

MRC

MRC/UVRI Uganda
Research Unit on AIDS



Uganda Virus Research Institute

Service coverage and mortality along the HIV care cascade in rural Uganda

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Kyamulibwa, Uganda

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Background

- HIV/AIDS epidemic been global, over 180 countries reporting cases/deaths in 2014

Number of people living with HIV in 2014

Total	36.9 million [34.3 million–41.4 million]
Children	2.6 million [2.4 million–2.8 million]

People newly infected with HIV

Total	2.0 million [1.9 million–2.2 million]
Children	220 000 [190 000–260 000]

AIDS deaths

Total	1.2 million [980 000–1.6 million]
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Adults accessing treatment 14.9 million [41% [38 –46]]

90-90-90 strategy to end AIDS epidemic by 2030 targets that by 2020;



diagnosed

90% of all PLWH will
know their HIV status



on treatment

90% of those with
diagnosed HIV
infection will receive
sustained ART



virally suppressed

90% of those on ART
will have viral
suppression

Why are HIV positive people dying/new infections in the era of ART?

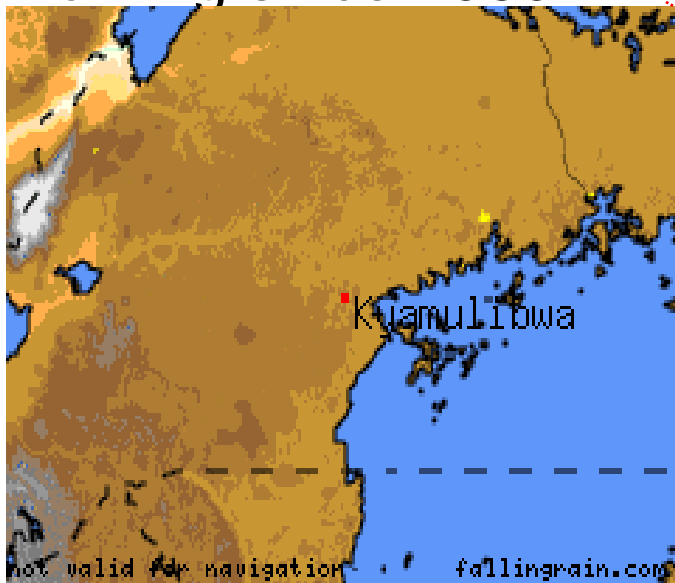
- Strategic use of ARVs
 - averting HIV-related deaths
 - reducing new HIV infections
- Who/when do most HIV positive people die/transmission?
 - before diagnosis?
 - between diagnosis and treatment?
 - whilst on treatment?
 - after abandoning treatment?
- How quickly do people move from HIV infection to Care and to treatment?

Objective

- Monitor progress across these steps of the HIV care cascade
- Assess gender and age differentials in starting HIV CARE, initiating ART and mortality

The study setting

- Kyamulibwa DSS, Kalungu district, south-west Uganda, where MRC/UVRI has been working since 1989.



Methods

- Annual socio-demographic, HIV surveillance, and clinic data are obtained
- If diagnosed with HIV, referred to study clinic for enrolment into HIV care
- free ART introduced in 2004

Methods

- HIV prevalence ~ 10%
- 56% of HIV-infected knew status (2008)
- 99% of eligible for ART initiated treatment
- ART coverage among estimated to need ~ 69%

Methods

- HIV care cascade transitions
 - i. Sero-conversion → HIV care
 - ii. HIV care → ART initiation
 - iii. ART initiation → death
- PYRS at 'risk' were calculated for each transition
- Death was a competing risk at each step

