



# Optimizing the CD4 network to increase access to the AHD package of care

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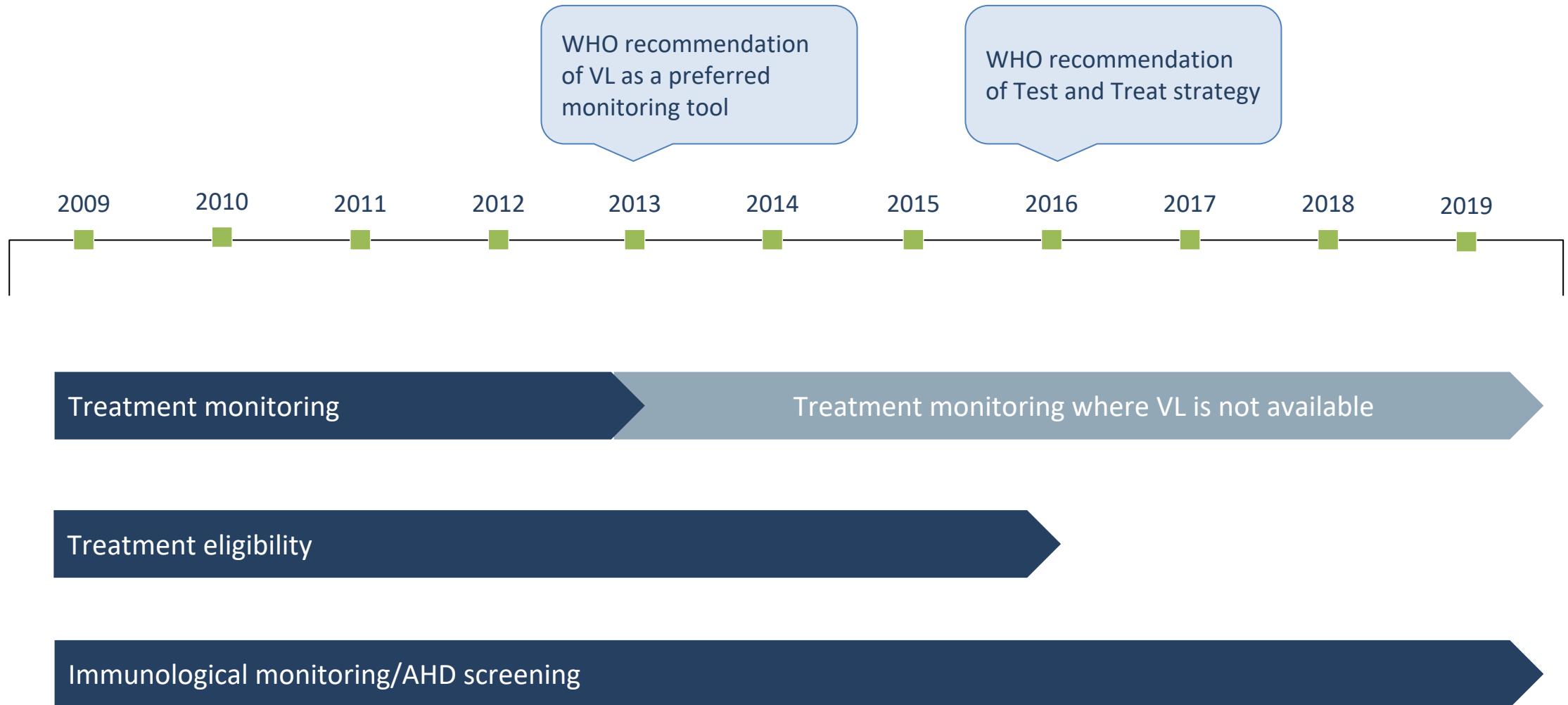
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**HIV LEARNING NETWORK**  
The CQUIN Project for Differentiated Service Delivery

