

Outcomes of Rapid Restart Among People With Previously Diagnosed HIV at a Safety-Net HIV Clinic in San Francisco

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Background: Little is known about outcomes of rapid restart of antiretroviral therapy (ART) among people with HIV relinking to care.

Setting: Safety-net HIV clinic in San Francisco.

Methods: Using electronic medical record data, we conducted a retrospective study of adults with HIV (≥ 18 years old, out of care, self-reported off ART) seen for rapid (same-day) restart of ART. Descriptive statistics summarized baseline sociodemographic and clinical variables. χ^2 and Fisher exact tests assessed associations between sociodemographic or clinical variables and 2 primary outcomes: (1) viral suppression (VS) [HIV viral load (VL) < 200 copies/mL] within 180 days and (2) sustained re-engagement in care (≥ 1 primary care provider visit both within 90 and 91–180 days after rapid restart). Complete case VS analysis included those with baseline viremia and follow-up HIV VLs. In sensitivity analysis, those with missing follow-up VLs were considered nonsuppressed.

Results: Between August 2020–October 2023, 141 adults (median age 42; 85% cis-male; 26% Latino/a) presented for rapid restart. Housing instability/homelessness (46%), substance use (61%), and mental illness (49%) were common. Among those with baseline viremia who returned for follow-up VLs, VS was attained in 79% and associated significantly with non-Latino/a ethnicity (87% non-Latino/a vs. 57% Latino/a, $P = 0.004$). However, VS was 58% when

considering missing follow-up VLs as nonsuppressed. Sustained re-engagement in care was observed in only 33%.

Conclusion: After rapid restart, sustained re-engagement in care and VS were low. Evaluation of key processes of rapid restart, retention efforts, and studies on effective re-engagement support strategies are needed.

Key Words: HIV, rapid ART, restart, out of care, retention, re-engagement

(*J Acquir Immune Defic Syndr* 2025;100:256–264)

INTRODUCTION

Lifelong antiretroviral therapy (ART) is recommended for all people with HIV (PWH) regardless of CD4 count, given the significant benefits associated with viral suppression (VS).^{1–3} However, sustained ART adherence and retention in care pose challenges to PWH who face sociostructural barriers to care (eg, mental illness, substance use, and housing instability).^{4–7} In one United States (US) study, 15% of PWH experienced a ≥ 12 -month gap between routine clinic visits or viral load (VL) measurements after establishing care.⁸ Cycles of engaging and disengaging from care—referred to as “churn”—remain a persistent issue driven by individual and system-level barriers.⁹ Strategies are needed to prevent both churn and to support durable re-engagement.

Although not yet widely practiced in the United States, one strategy that may promote re-engagement is immediate ART restart upon re-entry to care (rapid restart) among PWH who are off ART. Rapid restart is derived from the existing model of rapid ART—immediate ART for newly diagnosed PWH. The first US rapid ART model was developed by the Ward 86 HIV clinic at the public safety-net San Francisco General Hospital. Beginning in 2013, the RAPID (Rapid ART Program for Individuals with an HIV Diagnosis) program resulted in expedited linkage-to-care, ART start, and VS.^{10,11} In 2014, rapid ART was subsequently adapted and expanded citywide through the Getting to Zero San Francisco (GTZ-SF) initiative, a multisector consortium of public health, academic, community, and city government stakeholders, with the goal to start ART within 5 days of HIV diagnosis,¹² improving citywide VS at 12 months.¹³ Shaped in part from these results, subsequent results in other US settings,^{14,15} and from resource-limited settings,^{16–18} US guidelines recommend rapid ART as standard of care.^{19,20}

Received for publication April 4, 2025; accepted May 24, 2025.

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The RAPID Restart program at Ward 86 is supported by HIV Health Services at the San Francisco Department of Public Health. Data analysis for this study was supported by the following grants from the National Institutes of Health (NIH): K24 AI167805 (K.A.C.) and T32 AI060530 (J.S.).

Presented at the 19th International Conference on HIV Treatment and Prevention Adherence (Continuum 2024); June 10, 2024; Puerto Rico and at the 28th Annual National CFAR Meeting; October 29, 2024; New York City.

The authors have no funding or conflicts of interest to disclose.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.jaids.com).