Methods

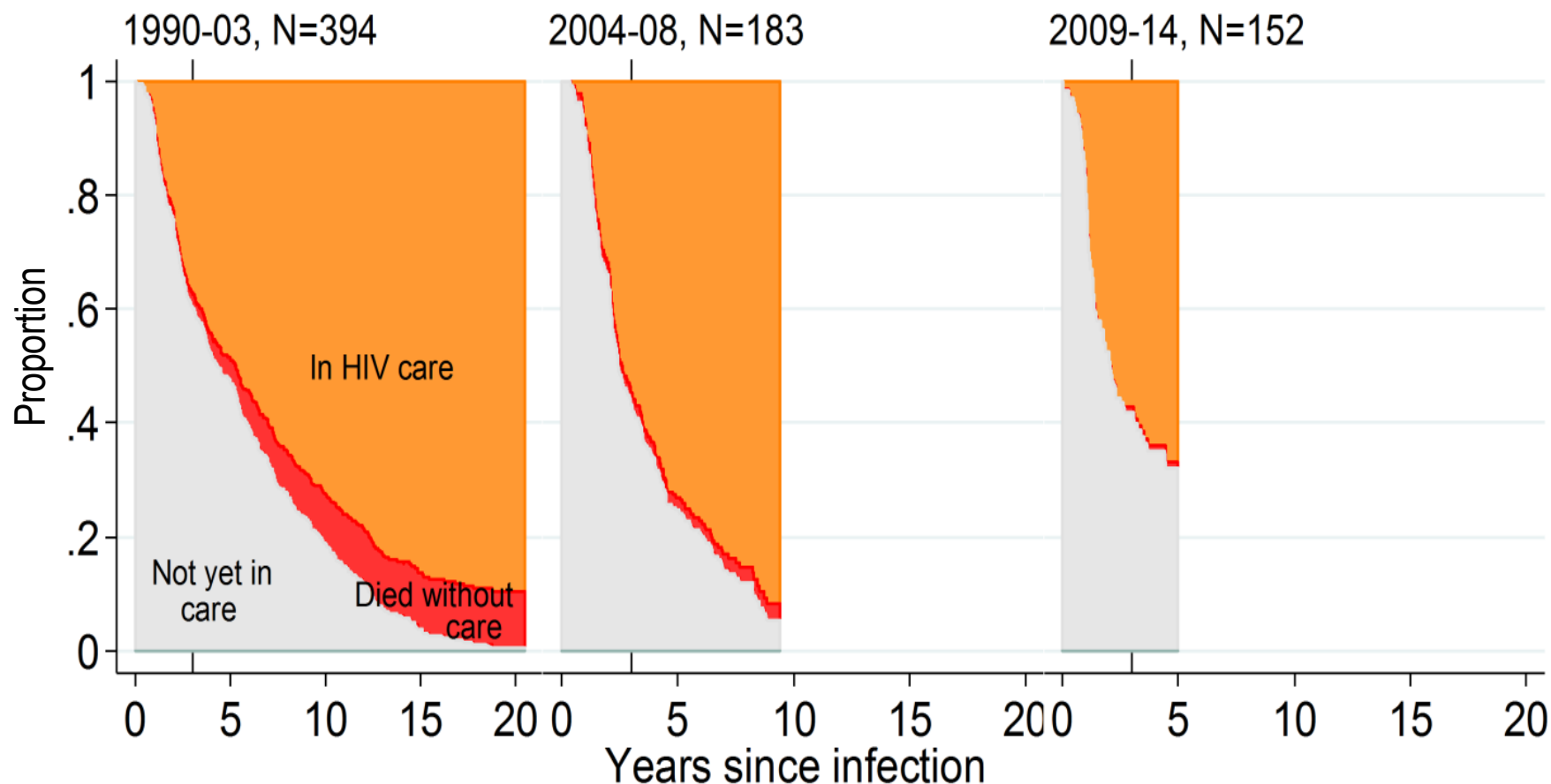
- Cohorts were defined by the start of exposure:
 - ✦ before ART (1990-2003);
 - ✦ early ART availability (2004-2008);
 - ✦ ART availability (2009-2014).