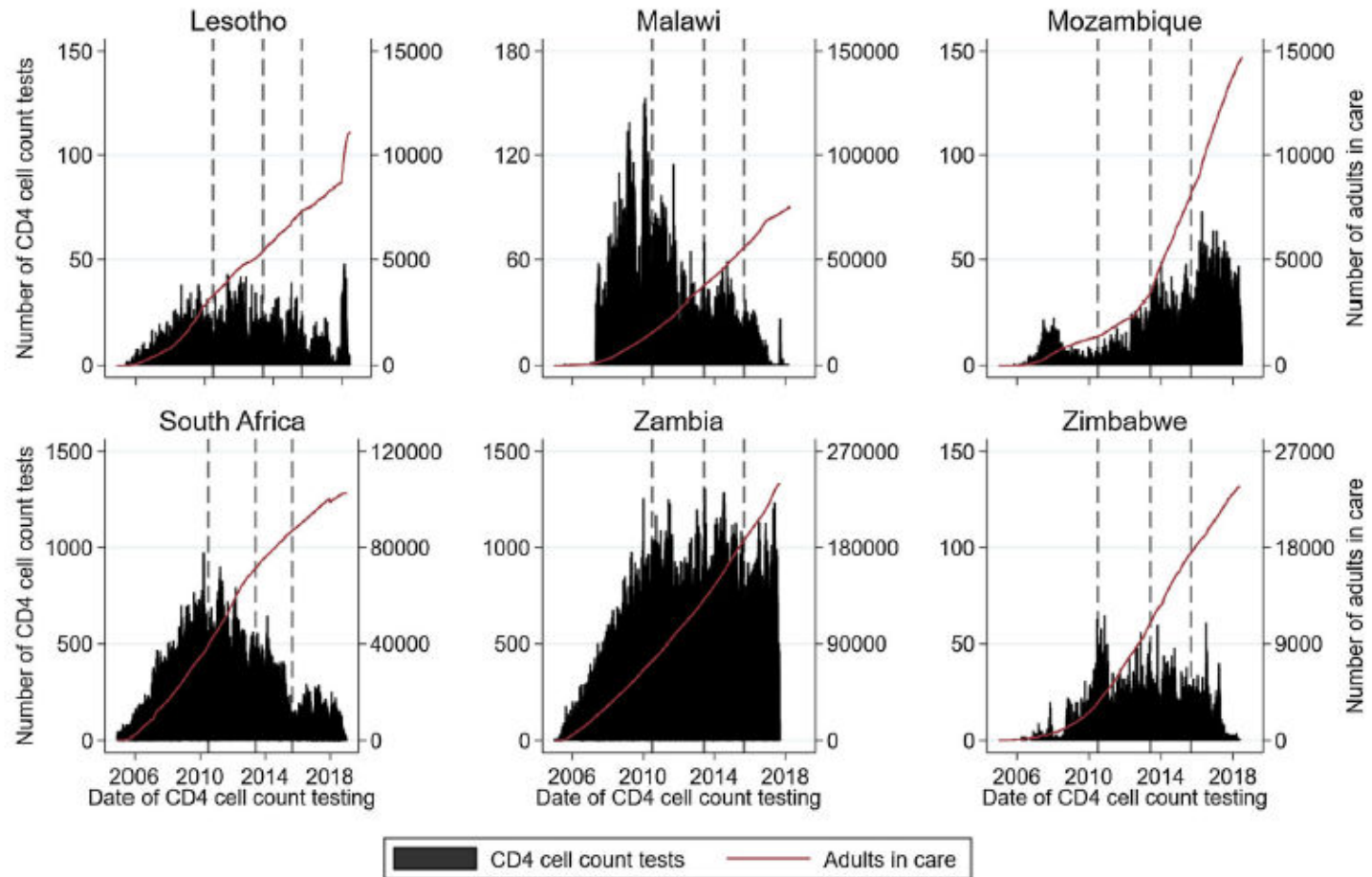
# WHO recommendations for the use of CD4 have evolved over the last decade

