

Kerianne Burke¹, Lindsey Roden¹, Kody Keckler¹, Camille DeMarco¹, Patricia Cortes Valadez¹, Dara Grennan^{1,2}, Rebecca Osborn^{1,2}, Gregory Huhn^{1,2}

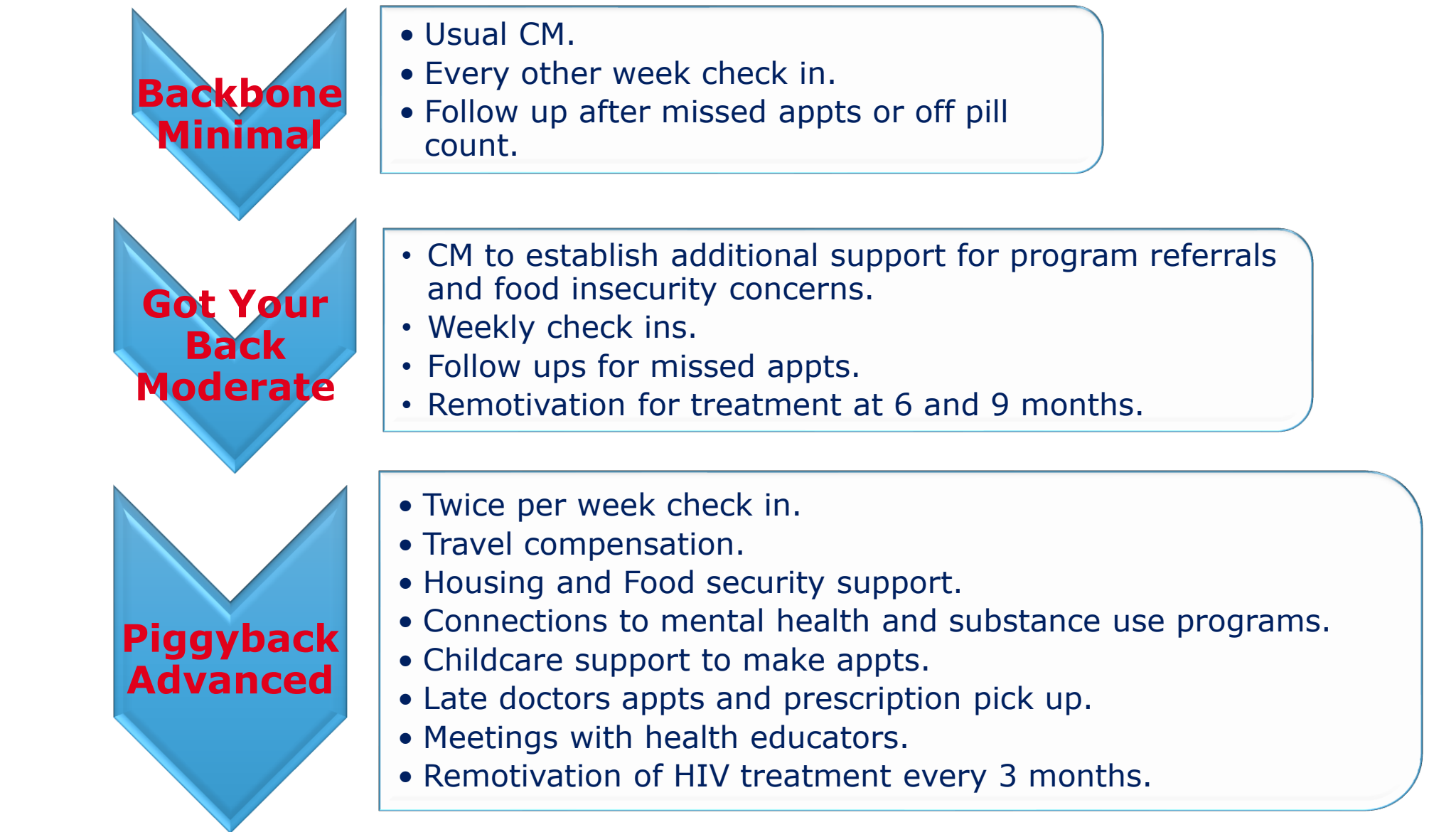
¹Cook County Health, The Ruth M. Rothstein CORE Center, Chicago, United States, ²Cook County Health, Infectious Diseases, CHICAGO, United States

