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Persistence with anti-retroviral therapy improved between 2001 and 2010 in the US

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11th International Conference on HIV Treatment and Prevention Adherence
May 9-11, 2016

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Study Background

- Continuous use of anti-retroviral therapy (ART) is a critical component of the Care Continuum
- Improved ART adherence in some individual HIV clinics and academic-based cohorts
- Limited nationally representative data on time trends or sociodemographic predictors
- Generalizable estimates can help identify areas for targeted interventions

Objectives

(1) To examine the changes in ART persistence in representative U.S. population with Medicaid between 2001 and 2010

(2) To determine the factors associated with ART persistence in a real-world setting

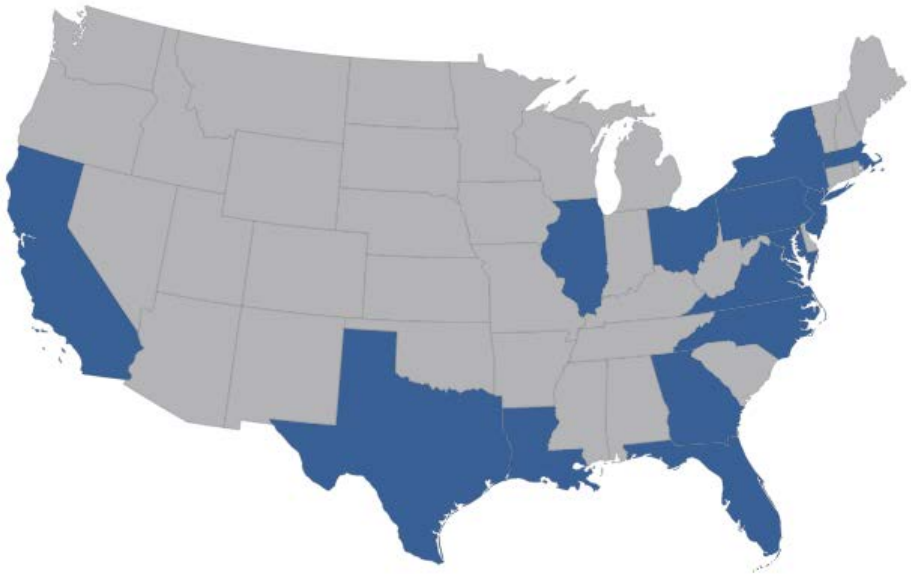
Persistence vs. Implementation

PERSISTENCE: duration of use without exceeding the permissible gap

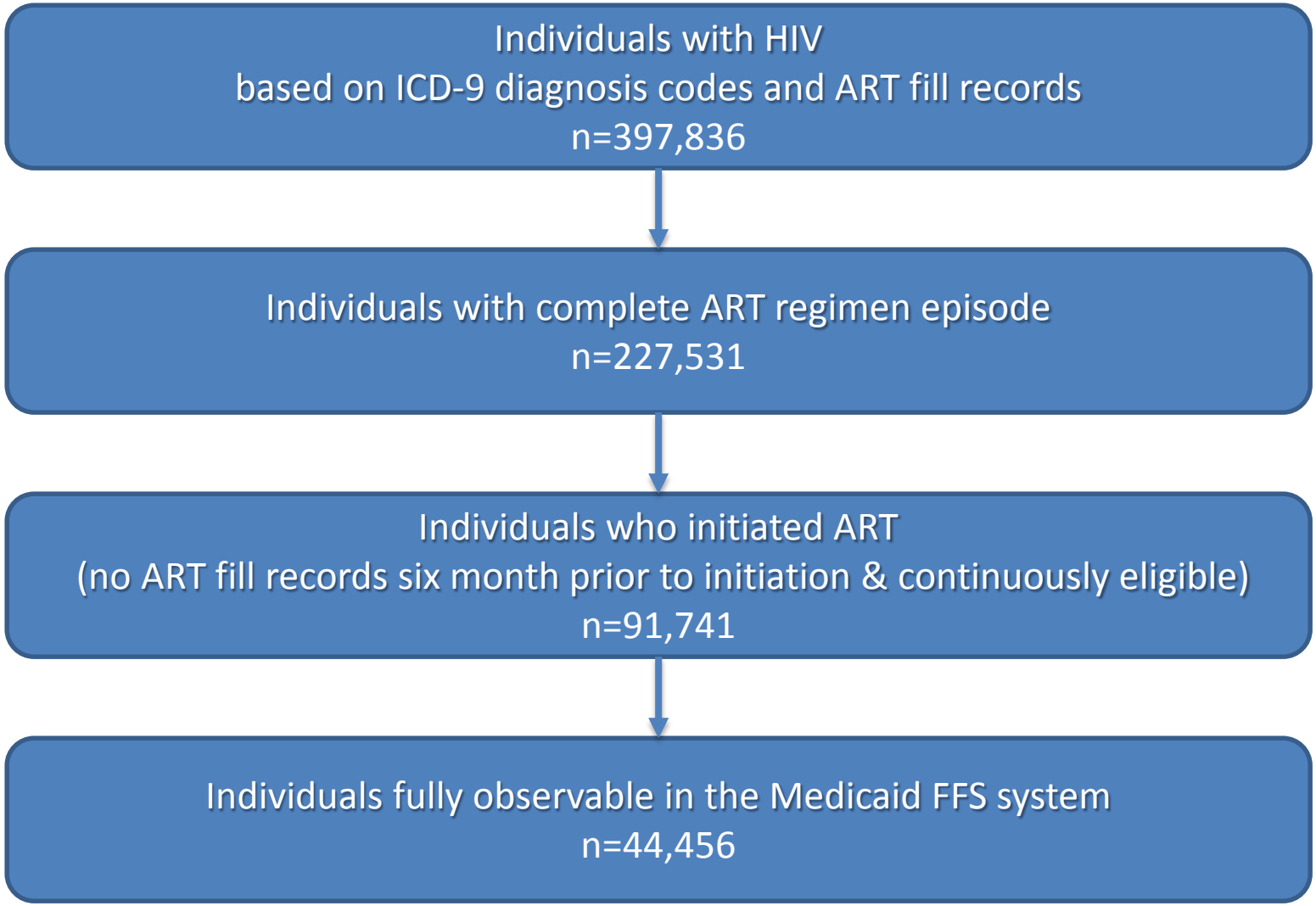
IMPLEMENTATION: % of doses taken as prescribed during the corresponding period of persistence