Results

- 2,337 HIV-positive adults
- 63% females, 50% aged 15-29 years at first HIV-positive test
- 32,307 PYRS between 1990-2014

Time between infection and enrolling into HIV care is getting shorter

(each graph represents the experience of a group of people infected at the same time)

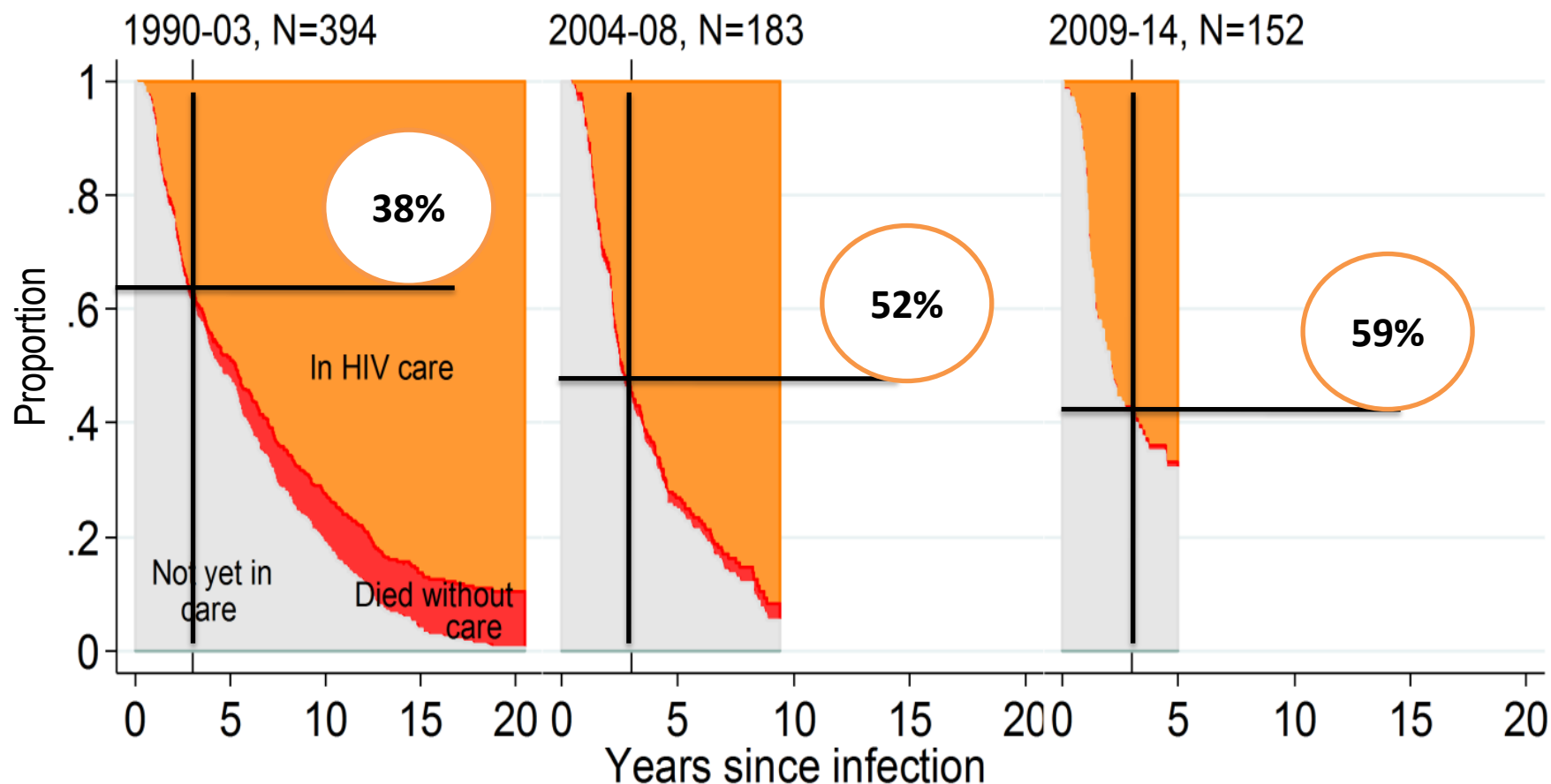


Seroconverters are joining HIV care programmes earlier (5 years 1990-2003, 2.5 in 2004-2008 & 2 in 2009-2014)

In successive sero-conversion cohorts participants enroll into HIV care earlier (orange shape moves to left and descends more steeply, reducing the size of the infected but not in care grey shape). The proportion of people dying before diagnosis (red) shrinks in successive cohorts.

