

Practical Strategies to Improve Adherence and Retention in Care

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Spectrum of Engagement Symposium

Austin, TX

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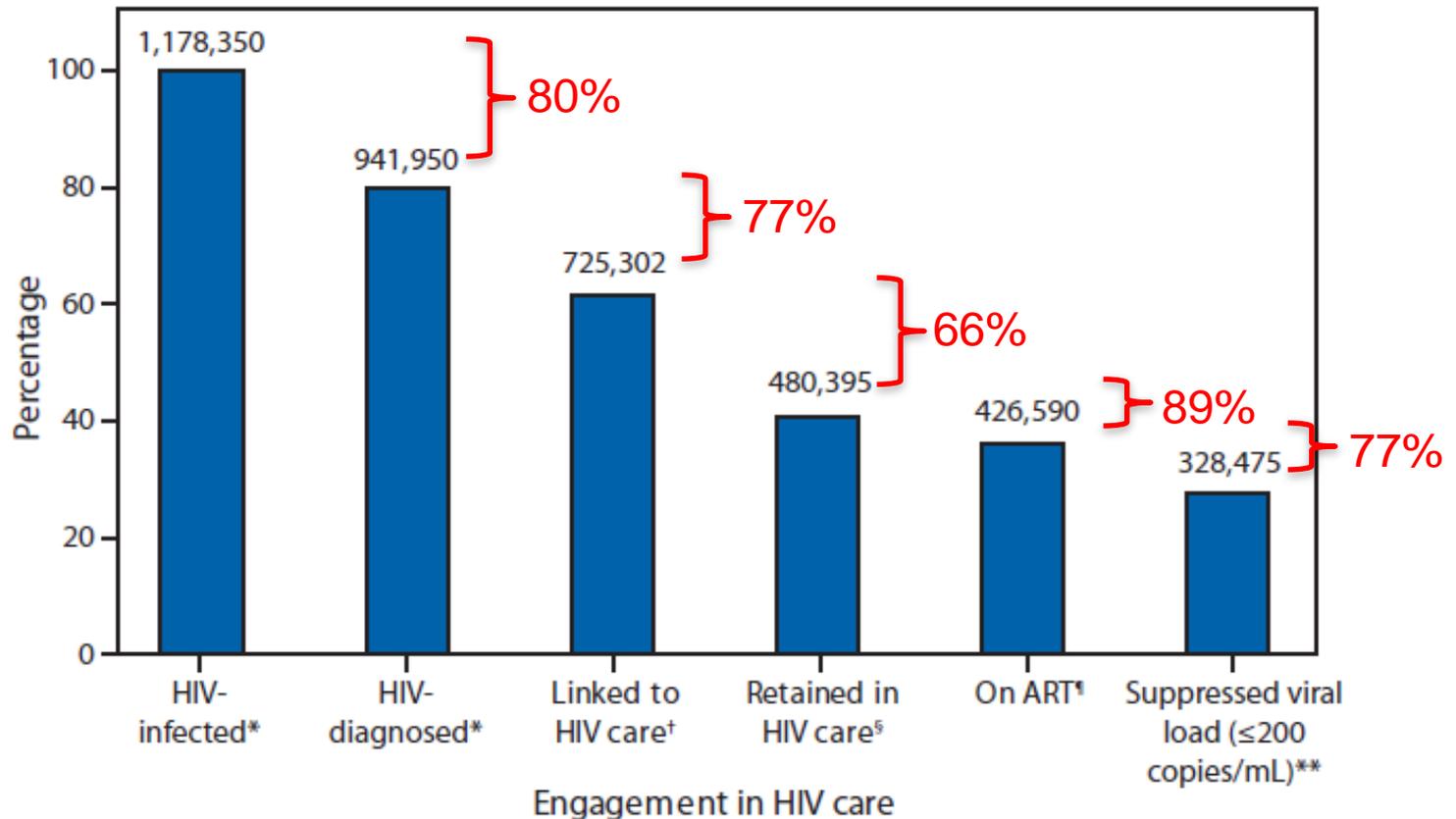
Objectives