Data

- Medicaid Analytic Extract (MAX) file, 2001-2010
- Medicaid is the single largest source of care for HIV patients
- 14 states with the highest HIV prevalence (75% of US cases)



Study Inclusion Criteria



Outcome Measurement

- Treatment duration: first ART fill date to the last fill date before the 90 days permissible gap (treatment discontinuation)
- Censoring for survival analysis
  - End of the study
  - Death
  - Lost Medicaid FFS coverage

Study Variables

Main Independent Variable

- Treatment initiation year (2001-2003, 2004-2006, 2007-2010)

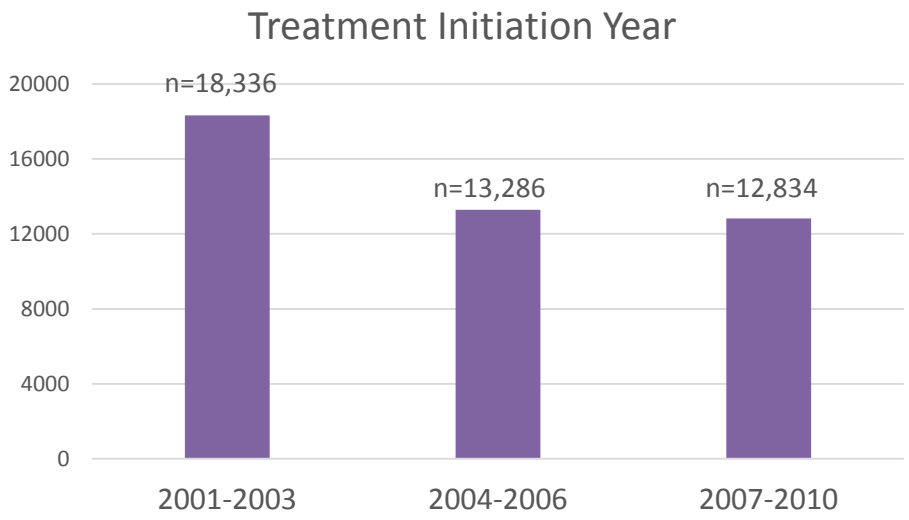
Covariates

- Age group
- Gender
- Race/Ethnicity
- State
- Initial ART regimen type (integrase inhibitor based, NRTI based, NNRTI based, PI based, multiple classes)
- Initial NRTI backbone (TDF/ABC, AZT, ddl/d4T, others)
- Single tablet regimen use

