

## INTRODUCTION

It is estimated that 80,000 infants born annually in Zambia are at risk of acquiring HIV from their mothers. In 2011, more than 415,000 Zambians were on antiretroviral therapy (ART), but the number of children accessing ART services lagged significantly behind that of adults. Ensuring universal access to ART requires more information about the costs of scaling up services to reach every child in need. To inform the resource investment required to increase coverage of pediatric ART, the USAID- and PEPFAR-funded Health Policy Project (HPP), along with the Ministry of Health of the Government of the Republic of Zambia (MOH), examined the average additional cost to infant and child health services at the health facility level (incremental cost) of providing clinical pediatric ART services for children living with HIV. HPP and the MOH also analyzed the cost drivers of treatment to identify opportunities for increasing efficiencies.

### References

Menzies, N.A., A. A. Berruti, R. Berzon, S. Filler, R. Ferris, et al. 2011. "The Cost of Providing Comprehensive HIV Treatment in PEPFAR-supported Programs." *AIDS* 25: 1753–1760.

National AIDS Council, Republic of Zambia. 2009. Zambia National HIV Prevention Response and Modes of Transmission Analysis. Lusaka, Zambia: Republic of Zambia.

National AIDS Council, Republic of Zambia. 2012. Zambia Country Report: Monitoring the Declaration of Commitment on HIV and AIDS and the Universal Access. Lusaka, Zambia: Republic of Zambia. Available at: [https://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce\\_ZM\\_Narrative\\_Report.pdf](https://www.unaids.org/en/dataanalysis/knowyourresponse/countryprogressreports/2012countries/ce_ZM_Narrative_Report.pdf)

Scott, C.A., H. Iyer, D. L. Bwalya, K. McCoy, G. Meyer-Rath, C. Moyo, C. Bolton-Moore, B. Larson, S. Rosen. 2013. "Retention in Care and Outpatient Costs for Children Receiving Antiretroviral Therapy in Zambia: A Retrospective Cohort Analysis." *PLoS One* 8(6):e67910.

USAID | DELIVER Project. 2012. "Master Facility List." Data file.