Background

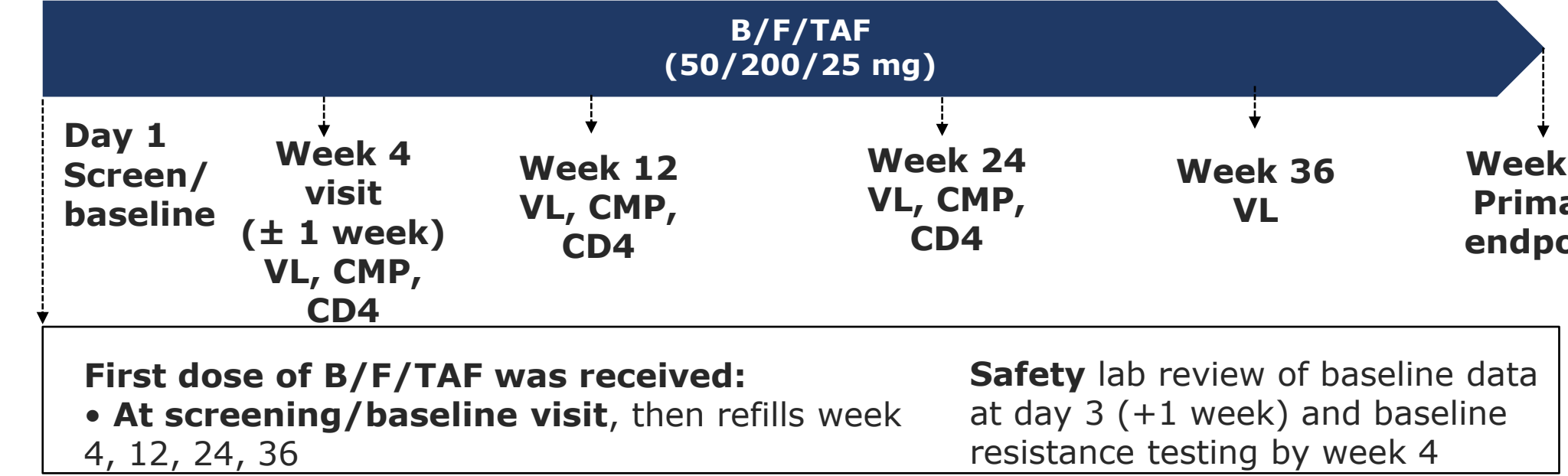
- Effectively interrupting the source of transmission is a critical step in ending the HIV epidemic.
- Models from the surveillance systems estimate that persons diagnosed with HIV, but not retained in care, account for the largest proportion of HIV transmissions in the US.
- Addressing patients with poor retention via support mechanisms to reengage in care and reinitiate immediate ART may improve retention in care and accelerate virologic suppression as seen in immediate ART models in treatment-naïve patients.
- B/F/TAF is a single-tablet regimen (STR) with high potency and good tolerability that can be safely used in multiple patient groups including in patients with a history of multi-class resistance, that may facilitate immediate ART reinitiation among a broad population of patients.
- COMEBACK (NCT04519970) is a 48-week single-center study in Chicago implemented in September 2020, with its main objectives to reengage lost-to-care patients and rapidly reinitiate ART to promote VS and favorable PROs.

