



Viral rebound among persons receiving HIV medical care in the United States: results from the Medical Monitoring Project, 2014

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The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Adherence 2018 • June 8-10 • Miami

Acknowledgments

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Conflict of interest disclosure

The authors have no real or apparent conflicts of interest to report

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BACKGROUND



Background

- Persons living with HIV (PLWH) have effectively no risk of transmitting HIV to HIV-negative sexual partners when:
 - Taking HIV medicine as prescribed
 - Maintaining an undetectable viral load
- Nonadherence to antiretroviral therapy (ART) can result in viral rebound
- PLWH may be unaware when they experience viral rebound



Objectives

- Among PLWH receiving HIV care in the United States:
 - Describe prevalence of viral rebound
 - Describe factors associated with viral rebound
 - Identify groups in need of enhanced support to maintain viral suppression



METHODS



Data collection

- Medical Monitoring Project (MMP), 2014
 - Surveillance system describing clinical and behavioral characteristics of adults receiving HIV medical care in the U.S.
 - Annual, cross-sectional estimates
 - Complex sample of HIV care facilities and patients, 23 jurisdictions
- Data sources
 - Medical record
 - Viral load data
 - Interview
 - Self-reported data: sociodemographics, HIV care, and behaviors

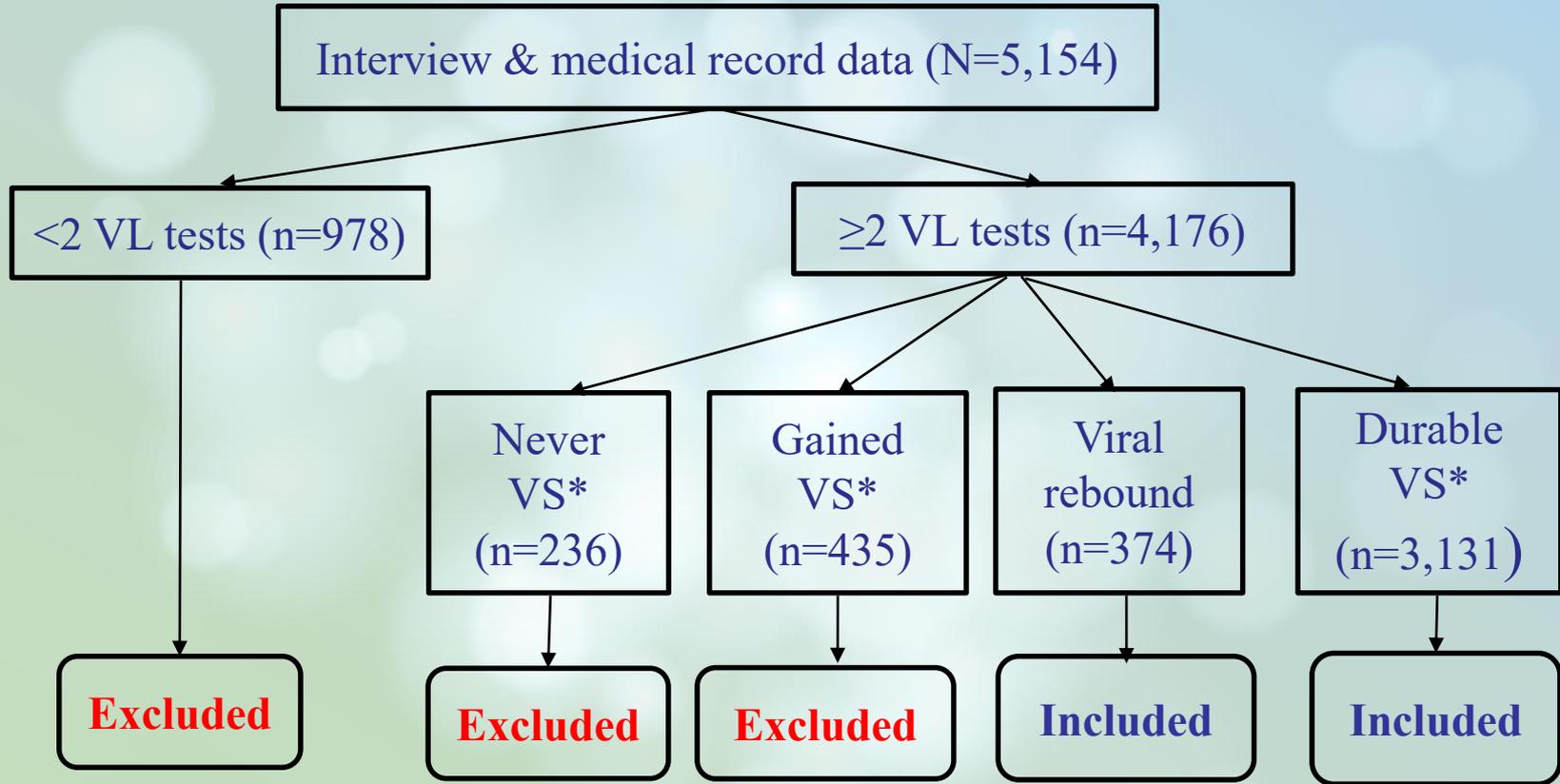
Data collection (2)