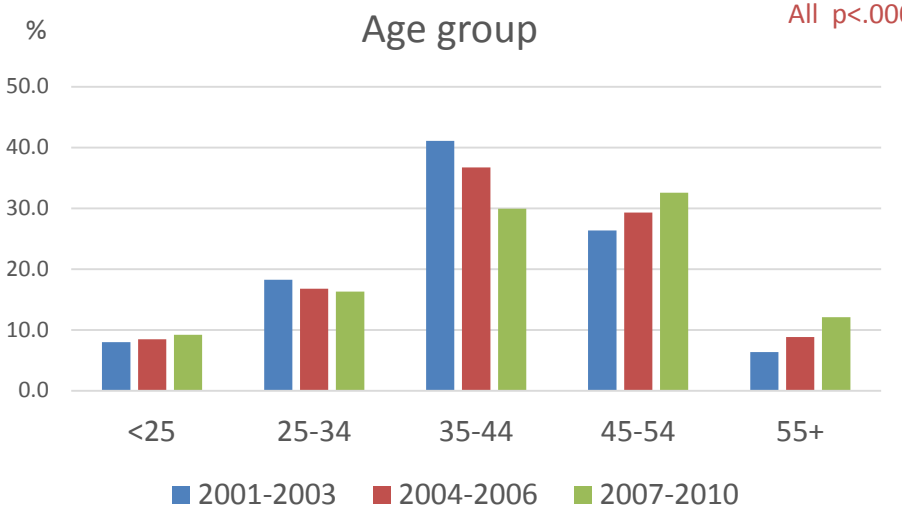
Statistical Analysis

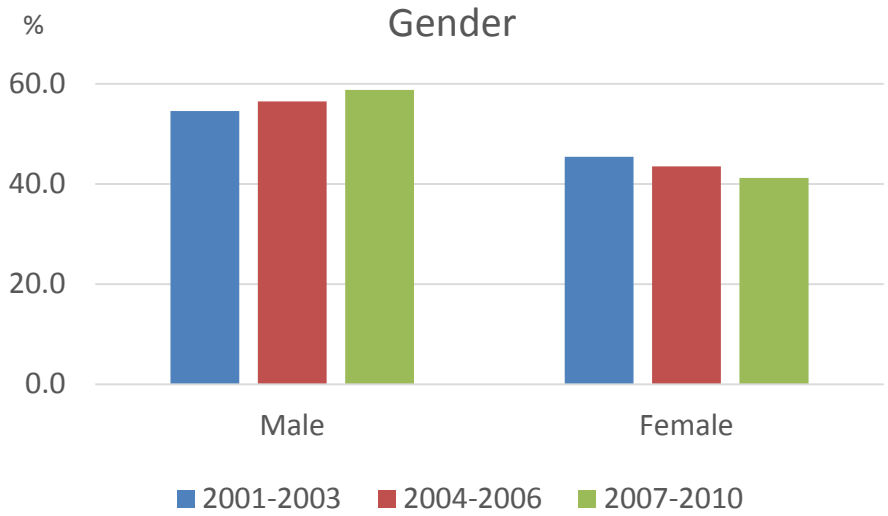
- Chi-square tests used to examine the differences among the patients who initiated ART during the three time periods
- Kaplan-Meier plots used to compare crude time to discontinuation
- Cox-proportional hazards models used to evaluate the factors associated with non-persistence, adjusting for covariates