Methods

- Adults off ART ≥2 weeks, without history of significant B/F/TAF resistance or renal impairment, were rapidly started on B/F/TAF upon reengagement after same day collection of baseline labs and PROs.
- During Sept 2020 – Oct 2022, 100 subjects were enrolled and have reached the 48-week timepoint. Baseline, week 4, 12, 24, and 48 endpoints were analyzed for these participants.
- Direct recruitment at Clinics and by Care Team Referrals at the Ruth M. Rothstein CORE Center, a large, urban, safety-net HIV clinic that cares for more than 5,000 PWH in Cook County.
- The CORE center defines viral suppression (VS) by Ryan White HRSA Standards with viral load (VL) 200 copies/mL.
- CORE patients by observed analysis on B/F/TAF during the same time period 2020-2021 of initial enrollment had a VS rate of 78.6% (N=1740/2212)
- COMEBACK primary endpoint assessed Week 48 proportion of patients HIV-1 RNA <200 copies/mL (VL; ITT-FDA Snapshot).
 - Secondary endpoints proportion of patients HIV-1 RNA <50 at weeks 4, 12, 24, and 48; HIV- RNA <200 at weeks 4, 12, and 24; CD4 at weeks 24 and 48
- B/A/TAF resistance assessed by population-based RNA-1 genotype sequencing
- Retention was measured by completion of Week 4, 12, 24, and 48 study visits
- At enrollment patients screened into Case Management (CM) tiers on a minimal (Backbone), moderate (Got Your Back), or advanced (Piggyback) level.



- An acuity assessment tool based on retention and VS was calculated at Week 24 and 48 endpoints to determine CM level of support.
- Participants were assessed on their medication and study visit adherence, ability to complete study components, lab results, other identified challenges (i.e., concurrent health issues, and whether if increased communication, interim visits, and/or additional resources and/or support was needed. Each category was scored on a scale of 1 to 4 (1- stable, 2- moderate, 3- complex and 4- highest at risk).
- All analyses were performed with Chi-square and Fisher’s exact test as appropriate using Stata 18, StataCorp LLC, College Station, TX. Alpha <0.05 is statistically significant



Results

Retention and Safety

- Retention
 - 86% W4, 64% W12, 70% W24, 66% W48

Study Discontinuations through W48 (N=34)
 - 1 screen failure: Baseline eGFR 19
 - 4 moved
 - 3 deaths: 2 Opioid overdoses, 1 MVA
 - 3 incarcerated
 - 2 switched to LA CAB/RPV
 - 1 pregnancy
 - 1 non-adherent, request to switch back to ABC/3TC/DTG
 - 1 non-adherent due to mental health and homelessness
 - Loss to Follow Up (LTFU): 18
 - 9 no response to retention specialist/ 9 phone disconnected

Safety
 - No SAEs to B/F/TAF
 - No exclusionary B/F/TAF RAMs at screening and no emergent RAMs to components through Week 48

