

# Lessons Learned from Implementation of Cryptococcal Meningitis (CM) Care Package among People with Advanced HIV Disease (AHD) in Delhi, India

Speaker: Arushi Dixit

Co-Authors: Dr Subramaniam Anuradha<sup>1</sup>, Yashika Bansal<sup>2</sup>, Dr Sachin Kataria<sup>3</sup>, Arvinder Walia<sup>2</sup>, Dinesh Rathakrishnan<sup>4</sup>, Ana Moore<sup>4</sup>, Alaina Altamura<sup>4</sup>, James Conroy<sup>4</sup>, Carolyn Amole<sup>4</sup>, Umesh Chawla<sup>4</sup>, Arnab Pal<sup>2</sup>

<sup>1</sup>Maulana Azad Medical College, Medicine, New Delhi, India; <sup>2</sup>William J. Clinton Foundation, New Delhi, India; <sup>3</sup>Lok Nayak Hospital, ART Center, New Delhi, India; <sup>4</sup>Clinton Health Access Initiative, Boston HQ, United States



# AMSTERDAM

## FAST-TRACK CITIES 2023

September 25-27, 2023 | RAI Amsterdam Convention Center

× City of  
× Amsterdam

× GGD  
× Amsterdam



# Background

# Introduction: Advanced HIV Disease (AHD)

## Definition of AHD <sup>1</sup>

- People living with HIV (PLHIV) aged >5 years with:
  - CD4 cell count <200 cells/mm<sup>3</sup> or
  - WHO Clinical Stage 3/4
- CLHIV aged <5 years not on ART for up to a year & not clinically stable

## Causes for 50% higher Mortality Rate <sup>2</sup>

### Suboptimal OI Management

High turnaround time (TAT) of diagnosis; costly treatment

### Delay Initiation

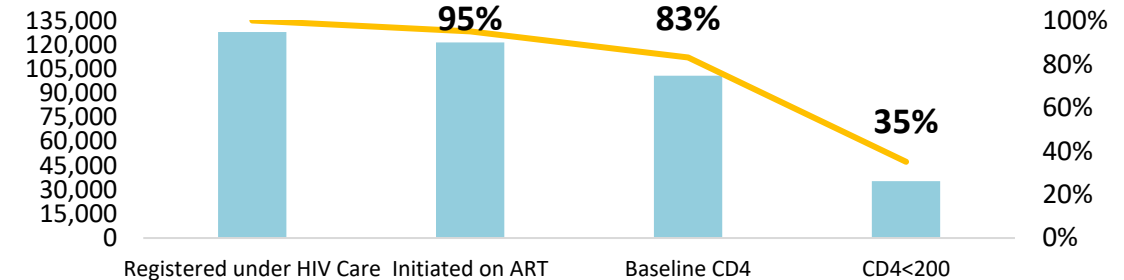
Late registration at treatment centre, delayed ART initiation

### Poor Adherence

Lesser adherence to treatment leading to higher susceptibility

## Progress of AHD Care in India

### AHD Cascade for New Initiations <sup>3</sup>



### Guidance on AHD Management

- Zero AIDS-related deaths by 2030 (mandate to reduce mortality)
- Incorporation of AHD care packages in National AIDS Control Program's (NACP's) 2021 National Treatment Guidelines

### Components of AHD Care Package

- Rapid management of Opportunistic Infections (OIs), such as Tuberculosis (TB) and Cryptococcal Meningitis (CM)
- CPT initiation, enhanced adherence counselling etc.

**Recommend AHD packages are yet to be adopted at treatment centres due to lack of commodities and scaled implementation**

# Objective: Implementation of CM-AHD Care in Delhi

*Following guidelines release on AHD management, Maulana Azad Medical College (Delhi, India) spearheaded implementation of the CM care package to facilitate on-ground availability of differentiated care for PLHIV with AHD*

## Objectives of Implementation



**Initiate phased Implementation** of recently released NACO guidelines on AHD management, build capacity and sensitize facilities towards AHD and CM care



**Rapidly identify and treat CM in AHD patients** to improve their health outcomes and decrease mortality in service of the “Zero new infections, Zero AIDS related deaths” goal