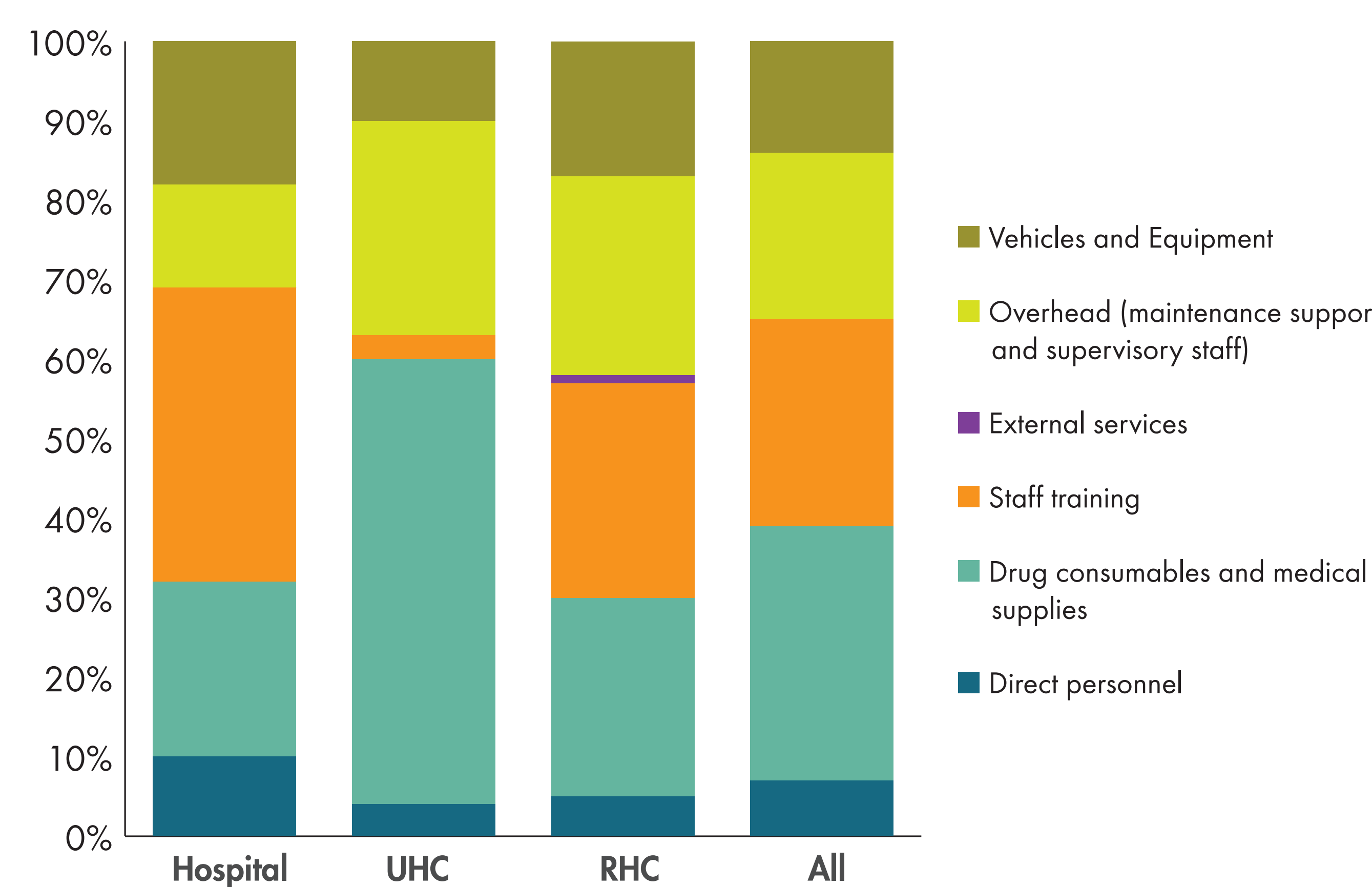
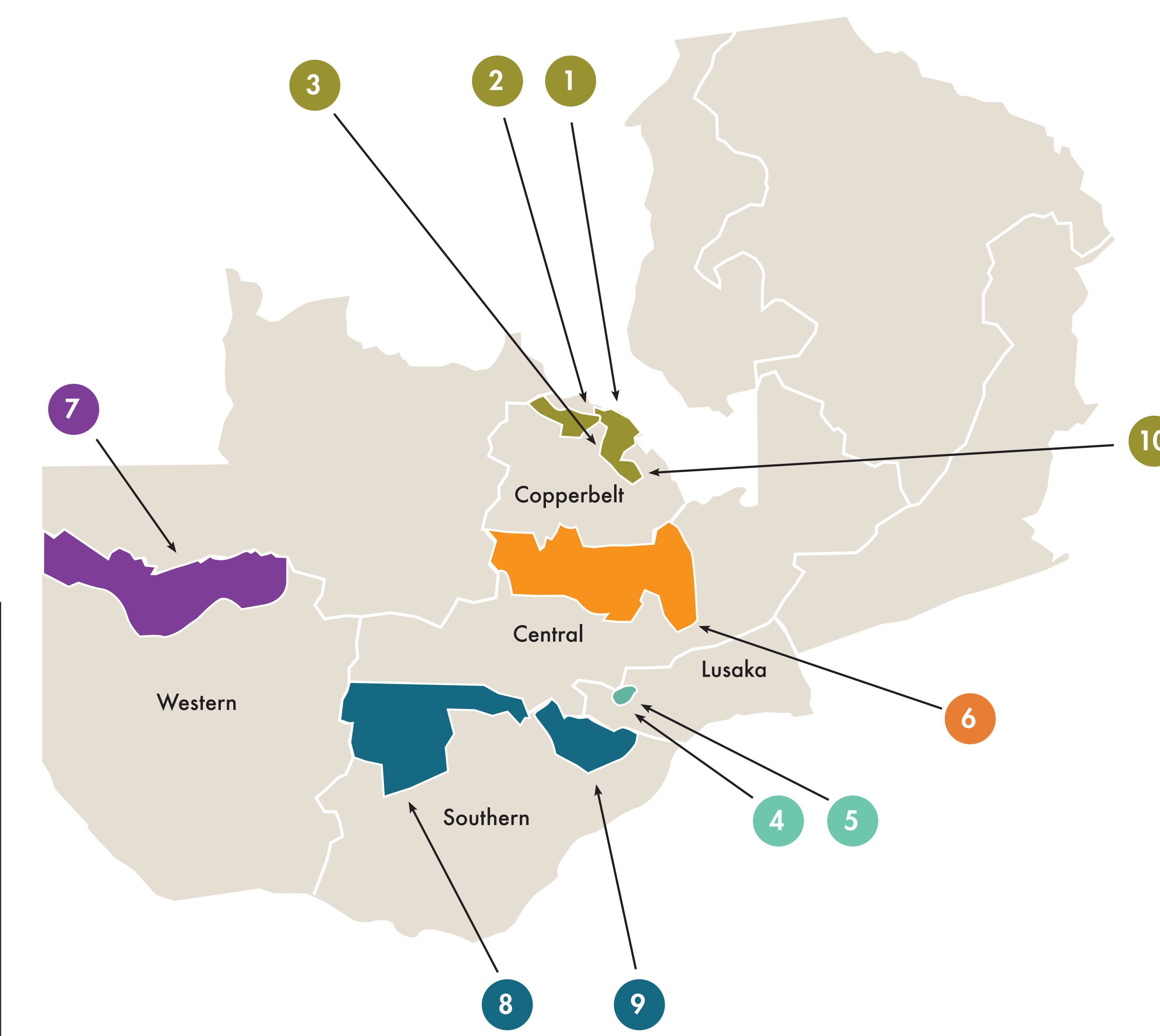
### Acknowledgments