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- Data collection period: June 2014 through May 2015
 - 5,154 matched interview and medical record abstractions
 - Response rates
 - Jurisdictions: 100%
 - Facilities: 86%
 - Patients: 56%

Groups included and excluded from analysis #ADHERENCE2018



*VS = viral suppression,
<200 copies/mL

Analytic Methods

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- Rao-Scott chi-square tests to assess differences between DVS and VR groups by select characteristics
- Data weighted for unequal selection probabilities and nonresponse

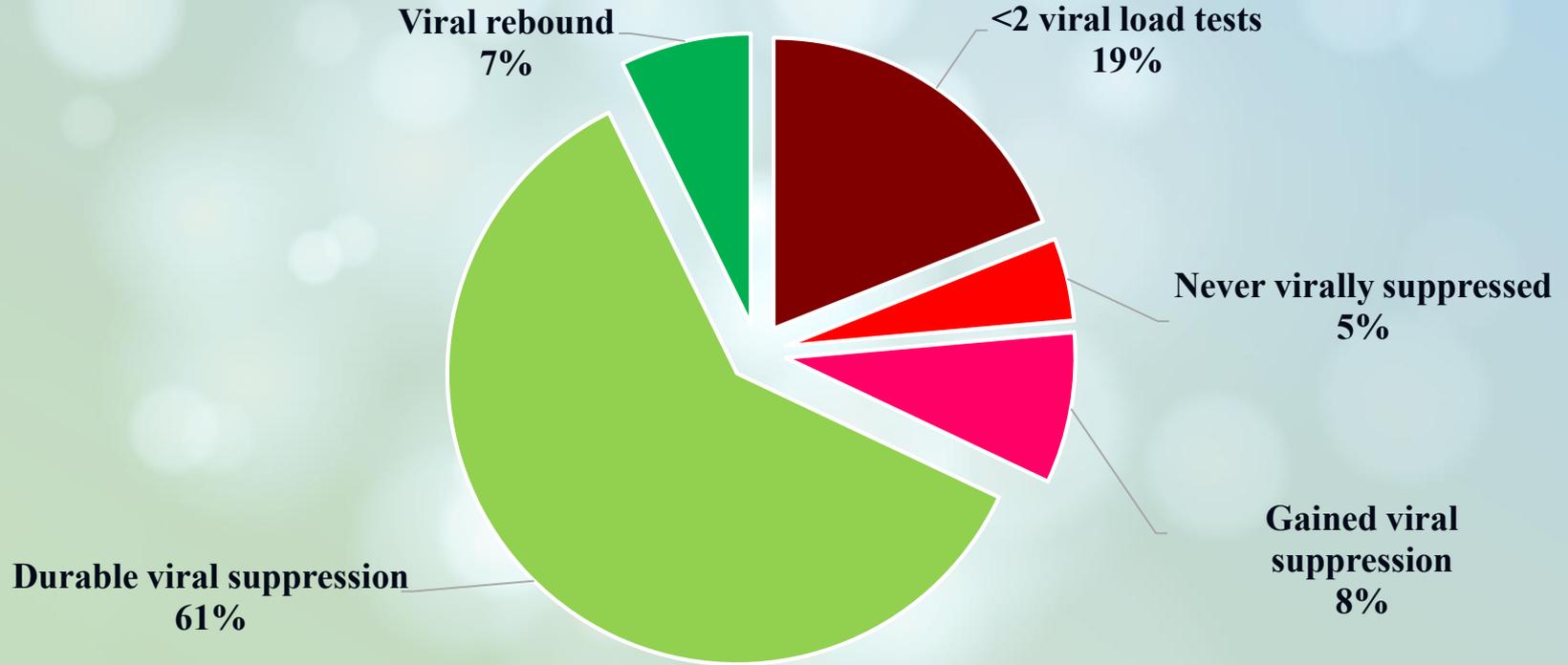
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RESULTS

