Linkage to HIV care

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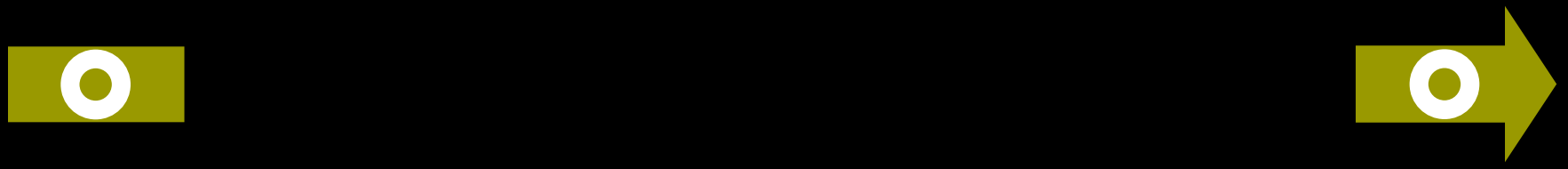
The Problem

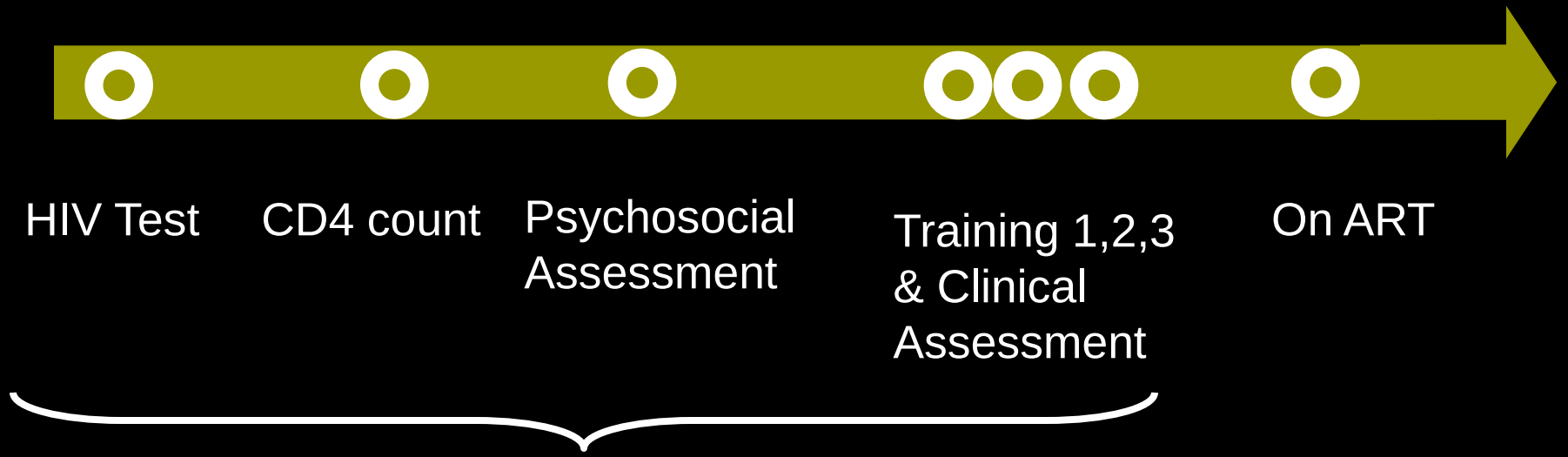
- Only ~40% of HIV-infected who need antiretroviral therapy (ART) in South Africa are receiving it
- How much of this gap is due to failure to link to care after a new HIV diagnosis?
- What can be done to improve linkage?

WHO, 2010

HIV care continuum



Linkage: HIV care continuum



The problem: Pre-ART loss to follow up

Road Map

- Why worry about the pre-ART period?
- What is the magnitude of the problem of pre-ART loss from care?
- What are the risk factors?
- What are possible solutions?

Why worry about pre-ART?

