

Costs of Conventional and POC HIV Viral Load Testing in Kenya

Financial Implications for Universal Monitoring of the Viral Suppression Target

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Background: HIV in Kenya

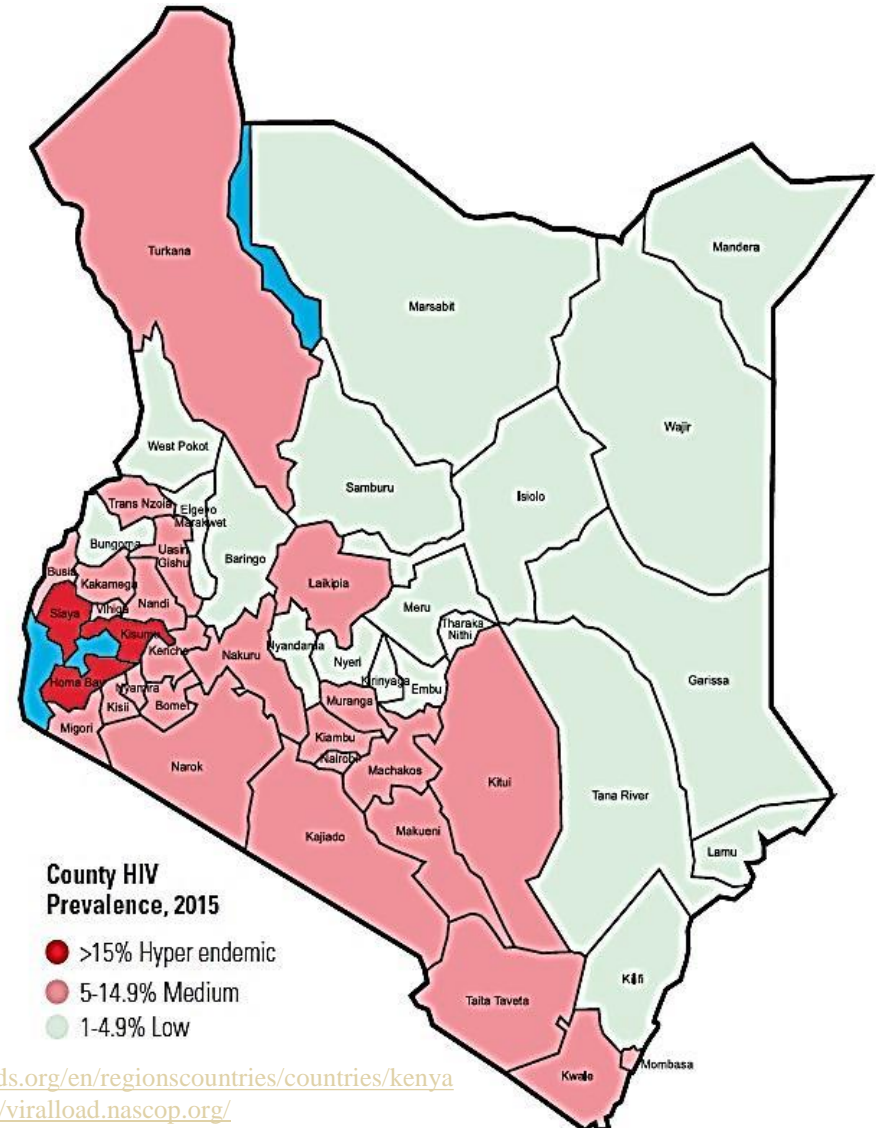
- ▶▶ Population 46.05 million; GNI \$1,340 per capita in 2015¹
- ▶▶ New HIV care guidelines call for routine VL monitoring of all patients on ART²
- ▶▶ Two VL tests in first year of ART
- ▶▶ One VL test in subsequent years, if virally suppressed

1. World Bank. 2017. World Development Indicators.

2. MOH. 2016. Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV infection in Kenya 2016. Nairobi: Ministry of Health, National AIDS & STI Control Programme.

Background: HIV and VL testing by County

- 1.5 million PLWH³
- 900 thousand on ART³
- 870 thousand VL tests⁴
- 260 thousand VL tests in Siaya, Kisumu, and Homa Bay counties⁴



3. UNAIDS. 2016. Kenya HIV and AIDS estimates. Retrieved from <http://www.unaids.org/en/regionscountries/countries/kenya>

4. NASCOP. 2017. National AIDS and STI Control Program. Retrieved from <http://viralload.nascop.org/>

NACC. 2016. Kenya AIDS Response Progress Report 2016. Nairobi: National AIDS Control Council.



