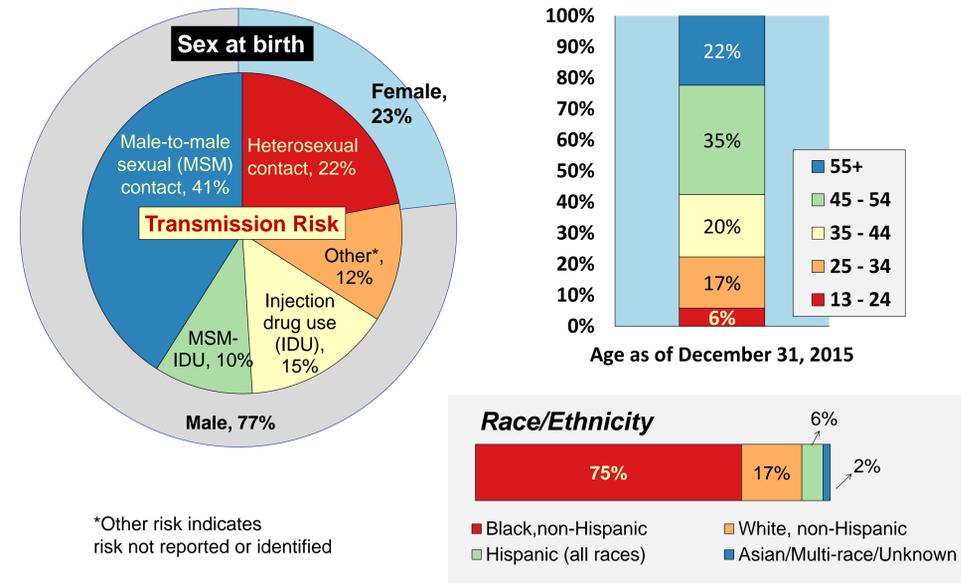


**Background**

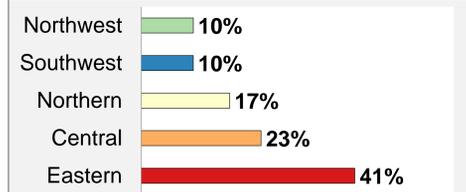
- Recent research has found that HIV-positive Ryan White (RW) clients with unstable housing may have marginal access to HIV medical care and low adherence to antiretroviral therapy (ART)<sup>1</sup>.
- Analysis of data from the 2014 Ryan White Services Report (RSR) for Virginia (VA) found 92% of clients with stable housing were virally suppressed versus 76% with unstable housing being virally suppressed.
- This analysis assesses the impact of housing status on HIV outcomes, accounting for differences in RW service utilization that may impact retention in care and viral suppression for RW clients in Virginia in calendar year (CY) 2015.

**Demographics of the Unstably Housed Ryan White Virginia Population, 2015**

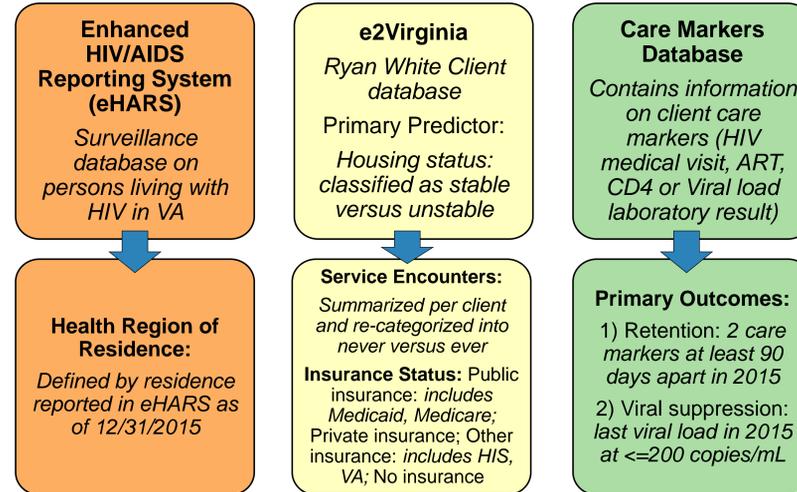


**Health Regions of Virginia**

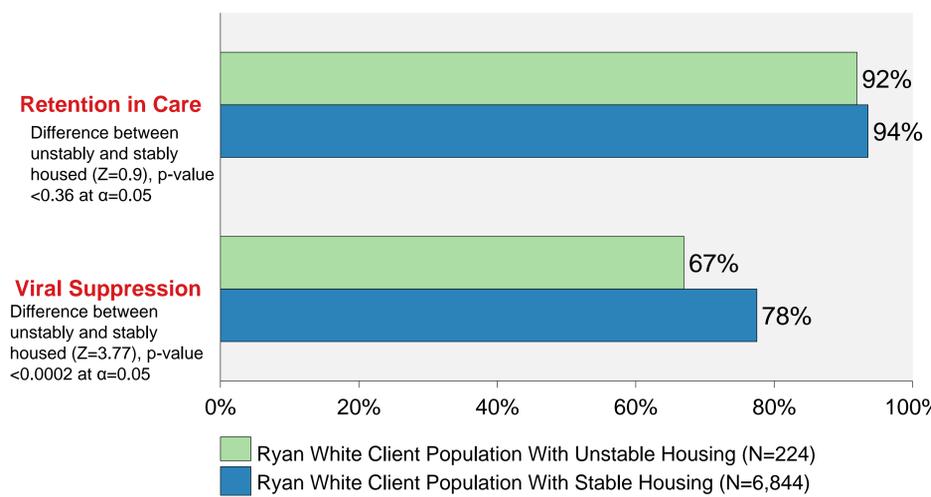
**Distribution of 2015 Unstably Housed RW Clients (N=224), by Region of Residence (%)**



