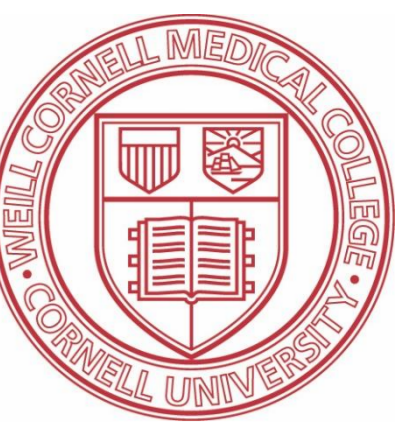




# Factors associated with Disengagement from HIV care at GHESKIO, largest HIV center in the Caribbean



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## BACKGROUND

- Improvement in ART programs has been associated with HIV prevention, reduced morbidity and mortality associated with HIV/AIDS
- To achieve sustainable impact of ART, patients must remain on treatment
- GHESKIO has documented at least 3 strategies to improve adherence:
  - Same day Initiation/ test and treat
  - Decrease waiting time
  - Food support
- However, there are still knowledge gaps on why so many patients tested positive for HIV, initiated ART, but do not return for care

## OBJECTIVES

Identify factors associated with lost to follow-up among HIV+ patients on ART

Improve patient retention

## METHODS

### Study Design

- Retrospective analysis of patients who enrolled in ART care at GHESKIO Centers from January 2014 – October 2018

### Data Source

- Electronic medical records January 2014 – January, 2019

### Statistical Methods

- Chi-square to identify differences in characteristics of patients with vs. without adverse outcome, using a threshold of  $p < 0.05$
- Cox proportional models to identify factors associated with LTFU
- Kaplan-Meier curves to estimate time to LTFU
- Log-rank test to compare time to LTFU across subgroups

## DEFINITIONS and SAMPLE SELECTION

**Lost to follow-up (LTFU)** included both of the following adverse outcomes:

- Not observed at GHESKIO 30 days *after* last scheduled visit and never returned (N=4,264 by January 17, 2019)
- Death (N=497 by January 17, 2019)