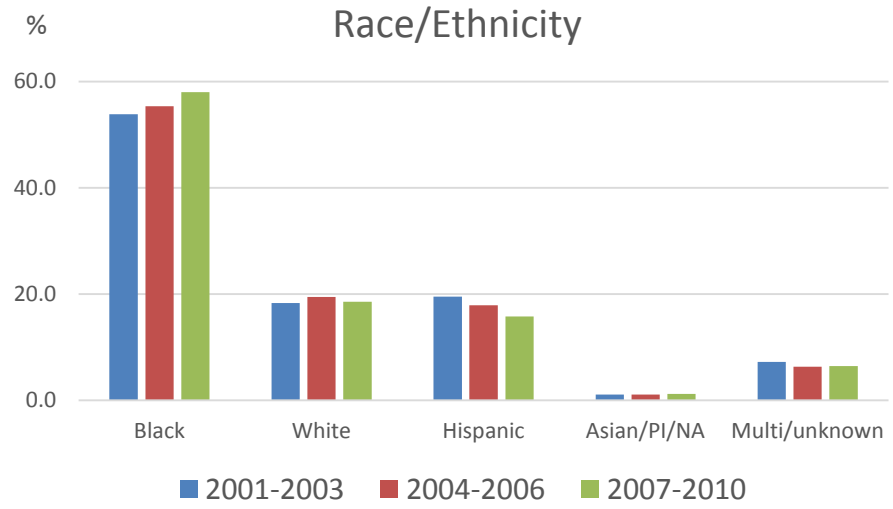
Cohort Characteristics



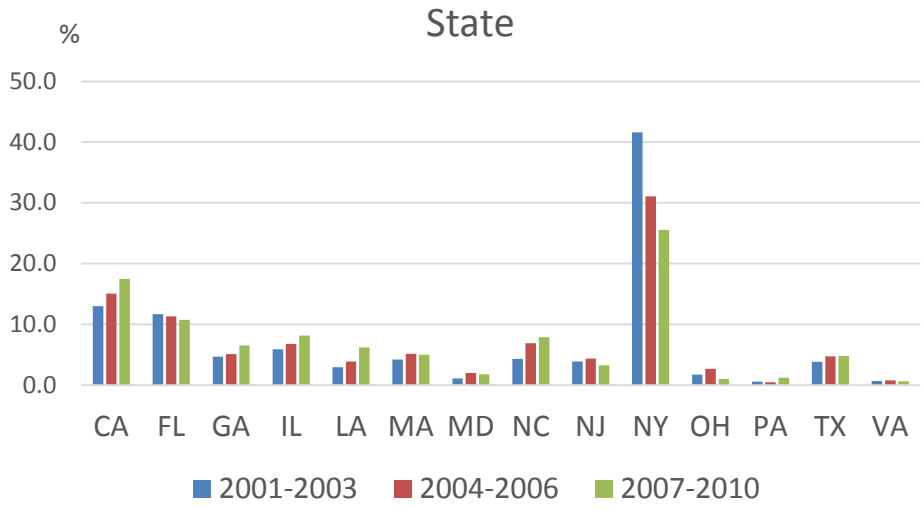
All p<.0001