- Early ART initiation
  - Improves survival
  - Reduces morbidity
  - Decreases transmission
- Treatment is more widely available
- CD4 counts at ART initiation remain low—most cohorts still report CD4 <<<200
- Increased CD4 thresholds, “Test and Treat”
- Need strategies to improve entry into care

Why pre-ART is hard to study

- HIV testing and subsequent care often at different locations
- No system with unique identifier allows tracing of transfers or deaths, who may be deemed “lost”
- Clinical and M+E focus has been on patients on ART

Rosen, 2010 ; Bassett, 2009; Mwanaga, 2008;Tweya, 2010;

Who Starts ART in Durban, South Africa? …Not Everyone Who Should

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2006-2010

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Objectives

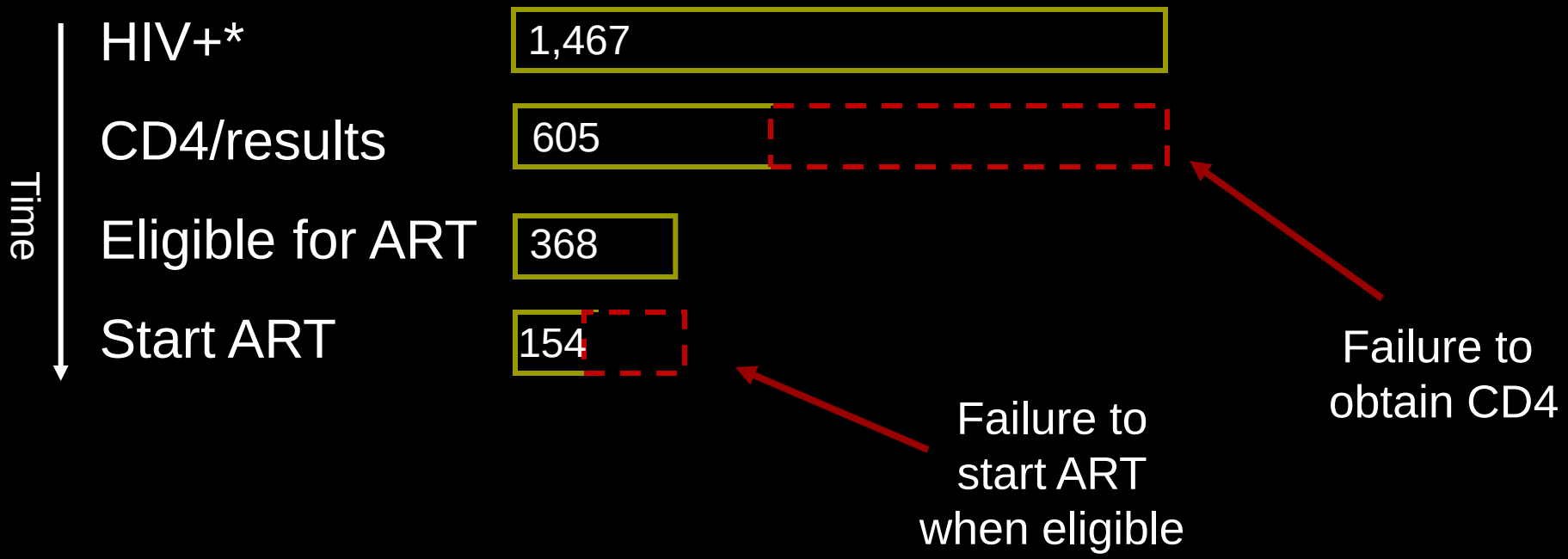
- To evaluate rates of ART initiation within 12 months of a positive HIV test in Durban, South Africa
- To identify baseline factors that predict failure to be on ART at 1 year

Methods: Observational study

- Enrolled adults prior to HIV testing
- 2 study sites in Durban
- Asked questionnaires at baseline, 6, 12 mo
- Reviewed medical record
- Two outcomes:
  - CD4 within 90 days
  - ART initiation within 12 months if eligible