- Attendees will be able to describe current research findings on barriers to adherence to medications at the healthcare system and provider level
- Attendees will be able to describe current research findings on barriers to retention in care at the healthcare system and provider level
- Attendees will be able to intervene with patients using practical approaches to improve linkage to and retention in care

The HIV Treatment Cascade

Morbidity and Mortality Weekly Report

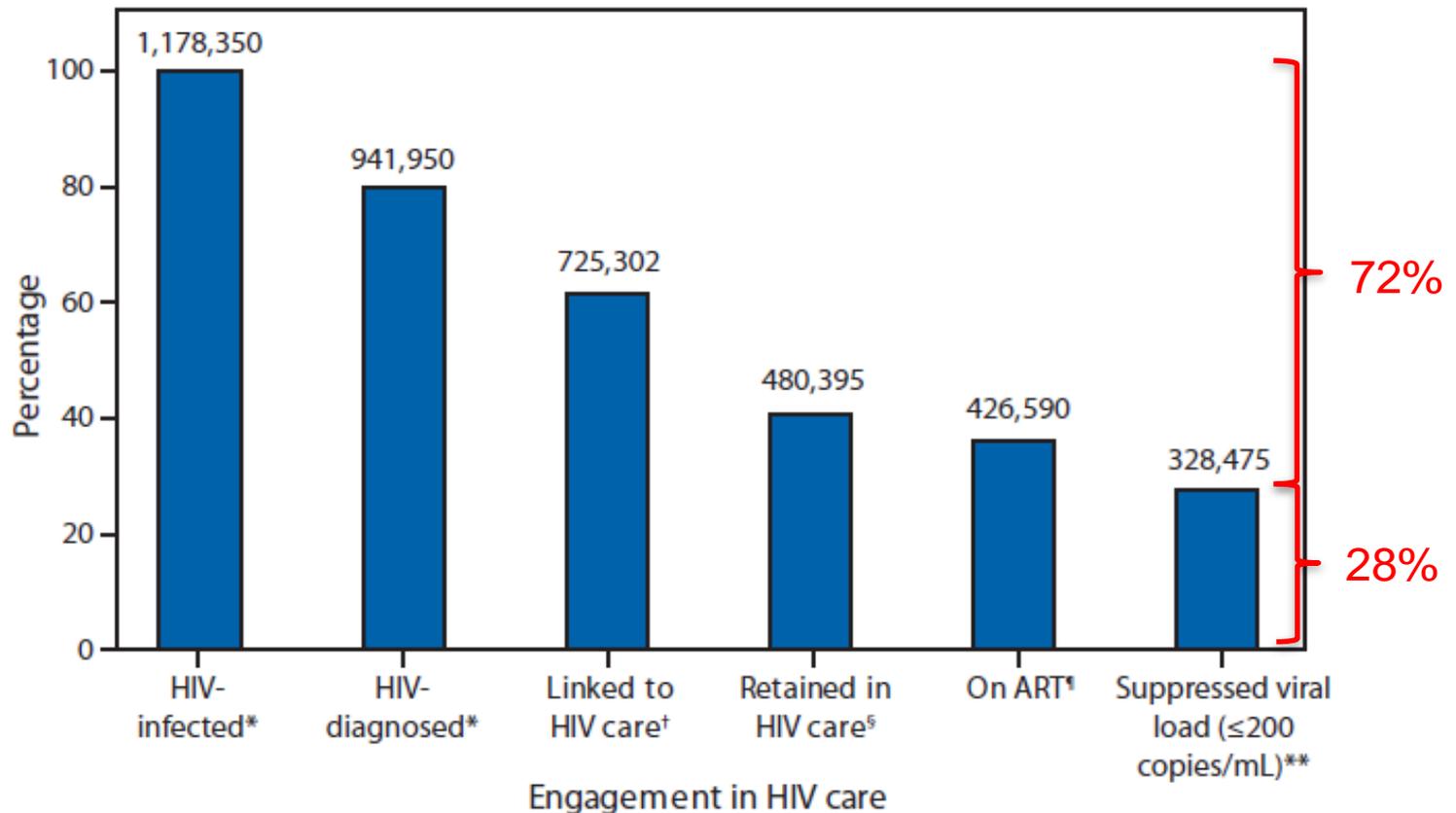
FIGURE 3. Number and percentage of HIV-infected persons engaged in selected stages of the continuum of HIV care — United States