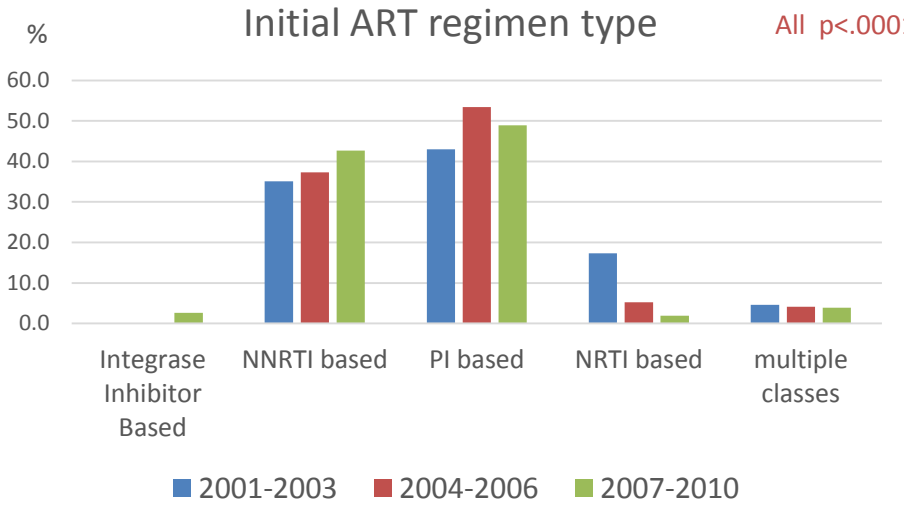


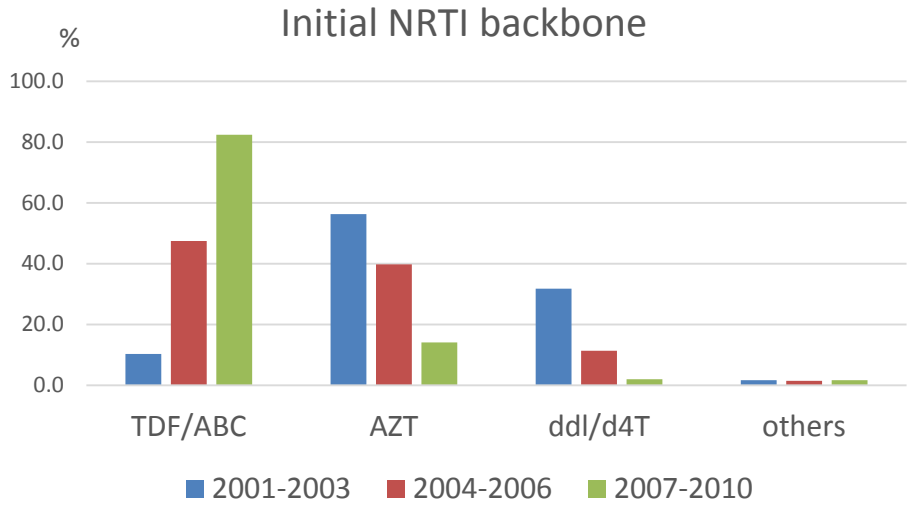


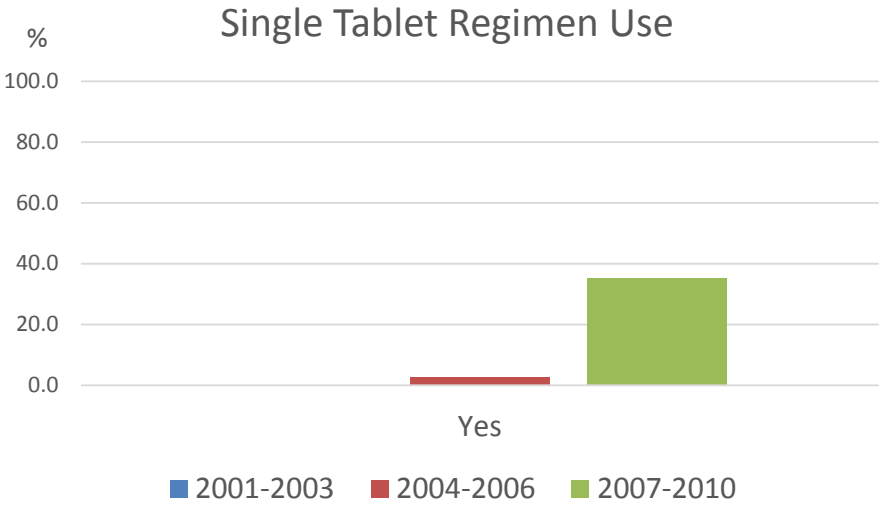