## WHO Guidelines on use of CD4 Cell Count Testing



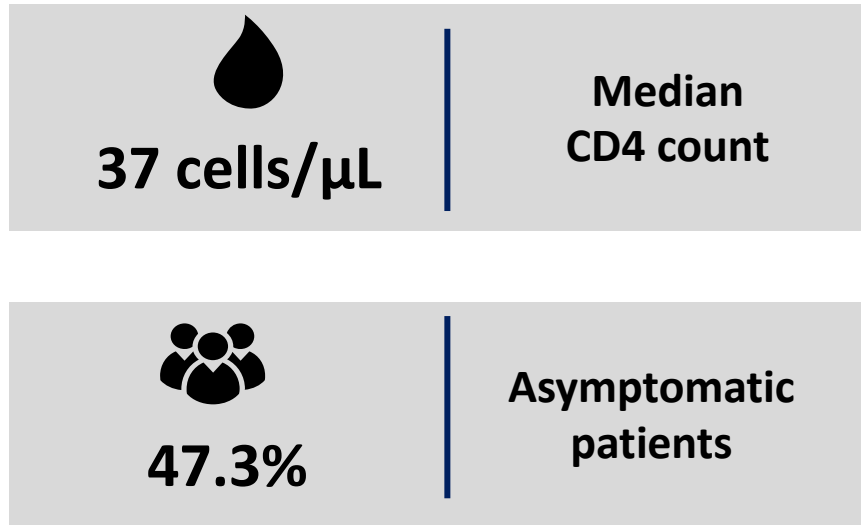
As WHO recommendations for CD4 evolved, use of CD4 testing has declined or plateaued across Southern Africa despite the increasing number of PLHIV in care

**Frequency of CD4 cell count testing per day and cumulative number of adult patients in care by country**



# CD4 is a gateway to diagnosing and managing advanced HIV disease (AHD)

## REALITY Trial Patient Demographics



Clinical staging alone cannot  
be used to diagnose AHD  
**CD4 is needed!**

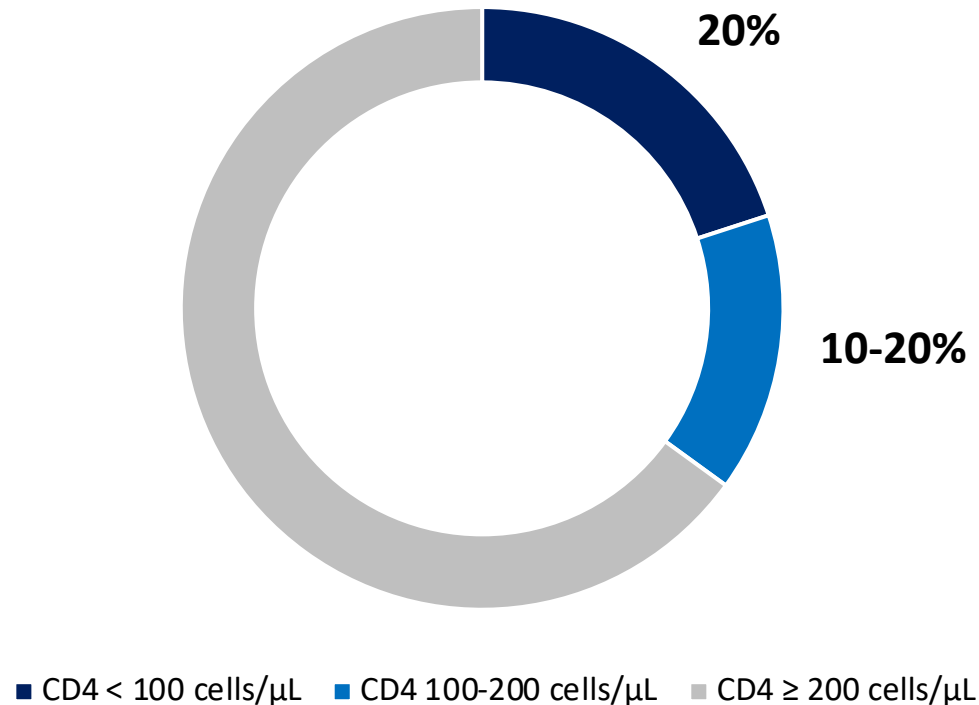


## Current WHO Guidelines on CD4


- CD4 count is the best predictor for disease status and immediate risk of death and thus should be **used to identify those who have advanced HIV disease**
- **All patients entering or re-entering care** should receive a CD4 test at treatment baseline and as clinically indicated for **patients who are unstable or with advanced HIV disease**
- It is strongly recommended that **patients with advanced HIV disease (CD4 count below 200 cells/mm<sup>3</sup>) receive a package of care** as defined in the 2017 WHO Guidelines for managing advanced HIV disease and rapid initiation of antiretroviral therapy