**Follow-up time:** time from ARV enrollment to

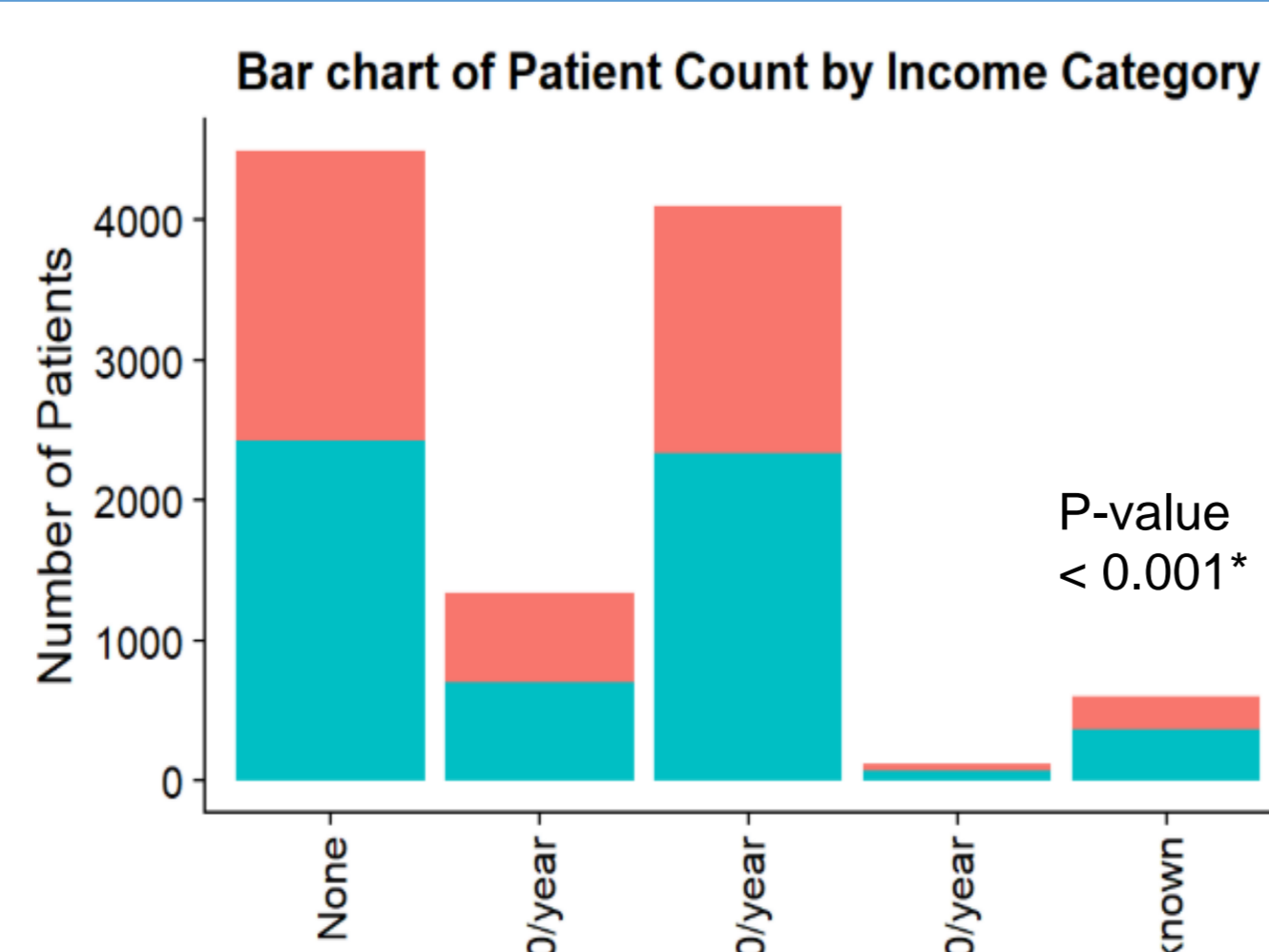
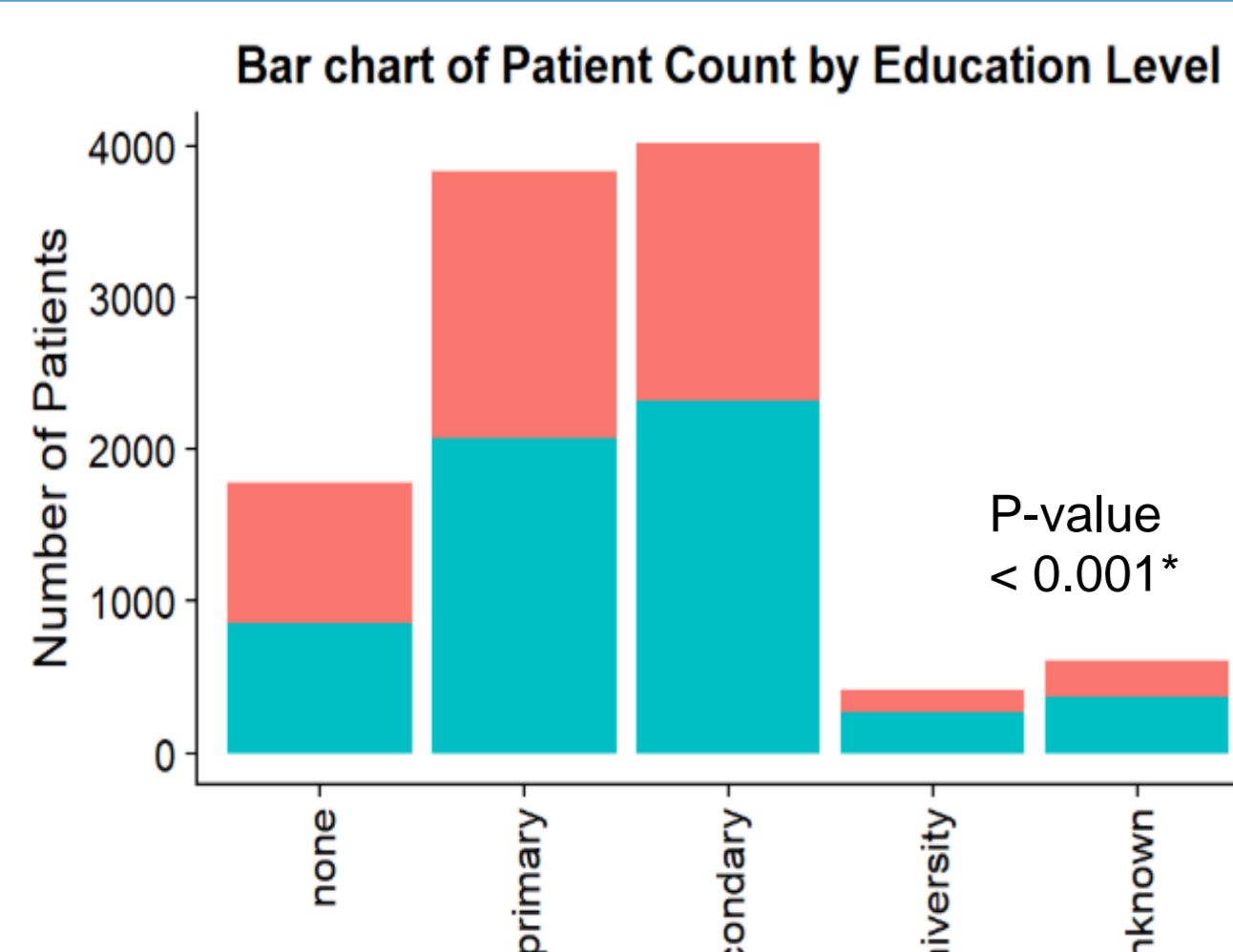
- LTFU (last missed scheduled visit + 30 days)
- Date of death
- Censored date, defined as the earliest among:
  - Transfer date
  - Data cut (January 17, 2019)
  - 3, 6, or 12 months after ARV enrollment, depending on analysis