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Grounded in this rapid ART model for newly diagnosed PWH, Ward 86 developed *rapid restart* as a *same-day* ART restart strategy for previously diagnosed PWH experiencing ART and care interruptions. This rapid restart approach starts *at the time of re-entry*, aiming to improve time to ART restart, relinkage to care, and VS. Rapid restart has gained traction in several clinics serving PWH in San Francisco and is endorsed by GTZ-SF, which has released clinical guidance on rapid restart and re-engagement in care.²¹

Few studies in the United States have formally assessed rapid restart outcomes. While there is abundant evidence showing that rapid ART for newly diagnosed PWH results in VS rates often exceeding 90%,^{11,13,22,23} the findings from various rapid restart programs across the United States show lower VS rates, on average 53% (range 37%–74%), among PWH who are returning to care.^{15,24–27} A key knowledge gap is understanding the barriers to and facilitators of successful retention in care and VS for PWH undergoing rapid restart. Understanding the clinical and logistical processes in rapid restart provides a starting point for designing effective programs. We describe key clinical and logistical processes of rapid restart in the Ward 86 HIV clinic, assess sociodemographic and clinical variables associated with re-engagement in care and VS after rapid restart, and provide recommendations for areas of further study based on our findings.

METHODS

Study Setting, Design, and Participants

The Ward 86 HIV clinic serves ~2600 adults with HIV who are either publicly insured, have municipal insurance, or are uninsured; the clinic population has a high prevalence of psychosocial vulnerabilities.²⁸ Ward 86 provides comprehensive HIV primary care, urgent care services, and a low-barrier, drop-in program [Positive-Health Onsite Program for Unstably Housed Populations (POP-UP)] for PWH with chronic viral nonsuppression, unstable housing, and difficulties engaging in a traditional primary care model.²⁹ Individuals seeking relinkage to HIV care or ART restart at Ward 86 either self-present or are referred to the clinic's rapid response HIV linkage-to-care team.

During the study period, rapid (same-day) restart at Ward 86, following GTZ-SF guidance,²¹ included expert HIV clinician assessment, review of ART history and resistance testing, sending of baseline re-entry labs (CD4 count, HIV VL, HIV genotype, and others as indicated), prescription for ART, and scheduling in-person follow-up HIV care appointments. In contrast to the RAPID program for initial ART starts, starter packs (5-day supply of ART) were not available for rapid restart; patients received ART by electronic prescription only. Health insurance enrollment or optimization, if needed, is performed on the first visit, with a benefits specialist or social worker. Rapid restart ideally includes psychosocial evaluation by a social worker or patient coordinator to address barriers and send referrals (ie, for mental health services, substance use treatment programs, and housing assistance resources) on the same day or soon after. During the study period, patients seen for rapid restart

generally received standard clinical follow-up, with limited clinic staff availability to provide outreach and retention support services after the rapid restart visit.

We conducted a retrospective study of PWH ≥ 18 years old, with prior ART experience, who were out of routine care, self-reported being off ART, and completed a rapid restart clinic visit at Ward 86. Out of routine care was defined as either: (1) not established with any primary care provider (PCP) and presenting as a new patient or (2) established with a Ward 86 PCP but having a gap in care (≥ 6 months since last PCP visit or ≥ 1 missed PCP visit since last PCP visit). We included those who completed a rapid restart visit from August 1, 2020, to October 30, 2023. The study was approved by the Institutional Review Board at the University of California, San Francisco.

Data Collection

We obtained baseline sociodemographic information and HIV lab data through review of electronic medical record (EMR) encounters related to the rapid restart visit. We collected information on HIV care history including last prescribed ART and locations where care was previously received. For patients new to Ward 86 (defined as never previously in care at Ward 86 or most recent HIV care was elsewhere), we categorized by geographic location of prior HIV care.

We also collected EMR information characterizing the rapid restart visit: (1) visit date, (2) clinical setting of the visit (eg, urgent care or primary care), (3) referral source, (4) documented reason for previous ART interruption, (5) the rapid restart ART regimen selected on the day of the visit, (6) provision of same-day ART prescription, (7) change in ART from prior regimen, (8) completion of baseline labs, (9) completion of baseline psychosocial assessment, and (10) the Ward 86 clinical program the patient was subsequently assigned (traditional primary care vs POP-UP). Provision of same-day ART prescription was defined by evidence of an electronic ART prescription linked to the rapid restart clinical encounter. Baseline lab completion was defined as CD4 count and HIV VL collected within 90 days preceding the rapid restart visit and up to 7 days after. Completion of a baseline psychosocial assessment was defined as a social work/patient coordinator encounter within 30 days preceding and up to 7 days after the rapid restart visit. PCP appointment and HIV VL data after the rapid restart visit were also extracted from the EMR.