**Document experiences & learnings** from implementation to create operational SOPs for roll-out in other ARTCs, and then across country

## Details of Implementation

### Implementing Site

Loy Nayak Hospital ART Centre, under guidance from HIV CoE Maulana Azad Medical College (MAMC), Delhi (India)

### Time period

September 2022 – Ongoing

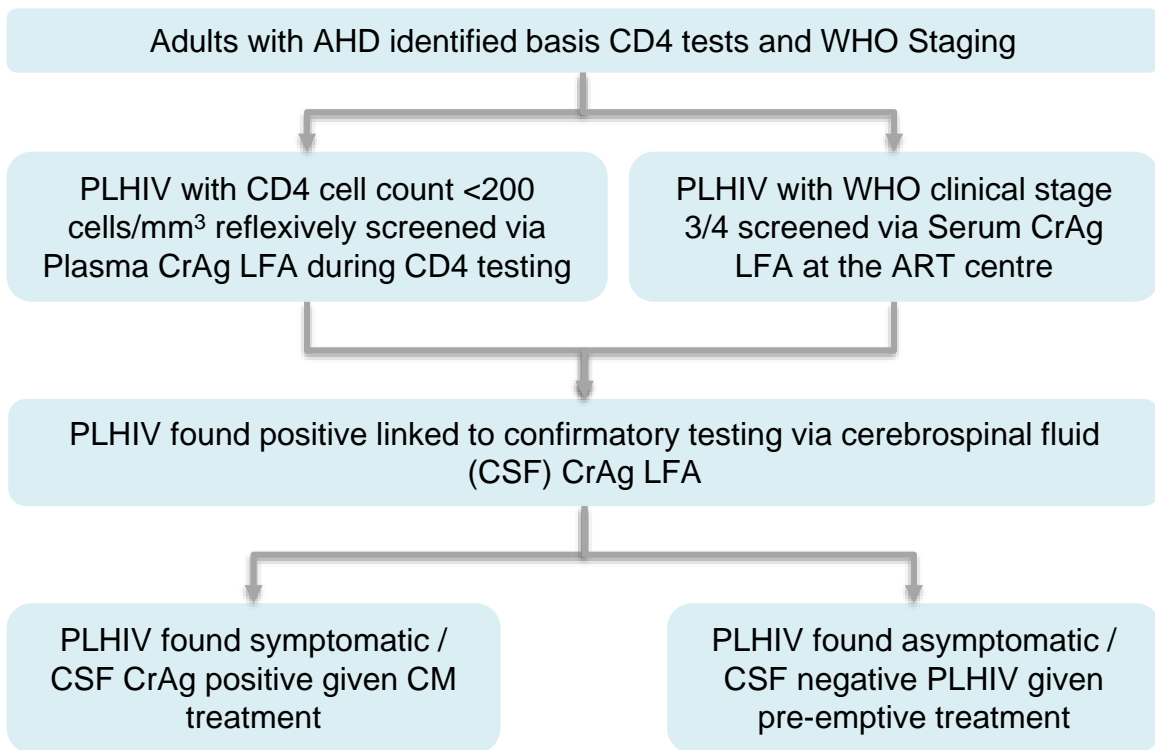
### Target Population

PLHIV presenting with AHD (i.e. CD4 cell count  $<200$  cells/mm<sup>3</sup> or WHO Clinical Stage 3/4)

# Methodology: Cascade of Care and Interventions

*In 2022, Cryptococcal Antigen Lateral Flow Assay (CrAg LFA) screening and CM care was implemented for PLHIV with AHD at Maulana Azad Medical College (Delhi, India) as recommended by NACP guidelines*

## Cascade of Care and Interventions



## Capacity Building Measures <sup>1</sup>



<sup>1</sup> The implementation was undertaken via a donation of rapid CrAg LFA kits and optimal antifungal treatment commodities (Liposomal Amphotericin B (LAmB), Flucytosine, and Fluconazole) with support from Unitaid's AHD initiative, Clinton Health Access Initiatives (CHAI) and the William J. Clinton Foundation (WJCF)

# Results: Cohort Characteristics

# Overview of Implementation Coverage

Time period: September 2022 – August 2023

## Cascade of Coverage and Care

489 instances of AHD recorded

- 94% based on CD4 cell count <200 cells/mm<sup>3</sup>
- 6% based on WHO clinical staging / discretion

