

Value for money in Sudan's HIV response: How allocative efficiency analysis contributed to change in use of HIV resources

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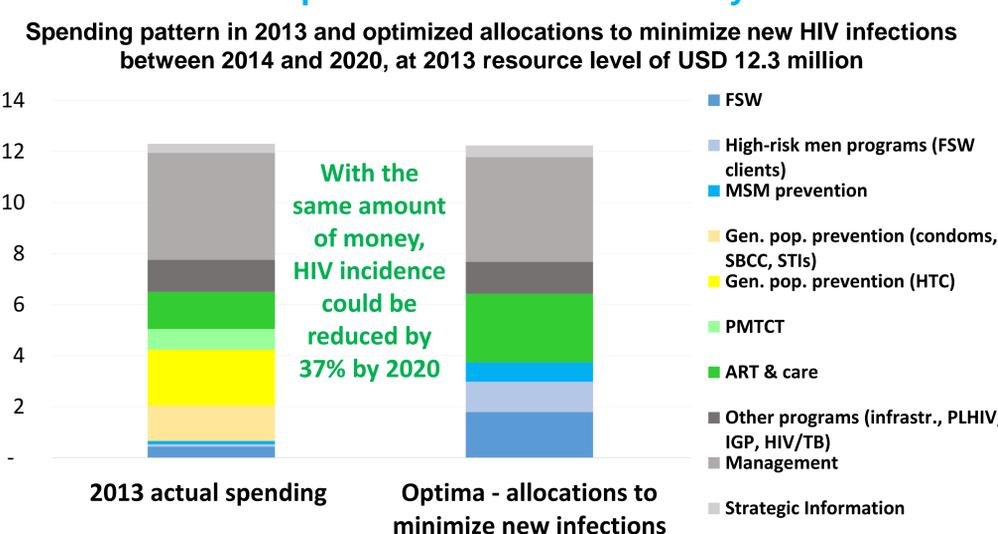
Background: In 2014, two critical strategic processes were undertaken in Sudan's national HIV response: the revision of the national HIV strategy and the preparation of a Global Fund concept note (2015-2017). In order to inform priorities for the strategy and the concept note, an HIV allocative efficiency analysis was carried out.

Methods: The analysis was conducted using Optima, a mathematical model of HIV transmission and disease progression integrated with an economic analysis framework and a mathematical optimization routine. Data on HIV prevalence, population sizes and behaviors was used to estimate and project HIV incidence, AIDS-related deaths and disability-adjusted life years (DALYs). Data on HIV program coverage, cost and effects was used to establish cost-outcome relations. To perform mathematical optimization analysis, an algorithm called Bayesian adaptive locally linear stochastic descent was applied.

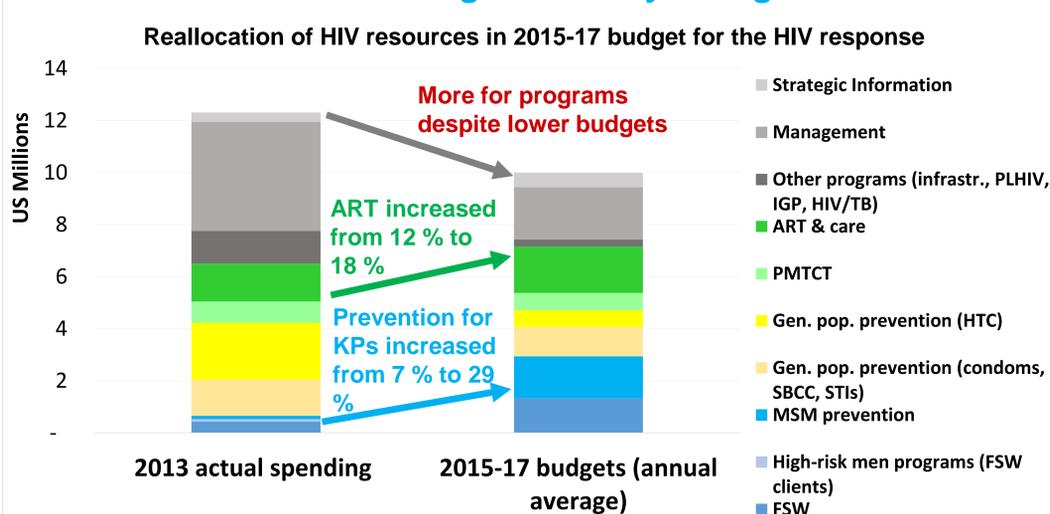
Results: HIV incidence in 2013 was estimated to be 0.44 per 100 person years for female sex workers (FSW), 0.35 for men who have sex with men (MSM), 0.10 for clients of FSWs, and < 0.05 for all groups in the general population. It was estimated that in Sudan's low-level concentrated HIV epidemic, one-third of 6,400 new HIV infections were directly associated with sex work. Optimal allocations of HIV funding for minimizing HIV incidence and HIV-related DALYs were calculated, and suggested a need for major shifts in HIV investment, with increased funding for ART and HIV prevention programs for FSW and MSM, but decreased funding for HIV prevention in the general population. These results were instrumental in adjusting HIV funding up to 2017. Allocations to ART increased from 12% to 18% and funding to HIV prevention among key populations from 7% to 29%. Compared to past allocations, the changed allocation was projected to avert an additional 3,200 HIV infections (20% of all new infections) and 1,100 AIDS deaths (16% of all expected AIDS deaths) by 2017, and 33% of new infections and 22% of AIDS deaths if optimal allocations were sustained up to 2030.

Conclusions: Conducting an allocative efficiency analysis was a key building block in informing the national HIV strategy and the Global Fund concept note, and improve HIV resource allocations. This case study confirms the critical role of integrated epidemic and program analysis in maximizing impact of programs on key health outcomes and improving the sustainability of national HIV responses.

How were funds spent and what did the study recommend?



How did budgets actually change?



What is the expected impact of the changed allocations?