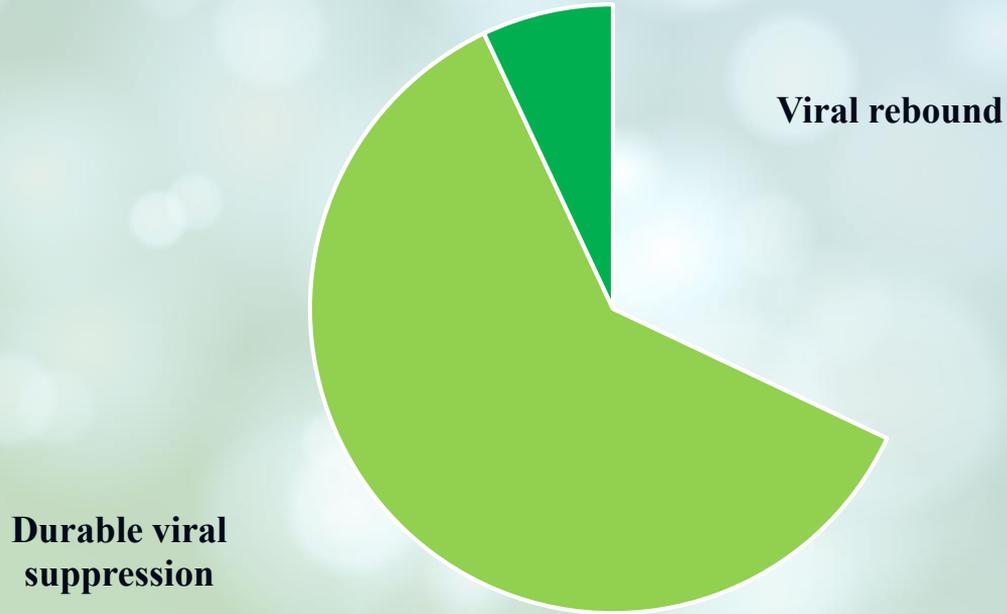
Viral load test outcomes among persons with interview and medical record data (N=5,154)

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Analytic subpopulation: durable viral suppression and viral rebound (N=3,505)

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Viral load outcomes among analytic subpopulation

- In the 12 months prior to MMP interview:
 - 89% had durable viral suppression
 - 11% had viral rebound



Viral rebound by sociodemographic characteristics

	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Gender			0.05
Female	121	13 (10–15)	
Male	245	10 (9–12)	
Race and ethnicity			<0.0001
Black/African American	174	13 (11–15)	
Hispanic/Latino	110	13 (10–15)	
White	73	7 (5–8)	
Other race/ethnicity	17	12 (8–16)	



Viral rebound by sociodemographic characteristics (2)

	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Age, in years			0.003
18-29	37	18 (12–24)	
30-39	53	12 (9–15)	
40-49	109	11 (9–13)	
50 or older	175	10 (8–11)	
Poverty level			<0.0001
Above	121	8 (7–9)	
At or below	239	14 (12–16)	



Viral rebound by sociodemographic characteristics (3)

	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Homeless in past 12 months			<0.0001
Yes	54	23 (17–29)	
No	319	10 (9–11)	
Incarcerated in past 12 months			<0.0001
Yes	28	25 (17–32)	
No	346	10 (9–12)	