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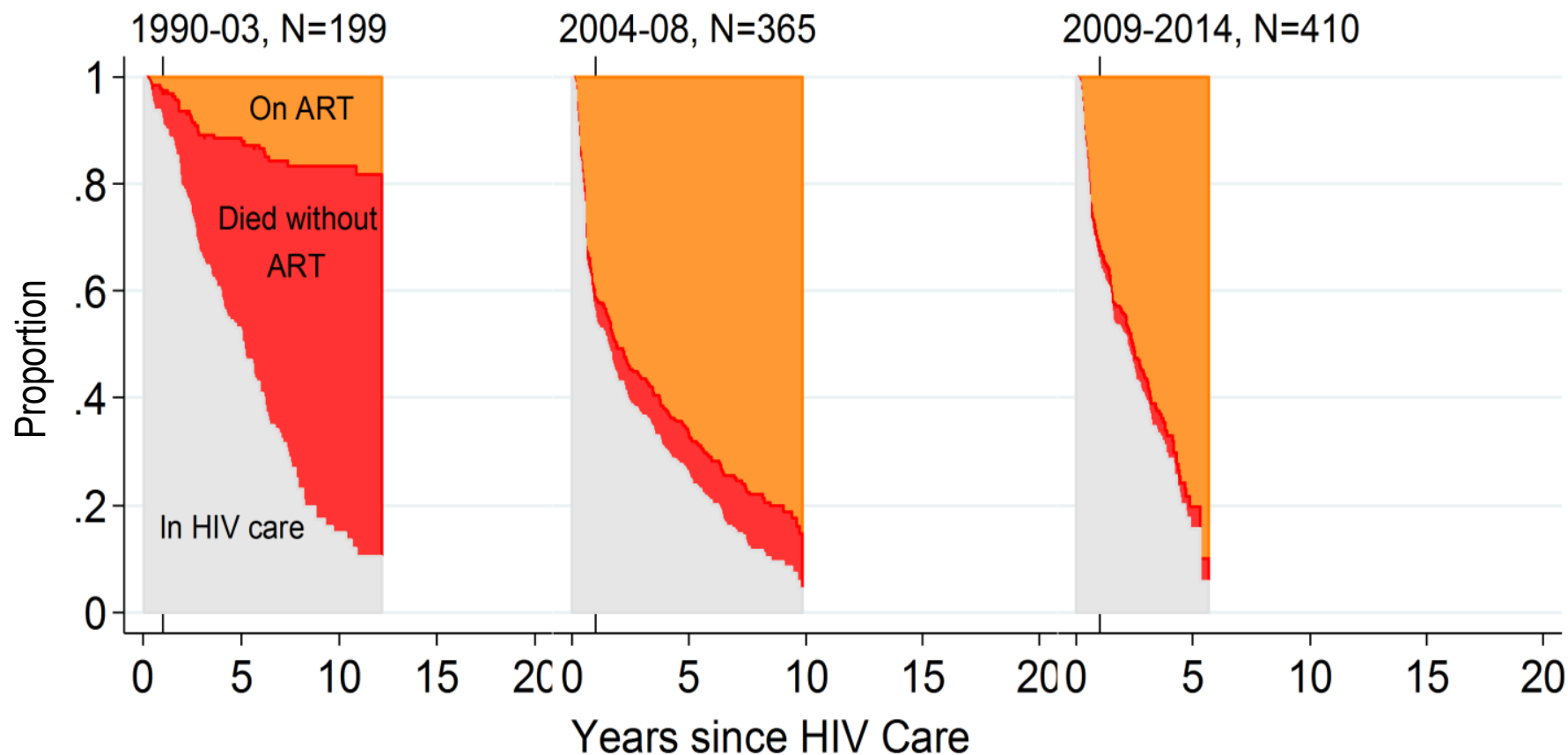


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Time between enrolling into HIV care and treatment is getting longer