Cohort Characteristics









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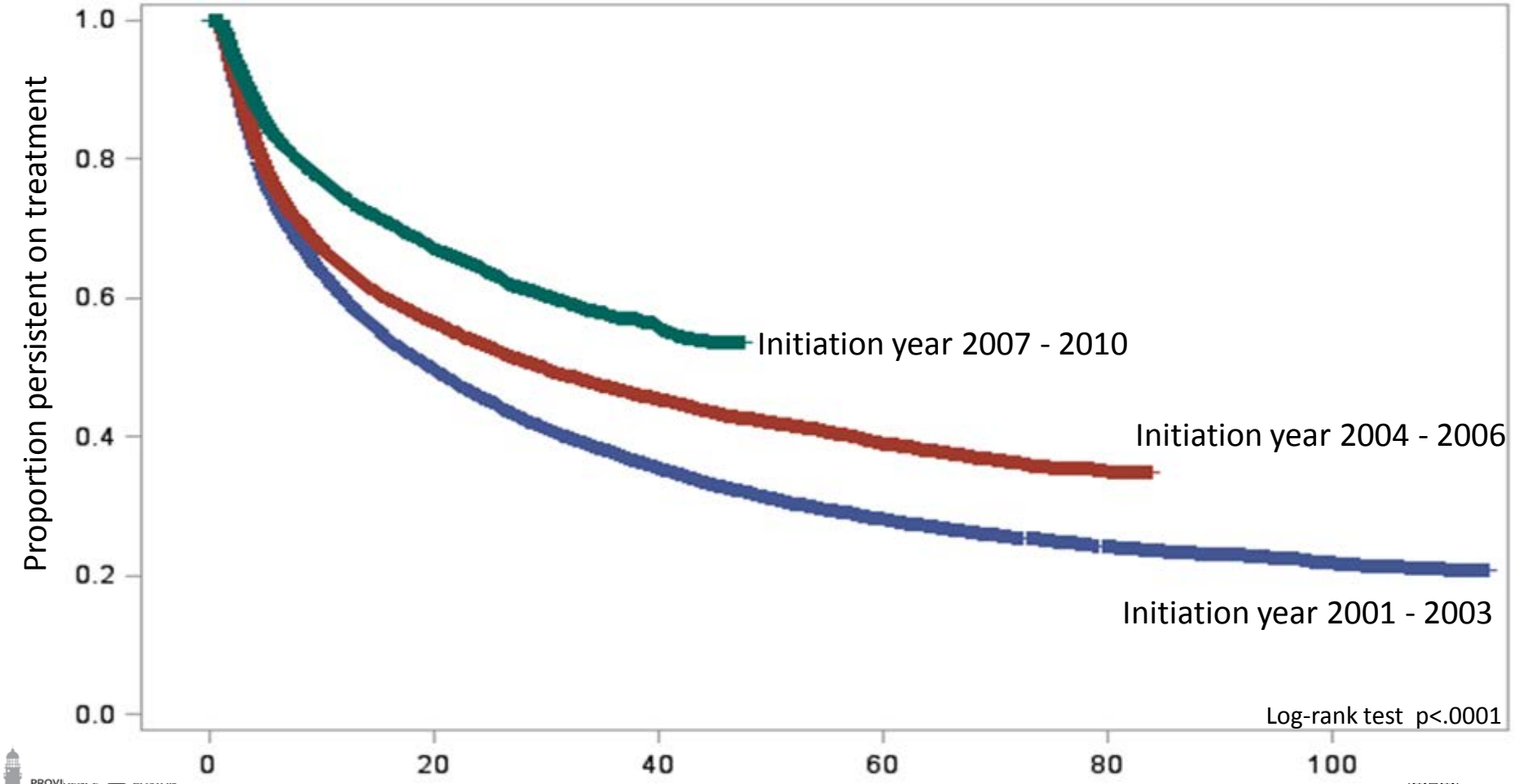
