



Variation in Genotypic Resistance Patterns in Non-B HIV-1 Subtypes in Uganda and South Africa

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Background

- Data on HIV drug resistance needed to motivate policy regarding 1st, 2nd and 3rd line regimens
- Majority of clinical resistance databases based on subtype B sequences from North America and Europe
- Most common subtypes in sub-Saharan Africa are A1, C, and D

Study Aim

- To evaluate prevalence of HIV drug resistance mutations by HIV-1 subtype in a cohort of individuals failing first line ART in sub-Saharan Africa, compared to subtype B sequences

Data Sources

	UARTO	REVAMP
	n = 72	n = 93
Study design	Observational cohort	RCT
Study period	2005 – 2015	2016 – current
Location	Uganda	Uganda and South Africa
Study population	Adults initiating ART, followed with quarterly viral loads	Adults failing 1 st line ART
Resistance tests	Specimens with detectable viral load while on 1 st line ART	At study enrollment for the experimental arm
Sequencing Method	Sanger	Sanger
Subtype Assignment	REGA 3.0	Stanford HIV Subtyping Program

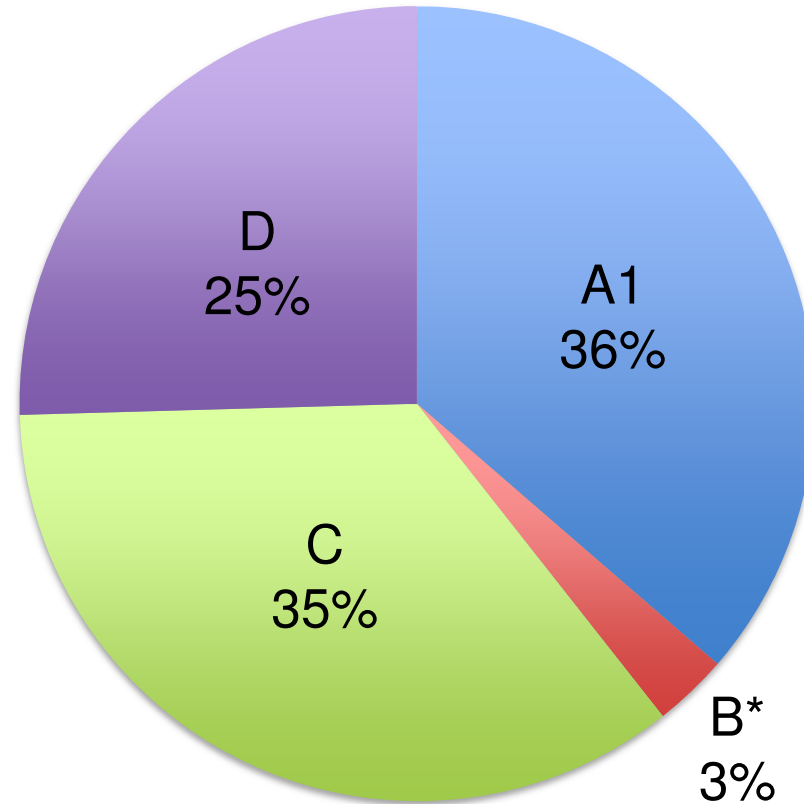
Methods

- Definition of HIV drug resistance
 - Any mutation on the IAS-USA 2017 list
- Inclusion criteria for analysis
 - First episode of resistance on 1st line ART
- Subtype B comparison data
 - Prevalence summary statistics from the Stanford database