Covariates

Key variables of interest were housing status, substance use, and mental illness. Housing status was defined as stable (renting/owning or living in a stable single-room occupancy hotel), unstable (couch surfing, staying with friends/family, in a navigation center, in a short-term single-room occupancy, in transitional housing, or in a treatment program), experiencing homelessness (living on the street, in a vehicle, or in a shelter), or unknown. Substance use was defined as reported use of specific substances at the rapid restart visit [categorized by substance: stimulant use (methamphetamine, crack, and/or

cocaine), opioid use, alcohol use, and/or club drug use (ecstasy, gamma-hydroxybutyrate, and/or phencyclidine)], none, or unknown. Mental illness was similarly defined as report of mental illness at rapid restart [categorized by illness: depression, bipolar, anxiety, psychosis, and/or other illness (unspecified mood disorder and/or post-traumatic stress disorder)], none, or unknown. Housing status, substance use, and mental illness are routinely assessed during psychosocial assessment. In cases where baseline assessment was not performed/not fully completed, these variables were extracted from the rapid restart clinician note and registered ICD-10 codes. If these key variables were not documented at baseline, subsequent clinical encounters within 90 days of the rapid restart visit were reviewed for the variables of interest.

Outcomes

We evaluated 2 primary outcomes: (1) proportion with VS (VL <200 copies/mL) within 180 days after the rapid restart visit and (2) sustained re-engagement in care, defined as completion of ≥ 1 PCP visit within 90 days and in the 91–180 days after the rapid restart visit. We opted to report VS outcomes using VL <200 copies/mL to be consistent with prior rapid restart literature.^{15,24,26} This definition for re-engagement in care was based on previous studies using visit constancy-based measures of HIV provider visits.^{30–33}

Statistical Analysis

We used descriptive statistics to summarize baseline sociodemographic and clinical variables and χ^2 and Fisher exact tests in bivariate analyses to test for associations between baseline sociodemographic and clinical variables (age, gender identity, ethnicity, housing status, substance use, mental illness, baseline CD4 count, new to clinic, change in ART regimen, baseline psychosocial assessment, and year of rapid restart visit) and our 2 primary outcomes. We performed 2 VS analyses: a complete case analysis and a sensitivity analysis. We restricted our VS analyses to those who completed baseline VL testing and had baseline viral non-suppression (VL ≥ 200 copies/mL). In our primary approach to VS, we conducted a complete case VS analysis, including only individuals who completed follow-up VLs (ie, those with missing follow-up VLs were excluded). In a sensitivity analysis, we expanded the sample to include those with missing follow-up VLs, where missing VLs were coded as nonsuppressed. Our re-engagement in care analysis included all individuals regardless of baseline VL testing. All analyses were conducted using STATA version 18 (StataCorp LLC, College Station, TX).

RESULTS

Demographics and Clinical Characteristics

Between August 2020 and October 2023, 141 PWH presented to care and completed a rapid restart visit (Table 1). The median age was 42 years (range 24–72); most (85%) were cis-male; 26% were Latino/a ethnicity; 39% White, 21%

Black, 8% Asian, and 31% other race (including multiracial). Just under half (46%) were unstably housed/experiencing homelessness, 61% reported substance use, and 49% reported mental illness. Among those with completed baseline labs, 46% had CD4 count <200 cells/mm³ and 84% had VL ≥ 200 copies/mL. Just over half (53%) were new Ward 86 patients; 47% had last received care at Ward 86 before their rapid restart visit (ie, were not new to Ward 86). The median time since the last PCP visit was 553 days (interquartile range 248–920) among established Ward 86 patients who were returning to care.

Rapid Restart Visit Characteristics and Processes

Nearly all rapid restart visits occurred at Ward 86 drop-in urgent care visits (89%). Most self-presented for care or were referred by a personal contact (69%). Reason(s) for previous ART interruption were documented in 55%. Multiple reasons were noted, with the most common related to insurance barriers, followed by mental illness, substance use, and housing instability. Other less common reasons were medication side effects, pill fatigue, stolen/lost medications, and the perception of feeling well and therefore not needing medications.