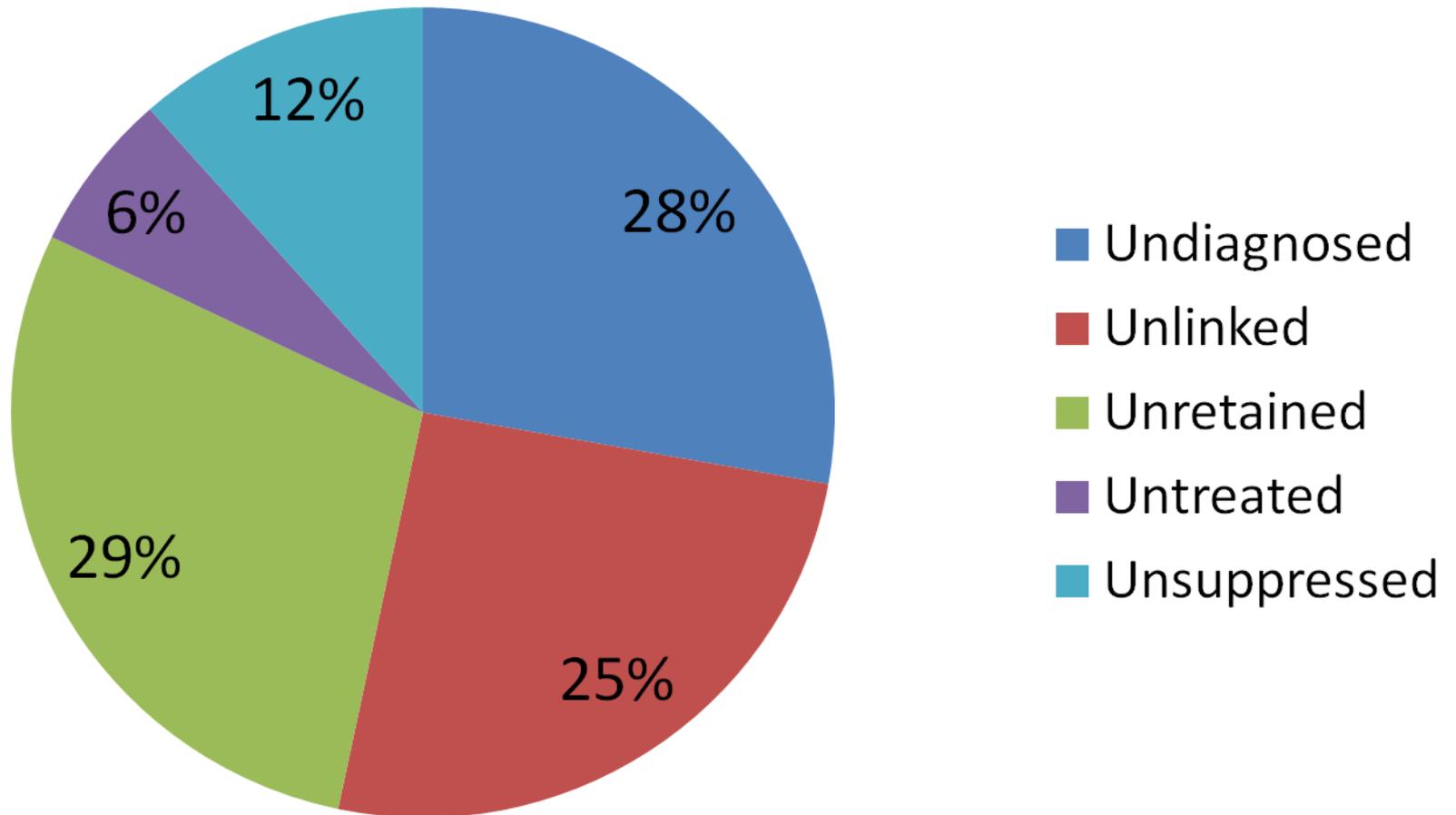
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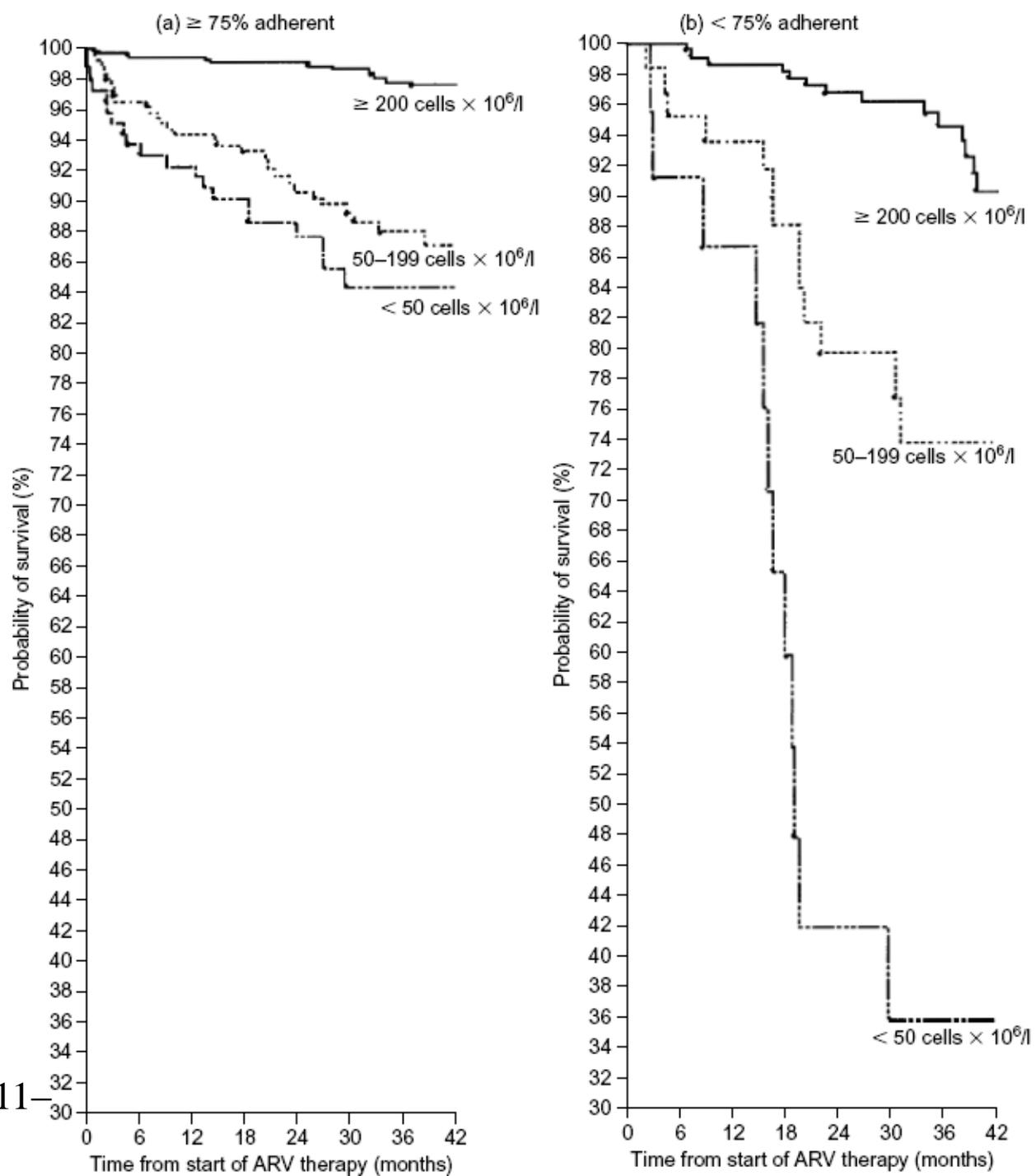
FIGURE 3. Number and percentage of HIV-infected persons engaged in selected stages of the continuum of HIV care — United States