**Sample selection:**

- 10,654 patients on ART were included

## RESULTS – Baseline Characteristics

	Total <sup>1</sup> N=10,654	Retained N=5,893	LTFU N=4,761	P-value <sup>2</sup>
Age at ARV enrollment, mean (SD)	33.21 (15.62)	34.31 (15.58)	31.84 (15.56)	< 0.001 *
Female, n (%)	6,251 (58.67)	3,427 (58.15)	2,824 (59.32)	0.23
Marital status				0.70
Single	3,601 (35.80)	2,003 (36.19)	1,598 (35.31)	
Married/with partner	4,714 (46.86)	2,586 (46.73)	2,128 (47.03)	
Other (divorced/separated/unknown)	2,339 (21.95)	1,304 (22.13)	1,035 (21.74)	
Baseline CD4 count <sup>3</sup> (cells/mm <sup>3</sup> )				< 0.001 *
<50, n (%)	636 (9.42)	305 (8.18)	331 (10.95)	
50-100, n (%)	473 (7.01)	234 (6.28)	239 (7.91)	
101-250, n (%)	1,324 (19.62)	735 (19.72)	589 (19.49)	
>250, n (%)	4,316 (63.95)	2,453 (65.82)	1,863 (61.65)	
Follow-up months, median (IQR)	19.15 (7.20, 35.87)	28.81 (14.32, 45.31)	9.69 (2.96, 21.82)	< 0.001 *