Baseline HIV VL labs were completed in 89%. A baseline psychosocial assessment was completed for less than half of patients (45%). A rapid restart ART regimen was able to be selected on the day of first contact in all but 2 cases (99%): 1 patient was sent for hospital admission for severe AIDS-related illness and 1 patient deferred ART discussions until their PCP visit (both restarted ART the next day). A same-day ART prescription was provided in 96% of visits; thus, same-day ART prescription was not performed in an additional 4 cases: refills already at pharmacy ($n = 1$), patient decision to wait until baseline labs were completed and returned next business day to restart ($n = 1$), medications available at home ($n = 1$), and clinical oversight ($n = 1$). The rapid restart ART regimen represented a change from the prior regimen in 40%. At rapid restart, a majority (95%) were assigned to a traditional primary care model and 5% were assigned to a low-barrier model of care (the POP-UP program). Table 2 summarizes rapid restart visit characteristics and clinical and logistical processes.

VS and Sustained Re-Engagement in Care

Figure 1 outlines the analytic samples and the proportions achieving the primary outcomes of VS and sustained re-engagement in care within 180 days. Among those with documented viremia at baseline VL, 77/106 (73%) had follow-up VLs. Of those, 61/77 (79%) had VS (VL <200 copies/mL) within 180 days of rapid restart (complete case VS analysis). Non-Latino/a ethnicity was the only variable significantly associated with VS in bivariate analysis (87% for non-Latino/a ethnicity vs 57% for Latino/a ethnicity, $P = 0.004$) (Table 3). In sensitivity analysis, in which 29/106 (27%) with missing follow-up VLs were included and coded as nonsuppressed, VS was observed in

TABLE 1. Baseline Sociodemographic and Clinical Characteristics of PWH who Completed a Rapid Restart Visit

Characteristic	Total N = 141 N (%) [*]
Age, median (range), in yrs	42 (24–72)
Gender identity	
Cis-male	120 (85)
Cis-female	10 (7)
Transgender female	6 (4)
Transgender male	1 (1)
Nonbinary/gender queer	2 (1)
Unknown	2 (1)
Sexual orientation	
Heterosexual	33 (23)
Lesbian/Gay	72 (51)
Bisexual	10 (7)
Other	10 (7)
Chose not to disclose	7 (5)
Unknown	9 (6)
Ethnicity	
Non-Latino/a	103 (73)
Latino/a	36 (26)
Chose not to disclose	2 (1)
Race	
White	55 (39)
Black	29 (21)
Asian	11 (8)
Native Hawaiian or Pacific Islander	1 (1)
Other (including multiracial)	44 (31)
Chose not to disclose	1 (1)
Housing status	
Stable	67 (48)
Unstable	42 (30)
Experiencing homelessness	23 (16)
Unknown	9 (6)
Substance use[†]	
Reported use of specific substances	86 (61)
Alcohol use	15/86 (17) [*]
Stimulant use	73/86 (85) [*]
Opioid use	13/86 (15) [*]
Club drug use	5/86 (6) [*]
None	42 (30)
Unknown	13 (9)
Mental illness[‡]	
Reported mental illness	69 (49)
Anxiety	28/69 (41) [*]
Bipolar disorder	10/69 (15) [*]
Depression	36/69 (52) [*]
Psychosis	11/69 (16) [*]
Other mental illness	13/69 (19) [*]
None	22 (16)
Unknown	50 (35)
Baseline labs	
CD4 count	
CD4 count < 200 cells/mm ³	56/121 (46) [*]
CD4 count, median (IQR)	270 (94–491)
HIV VL	

TABLE 1. (Continued) Baseline Sociodemographic and Clinical Characteristics of PWH who Completed a Rapid Restart Visit