Of the 849,875 Non-suppressed:



ADHERENCE AND MORTALITY



Retention in Care and Mortality

(n=2619)

Characteristic	AHR	95% CI	P value
Visit in 4 quarters	referent		
Visit in 3 quarters	1.41	1.10-1.82	<0.01
Visit in 2 quarters	1.68	1.24-2.26	<0.001
Visit in 1 quarter	1.94	1.36-2.76	<0.001

Adjusted for age, race/ethnicity, baseline CD4 cell count, HAART use, hepatitis C virus coinfection, non-HIV-related comorbidity score, alcohol abuse, hard drug use, and social instability.

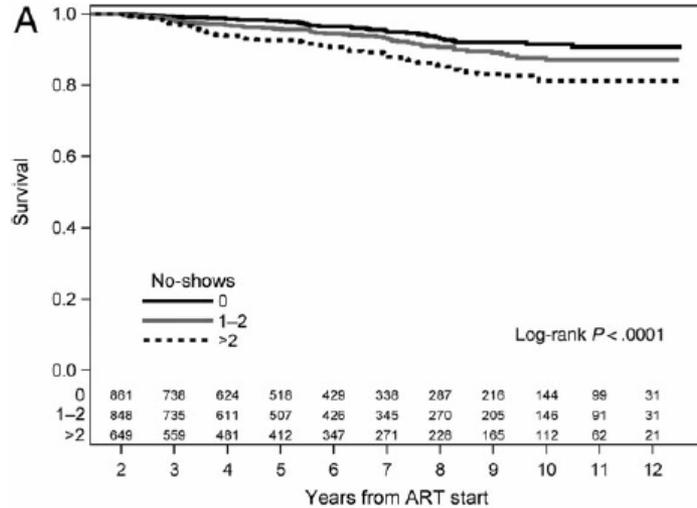
Missed Visits and Mortality

Characteristic	HR (95%CI) ^a
Missed visit in 1 st year	2.90 (1.28- 6.56)
Age (HR per 10 years)	1.58 (1.12-2.22)
CD4 count <200 cells/mm ³	2.70 (1.00-7.30)
Log ₁₀ plasma HIV RNA	1.02 (0.75-1.39)
ART started in 1 st year	0.64 (0.25-1.62)

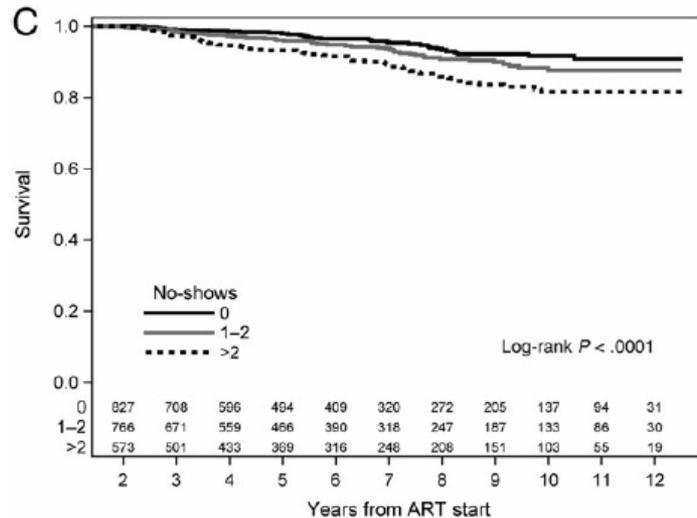
^a Cox proportional hazards (PH) analysis also adjusts for sex, insurance, race/ethnicity, depression, anxiety, alcohol abuse, and substance abuse.

Beyond Core Indicators of Retention in HIV Care: Missed Clinic Visits Are Independently Associated With All-Cause Mortality

Michael J. Mugavero,¹ Andrew O. Westfall,¹ Stephen R. Cole,² Elvin H. Geng,³ Heidi M. Crane,⁴ Mari M. Kitahata,⁴ W. Christopher Mathews,⁵ Sonia Napravnik,³ Joseph J. Eron,³ Richard D. Moore,⁶ Jeanne C. Keruly,⁶ Kenneth H. Mayer,^{7,8} Thomas P. Giordano,^{9,10} and James L. Raper¹; for the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS)