Results

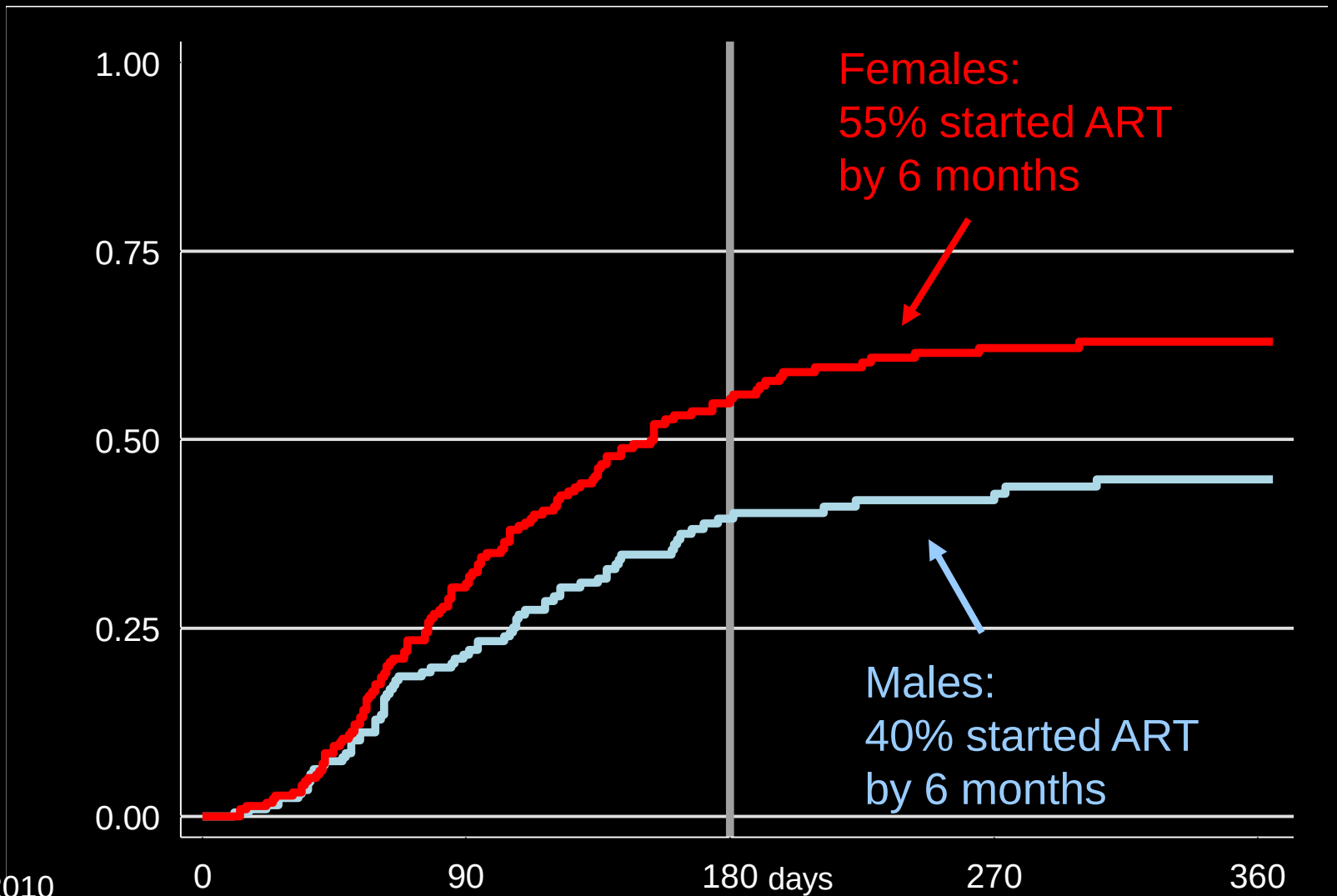
How many start ART?