## RESULTS – Lost and Death

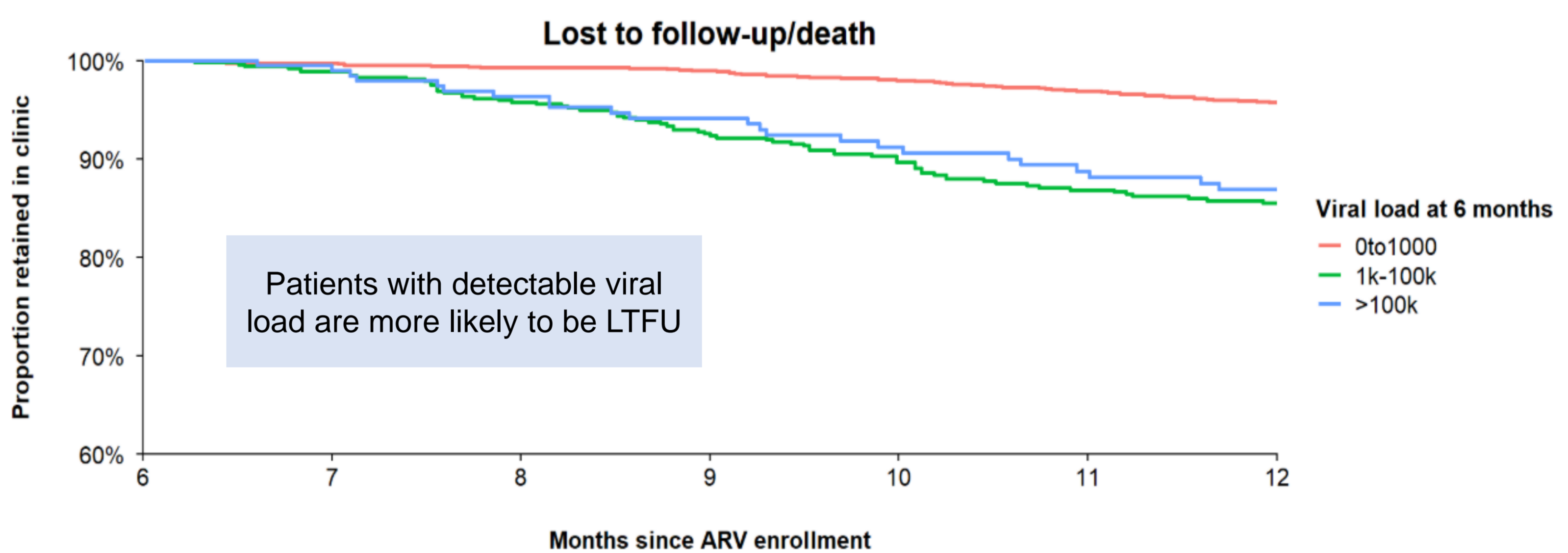
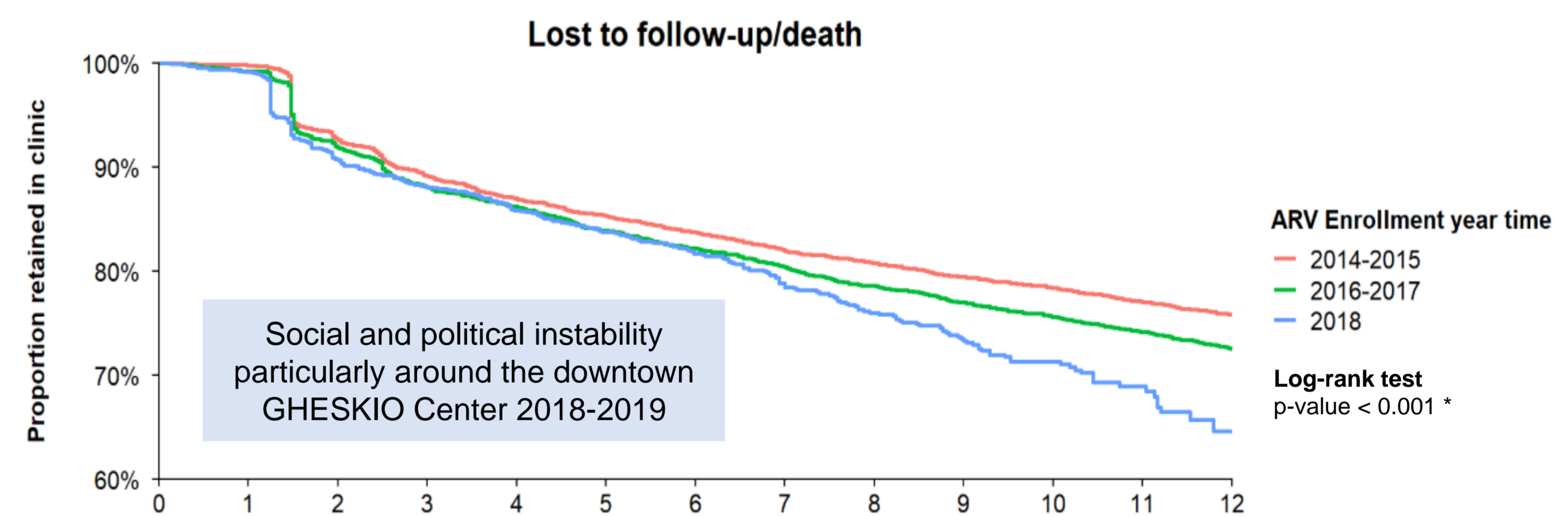
### Patient Counts