A = IOM retained x 2 yrs



C = IOM not retained x 2 yrs

Table 5. Separate Cox Proportional Hazards Models Evaluating the Association of Missed Clinic Visits With Long-Term Mortality Among Patients Classified as Not Retained at 24 Months Following Antiretroviral Therapy Initiation According to Institute of Medicine and Department of Health and Human Services Core Indicators at 5 CNICS Sites, 2000–2010

Characteristic	Not Retained at 24 Months by IOM Core Indicator ^a (n = 1314), HR (95% CI)	Not Retained at 24 Months by DHHS Core Indicator ^b (n = 1506), HR (95% CI)
Missed (no-show) visits at 24 mo		
0	Referent	Referent
1–2	1.63 (.98–2.72)	1.76 (1.08–2.85)
>2	2.11 (1.26–3.51)	2.32 (1.43–3.77)
Age (per 10 y)	1.56 (1.34–1.83)	1.60 (1.58–1.86)
Race		
White	Referent	Referent
Black	1.89 (1.29–2.76)	1.80 (1.27–2.57)
Other/unknown	0.72 (.33–1.57)	0.73 (.35–1.52)
Sex		
Male	Referent	Referent
Female	1.16 (.80–1.69)	1.10 (.77–1.58)
Baseline^c CD4 count, cells/μL		
<50	3.58 (1.27–10.08)	3.86 (1.38–10.79)
50–199	2.65 (.94–7.46)	2.63 (.94–7.37)
200–349	1.53 (.53–4.36)	1.62 (.57–4.59)
350–500	1.13 (.35–3.68)	1.02 (.31–3.33)
>500	Referent	Referent
Missing/unknown	0.89 (.19–4.24)	1.29 (.30–5.45)
Baseline^c viral load, log₁₀ copies/mL		
<10 000	Referent	Referent
10 000–100 000	1.84 (.87–3.91)	1.76 (.89–3.47)
>100 000	2.26 (1.06–4.82)	2.24 (1.13–4.41)
Missing/unknown	2.32 (.76–7.06)	2.29 (.81–6.44)