*Screened 11/06-10/08, enrolled in study and have known HIV status

Bassett, 2010

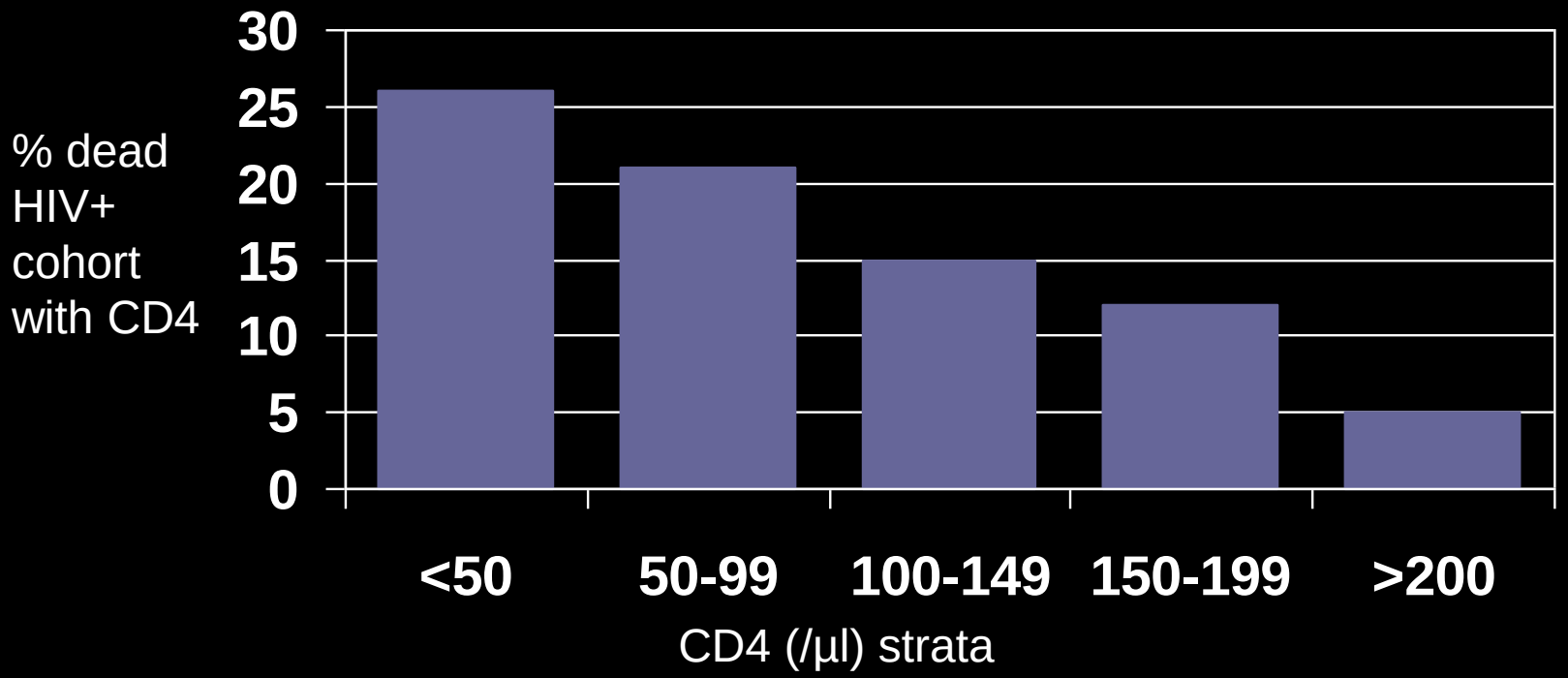
Results: Long delay from HIV diagnosis to ART start



Bassett, 2010

Results: High rate of mortality

- 15% of HIV-infected cohort (216 deaths/1,467)
- 21% of ART-eligible cohort (76 deaths/368)