447 CrAg screening tests conducted

→ **91.4%** screening coverage (57 re-screening tests conducted)

3 positive screening tests\*

→ **0.7%** positivity for cryptococcal infection

0 positive CSF CrAg tests

→ **0%** positivity for meningeal infection

\* 3 PLHIV screening positive were linked to CSF CrAg testing for confirmation and CM treatment / prophylaxis as per their results and symptoms

# AHD: Distribution by CD4 Cell Count

Time period: September 2022 – August 2023

## Routes of AHD Occurrence

### Immunological

4,226 CD4 tests conducted  
(baseline and monitoring\*)

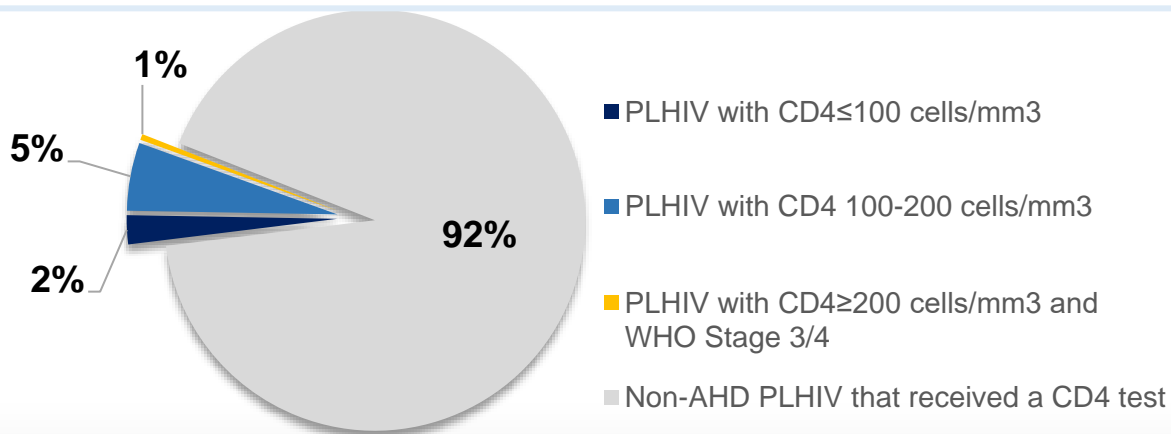
7.5% results with CD4 cell count <200 cells/mm<sup>3</sup>

### Clinical

WHO clinical stage assessment during visit

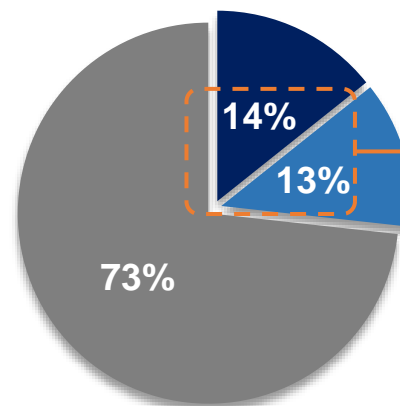
29 instances of WHO clinical stage 3/4 or symptoms

## AHD Occurrence based on CD4 Cell Count

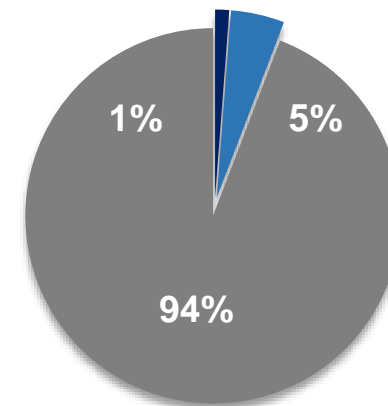


## AHD Occurrence based on ART initiation

■ CD4 < 100 cells/mm<sup>3</sup> ■ CD4 100-200 cells/mm<sup>3</sup> ■ CD4 > 200 cells/mm<sup>3</sup>



PLHIV newly initiating on ART



In-care PLHIV already on ART

21% higher proportion of PLHIV newly initiating on ART presented with CD4 < 200 cells/mm<sup>3</sup> (27%) than in-care PLHIV already on ART (6%)