Methods: Activity-Based Costing

- ▶▶ Activity-based costing of HIV VL testing in Siaya County
- ▶▶ Probability sample of 21 health facilities and KEMRI lab
- ▶▶ Two conventional testing platforms:
Abbott m2000 RealTime and
Roche Cobas AmpliPrep – Cobas TaqMan
- ▶▶ Estimated costs for two Point-of-Care platforms:
Alere™ q and
Cepheid GeneXpert IV



Methods: Cost Inputs

1. Reagents
2. Non-reagent Supplies
3. Equipment
4. Human Resources
5. Quality Assurance
6. Training
7. Transportation*
8. Non-salary Recurrent Costs

*excluded from POC estimates

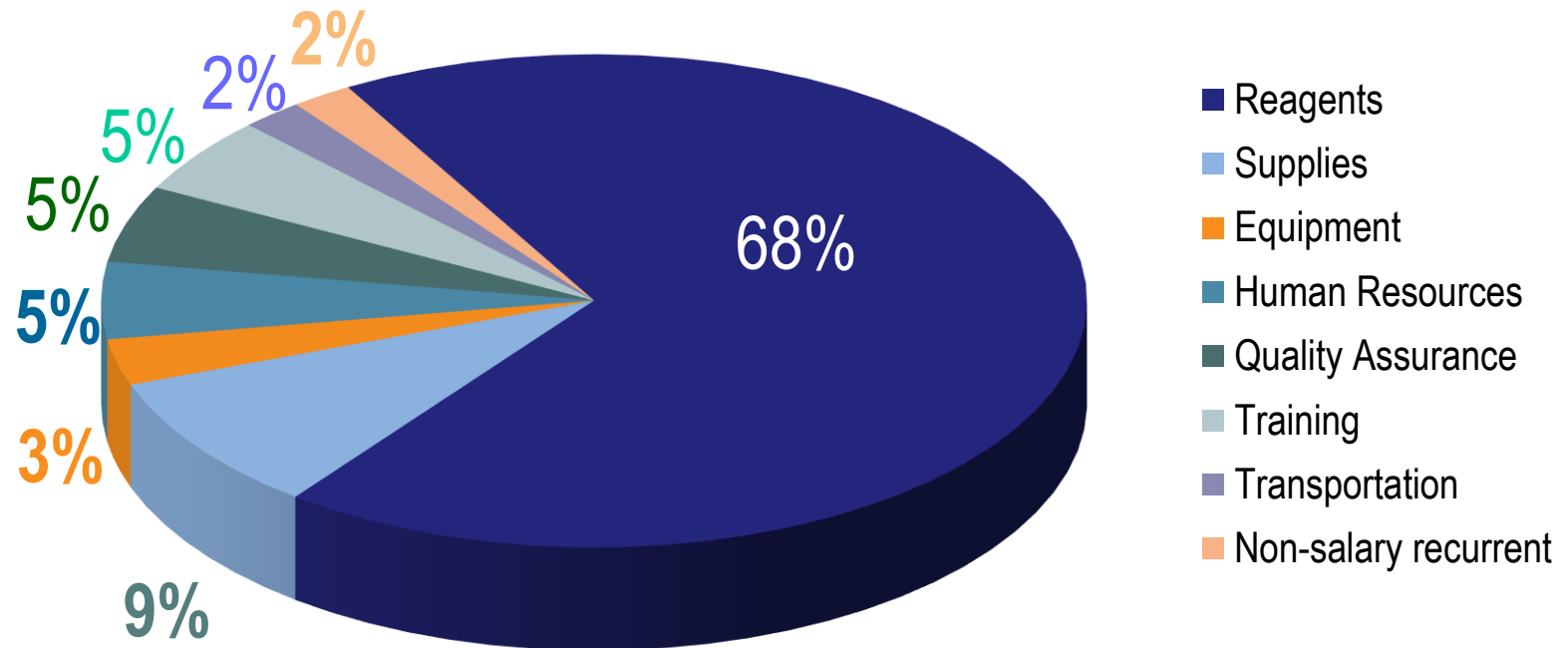


Results: Testing Outputs

- ▶▶ 21 sampled facilities sent over 4,000 blood samples to KEMRI for HIV VL testing
- ▶▶ KEMRI performed 96,000 HIV VL tests, averaging 386 per working day
- ▶▶ Testing capacity was limited on approximately 32 working days due to equipment issues or supply stock-outs