(each graph represents the experience of a group of people enrolled into HIV care at the same time)

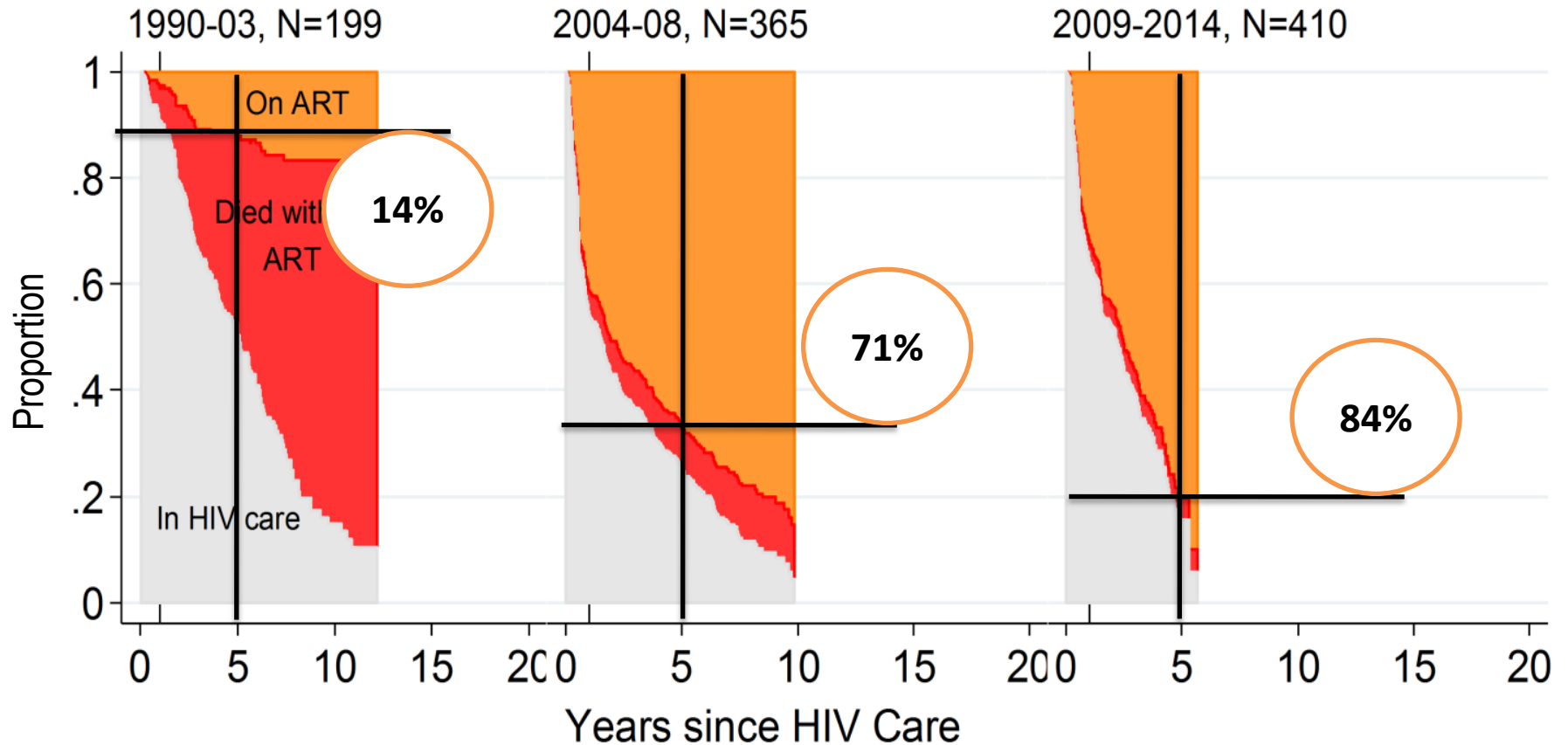


Participants are staying longer in HIV care before starting ART (1.7 to 2.3 years in 2004-08 and 2009-14)

Successive cohorts of those enrolled into HIV care get onto ART later (orange shape moves to right and descends less steeply). Proportion dying before starting ART (red) shrinks in successive cohorts.