Viral rebound by HIV care and clinical characteristics

	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Attended a clinic receiving Ryan White HIV/AIDS program funding			<0.0001
Yes	316	12 (11–14)	
No	44	6 (5–8)	
Fully adherent to ART, past 3 days^a			0.01
Yes	288	10 (9–11)	
No	48	15 (11–19)	
Depression, past 2 weeks			0.37
Any depression	84	12 (9–15)	
No depression	284	11 (9–12)	

^a Among those prescribed and taking ART



Viral rebound by behavioral characteristics

	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Stimulant drug use, past 12 months			0.001
Yes	44	16 (12–20)	
No	327	10 (9–12)	
Binge drinking, past 30 days			0.51
Yes	56	12 (9–15)	
No	311	11 (9–12)	

Summary of results

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- 11% of persons in care who achieved viral suppression, demonstrated viral rebound over a 12-month period
- Viral rebound was highest among:
 - Recently incarcerated (25%)
 - Recently homeless (23%)
 - Ages 18-29 (18%)
 - Persons reporting recent use of stimulant drugs (16%)
 - Persons reporting recent nonadherence to ART (15%)
- Viral rebound more prevalent among racial/ethnic minorities



DISCUSSION AND CONCLUSIONS



Discussion

- Viral rebound highest among persons experiencing recent life challenges (e.g., homelessness, incarceration, drug use)
 - Barriers to receiving routine care, consistent adherence to ART
- Understanding factors associated with viral rebound may help identify patients at highest risk
- Identifying effective messaging and interventions may help patients at highest risk for viral rebound achieve and maintain viral suppression



Limitations

- Analytic subset represents 68% of interviewed participants, excludes:
 - Persons who never achieved viral suppression
 - Persons who gained and maintained viral suppression
 - Persons with <2 viral load tests
- Observational data for viral load tests
- Certain clinical, behavioral interview measures may not be contemporaneous with viral load outcomes
 - Self-reported



Conclusions

- Among persons in care who achieved viral suppression, 1 in 10 demonstrated viral rebound
- Persons who experience significant barriers to receiving consistent care and treatment are more susceptible to viral rebound
- Maintaining viral suppression may require more focused efforts
 - Referral to case management for housing, drug treatment services
 - Coordination with correctional system