Results

Table 1. Baseline Demographic Characteristics

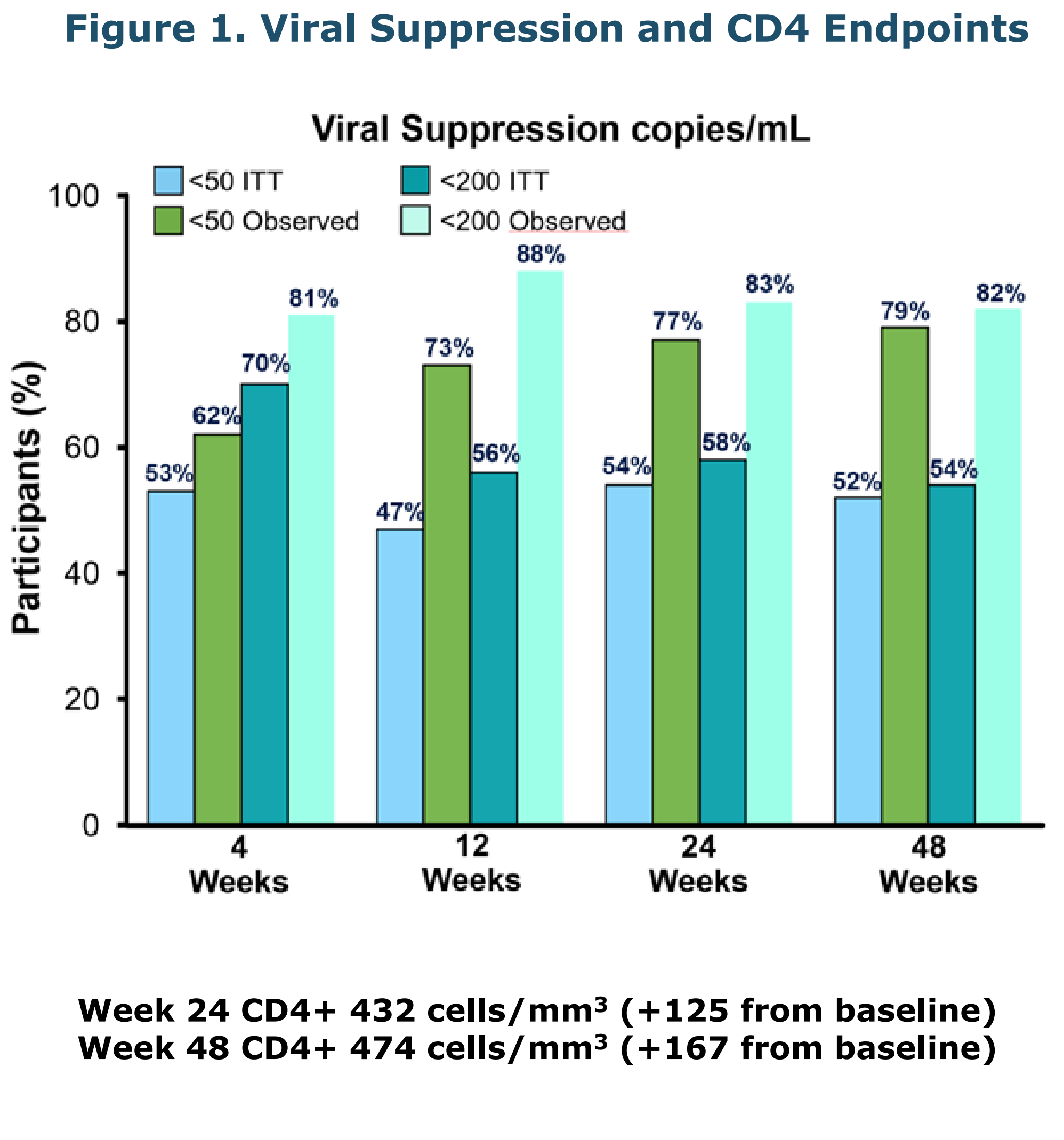
	General CORE Population on B/F/TAF 2020-2021 (N=2,212)	%	COMEBACK (N=100)	%
Gender				
Cis-gender Male	1637	74%	68	68%
Cis-gender Female	555	25.1%	24	24%
Transgender M to F	19	0.9%	6	6%
Transgender Other/Non-binary	1	0	2	2%
Age (years)			median 37 (24-68)	
24 – 35	497	22.5%	49	49%
36 – 47	605	27.4%	27	27%
48 – 59	722	32.6%	16	16%
60 – 68	388	17.5%	8	8%
Race/Ethnicity				
Black/African American	1345	60.8	90	90%
Hispanic/LatinX	644	29.1	5	5%
White/Caucasian	177	8	3	3%
Other	35	2.1	2	2%
Total	2212	100	100	100%

Table 2. Baseline Viral Characteristics and CD4

	COMEBACK (N=100)	
HIV RNA copies/mL	Median	Range
Baseline/Screening	11,084	<40 – 2,000,000
VS at baseline	16% (13 of 16 <50) B/F/TAF: 12 of 16	<200
Time off ART (months)	5	0.5 - 242
CD4 cells/mm ³		
Baseline	307	6 – 1,624

Table 3. Last ART Prior to Enrollment

Last ART	N=100 (%)	Last ART	N=100 (%)
B/F/TAF	61	TDF/FTC/EFV	1
E/C/F/TAF	14	TDF/FTC plus ATV/r	1
ABC/3TC/DTG	4	ABC/3TC plus EFV	1
TAF/FTC plus DTG	3	RPV/DTG	1
E/C/F/TAF plus DRV	2	TDF/FTC plus DTG	1
TDF/FTC plus DRV/r	2	TDF/FTC plus RAL	1
TAF/FTC plus DRV/r	2	TDF/FTC/RPV	1
TAF/FTC/RPV	2	TDF/FTC plus Unknown	1
TAF/FTC/RPV plus DRV/c	1	Unknown	1