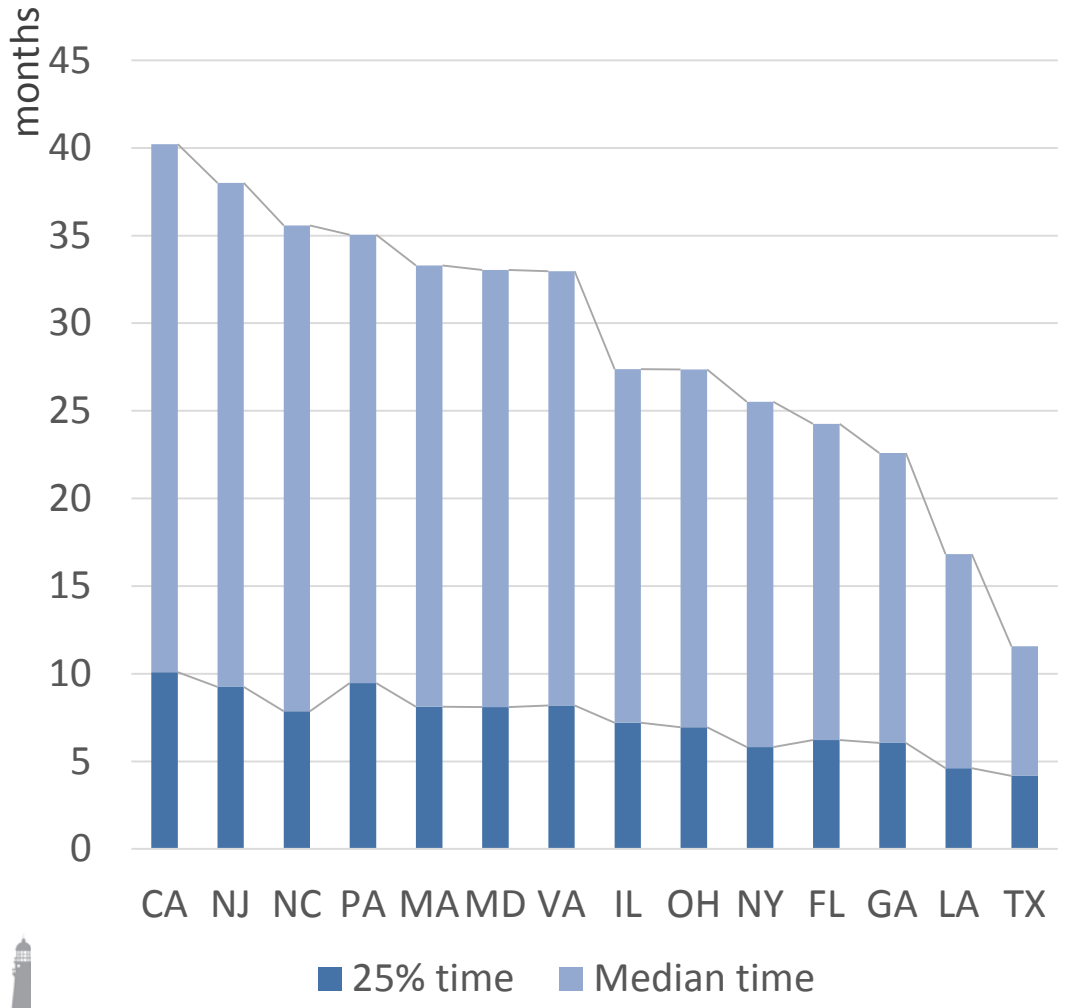
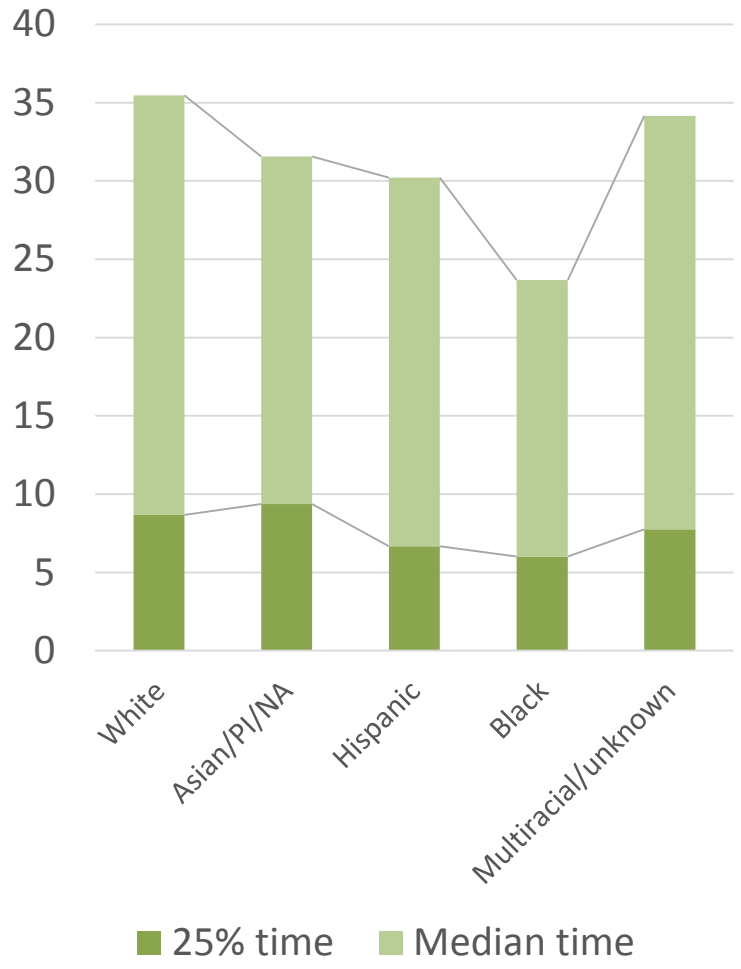
Time to treatment discontinuation (unadjusted Kaplan-Meier Curve)