Characteristic	Total N = 141 N (%) [*]
HIV VL ≥ 200 copies/mL	106/126 (84) [*]
HIV VL, mean log ₁₀ (SD)	11.03 (2.33)
Last prescribed ART regimen	
Abacavir/dolutegravir/lamivudine	26 (18)
Bictegravir/emtricitabine/tenofovir alafenamide	53 (38)
Darunavir/cobicistat/emtricitabine/tenofovir alafenamide	13 (9)
Dolutegravir + emtricitabine/tenofovir alafenamide	15 (11)
Dolutegravir + emtricitabine/tenofovir disoproxil fumarate	3 (2)
Dolutegravir/lamivudine	1 (1)
Efavirenz/emtricitabine/tenofovir disoproxil fumarate	2 (1)
Elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide	8 (6)
Rilpivirine/emtricitabine/tenofovir alafenamide	2 (1)
Other combination ART regimens [§]	18 (13)
HIV care history	
Most recent care at Ward 86 clinic	66 (47)
Time since last PCP visit, median (IQR), in d	553 (248–920)
New to Ward 86 clinic	75 (53)
Prior HIV care location [¶]	
Within San Francisco County	38/75 (51) [*]
Outside San Francisco County, but within California	19/75 (25) [*]
Outside California	15/75 (20) [*]
Outside the US	3/75 (4) [*]

^{*}Proportions are calculated from a total n = 141, unless otherwise noted.

[†]Proportions for type of substance use may exceed 100% as categories were not mutually exclusive for individuals with reported substance use (n = 86).

[‡]Proportions for type of mental illness may exceed 100% as categories were not mutually exclusive for individuals with reported mental illness (n = 69).

[§]Other combination ART regimens: Table, Supplemental Digital Content, <http://links.lww.com/QAI/C549>.

^{||}Time since last PCP visit was calculated only from patients who were last established in primary care at Ward 86 (n = 62).

[¶]Prior HIV care locations were determined only among patients new to Ward 86 (n = 75).

61/106 (58%). Among the entire cohort (n = 141), only 33% had sustained re-engagement in care after the rapid restart visit. No sociodemographic or clinical variables were associated with sustained re-engagement in care. Furthermore, 57% had at least 1 PCP visit within 90 days, 37% had only one PCP visit within 180 days, and 31% had no PCP visits (ie, never attended an in-person PCP visit) during the 180 days after rapid restart.

DISCUSSION

In this retrospective evaluation of rapid restart at a safety-net HIV clinic in San Francisco, we found that sustained re-engagement in care was low. Among those with baseline viremia at rapid restart, VS was 79% in those who completed follow-up VL measurements, while VS was 58% when including those with missing follow-up VLs as non-suppressed. Overall, our VS outcomes are concordant with other studies of US rapid restart programs in urban,

TABLE 2. Rapid Restart Visit Characteristics and Clinical and Logistical Processes

Characteristics and Processes	Total N = 141 N (%) [*]
Year of rapid restart visit	
2020	6 (4)
2021	36 (26)
2022	46 (33)
2023	53 (38)
Clinical setting of rapid restart visit	
Ward 86 urgent care visit	125 (89)
Ward 86 PCP visit/scheduled re-engagement visit with linkage-to-care team	16 (11)
Referral source	
Self/personal contact	97 (69)
Ward 86 social work team	6 (4)
SFGH adult urgent care clinic	9 (6)
SFGH emergency department	2 (1)
Local community partners and clinics	23 (16)
SFDPH navigation services	4 (3)
Documentation of reason for previous ART interruption	78 (55)
Reason(s) for ART interruption[†]	
Housing instability	14/78 (18)*
Insurance barrier	23/78 (29)*
Major life event [‡]	10/78 (13)*
Mental illness	20/78 (26)*
Pill fatigue/difficulty taking pills	5/78 (6)*
Side effects	10/78 (13)*
Stigma	1/78 (1)*
Substance use	14/78 (18)*
Other	29/78 (37)*
Rapid restart ART regimen selected on day of visit	139 (99)
Abacavir/dolutegravir/lamivudine	10/139 (7)*
Bictegravir/emtricitabine/tenofovir alafenamide	82/139 (59)*
Darunavir/cobicistat/emtricitabine/tenofovir alafenamide	26/139 (19)*
Dolutegravir + emtricitabine/tenofovir alafenamide	6/139 (4)*
Rilpivirine/emtricitabine/tenofovir alafenamide	1/139 (1)*
Other combination ART regimens [§]	14/139 (10)*
Provision of same-day ART prescription	135 (96)
Change in ART from prior regimen	56/139 (40)*
Completion of baseline labs	
CD4 count	121 (86)
HIV VL	126 (89)
Completion of baseline psychosocial assessment	63 (45)
Care model assigned into	
Traditional primary care model (scheduled visits)	134 (95)
POP-UP model (unscheduled, drop-in visits)	7 (5)

*Proportions are calculated from a total n = 141, unless otherwise noted.