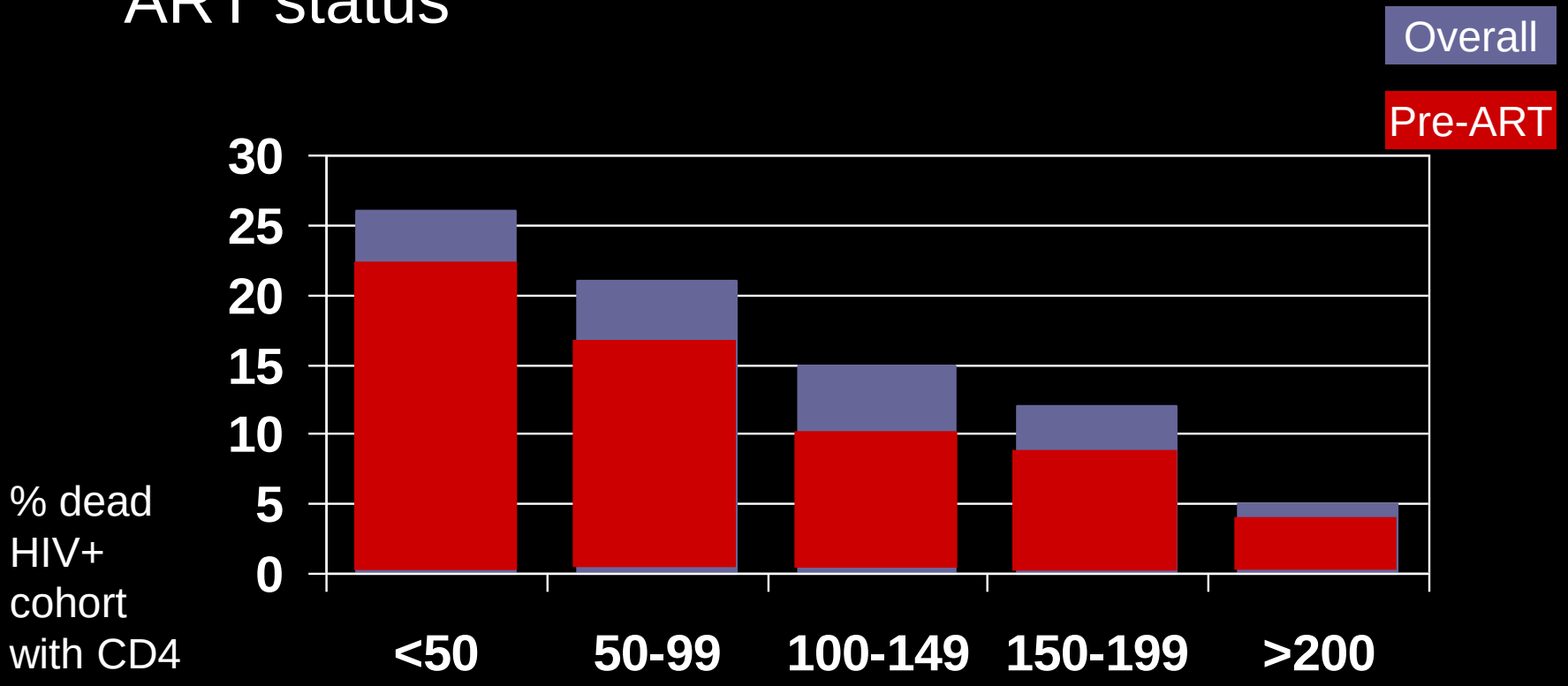


P<0.001

Bassett, 2010

High rate of mortality pre-ART

- Most patients died pre-ART or with unknown ART status



Study conclusions

- Substantial loss between diagnosis and ART
- Men less likely to initiate ART
- Severe immune suppression at diagnosis
- Long delays to ART initiation
- High rates of pre-ART mortality

How does this compare with other studies?