Results

Table 4. Factors Associated with VS at Week 48

Characteristic	Overall (N)	VS (<200 = 54 N (%))	Non-VS = 46 N (%)	P value
Gender				
Cis-gender Male	68	36 (67%)	32 (70%)	0.33
Cis-gender Female	24	14 (26%)	10 (22%)	0.59
Transgender M to F	6	2 (4%)	4 (7%)	0.30
Transgender Other/Non-binary	2	2 (4%)	0 (0)	0.19
Age ≥30 years	80	42 (78%)	38 (83%)	0.33
Age ≥35 years	55	32 (59%)	23 (50%)	0.40
Race/Ethnicity				
Black/African American	90	49 (91%)	41 (89%)	0.39
Hispanic/LatinX	5	3 (6%)	2 (4%)	0.66
White/Caucasian	3	1 (2%)	2 (4%)	0.25
Other	2	1 (2%)	1 (2%)	0.91
Baseline VS (<200 copies/mL)	16	10 (16%)	6 (13%)	0.55
Baseline CD4 ≥350 cells/mm ³	40	24 (44%)	16 (35%)	0.28
Baseline minimal CM	70	40 (74%)	30 (65%)	0.33
Baseline mod-advanced CM	29	14 (26%)	15 (33%)	0.48
Escalated at least 1 CM tier	59	21 (39%)	38 (83%)	0.02
Housing insecurity	46	23 (43%)	23 (50%)	0.88
Food insecurity	35	18 (33%)	17 (37%)	0.84
Low health literacy	25	12 (22%)	13 (28%)	0.24
Adherence concerns	33	14 (26%)	19 (41%)	0.04
Substance use	22	11 (20%)	11 (24%)	0.98
Baseline SDoH ≥2	48	20 (37%)	28 (61%)	0.07
Baseline SDoH ≥3	26	11 (20%)	15 (33%)	0.78

Limitations

- Enrollment started in September 2020 when COVID-19 precautions were still intact, and continued through early Summer 2021.
 - Participants had to adhere to the clinic’s strict hand hygiene, social distancing, and mask wearing protocols
- Additional barriers included reluctance in taking public transportation and restrictions in bringing children to appointments, increasing the already substantial burden of childcare
- Five SDoH were selected to assess potential factors for viral suppression, however there may be other sociodemographic elements that can exert intersecting barriers to retention in care and virologic control.
- Due to the individualized case management provided by the retention specialist, our study findings may not be generalizable to Spanish speaking patients as our retention specialist was a monolingual English speaker.

Conclusions

- With baseline median time off ART of 5 months, 54% of participants reengaged achieved VS on B/F/TAF by the ITT primary endpoint.
 - While lower than the observed general PWH population at our center, this represented incremental success, particularly in per protocol analysis with 82% VS among participants retained in care at week 48.
- B/F/TAF was well tolerated, with no drug-related adverse events ≥ grade 2, no drug-related B/F/TAF discontinuations, and no RAMs detected to B/F/TAF components during the study period.
- A majority of patients, 59%, required escalation of the CM intervention, with lapses in retention among 34% of patients by end of study predominantly driven by disrupted smartphone communications resulting in LTFU.
- Intensification of retention CM resources and adherence concerns were associated with a negative impact on VS.
 - Detrimental SDoH can be entrenched and may impede successful adherence behaviors, at least for the first 12 months upon reengagement in care.
- Our LBC intervention supports feasibility of a dedicated retention specialist at a ratio of approximately 1 staff to 100 patients at high risk for ART non-adherence and poor engagement in care.
- Achieving VS among high-risk populations disenfranchised from care will require not only individualized CM and specialized retention approaches but integrated sustainable strategies among multiple levels of SDoH interventions to advance LBC models towards EHE.