PREVALENCE OF LATE DIAGNOSIS

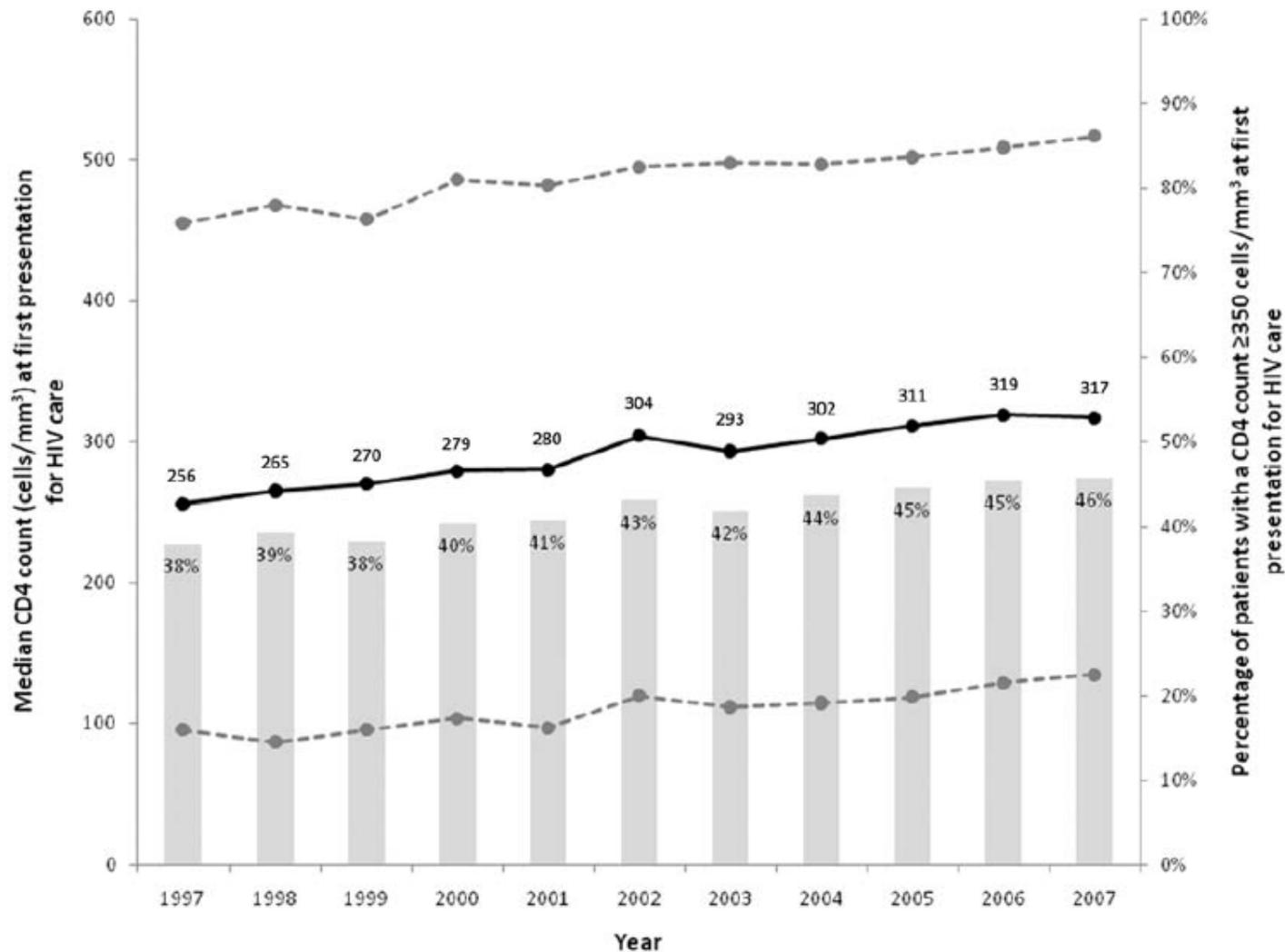


Figure 1. Median CD4 count (and interquartile range) and the percentage of patients with a CD4 count ≥ 350 cells/mm³, at first presentation for human immunodeficiency virus (HIV) clinical care, North American Cohort Collaboration on Research and Design, 1997–2007.