# Characteristics of PLHIV with AHD

Time period: September 2022 – August 2023

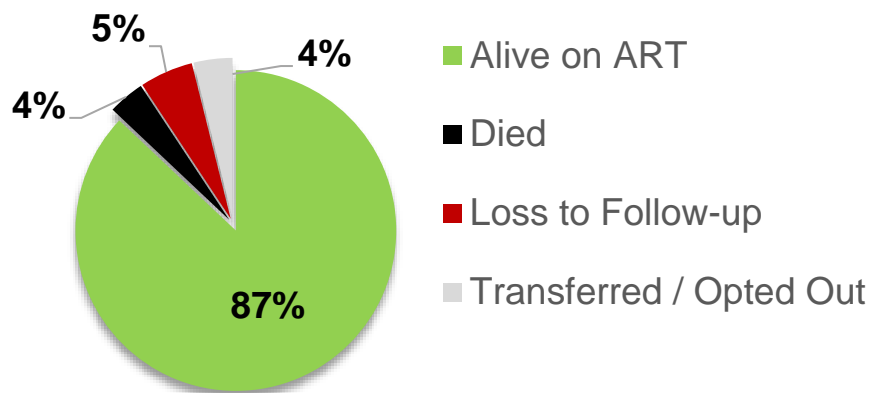
## Demographic Characteristics

- **82% adults aged 20-49 years**, 13% adults aged >50 year, 4% others
- **79% Males**, 20% Females, 1% Transgenderers
- **51% heterosexuals**, 31% of unknown typology, 12% unsafe injection practices

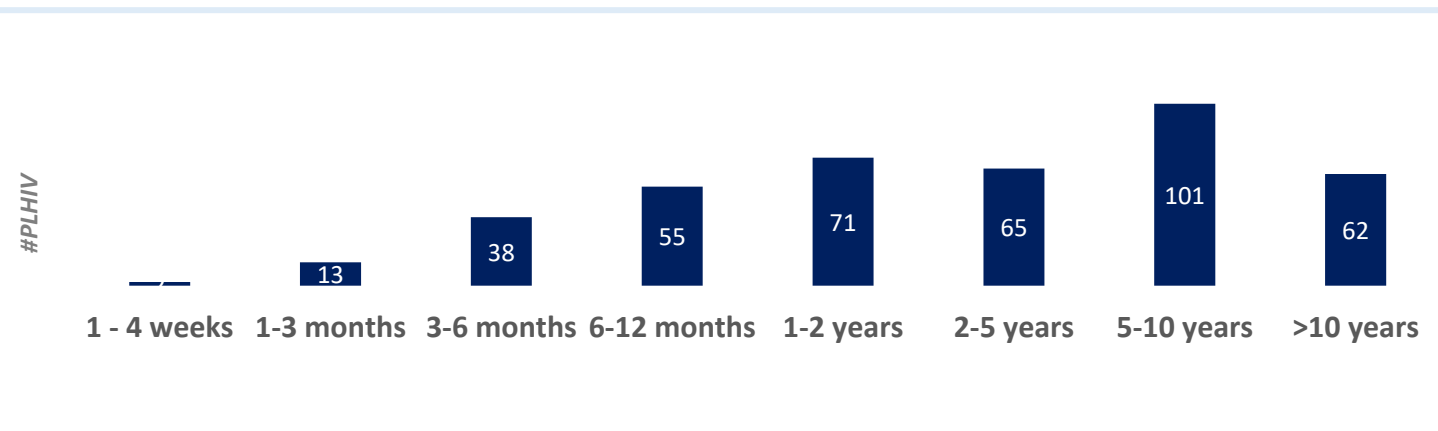
## Clinical Characteristics

- **41% of PLHIV with AHD screening positive for 4-symptom screening**, of which **35% had a confirmed diagnosis** of tuberculosis
- **34% of PLHIV's HIV viral load was "Not Detected"**