Time to treatment discontinuation by State and Race/Ethnicity



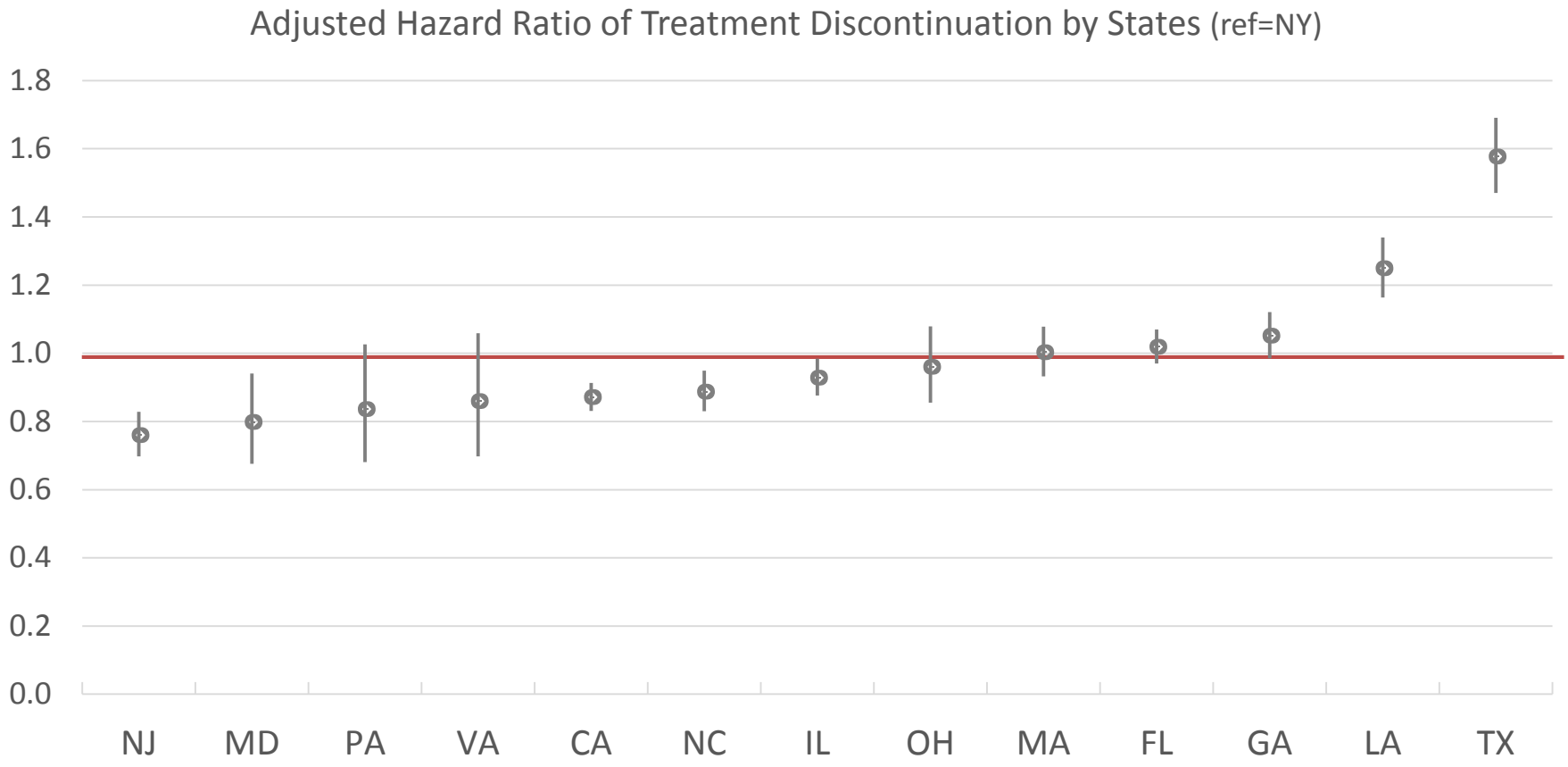


Cox Proportional Hazards Model

- HR<1: Less likely to discontinue ART
- The following factors were associated with lower hazards of treatment discontinuation: older age, male, non-black, newer ART regimen, initiation in recent years, living in NJ, and single tablet regimen use.

		aHR	95% CI	p-value
Calendar year (ref=2001-2003)	**2004-2006**	0.93	(0.90, 0.97)	0.0001
	2007-2010	0.81	(0.77, 0.85)	<.0001

Cox Proportional Hazards Model



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Cox Proportional Hazards Model

		aHR	95% CI	p-value
Gender (ref=female)	**Male**	0.89	(0.86, 0.91)	<.0001
Race/Ethnicity (ref=Black)	**Asian/PI/NA**	0.85	(0.73, 0.98)	0.03
	Hispanic	0.86	(0.83, 0.90)	<.0001
	Multiracial/Unknown	0.82	(0.77, 0.87)	<.0001
	White	0.83	(0.80, 0.87)	<.0001
Regimen Type (ref=PI based)	**Integrase Inhibitor Based**	0.77	(0.58, 1.02)	0.07
	NNRTI based	0.90	(0.87, 0.93)	<.0001
	NRTI based	1.03	(0.99, 1.08)	0.18
	Multiple Classes	1.36	(1.26, 1.45)	<.0001
NRTI backbone (ref=TDF/ABC)	**AZT**	1.33	(1.27, 1.38)	<.0001
	ddI/d4T	1.35	(1.29, 1.42)	<.0001
	others	1.14	(1.01, 1.29)	0.03
Single tablet regimen use (ref=no)	**Yes**	0.72	(0.67, 0.78)	<.0001

Conclusions

- Marked improvement in ART persistence between 2001 and 2010
- Site adherence counseling as a potential explanatory factor
- Significant problems with non-persistence remain, with clear disparities for Blacks and women
- State differences are concerning, may relate to Medicaid generosity, and merit further study

Limitations

- No follow-up with the patients after Medicaid disenrollment
- No viral loads or CD4 counts
- Not generalizable to the uninsured, commercially insured, and Medicare population
- Not all states were included

Implications

- National, population-based data that can be generalized to HIV patients in the U.S with Medicaid
- Can help identify areas for targeted interventions
- Differences between the results of persistence and implementation analysis (next presentation)

Acknowledgements

- Team Members: Yoojin Lee, Theresa Shireman, Omar Galárraga, Aadia Rana, and Ira Wilson
- NIMH 1R01MH102202
- Providence/Boston Center for AIDS Research (Providence/Boston CFAR NIH/NIAID grant P30AI042853)

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Thank you