Obtaining CD4 count to assess eligibility

HIV Test CD4 count

Location	Time interval allowed for CD4 count	% obtained CD4 count
Durban, SA[1]	8 weeks	55%
Cape Town, SA[2]	6 months	63%
Johannesburg, SA[3]	12 weeks	35%
Beira & Chimoio, Mozambique[4]	Enrolled ≤ 60d	44%

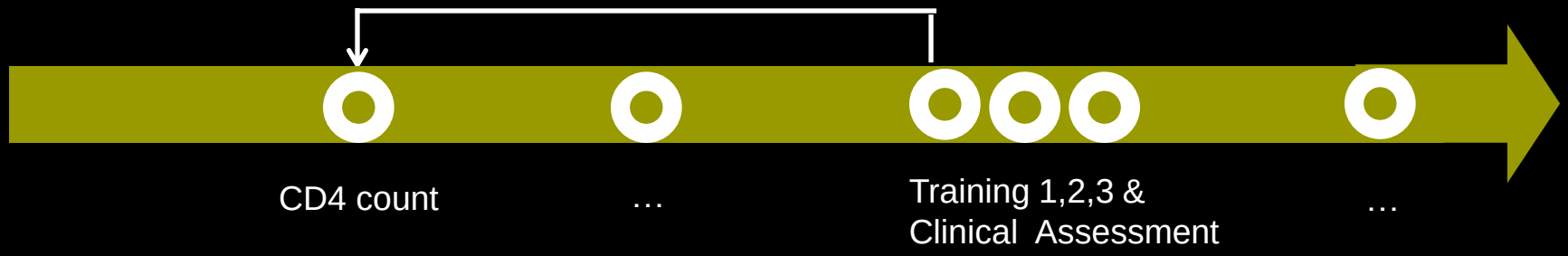
[1]Losina, 2010; [2]Kranzer, 2010; [3]Larson, 2010; [4]Micek, 2009

From CD4 to ART initiation: pre-ART loss for ART-eligible

Location	Time interval allowed for ART initiation	% Retained and started ART	% eligible died pre-ART
Durban, SA[1]	12 months	42%	21%
Free State, SA[2]	Up to 3.5 yrs	58%	23%
Cape Town, SA[3]	6 months	67%	
Beira & Chimoio, Mozambique[4]	≤90d of eligibility	31%	

[1]Bassett, 2010; [2]Ingle, 2010; [3]Kranzer, 2010; [4]Micek, 2009

ART-ineligible patients



Location	Outcome	Retention
Hlabisa, SA[1]	Repeat CD4 within 13 months	Overall: 45% 201-350: 52% 351-500: 43% >500: 35%
Johannesburg, SA[2]	Repeat CD4 within 12 mo	251-350: 41% >350: 26%
Cape Town, SA[3]	Repeat CD4 count during study period	>200: 46%
Thyolo District, Malawi[4]	Repeat CD4	3 mo: 11% 6 mo: 4%

[1]Lessels, 2011;[2]Larson, 2010; [3]Krazner, 2010; [4]Tayler-Smith, 2010

Risk factors for pre-ART loss

- Male gender[1,2,3,4]
- Younger age[2]
- Unemployed[5,6]
- Low CD4 counts[3,4,6]
- ART-ineligible[5,7]
- Rural clinics[3]
- Longer distance from ART initiation site[3]
- Low staffing levels[3]
- Not having an HIV-infected family/friend[1]

[1]Bassett, 2010; [2]Lessels, 2011; [3]Ingle, 2010; [4]Amuron, 2009; [5]Larson 2010; [6]Bassett 2009; [7]Tayler-Smith, 2010;

Why failing to link in Malawi? Cross-sectional study

- Rural Malawi (MSF)
- Defaulters missed appointment by >1 mo
- 874 adults pre-ART traced, 71% found:
  - 51% dead
  - Reasons for defaulting: stigma, dissatisfaction with care/staff, perceived improved health, transport costs

McGuire, 2010

ART refusal in Soweto

- 20% ART-eligible clients refused to initiate upon learning CD4 count
- 92% continued to refuse post 2 mo counseling
- Most common reasons: feeling healthy, unable to disclose, side effects, unable to adhere, cultural beliefs, stigma

Katz, 2011

sub-Saharan Africa systematic review (Jan 2011)

Stage	Outcome	Median [range]
Testing to staging	Received CD4 result	55% [35-88%]
Retention in pre-ART care	Remained in pre-ART care until repeat CD4 count, ART initiation or censoring	46 [42-95%]
Eligibility to initiation	Initiated ART	66% [14-85%]