## Current Status in Care



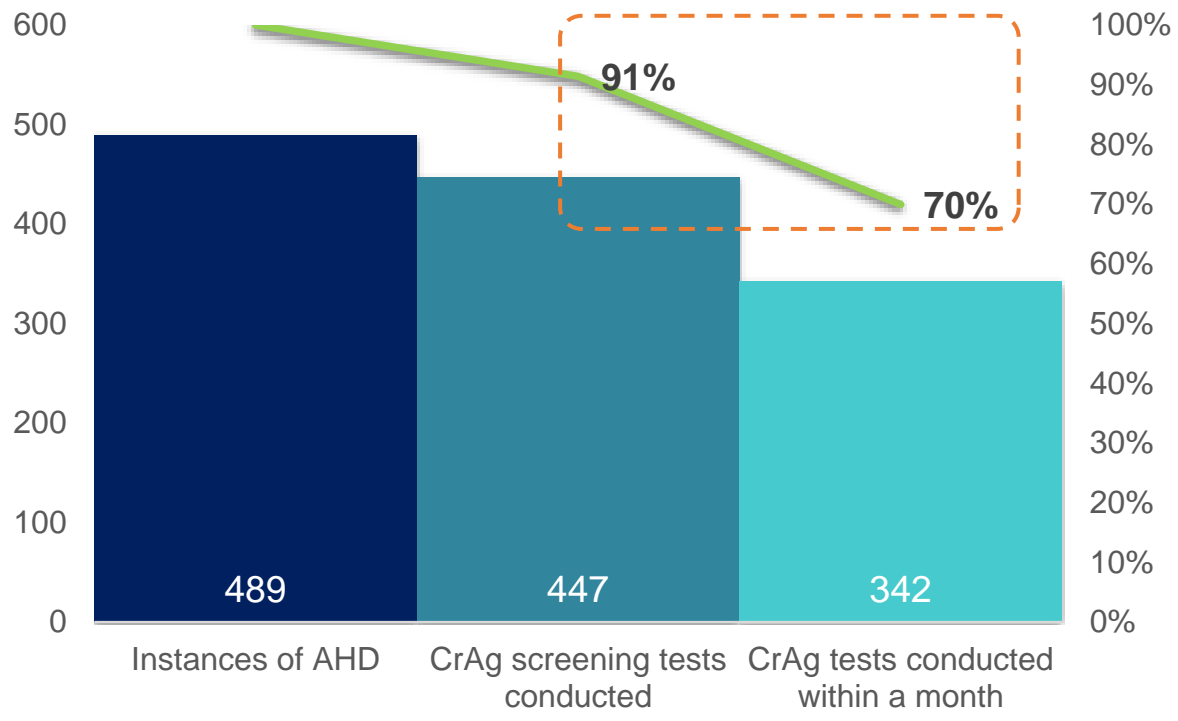
## Time Since ART Initiation



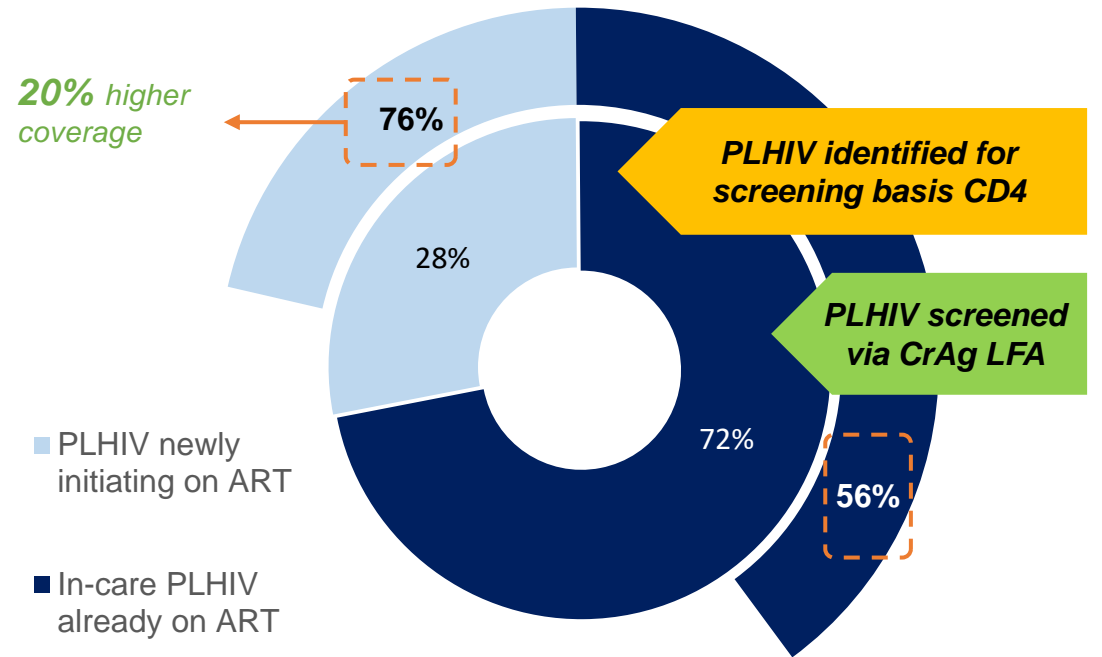
# CrAg Screening Coverage

Time period: September 2022 – August 2023

## CrAg Screening Coverage within AHD Care



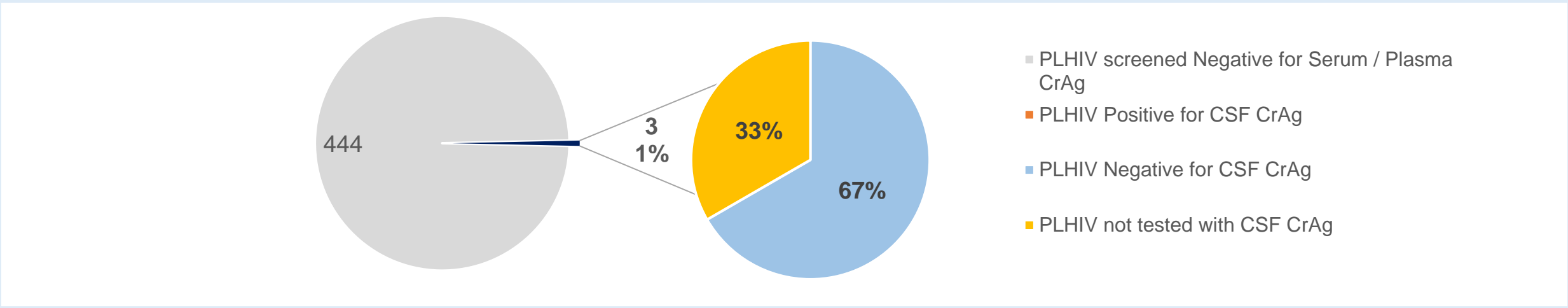
## CrAg Screening Coverage based on ART initiation



# Status of PLHIV Screened Positive

Time period: September 2022 – August 2023

## CrAg Positivity among PLHIV with AHD



## Health Outcomes of PLHIV Screening Positive for CrAg

Category	PLHIV 1	PLHIV 2	PLHIV 3
Current Prophylactic Phase	Maintenance	Maintenance	Maintenance
Latest CD4 Count	348	373	229
Latest Viral Load	Not detected	Not detected	Viral load due (2 visit missed)
Adherence to Fluconazole	>95%	>95%	Pills not brought during latest visit (previously >95%)

# Results: Implementational Learnings

# What Went Well: Ownership and Coordination



- **Assigned staff roles** for patient-tracking (counsellor, data manager, care coordinator, pharmacist etc.)



- **Demarcated AHD records** via stickers that highlight their status, positivity and need for follow-up



- **Counselled effectively** (medical officer, counsellor, and care coordinator); only 2 PLHIV required counselling by all three healthcare workers

