to PEPFAR [5, 6]. Rather than expand PEPFAR, one proposal has been to invest instead in an expanded mother/child health campaign [7].

MAXIMIZING LIFE EXPECTANCY AND COST-EFFECTIVENESS

One argument in favor of the maternal/child health campaign is that investments in child health are more cost-effective than investments in HIV treatment [7]. When addressing challenging issues of resource allocation, cost-effectiveness analysis is one methodology often employed. A treatment or prevention strategy is considered cost-effective if the incremental health gain associated with the strategy sufficiently justifies its associated increase in costs [8, 9]. Expressed in terms of increased dollars per unit of benefit conferred (dollars per year of life saved), strategies with lower cost-effectiveness ratios are considered more economically efficient.

Decisions based solely on cost-effectiveness without some context to ensure access to essential treatments may also be flawed. For example, the 1990 Oregon priority setting exercise initially based rank-ings only on the duration of treatment, the expected outcomes with and without treatment, and the treatment costs. Using these outcomes alone resulted in prioritization of dental caps before surgical intervention for ectopic pregnancy. A decision in favor of dental caps would have effectively reached the most program participants while sacrificing concern for disease severity. Recognizing the problem with this schema, a revised list was put forth that placed life-threatening conditions in their own high-priority category [10].

Although it is often appropriate to use results of cost-effectiveness analyses in treatment allocation decisions, use of these results while ignoring their contextual setting may lead to important biases that too often go unrecognized. For example, a vaccination program with identical efficacies in both children and adults will always appear more cost-effective in children; children simply have more potential life expectancy at risk. Similarly, prevention interventions (eg, bed nets and water chlorination) are generally less expensive...
and confer less individual benefit than treatment interventions (eg, treatment with quinine, artemisinins, fluid replacement therapy, or antibiotics). Thus, if set in the context of their application, cost-effectiveness results become most useful for prioritization purposes only when comparing like populations and like programs [11].

**REVIEW OF PEPfAR**

The initial Congressional authorization of PEPfAR in 2002 was motivated by key findings at the time. Among them, the Act commented on the short, 20-year history of the disease which has left “an unprecedented path of death and devastation,” accounting for more than 25 million deaths, 65 million infections, and 14 million orphans worldwide [12]. The Act highlighted the need to address HIV/AIDS—specifically for the sake of women and children, given their susceptibility to inadequate social, legal and cultural protections and their vulnerability to sexual exploitations. The Act described the unique threat the disease poses to individual productive capacity, personal security, and the economic security of a nation [12].

President Bush initially requested $15 billion in 2003 for combating global HIV/AIDS, tuberculosis, and malaria; funds were provided to increase annual expenditures over the 5-year period, increasing from $2.4 billion in 2004 to $6.0 billion in 2008 [13]. In 2008, PEPfAR II was reauthorized for an allocation of $48 billion, an apparent 2–3-fold increase in commitment compared to PEPfAR I [7, 13]. However, only $5.2 billion was appropriated for PEPfAR in fiscal year (FY) 2009; the amounts requested for FY2010 range from $5.3 billion in the President’s budget to $5.8 billion in the budget proposed by the US House of Representatives—either one a modest increase over FY2009. Although this certainly represents a substantial level of funding, data suggest that growth in PEPfAR support that allows for only linear (rather than multiplicative or exponential) expansion in the numbers of persons offered antiretroviral treatment would result in 1.2 million avoidable deaths in the next 5 years in South Africa alone [14].

Recognizing the opportunities for synergy that HIV treatment scale-up has afforded for other high-burden diseases, PEPfAR II expands its focus to emphasize heavily both infrastructure development and maternal and child health. Such priorities include $5 billion for prevention and treatment of malaria and $4 billion for tuberculosis, with a mandated 5-year tuberculosis strategy plan. PEPfAR II also directs that 10% be spent on vulnerable children; 5 million (42%) of the 12 million persons targeted for care will be orphans [15]. Scale-up of services toward pregnant women are set to increase the current coverage of prevention of mother to child transmission (PMTCT) activities from 9% to 80%, which should reduce vertical transmission of HIV by 40% in PEPfAR countries [16].

When initially established in 2003, PEPfAR I identified the following goals: to support care for 10 million people affected by HIV/AIDS, to support treatment for 2 million HIV-infected people, and to provide support for prevention of 7 million new infections [17]. By these metrics, PEPfAR I has been a huge success. By October 2008, >10.1 million worldwide were receiving HIV/AIDS-related care and 2.1 million people were receiving life-saving treatment [18]. AIDS-related mortality in PEPfAR countries decreased by 10.5% relative to non-PEPfAR countries, a difference that translates into 1.2 million lives saved [2]. Though quantifying the impact of prevention interventions in terms of infections averted is more difficult, such interventions have reached >30 million people, and concurrently, UNAIDS reported a downward trend globally in new infections [18, 19].