[†]Proportions for documented reason(s) for ART interruption may exceed 100% as categories were not mutually exclusive for individuals with documented reason for previous ART interruption (n = 78).

[‡]Major life event included loss of employment, loss of loved one, or break-up with a partner.

[§]Other combination ART regimens: Table, Supplemental Digital Content, <http://links.lww.com/QAI/C549>.

underserved populations^{15,24–27} and further highlight the suboptimal outcomes of rapid restart in the absence of coordinated and robust re-engagement support strategies. These findings stand in contrast to the high VS rates reported after rapid start for newly diagnosed PWH.^{11,13,22,23}

Latino/a ethnicity was the only variable significantly associated with lower VS, which contrasts with national HIV surveillance data showing that Latino/a PWH established in care have similar ART adherence and sustained VS to White PWH.³⁴ Sociostructural barriers to care are amplified for recent Latino/a immigrants with competing challenges (eg, family responsibilities, financial insecurity, limited employment opportunities, and reluctance to take time off from work).³⁵ However, only 3 PWH in our study were last in HIV care outside the United States. While language barriers could pose obstacles for some Latino/a PWH, Ward 86 has bilingual English and Spanish front desk staff, social workers, nurses, and medical providers. However, Latino/a PWH who are more comfortable speaking Spanish may still have challenges navigating the US health care system outside of the clinic (eg, pharmacy interactions, insurance documentation, etc.) without dedicated support.³⁶ The Latino/a group in this study and the supports they may need merits further investigation.

Our assessment of retention and sustained re-engagement in care demonstrated low proportions of PWH successfully establishing care with a PCP. Only one-third had sustained re-engagement in care, 37% had only 1 PCP visit within 180 days, and 31% did not complete any PCP visits at all after rapid restart. The lack of completed follow-up VL measurements (27%) also reflects low re-engagement in care. One notable finding was that housing instability/homelessness, substance use, and mental illness—known barriers to retention in care—were not associated with VS or sustained re-engagement in care. Individuals with these conditions at the time of rapid restart may have been motivated to stay in care to receive supportive services,^{37,38} but further examination of how these factors influence engagement in care is warranted.

We gained insights on certain key clinical and logistical rapid restart processes that could be further addressed to improve outcomes. First, a baseline psychosocial assessment was completed in less than half of the sample. Social work services are available for Ward 86 patients established in a primary care panel or in the POP-UP program. However, the availability of these services in real time for rapid restart and during follow-up was limited; notably, there was no dedicated rapid restart social worker during most of the study. This finding highlights the importance of readily available social work support services, which may be a key factor for PWH re-engaging in clinical care and undergoing rapid restart. The clinic also did not have a case manager or navigator focused on rapid restart patients during the study. Initial and ongoing psychosocial support provided by social work services, along with connections to case management, navigation, and outreach may play a critical role for durable retention. Thus, evaluations of wrap-around retention support