The authors would like to thank the staff at each of the 10 facilities visited for providing their time and insights to the study, and the District Health Management Teams for their guidance and contributions. Finally, the authors would like to thank all of the implementing partners who provided financial information on services rendered at and goods provided to each of the facilities in the study.

## METHODS

Financial records and service delivery data were collected from ten health centers in the Central, Copperbelt, Eastern, Lusaka, Northern, Western, and Southern provinces of Zambia. The facilities included secondary hospitals and urban and rural health centers where both pediatric and adult ART services are provided. Unit costs were calculated for routine pediatric ART services for three age ranges: infants (0–23 months); children ages 2 years–4 years, 11 months; and children ages 5–15 years. The cost data were further disaggregated into cost components to assess the major cost drivers of pediatric treatment: labor/personnel, drugs, HIV tests and medical supplies, operations/maintenance and capital (equipment and building).

	Name of Facility	Area	Facility category	Province	District
1	Ronald Ross General Hospital	Urban.	Hospital Level 2	Copperbelt	Mufulira
2	Nchanga Clinic I	Urban	Health Center	Copperbelt	Chingala
3	Luangwa	Urban	Health Center	Copperbelt	Kitwe
4	Chawama (Lusaka)	Urban	Hospital Level 1	Lusaka	Lusaka
5	Mtendere	Urban	Health Center	Lusaka	Lusaka
6	Waya	Rural	Health Center	Central	Kapiri Mposhi
7	Luvuzi	Rural	Health Center	Western	Lukulu
8	Itezhi-tezhi Hospital	Rural	Hospital Level 1	Central	Itezhi-tezhi
9	Mbaya Musuma	Rural	Health Center	Southern	Mazabuka
10	Thomson	Urban	Hospital Level 1	Copperbelt	Luanshya