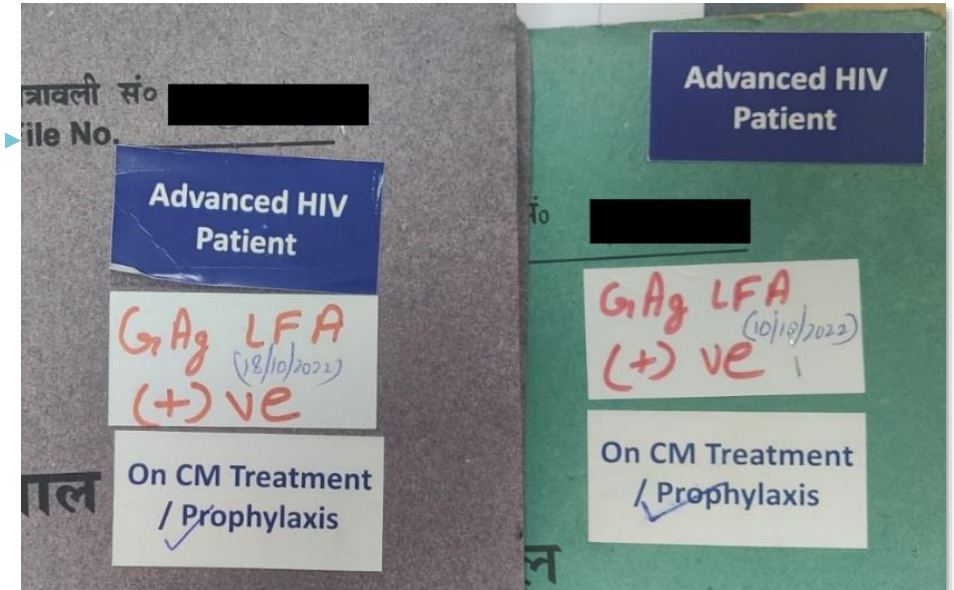


- **Consolidated record-keeping and coordination** of testing details (CrAg screening register, updates / pictures on WhatsApp etc.)



- **Rapid linkage to care** for PLHIV screening positive for CrAg LFA and comprehensive monitoring of health outcomes

## Use of Stickers for Demarcation of AHD Records



*All 3 PLHIV currently on maintenance phase Fluconazole prophylactic treatment – 2 with suppressed viral load and >95% adherence to Fluconazole*

# The Challenge: Linkage Loss from Identification to Rapid CrAg Screening



## Delay in AHD Diagnosis

- One-day turnaround time (TAT) of CD4 results due to batching of samples, departmental approvals and high-load of samples



## Reluctance to Revisit

- PLHIV unwilling to revisit for sample collection due to cost, time and inconvenience of travel
- ART drugs collected by care-givers instead of PLHIV (~5-10 cases/day)
- Inability of staff to contact for counselling due to incorrect or out of order phone numbers



## Low Visibility of PLHIV with AHD

- Difficulty in demarcating PLHIV with a pending CrAg test at the centre due to high traffic
- Limited visibility of staff into all pending tests and need for targeted tracking and follow-up



## Challenges in Monitoring

- Lack of AHD/CM indicators in current data systems
- Manual consolidation of multiple data sources for progress reports
- Re-screening over time not tracked (likely every 6 months)

# The Solutions: Reflex Testing, Strengthened Tracking and Data Monitoring (1/2)

## Key Interventions



### Reflex Testing

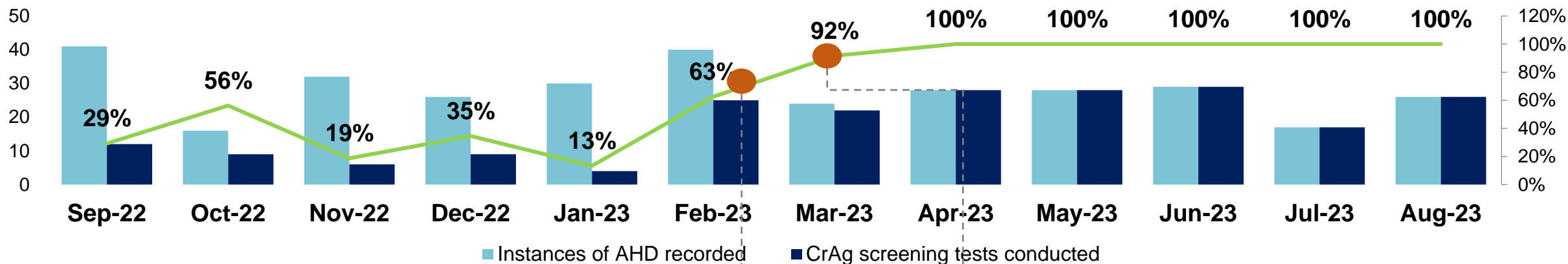
- Separated whole blood samples of results with CD4 cell count  $<200$  cells/mm<sup>3</sup>, extract plasma and immediately screen via CrAg LFA (*collaboration with microbiology department needed*)