Study population characteristics

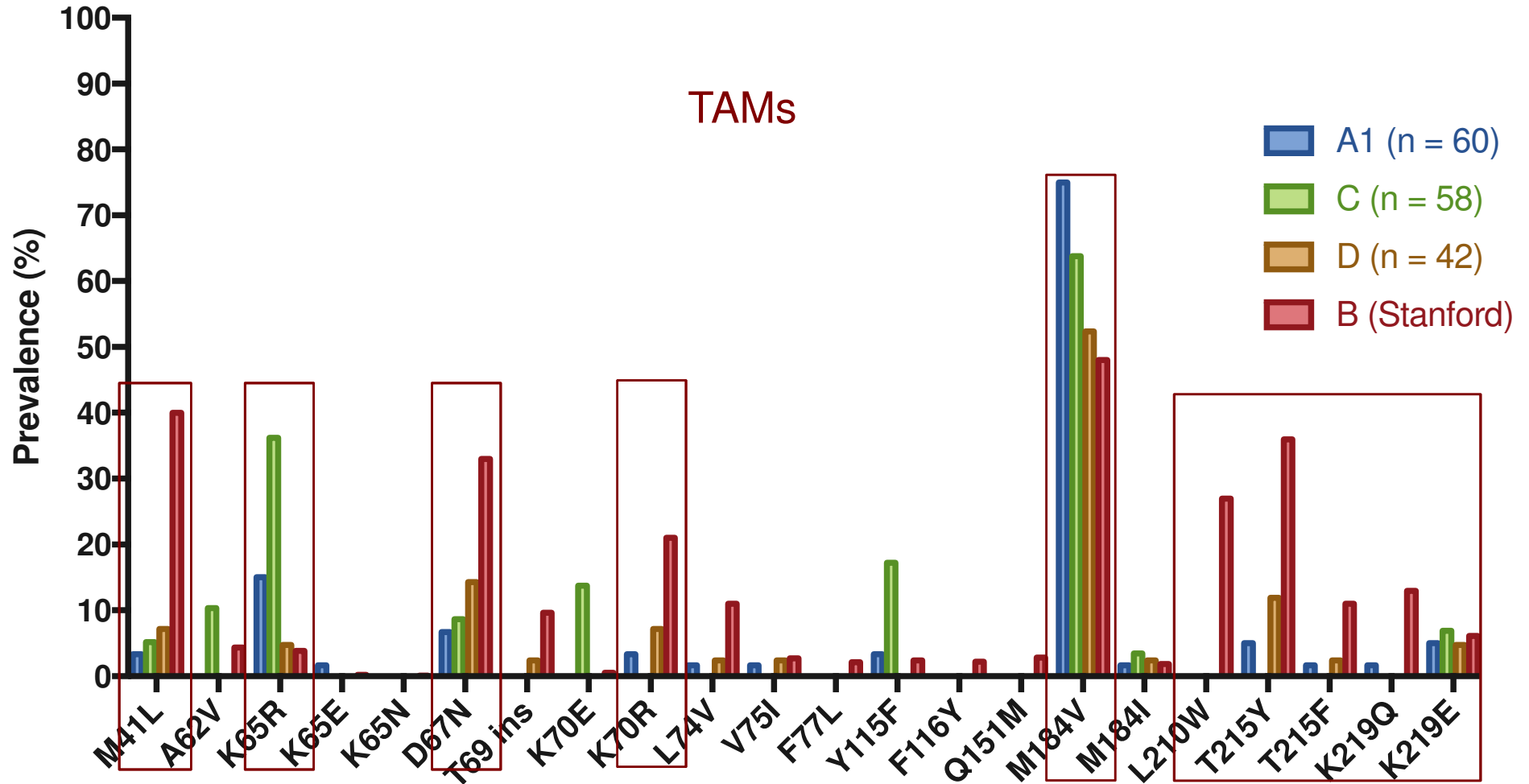
	UARTO	REVAMP
	n = 72	n = 93
Female (n, %)	47 (65)	51 (55)
Age (median, IQR)	32 (26 – 39)	37 (31 – 46)
ART Regimen (n, %)		
3TC/AZT/NVP	40 (56)	15 (16)
3(F)TC/TDF/EFV	8 (11)	60 (65)
3TC/AZT/EFV	6 (8)	9 (10)
3TC/d4T/NVP	14 (19)	0 (0)
Other	4 (6)	9 (10)
Log10 viral load (median, IQR)	3.80 (3.18 – 4.38)	4.44 (3.82 – 4.92)
Years of ART (median, IQR)	0.91 (0.42 – 2.06)	3.12 (1.49 – 5.99)

Subtype Distribution

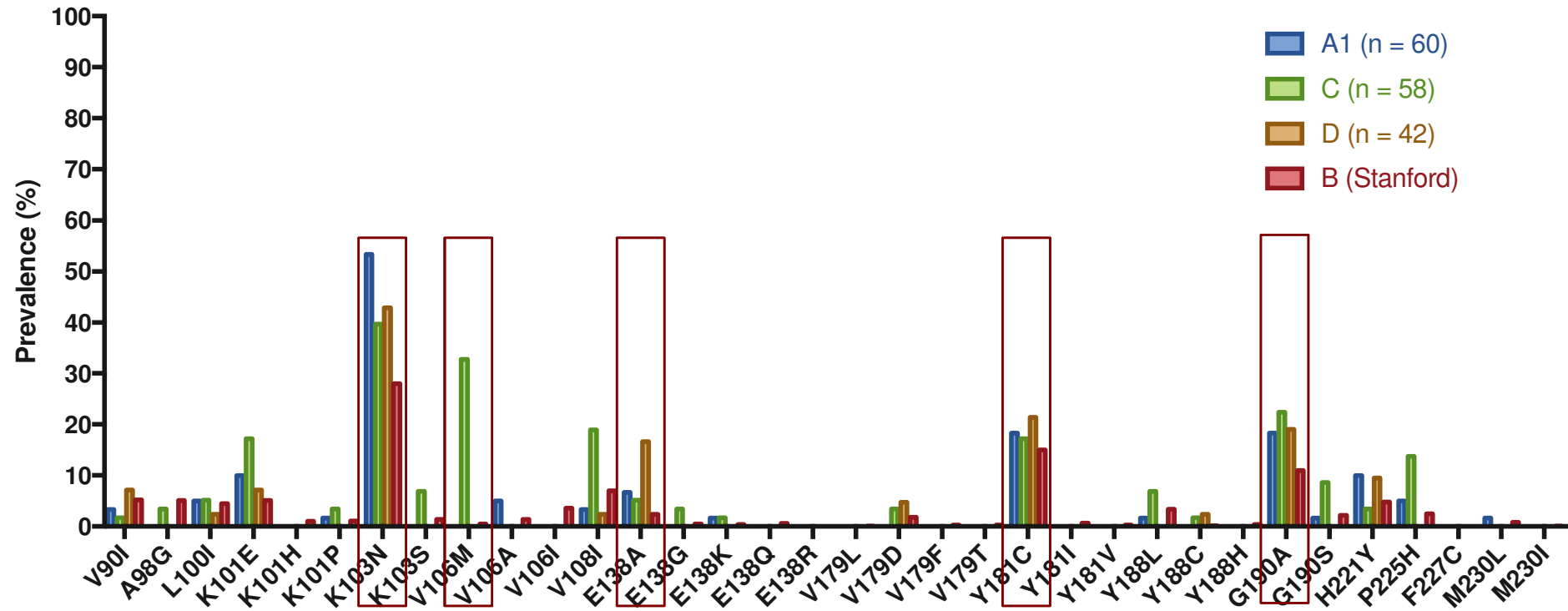


* In the remainder of the slides, we use subtype B data from the Stanford database as a comparator.

NRTI Resistance Patterns



NNRTI Resistance Patterns



Conclusion

- HIV drug resistance patterns appear to be different among non-subtype B viruses, likely driven by treatment and sampling
- Future work should consider clinical implications of these patterns to help motivate empiric treatment regimens

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