- 55% * 46% * 66% = 17% (assuming no re-entry)
- Most complete study of all stages suggests 33% retention
- Rosen: ~1/3 of HIV-diagnosed in sub-Saharan Africa remain continuously in pre-ART care from test to ART start

Rosen, CROI, 2011; Krazner, 2010

Implications

- Promote early HIV diagnosis and care
- Improve access to care for men, minimize delays in care system
- Examine reasons for failure to link
- Interventions to improve linkage to care during early stages following diagnosis

Interventions

- Few interventions have been evaluated
- Need to change patients preferences for pre-ART care – lack of incentive to return
- Make pre-ART care more appealing
  - Easier, less expensive, less intimidating
  - More or better services, improve patients understandings of pre-ART care benefits

Rosen, 2011; Lessells, 2011

Possible strategies: Easier, less expensive, less intimidating

- Co-locate multiple services
- Transport assistance
- Lessen waiting times
- Reduce number of steps and lag time
- Use point-of-care (POC) diagnostic tools

Geng, 2008; Ochieng, 2007; Tweya, 2010; Faal, 2011; Rosen, 2010; Etienne, 2010; Forster, 2008

Evidence for POC CD4 count: 2 studies published in 2011

Location and type	Outcome	Standard CD4	POC CD4	Note
Johannesburg, SA[1] Randomized Trial Urban PHC	Report for further care (pre-ART or ART care)	34%	48%	Immediate group 2.6x more likely to attend ART initiation*
Maputo and Sofala provinces, Mozambique Peri-urban and rural PHCs X 4	Assessed for eligibility by 90d Start ART within 60d of staging	21% 12%	57% 22%	Only 21% had POC CD4 and staging consult same day

*No effect of POC CD4 on ART-INELIGIBLE enrolling in pre-ART care

[1]Faal, 2011; [2]Jani, 2011

Possible strategies: Services and patient understanding

- Improve counseling and education regarding pre-ART care
- Proactive support, including phone calls, home visits, community collaborations
- Conditional incentives
- Provide more services at each visit
  - Pre-ART wellness package, quality measures

Scott, 2011; Ochieng,, 2007; Tweya, 2010; Rosen, 2011; ; Rosen, 2010; Etienne, 2010; Forster, 2008

More services at each visit: ART-ineligible patients

- Kenya, before and after free cotrimoxazole
- Before: follow-up every 6 months
- After: every 1-2 mo for pharmacy visit
- Outcome: 12 mo retention in care
- 63% before vs 84% after ($p<0.001$)

Kohler, 2011

More services: Health System Navigator

- Idea: Provide time-limited, in-person, telephone and SMS contact to improve uptake of early steps in care pathway
- Why:
  - Pre-ART loss rates very high in early pathway
  - US-based RCT efficacious
  - Mobile phones common in South Africa
  - SMS being used for health topics in Africa

Gardner, 2005

Sizanani Trial

- Assess clinical impact and cost-effectiveness of a health system navigator assigned in the outpatient setting
- Navigator in-person, SMS, phone contacts
- 3 study sites: urban OPD, rural OPD, primary health clinic
- Evaluate linkage to HIV care and TB treatment completion
- Currently enrolling through 2012

Conclusions

- Pre-ART losses from care are high at each point along care pathway
- Best estimate is that <1/3 of people who test positive for HIV remain continuously in pre-ART care to ART start

Conclusions

- Promoting HIV testing alone is not enough, need to ensure linkage to care to ensure maximum benefits of ART
- Need innovative approaches to improve access to care for men, minimize delays
- Need better ways to monitor pre-ART losses, mortality, and transfers
- Examine reasons for why people fail to link or decline care

Future directions for interventions

- Rigorous evidence largely lacking for linkage interventions
- Interventions are needed that:
  - Expedite care, consolidate steps, co-locate services, provide point of care diagnostics
  - Emphasize value of being in care, offer psychosocial support, reminders, a well-defined and worthwhile pre-ART care package

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Patients and families at study sites


Sizanani