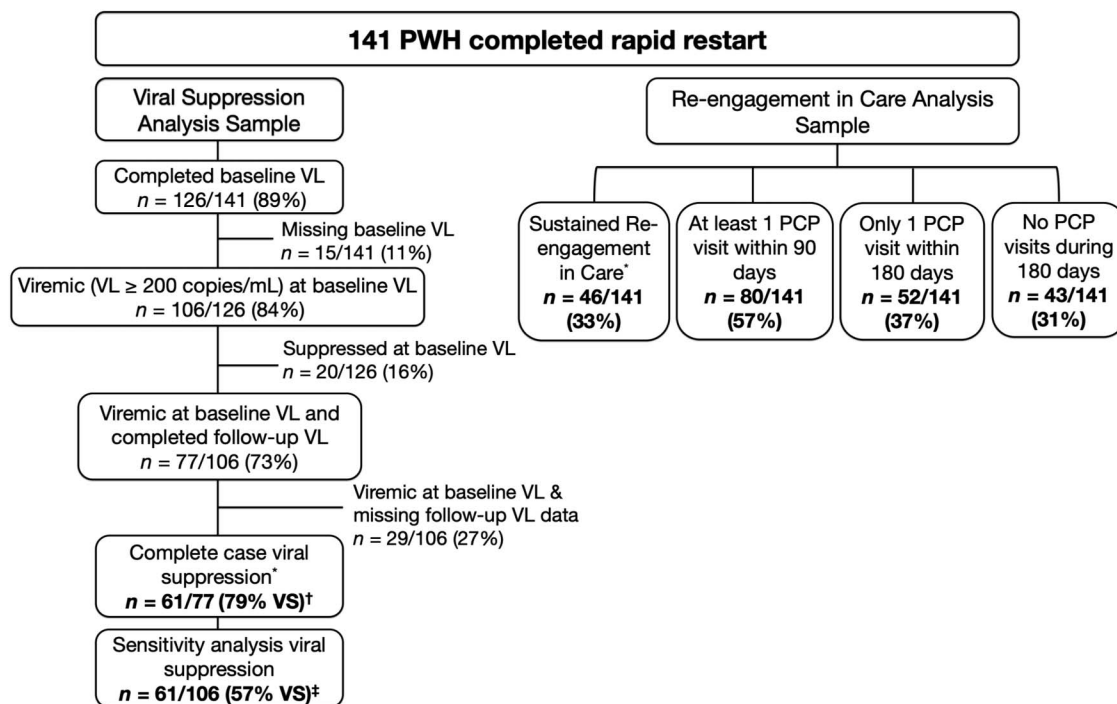


FIGURE 1. Diagram of analytic samples and proportions achieving primary outcomes of VS and sustained re-engagement in care.

during early phases of re-entry to care and afterward merit further study.^{26,27}

An overwhelming majority of rapid restart visits occurred unscheduled in the Ward 86 urgent care setting (operating under a drop-in model on weekday afternoons only), where urgent clinical scenarios frequently constrict the capacity and time availability of staff to ensure all rapid restart processes are completed (re-entry labs, psychosocial assessment, etc.). Recently, innovative HIV care models using drop-in, low-barrier services have drastically improved VS and retention in care, particularly for those experiencing severe psychosocial vulnerabilities.^{29,39,40} In our cohort, only 7 individuals (5%) entered that model of care (the POP-UP clinic) at rapid restart. Additional strategies to streamline entry into these low-barrier models with readily available wrap-around services at rapid restart and afterward may improve re-engagement. Given the rapidly changing landscape of HIV funding in the United States, how to best triage limited resources to PWH re-engaging in care and who are in most need will require special attention. Investment and a coordinated response from multiple stakeholders (eg, the Ryan White program, 340B pharmacies, pharmaceutical industry, private donors) may be needed to support these populations returning to care.

In addition, the reason(s) for care and ART interruption—critical determinants to identify and understand—were not consistently documented, making systematic evaluation of barriers difficult. Although the most common documented reasons for care interruption were insurance barriers, mental illness, substance use, and housing issues, the relative weight of each of these barriers remains unclear. Understanding the

interplay of these key factors leading to ART and care interruption is necessary to prevent future “churn.” Furthermore, there was a considerable portion of missing VLs both at baseline (11%) (among the total sample) and at follow-up (27%) (among those with baseline viremia). These missing VL measurements reveal challenges in completing the most routine and standard procedures of rapid restart in this population. Using rapid, point-of-care VL testing as an alternative method to conventional blood draws could circumvent logistical hurdles and provide more timely reinforcement to adherence and retention.^{41,42} Same-day ART prescription was completed in 96% of cases; however, this may not always translate to prescription dispensing and immediate patient reinitiation of ART. Implementation of starter packs and strategies to provide medications in hand at the first visit may overcome prescription barriers and facilitate same-day ART uptake in the rapid restart setting.^{43,44} Lastly, all PWH were restarted on oral ART regimens at rapid restart. Long-acting injectable ART options may play an important role for those re-engaging in care with significant adherence challenges to oral ART, but the pattern of engagement sufficient to initiate injectables for this population is unknown and warrants further study.^{45–47}

As with other rapid restart studies, our study findings are unsettling. We note that our patient population regularly faces complex barriers and challenges that persist even after rapid restart; therefore, rapid restart as a re-engagement strategy is more likely to yield improved outcomes when packaged with comprehensive support services and flexible models of care. In other words, simply restarting ART without providing needed, robust wrap-around services is