	Within 3 months of ARV enrollment	Within 6 months of ARV enrollment	Within 12 months of ARV enrollment	By January 17, 2019
LTFU	1,221 (11.5%)	1,807 (17.0%)	2,685 (25.2%)	4,761 (44.7%)
Dead	122 (1.1%)	169 (1.6%)	266 (2.5%)	497 (4.7%)
Lost	1,099 (10.3%)	1,638 (15.4%)	2,419 (22.7%)	4,264 (40.0%)
Retained	9,433 (88.5%)	8,847 (83.0%)	7,969 (74.8%)	5,893 (55.3%)

### Incidence Rates

	Within 6 months of ARV enrollment			By January 17, 2019		
	Total sum of follow-up, patient-years [A]	Total number of events [B]	Incidence rate, per 1,000 patient-years [C] = [B]/[A]*1,000	Total sum of follow-up, patient-years [D]	Total number of events [E]	Incidence rate, per 1,000 patient-years [F] = [E]/[D]*1,000
LTFU	4,731	1,807	381.9	20,239	4,761	235.2
Dead	4,731	169	35.7	20,239	497	24.6
Lost	4,731	1,638	346.2	20,239	4,264	210.7

## RESULTS – Kaplan Meier Curves



## RESULTS – Cox Proportional Hazards Model

Characteristic	Adjusted HR (95% CI)	P-value	
Gender	Female	1.10 (0.98, 1.23)	0.0920
Age at enrollment	20 to 24 years	1.74 (1.42, 2.13)	< 0.001
	25 to 30 years	1.68 (1.42, 1.98)	< 0.001
	31 to 50 years	1.20 (1.04, 1.39)	0.0112
Income (vs. >\$HT 1,000/year)	None	1.16 (1.03, 1.31)	0.0187
	\$HT 1 to \$HT 1,000/year	1.19 (1.01, 1.40)	0.0342
Education (vs. ≥Secondary)	None	1.68 (1.46, 1.95)	< 0.001
	Preschool or Primary	1.29 (1.14, 1.46)	< 0.001
Baseline CD4 count (vs. ≥250)	<50	1.82 (1.55, 2.12)	< 0.001
	50 to 100	1.36 (1.12, 1.64)	0.0016
	101 to 250	1.04 (0.91, 1.19)	0.5359

## CONCLUSIONS

- Within 12 months following ART enrolment, LTFU is associated with:
  - Lower income
  - Lower education
  - Young adult, especially age 20-30
  - Lower baseline CD4 counts
- Among patients retained at 6 months, higher viral load at 6 months was most strongly associated with LTFU by month 12
- Possible interventions to reduce disengagement and improve outcome
  - More intensive counseling for less educated patients
  - Decrease waiting time at clinics
  - Food and Transportation support
  - Special care including hospital admission for patients with low economic status, low baseline CD4, and high VL at 6-month

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