Results: Conventional Testing Unit Cost

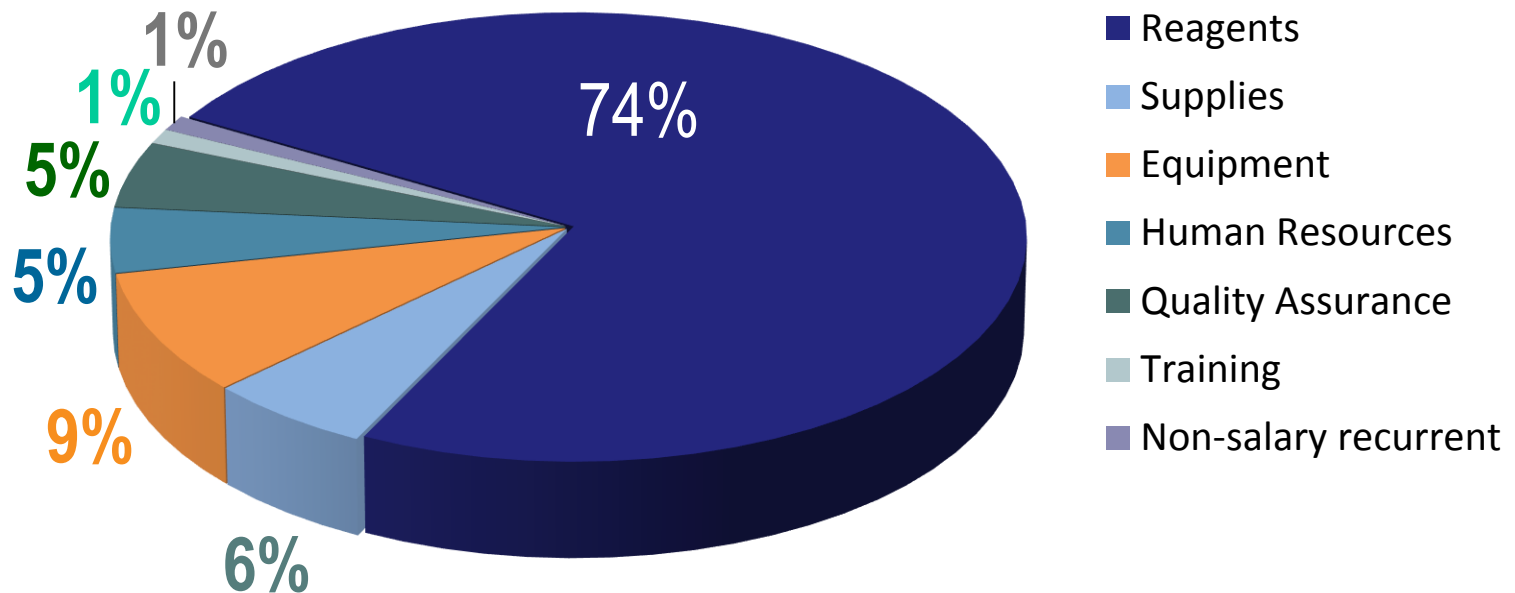
Unit Cost for Conventional HIV VL Test: **\$24.63** (2016 US\$)



Composition of Costs

Results: POC Testing Unit Cost

Unit Cost for POC HIV VL Test: **\$29.74** (2016 US\$)