Time between enrolling into HIV care and treatment is getting longerer

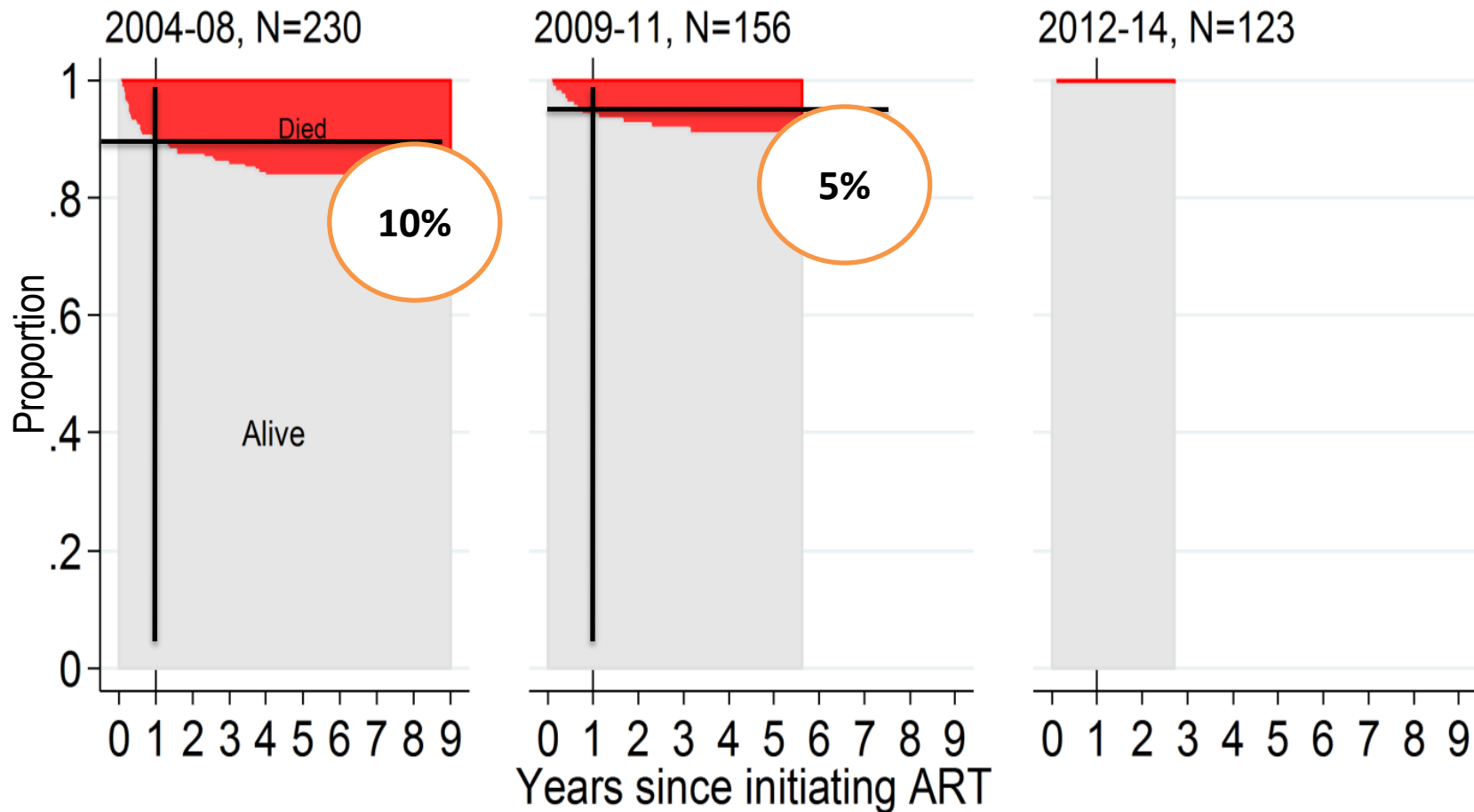
(each graph represents the experience of a group of people enrolled into HIV care at the same time)



52% died before starting ART in 1990-03, reducing to 9% in 2004-8, and 4% are still die among those enrolled into care

Mortality in successive treatment cohorts declines substantially

(each graph represents the experience of a group starting treatment at the same time)



In successive treatment cohorts mortality is lower (red shape shrinks). In early treatment cohorts, about 10% died within one year of starting ART; 17% died within 5 years but in the later ART cohort, 5% died the first year.