# Early identification of AHD and linkage to care is critical due to high risk of disease progression, morbidity, and mortality among patients with AHD


## Percent of (re-)initiating PLHIV starting ART with various CD4 counts



## Importance of immediate linkage to care for AHD patients

 **High rates of LTFU from diagnosis to treatment:** 4-38% pre-treatment LTFU for patients diagnosed with TB<sup>1</sup>

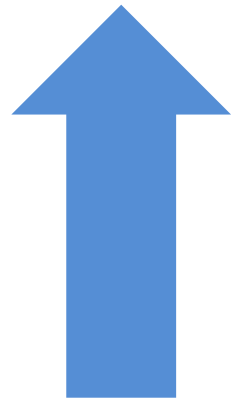
 **Rapid disease progression:** CrAg+ patients progress to CM within 3 weeks<sup>2</sup>

 **Limited time from admission to mortality for hospitalized patients:** 25% of mortality occurs within 48 hours; 80-90% within 2 weeks<sup>3</sup>

# POC testing has been shown to accelerate clinical action and reduce loss to follow-up

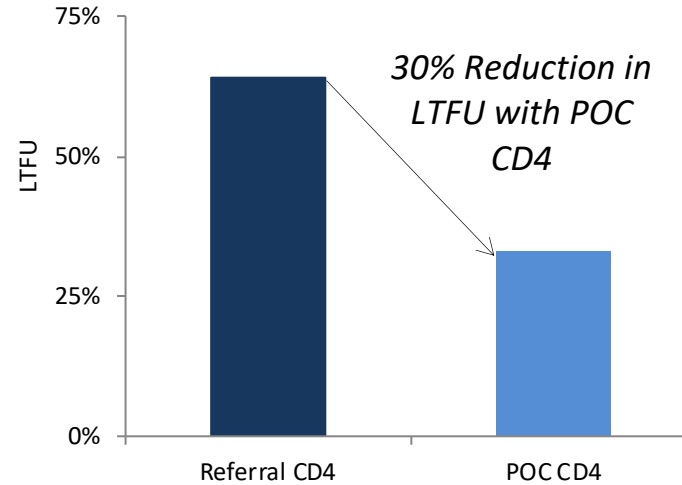
POC CD4 has accelerated clinical action and demonstrated positive patient impact

## POC CD4 Increases ART Initiation Rates<sup>1</sup>

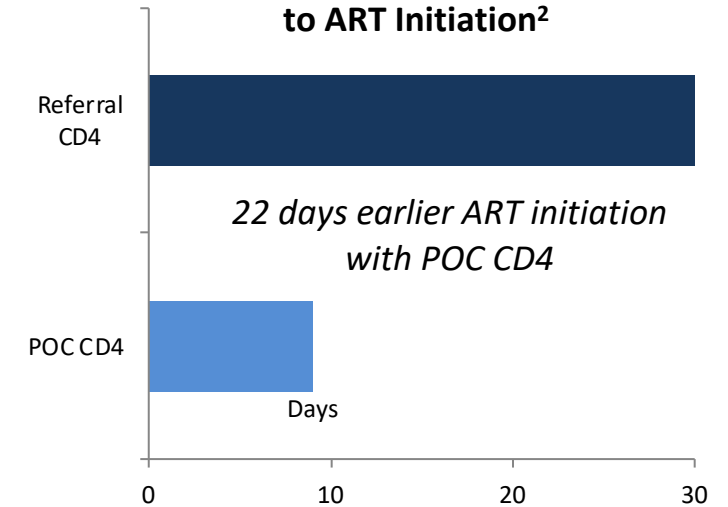


10% Increase in patients initiating ART

## POC CD4 Reduces LTFU before ART Initiation<sup>1</sup>



## POC CD4 Reduces Time from HIV Diagnosis to ART Initiation<sup>2</sup>



## What can we do to improve the linkage between testing and treatment for AHD?



Leverage and optimize existing POC CD4 infrastructure to maintain POC CD4 access






Increase access to existing and new POC products, including CD4 LFA, to speed TAT and increase linkage to treatment