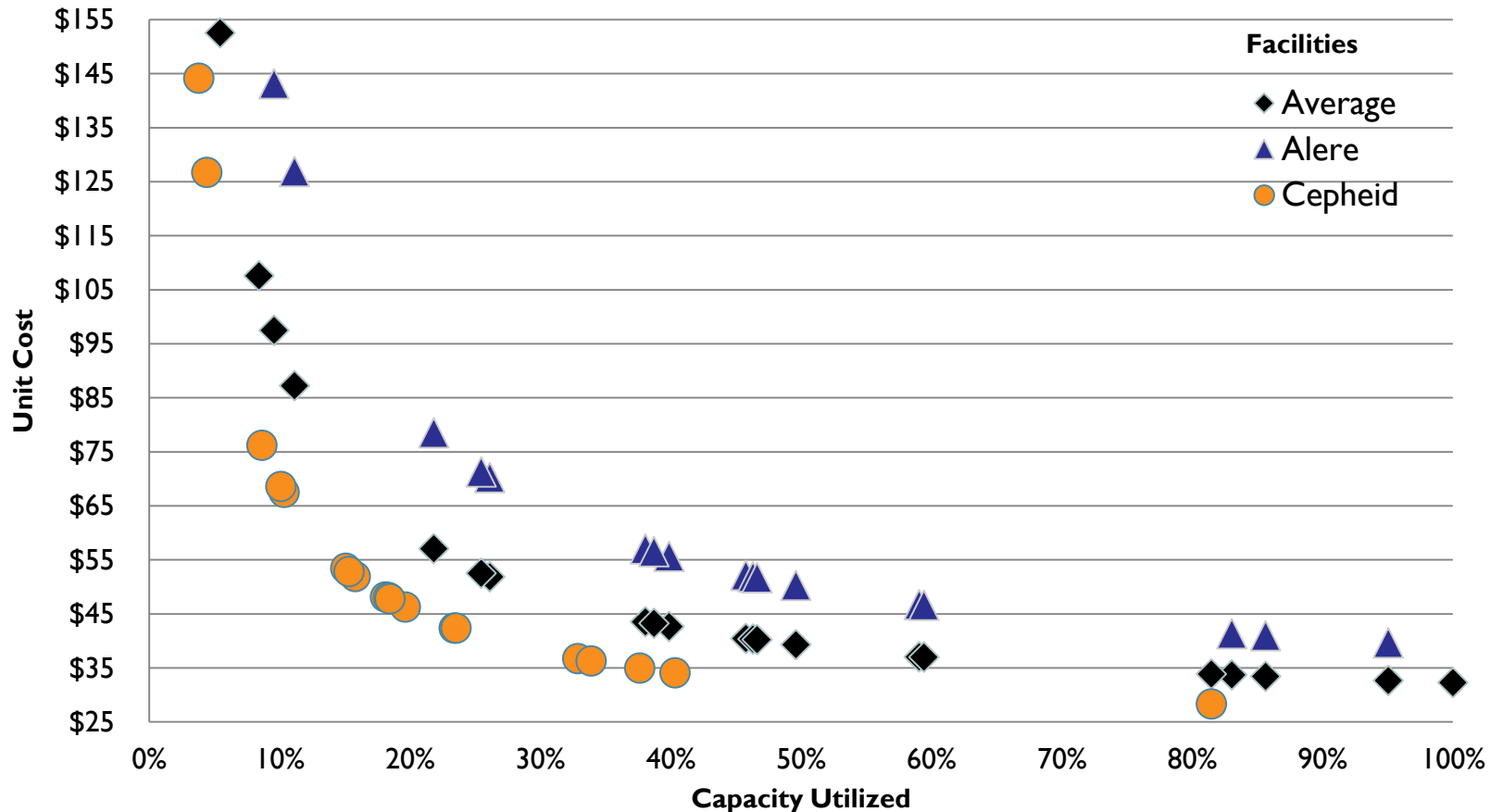


Composition of Costs

Assumption: POC testing performed by existing facility staff, at maximum daily capacity

Results: POC Unit Costs

Projected Distribution of POC Unit Costs



Assumption: POC testing performed by dedicated lab tech, at actual facility demand level



Summary: Costs in Context

- ▶▶ Conventional testing average unit cost of **\$24.63**
- ▶▶ POC testing average unit cost unit cost of **\$29.74**
- ▶▶ Cost of conventional monitoring HIV VL once per year for 90% of PLWH in Kenya: **\$33 million annually**
- ▶▶ Cost of implementing POC testing depends on human resources involved and facility-level demand for testing



Recommendations: Improving Sustainability

- ▶▶ Lower reagent costs through long-term, regional procurement deals and the Global Access⁶ program
- ▶▶ End CD4 testing for PLWH on routine HIV VL monitoring, per WHO guidelines⁷
- ▶▶ Conduct cost-effectiveness analyses to guide POC testing deployment and policy guidelines

6. CHAI. 2015. *CHAI supports South Africa and global partners to achieve landmark HIV Viral Load access program*. Case Study. Boston: Clinton Health Access Initiative.

7. WHO. 2016. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection Recommendations for a public health approach*. Second edition. Geneva: World Health Organization.



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