**Table 1: Average incremental cost of pediatric ART services by type of facility**

Cost Category and Sub-category	Hospital	UHC	RHC	Average
Direct personnel	\$23.46	\$6.65	\$12.80	\$15.22
Drugs, consumables and medical supplies	\$53.11	\$98.93	\$61.76	\$69.45
Staff training	\$81.60	\$4.42	\$73.54	\$56.03
External services	\$0.00	\$0.00	\$0.01	\$0.00
<b>Total recurrent costs</b>	<b>\$158.17</b>	<b>\$110.01</b>	<b>\$148.11</b>	<b>\$140.70</b>
Overhead (maintenance, support and supervisory staff)	\$39.95	\$49.22	\$63.34	\$49.75
Vehicles and equipment	\$29.98	\$16.68	\$46.06	\$29.12
<b>Total capital costs</b>	<b>\$69.92</b>	<b>\$65.89</b>	<b>\$109.40</b>	<b>\$78.86</b>
<b>Unit cost</b>	<b>\$228.09</b>	<b>\$175.90</b>	<b>\$257.51</b>	<b>\$219.57</b>

## RESULTS

The average annual incremental cost of providing pediatric ART services in Zambia was US\$220. By facility type, the incremental cost was highest at rural health centers (US\$260), followed by hospitals (US\$228), and urban health centers (US\$176). Across all types of facilities, drugs, consumables, and medical supplies comprise roughly one third of treatment costs; staff training comprises 26 percent of the cost; overhead costs comprise 23 percent; vehicles and equipment comprise 13 percent; and direct staff costs account for 5 percent of total cost. The cost of pediatric ART services was higher for facilities in rural areas (US\$226) than for those in urban areas (US\$203). The average incremental cost of pediatric ART services from this study was lower than the combined cost of pediatric ART services and other infant and child services estimated in a previous study conducted in Zambia (Scott, et al., 2013). Because the total cost of pediatric ART services and infant and child health services are not mutually exclusive, national plans that include both costs are likely to overestimate the cost of pediatric ART services and national health costs. The incremental cost of pediatric ART services, which is mutually exclusive from infant and child health services, provides a more accurate estimation of pediatric ART service implementation costs for use in strategic planning.

**Conclusions:** Understanding the incremental cost of providing pediatric ART services is crucial to improving the accuracy of cost estimates for a national HIV and AIDS strategy for Zambia. This study demonstrates that it is less costly to add pediatric treatment to existing treatment sites than to offer treatment through sites that only serve children. The study documented actual costs, but did not reflect the quality of care being provided to pediatric patients. Future studies to assess the quality of care will be crucial to understand and estimate the true cost of meeting the needs of children living with HIV.

### PRESENTED BY

J. Waldron<sup>1</sup>  
A. Adesina<sup>2</sup>  
S. Alkenbrack<sup>1</sup>  
S. Forsythe<sup>2</sup>  
E. Reuben<sup>3</sup>  
A. Amzel<sup>3</sup>  
R. Phelps<sup>3</sup>

<sup>1</sup>Health Policy Project, Futures Group, Washington, DC, USA;

<sup>2</sup>Health Policy Project, Futures Institute, Glastonbury, CT, USA;

<sup>3</sup>U.S. Agency for International Development, Washington, DC, USA

**20th International  
AIDS Conference**

July 20–25, 2014  
Melbourne, Australia

### CONTACT US

Health Policy Project  
One Thomas Circle, NW Suite 200  
Washington, DC 20005  
[www.healthpolicyproject.com](http://www.healthpolicyproject.com)  
email: [policyinfo@futuresgroup.com](mailto:policyinfo@futuresgroup.com)  
Tel: +1.202.775.9680  
Fax: +1.202.775.9684