TABLE 3. Bivariate Analysis of Sociodemographic, Clinical, and Logistical Variables and Outcome of VS (VL <200 Copies/mL) Among PWH With Baseline Viremia and Complete VL Data (N = 77)

Variable	Category	Viral Suppression within 180 d		P
		Yes N (%) [*]	No N (%) [*]	
Age	18–34	14/20 (70)	6/20 (30)	0.443
	35–49	24/30 (80)	6/30 (20)	
	≥ 50	23/27 (85)	4/27 (15)	
Gender identity	Cis-male	57/70 (81)	13/70 (19)	0.131
	All others	4/7 (57)	3/7 (43)	
Ethnicity	Non-Latino/a	48/55 (87)	7/55 (13)	0.004
	Latino/a	12/21 (57)	9/21 (43)	
Housing status	Stable	29/34 (85)	5/34 (15)	0.485
	Unstable/ experiencing homelessness	30/38 (79)	8/38 (21)	
Reported substance use	Present	41/53 (77)	12/53 (23)	0.288
	None	16/18 (89)	2/18 (11)	
Reported mental illness	Present	38/44 (86)	6/44 (14)	0.074
	None/unknown	23/33 (70)	10/33 (30)	
Baseline CD4 count [†]	< 200 cells/mm ³	32/42 (76)	10/42 (24)	0.649
	≥ 200 cells/mm ³	25/31 (81)	6/31 (19)	
New to clinic	New to clinic	29/37 (78)	8/37 (22)	0.861
	Known to clinic	32/40 (80)	8/40 (20)	
Change in ART regimen	Change from prior	26/33 (79)	7/33 (21)	0.976
	No change from prior	34/43 (79)	9/43 (21)	
Baseline psychosocial assessment	Completed	28/34 (82)	6/34 (18)	0.547
	Not completed	33/43 (77)	10/43 (23)	
Year of rapid restart visit [†]	2021	15/16 (94)	1/16 (6)	0.123
	2022	24/29 (83)	5/29 (17)	
	2023	20/29 (69)	9/29 (31)	

^{*}Proportions are calculated from row totals for each category.

[†]Year of rapid restart analysis excluded yr 2020 (due to small n = 6).

insufficient to overcome barriers to VS and retention in care.⁴⁸ In consideration of our clinical results, Ward 86 is refining the rapid restart protocol and program to provide streamlined and focused supports adapted to the needs of our population. Currently, rapid restart at Ward 86 is overseen by an MD clinical lead and supported by a registered nurse, social worker, and a patient coordinator who provide follow-up supports and outreach, as needed.

Our study had limitations. First, this was a retrospective study at a single safety-net clinic, thereby limiting generalizability of our results to other settings and populations. Second, the use of retrospective chart review did not allow for validated measures of key variables of interest. As a result, we observed high levels of missingness in assessments of mental

illness and, to a lesser degree, for substance use and housing status. We were also limited in systematically assessing other important barriers to care in our safety-net setting (stigma, poverty, food insecurity, insurance issues, and immigration status). Third, our 6-month follow-up period was short to assess the effects of rapid restart as a short-term re-engagement strategy. Future analyses with longer-term follow-up will be important to examine rapid restart outcomes⁴⁹ once we have refined our early re-engagement rapid restart strategy. Finally, we considered using multiple imputation with multivariate logistic regression but were limited by small sample sizes and missing data in baseline and follow-up VL measurements.

In summary, our study represents the largest evaluation of rapid restart outcomes in a US setting to date. Consistent with US rapid restart studies, VS and retention outcomes were suboptimal. Further research is needed to determine how best to optimize key processes at the time of rapid restart, enhance outreach efforts, and provide robust wrap-around services throughout follow-up to improve outcomes.

ACKNOWLEDGMENTS

The authors thank all involved clinic staff for their contributions and dedication to their patients to provide rapid restart services at Ward 86 and to the funding sources from the San Francisco Department of Public Health and grants from the NIH [K24 AI167805 (K.A.C.) and T32 AI060530 (J.S.)] that made this work possible. The authors also thank the Clinical Addiction Research and Education (CARE) Program, NIDA R25 DA013582, which also provided support to this study.

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