Integrate AHD services into existing patient flow and strengthen lab-clinic interface to improve linkage

# There are currently three POC CD4 products available for AHD screening

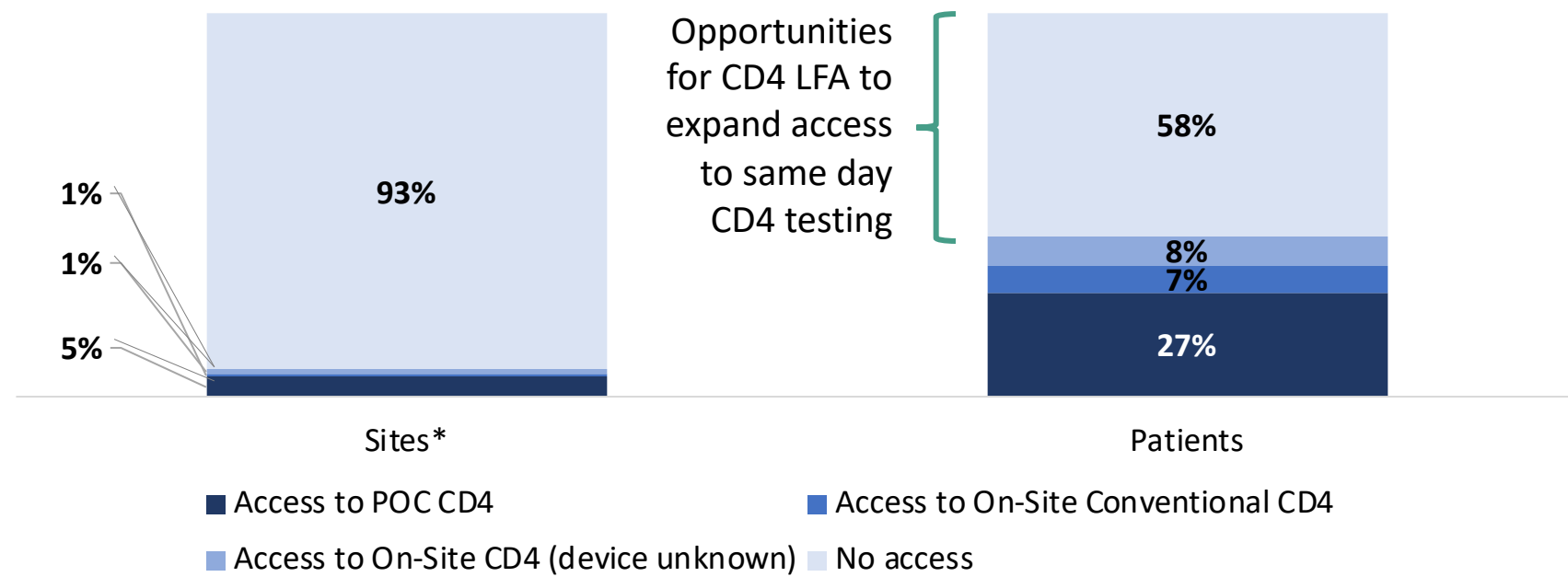
Product Name	Test Type	Time to Process	Daily Throughput*	Regulatory Status	Price per test
 <b>Abbott Pima</b>	<ul style="list-style-type: none"> <li>Quantitative</li> <li>Absolute CD4 count</li> <li>Finger prick or venous blood</li> </ul>	20 min per test	15-20 tests per day	WHO PQ/CE	\$6.94 - \$10.36 <sup>1</sup>
 <b>BD FACSPresto</b>	<ul style="list-style-type: none"> <li>Quantitative</li> <li>Absolute CD4 count, CD4 %, Hb</li> <li>Finger prick or venous blood</li> </ul>	22 min per test (18 min incubation; 4 min in instrument)	60-80 tests per day	WHO PQ/CE	\$6.73 - \$8.20 <sup>1</sup>
 <b>Omega VISITECT Advanced Disease (200 cutoff)</b>	<ul style="list-style-type: none"> <li>Semi-Quantitative</li> <li>Absolute CD4</li> <li>Finger prick or venous blood</li> </ul>	40 min per test	10-100 tests per day	ERPD 2	\$3.98 <sup>2</sup>