**Data Sources and Definitions for Assessing HIV Outcomes**

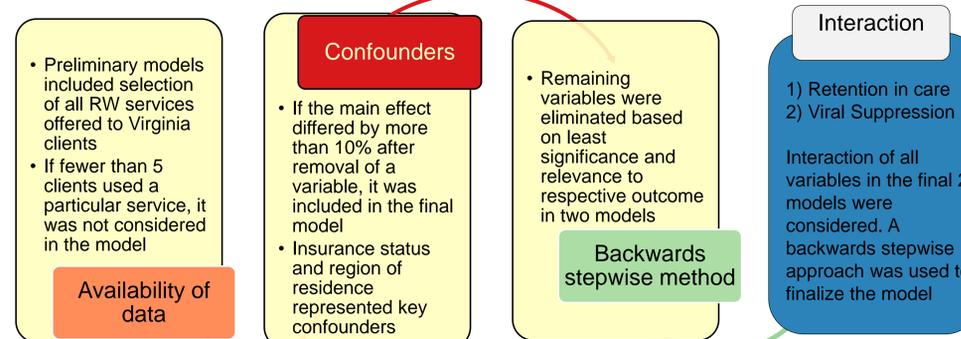


**HIV Outcomes of the Virginia Ryan White Population in 2015 (N=7,068)**



**Analysis and Model Selection Methods**

Two separate backward stepwise logistic regression models were used to determine if there was a correlation between unstable housing and retention in care and viral suppression in 2015, after adjusting for effects of RW service utilization, health region of residence and insurance status. 7,068 clients were included in the final analysis.



**Results**

**Table 1: Adjusted Odds Ratios (aOR) for Retention in Care and Viral Suppression, 2015 aORs (95% Confidence Interval)**

Variable	Retention	Viral Suppression
Unstable Housing	0.3 (0.2,0.4)	0.5 (0.4,0.7)
<b>Service Utilization Variables</b>		
Transportation Services	1.6 (1.2,2.0)	1.2 (0.9,1.4)*
Outpatient Ambulatory Care Services	2.1 (1.2,3.6)	2.1 (1.8,2.4)
Mental Health (MH) Services	1.7 (1.3,2.2)	1.7 (1.4, 2.1)
Referral for Healthcare Services	0.6 (0.4, 0.8)	--*
Unstable Housing and MH Services**	--*	0.5 (0.2,0.9)
<b>Health Region of Residence</b>		
Central Region (ref.= Northwest)	2.9 (1.2,7.5)	1.0 (0.8,1.3)
Eastern Region (ref.= Northwest)	6.8 (2.2,21.5)	0.4 (0.3,0.5)
Southwest Region (ref.= Northwest)	5.1 (1.9,14.2)	1.0 (0.8,1.3)
<b>Insurance Status</b>		
Public Insurance* (ref.= Private Insurance)	3.1 (1.4,6.9)	1.2 (0.97,1.4)
No Insurance (ref.= Private Insurance)	2.3 (1.2,4.4)	⊖
Other Insurance* (ref.= Private Insurance)	⊖	1.4 (1.1,1.8)

- \* Denotes statistically insignificant finding
- \* Other insurance includes insurance from VA, Tricare or HIS
- \*\* Denotes interaction term in model
- \* Denotes that variable is not in respective model
- \* Public Insurance includes insurance from Medicaid, CHIP and Medicare
- ⊖ Denotes insufficient data to determine likelihood of variable

**Conclusions and Next Steps**

- Ryan White clients who had unstable housing in 2015 were less likely to be retained in care and virally suppressed in 2015 than Ryan White clients who had stable housing.
  - This relationship still holds true after accounting for service utilization and confounders, suggesting that improving housing status alone may directly result in improved HIV outcomes.
- Receipt of transportation services was significantly associated with being retained in care, indicating the importance of ensuring access to medical care via transportation services.
- Clients who received mental health services were more likely to be retained in care and virally suppressed, suggesting services that address structural barriers, such as mental health services, may be critical to long-term retention and viral suppression among RW clients.
- Improving housing status may also improve service utilization, particularly mental health referral uptake, which has shown to be positively associated with both higher retention in care and sustained viral suppression. An exploration of demographics of unstably housed RW clients who use mental health services will be pursued.
- With the advent of marketplace health insurance, the operationalization of insurance status across RW agencies and its effect on HIV outcomes should be closely monitored.
- Consistent characterization of housing status across Virginia RW providers is necessary to implement highly successful and cost-effective programs addressing unmet needs of the unstably housed RW population moving forward.

**References**

<sup>1</sup> Leaver, C. A., Bargh, G., Dunn, J. R., & Hwang, S. W. (2007). The effects of housing status on health-related outcomes in people living with HIV: a systematic review of the literature. *AIDS and Behavior*, 11(2), 85-100.

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