## Impact

- 100% same-day CrAg coverage** for PLHIV with CD4 cell count  $<200$  cells/mm<sup>3</sup>
- Median TAT reduced between CrAg and CD4 testing reduced from **26 days to 1 day**
- Reduction in time and efforts** required by healthcare workers (*monitor screening gap, call those with a pending test to revisit, physically track files etc.*)

## Same-month CrAg LFA Screening Coverage



Introduction of  
Reflex Testing

Introduction of AHD  
file stacking

# The Solutions: Reflex Testing, Strengthened Tracking and Data Monitoring (2/2)

## Key Interventions

## Impact



### Targeted Tracking and Follow-up Operations

- Created a separate and visible stack for AHD records with a pending CrAg test to highlight arrival
- Guided staff to close screening gap among PLHIV with a pending test under effective leadership



- **~95% backlog clearance** of PLHIV with a pending CrAg test within a short period (*2 months*)
- **Ease of healthcare workers** in identifying PLHIV presenting with AHD during their ART visits

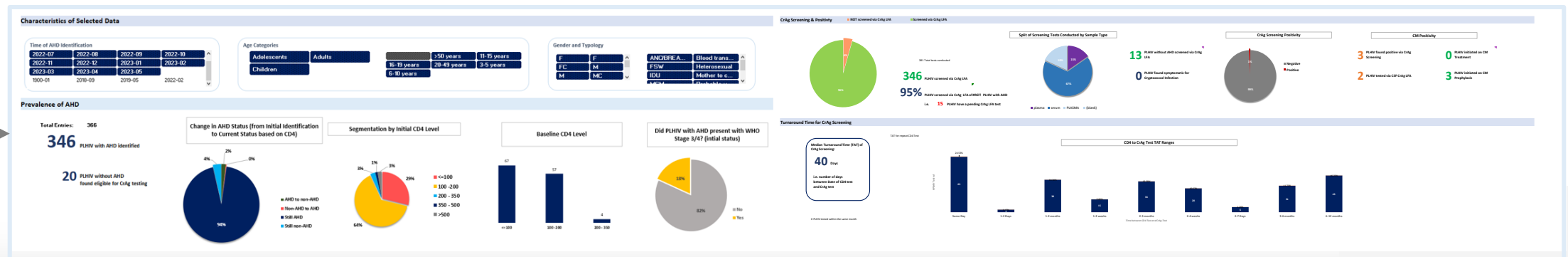


### Improvements in Monitoring Tools and Processes

- Capacitated data manager via on-the-job support
- Introduced AHD and targeted tracking line lists
- Develop an excel-based dashboard for program guidance and assessment of AHD characteristics



- **Systemized follow-up** via tracking lists for calls to PLHIV and record identification
- **Ability to track repeat tests** via cohort-tracking
- **Ease of data manager** in generating accurate reports





# Way Forward

# Scope for Improvement and Way Forward

## Scope for Improvements



### Feasibility of Reflex Testing

- Requirement of a centrifuge machine to extract plasma for reflex testing (limited availability)



### Re-screening of the Cohort

- ~57 PLHIV re-screened after 6 months
- Limited guidance on re-screening of PLHIV with more than two negative CrAg LFA results



### Improvements in Reporting Format

- Overwriting of data after re-screening via 2 tests
- Manual data extraction from current data system

## Way Forward



### Wider Implementation of AHD Care Package

- Scale-up across treatment centres
- Defined modus operandi
- Evaluation of expansion of AHD care to further OIs / co-morbidities



### Further System Strengthening

- TAT reduction of CD4 tests
- Incorporation and integration of AHD-related metrics in current reporting systems
- Capacity building and sensitization of healthcare workers



Thank you!



# AMSTEADAM

FAST-TRACK CITIES 2023

September 25-27, 2023 | RAI Amsterdam Convention Center

✘ City of  
✘ Amsterdam

✘ GGD  
✘ Amsterdam