# Many sub-Saharan African countries have an extensive fleet of device-based POC CD4 products

## Current CD4 Coverage across 2 Countries

Because of patient distribution pattern, a large proportion of patients in need of CD4 testing receive care at sites without a POC CD4 device

450 facilities have a CD4 device  
58% of patients in need of CD4 testing receive care at facilities without a device



Strategic mix of device-based technologies and LFA can maximize the number of clients in need of AHD screening with access to POC CD4 testing

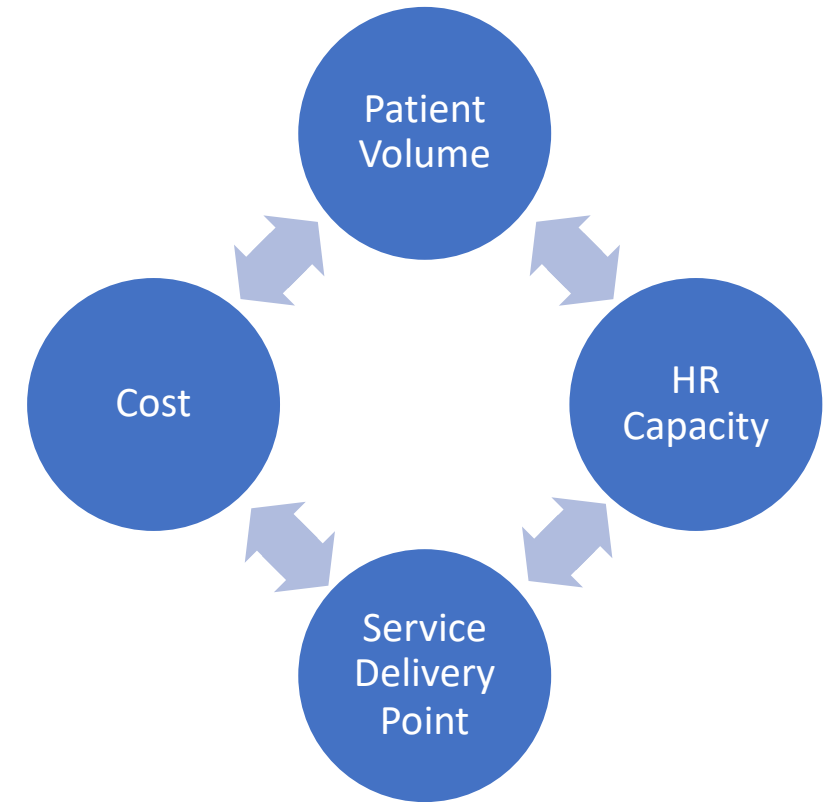
\*CHAI analysis across two sub-Saharan countries; 7,484 sites assessed.



# A few factors influence the optimal mix of technologies to maximize same day AHD diagnosis

Key considerations for optimizing CD4 network include:

- **Patient volume:** Can the daily throughput of a selected technology accommodate daily patient volume?
- **HR capacity:** What are the cadres of healthcare workers available for CD4 testing? Can there be dedicated HR capacity to maximize throughput?
- **Service delivery point:** Should CD4 testing be offered in a clinic setting or in-facility lab?
- **Cost:** What testing coverage can be achieved given the budget envelope?



An optimal national CD4 network should aim to provide same day AHD diagnosis and linkage to package of care for as many patients as possible

# Thank you!

CHAI's work in Advanced HIV Disease  
is made possible by the generous support and partnership of Unitaid