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Thank you

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Supplemental slides

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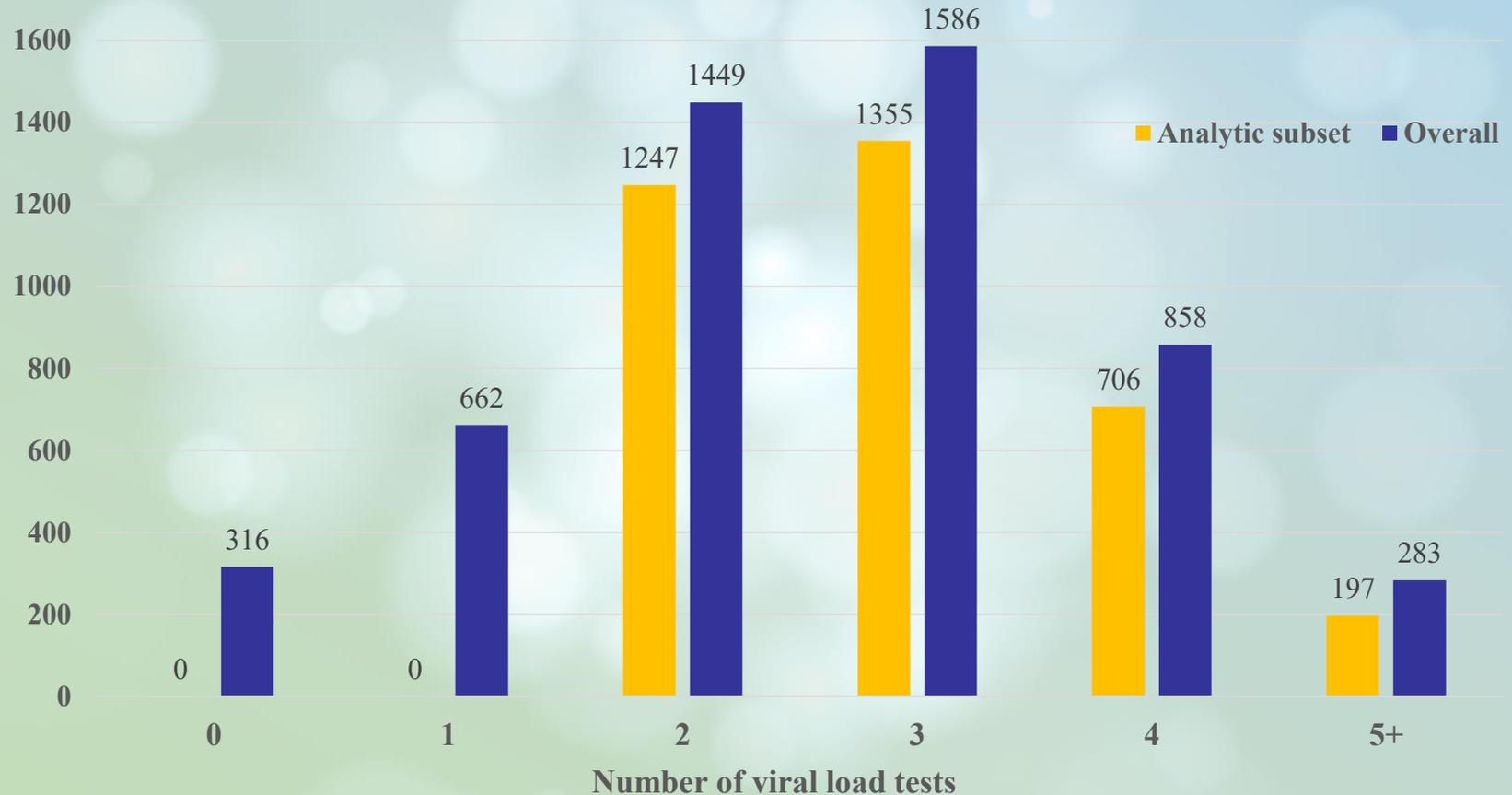


Analytic subset summary

- **Excluded (n=1,649):**
 - Persons with <2 viral load tests in the 12 months prior to interview
 - Persons who never achieved viral suppression
 - Persons initially unsuppressed who gained viral suppression
- **Included (n=3,505):**
 - Persons who achieved durable viral suppression (DVS)
 - Persons who demonstrated viral rebound (VR)

Total number of viral load tests among analytic subset (n=3,505) and overall sample (n=5,54)

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Viral rebound by number of VL tests

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	n (unweighted)	Weighted row % (95% CI)	p-value
	374	11 (10–12)	
Total number of viral load tests			<0.0001
2	58	5 (4–7)	
3	119	9 (7–10)	
4	108	16 (13–20)	
5 or more	89	47 (40–54)	



Persons with <2 viral load tests (n=978)

- 662 (68%) with only 1 VL test
 - 543 of 662 (82%) virally suppressed
- 316 (32%) with 0 VL tests

Selected characteristics of HIV-positive adults in care, MMP 2014 (n=3,505)

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	% (CI)		% (CI)
Female	24 (21-27)	At/below household poverty	52 (49-55)
Race and ethnicity		Homeless, past 12 mo.	7 (6-9)
Black	39 (31-47)	Incarcerated, past 12 mo.	4 (3-5)
White	31 (26-37)	In care at a clinic receiving Ryan White Program funding	77 (71-83)
Hispanic/Latino	26 (19-32)	Prescribed ART	97 (97-98)
Other race	4 (3-5)	Adherent to ART, past 3 days	90 (89-91)
Age		Stimulant drug use, past 12 mo.	9 (7-10)
18-29	7 (6-8)	Binge drinking, past 30 days	15 (13-16)
30-39	13 (12-15)	Depression, past 2 weeks	20 (19-22)
40-49	28 (26-29)		
50 or older	52 (50-54)		