Expanding efforts in global health without continuing to expand PEPfAR misses a crucial point: in those countries most severely affected by HIV/AIDS—where prevalence may be as high as 40%—bringing the HIV epidemic under control through treatment and prevention is fundamental to the success of all other health measures. In addition, the impact of PEPfAR on global health beyond the provision of antiretroviral therapy often goes unacknowledged. Prevention successes of PEPfAR I have resulted in >33 million HIV counseling, testing, and referral encounters and significant progress toward a safe and adequate blood supply in each of the 14 focus PEPfAR countries [20, 21]. Efforts to develop sustainable human capacity have led to 3.7 million training and retraining encounters for health care personnel [22]. Such health care infrastructure facilitates the expansion of other desperately needed health care interventions. One Ugandan study of HIV-infected participants reported that, although 95% of subjects were taking trimethoprim-sulfamethoxazole prophylaxis, many also engaged in concurrently available prevention interventions—89% slept under an insecticide treated bed-net, 65% had current treatment of household drinking water, and 96% reported family use of HIV counseling and testing services [23].

Even those favoring a concentration of resources toward the “mother and child campaign” emphasize that “motherless children are 10 times more likely to die within 2 years of their mother’s death” [7]. Indeed, antiretroviral treatment and trimethoprim-sulfamethoxazole prophylaxis provided to HIV-infected adults in a Ugandan cohort was not only associated with a 95% decrease in mortality of infected adults, but also an 81% reduction in mortality of uninfected children and a 93% decrease in orphanhood [3]. Antiretrovirals provided to HIV-infected mothers after delivery allow for safe breast-feeding that simultaneously averts HIV infection in newborns and prevents the diarrheal disease associated with formula feeding [4]. These achievements in postpartum care are in addition to PEPfAR I reaching >1.2 million pregnant women with PMTCT medications.
thereby allowing 240,000 infants to live free of HIV infection [16]. Finally, even if other pediatric needs—diarrheal and respiratory diseases—are immediately met, HIV poses a continuous threat. A child in South Africa in 2000 is predicted to have a loss of life expectancy of 13 years based on HIV/AIDS alone [24].

**SOCIAL IMPERATIVE TO TREAT HIV/AIDS BEYOND THAT OF HEALTH**

Beyond the clinical and ethical considerations favoring control of the HIV pandemic, there is a social imperative to intensify the focus on HIV/AIDS. Morbidity and mortality associated with this disease have created unbalanced social structures unwitnessed in modern times. Population pyramids are distorted and lack the stable, supporting middle-aged infrastructure [25]. Elderly persons now care for their sickly HIV-infected adult children while also assuming the responsibility of primary caregiver for their grandchildren; and the elderly do so in poverty and in their own dwindling health [26]. Households with an HIV-infected family member consume the majority of their income on medical care and death costs, and follow a future cascade of lost wages, reallocation of domestic responsibilities, and reduced access to education and future income streams [27]. Widespread household volatility portends country-wide economic instability. HIV infection in South Africa has claimed 20% of the nursing labor force and 60% of the mining force (age, 30–44 years); the mining force is expected to fall to 10% of current supply by 2017 [28]. Reduced labor productivity spirals into decreased exports; a review of 41 African countries reports the AIDS pandemic has reduced average national gross domestic product growth rates across Africa by 2%–4% a year [28].

**MOVING FORWARD WITH PEPFAR II**

The contribution of PEPFAR investments toward the promotion of health and social and economic stability of the 14 PEPFAR focus nations is already palpable. However, with an increased dedication of resources in PEPFAR II comes increased responsibility. Over the past 5 years, antiretroviral treatment coverage has expanded from 2% to 37%, but HIV/AIDS remains the “emergency” that gave PEPFAR its name [29]. A majority of patients still requiring treatment are not yet receiving antiretroviral therapy. Antiretroviral therapy dispensing itself is a poor surrogate for clinical outcomes. Recent studies acknowledge both high rates of loss to follow-up once antiretroviral therapy is provided and high rates of death between the time of HIV diagnosis and antiretroviral therapy initiation [30–32]. Performance measures related to these parameters should be required as additional evaluative outcomes in this next phase.

Moreover, PEPFAR programs have been criticized for their verticality and for their general lack of attention to scaleable, sustainable programs—programs that address the origin of social inequalities resulting in disparate health outcomes [29, 33]. With emphasis now on the promotion of sustainability and accountability, the accomplishments of PEPFAR II will likely again be measured under this critical lens [34].

**CONCLUSIONS**

PEPFAR I averted 1.2 million deaths, and HIV-related mortality decreased by 10% in PEPFAR focus countries, compared to those without such support [2]. The perception that PEPFAR is at odds with dedicated efforts toward maternal and child health ignores the massive direct and indirect benefits PEPFAR has achieved already for mothers and children. It may be that PEPFAR—by providing health infrastructure, HIV prevention, parental survival, and the opportunity to sustain economic growth—is the most generous gift the United States can provide to future generations of those countries most in need.

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**References**