Gender and age differentials in starting HIV CARE, ART and mortality

(column represents the differential of a group of people infected, Care, ART at the same time)

COHORT of sero-conversion, starting care, or Initiating ART1

Outcome of starting CARE or Initiating ART

VARIABLES	c1990-2003	c2004-'08	c2009-'14
	aHR (95%CI)	aHR (95%CI)	aHR (95%CI)
<i>starting CARE in each sero-conversion cohort</i>			
male	1.06 (0.83 - 1.34)	0.52** (0.36 - 0.74)	0.83 (0.53 - 1.31)
Age at sero-conversion (vs. 15-29)			
30-44	1.17 (0.84 - 1.63)	1.07 (0.66 - 1.75)	1.27 (0.60 - 2.66)
45+	1.79** (1.24 - 2.59)	1.5 (0.90 - 2.52)	1.42 (0.68 - 2.95)
<i>Initiating ART in each CARE cohort</i>			
male	1.16 (0.55 - 2.43)	0.99 (0.77 - 1.28)	1.17 (0.89 - 1.54)
Age at starting CARE (vs. 15-29)			
30-44	1.06 (0.49 - 2.28)	1.39* (1.01 - 1.90)	1.34 (0.97 - 1.86)
45+	0.54 (0.15 - 1.93)	1.72** (1.17 - 2.51)	1.19 (0.81 - 1.74)

Men had lower access to HIV care, younger adults had lower access to HIV care and uptake of ART.

Gender and age differentials in starting HIV CARE, ART and mortality

(column represents the differential of a group of people infected, Care, ART at the same time)

COHORT of sero-conversion, starting care, or Initiating ART¹			
<i>Mortality: before care / before initiating ART/ post-ART</i>			
VARIABLES		c1990-'03 aHR (95% CI)	c2004-'14 aHR (95% CI)
<i>Seroconversion to starting HIV Care</i>			
male		1.38 (0.67 - 2.87)	1.11 (0.18 - 6.74)
Age at sero-conversion (vs. 15-29)			
30-44		0.59 (0.23 - 1.47)	
45+		1.25 (0.46 - 3.39)	0.69 (0.11 - 4.39)
<i>HIV care to Initiating ART</i>			
male		1.36 (0.91 - 2.03)	1.18 (0.66 - 2.11)
Age at starting CARE (vs. 15-29)			
30-44		1.12 (0.71 - 1.75)	1.14 (0.53 - 2.47)
45+		1.62 (0.95 - 2.74)	2.90** (1.33 - 6.33)
<i>Mortality in each ART initiation cohort</i>			
		2004-2008	2009-2014
male		1.49 (0.81 - 2.75)	0.85 (0.28 - 2.59)
Age at ART initiation (vs. 15-29)			
30-44		0.43* (0.19 - 0.98)	1.76 (0.36 - 8.66)
45+		1.64 (0.75 - 3.59)	1.88 (0.36 - 9.90)

Before ART became available, Men had higher mortality without HIV care, before initiating ART and after ART.

Summary

- ART availability has had a large beneficial impact on mortality
- Access to HIV care has improved in successive sero-conversion cohorts
- Earlier ART uptake
 - PLWH are getting into care earlier and staying in HIV care longer before starting ART
 - hence, substantially lower mortality in the first year after starting ART
- Death after starting ART has become rare
- Rapid entry into HIV care following seroconversion benefits the subsequent steps in the HIV care cascade,
- Increased access and uptake on ART can be achieved in the context of providing regular community-based HIV testing.
- Need for Testing outreaches; creation of demand for testing.

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