EARLY TREATMENT IS BENEFICIAL: THE SMART STUDY

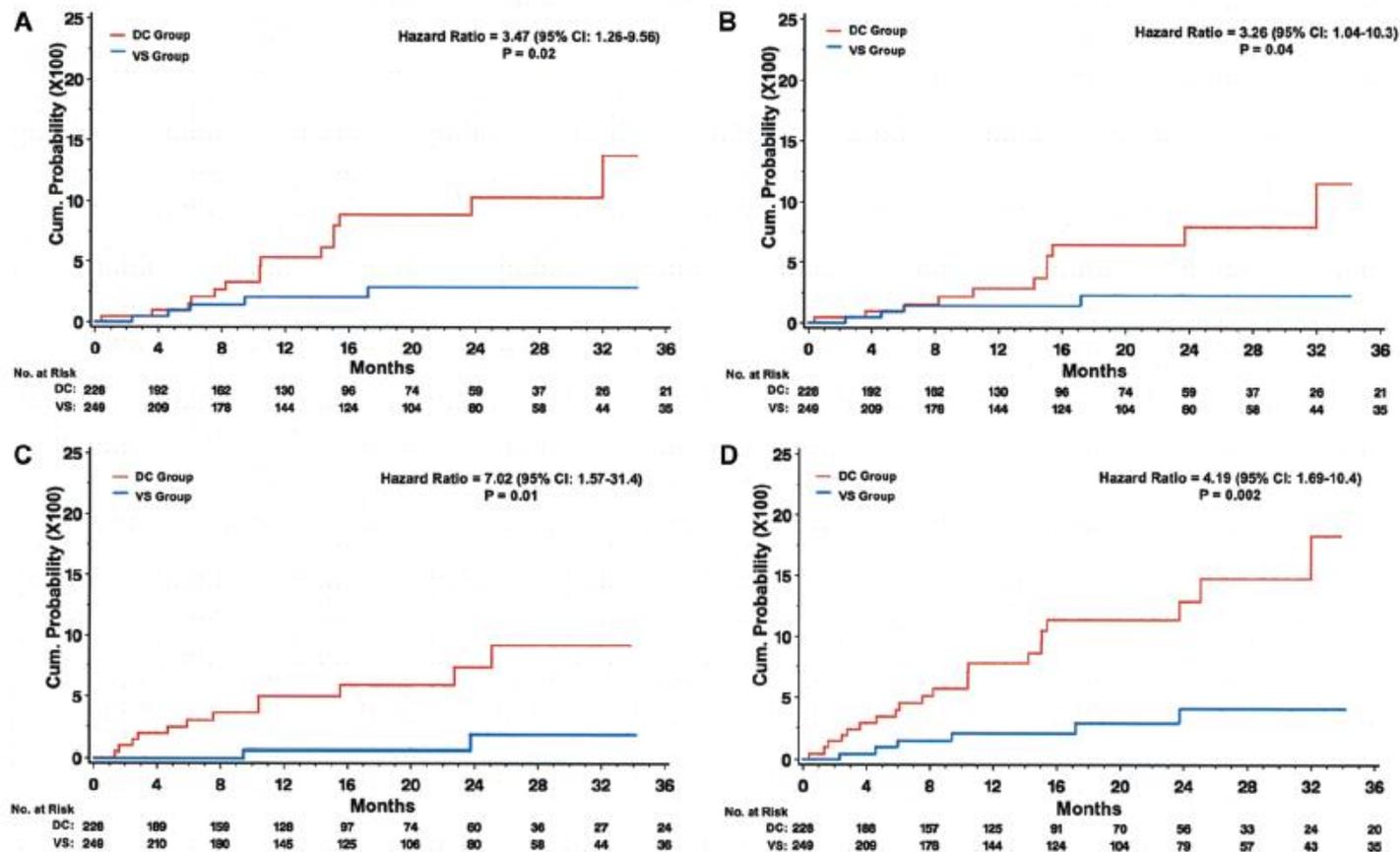


Figure 4. Kaplan-Meier time curves for cumulative probability of opportunistic disease (OD) and death (A), OD alone (B), serious non-AIDS events and non-OD death (C), and the composite of OD and serious non-AIDS events, which includes all-cause death (D). The solid red lines indicate events in participants in the drug conservation (DC) group, and the dashed blue lines indicate events in participants in the viral suppression (VS) group.

Why don't people adhere to HIV care?

Why don't people adhere to HIV care?

- ART factors
 - Pill burden, dosing frequency
 - Side effects
- Disease severity
 - Lower perceived need for care
 - Fewer non-HIV comorbidities
- Psycho-social characteristics
 - Substance use and mental health problems
 - Lower trust, negative past experiences
 - Lower social support
 - Stigma, fear and denial
 - Lower literacy, cognitive barriers, lack of routine (forgetting)
- System factors
 - Greater unmet need (housing, transportation, food)
 - Confusing health care systems (transitions, multiple programs)
 - No or inadequate insurance
 - Cost (out-of-pocket, lost wages, opportunity)

INTERVENTIONS

You missed your last dental cleaning and it has been a year. At the dentist office now, I tell you, “you really need to get your teeth cleaned every 6 months. Bad things could happen to your teeth if you don’t. They might even fall out.”

This statement makes you most feel:

1. More knowledgeable
2. More motivated
3. Guilty and imperfect
4. Mad, like you are being treated like a child

GIVEN ACCURATE ADHERENCE DATA, HOW DO PHYSICIANS TALK TO THEIR PATIENTS?

TABLE 2. Comparison [Median (25th, 75th Percentile)] Between the Total (Patient Plus Provider) Number of Utterances in Control and Intervention Visits by Topic Code

Topic Codes	Intervention (n = 58)	Control (n = 58)	<i>P</i> *
Physical health	120.5 (68, 210)	97 (55, 167)	0.14
Psychosocial	24 (0, 53)	6 (0, 59)	0.77
Logistics	43.5 (18, 78)	40.5 (14, 72)	0.35
Physical exam	5 (0, 11)	5 (0, 12)	0.83
Studies/trials	4 (0, 15)	0 (0, 5)	0.001
Socializing	11 (5, 21)	9 (5, 22)	0.27
ART related	76 (52, 127)	49.5 (28, 113)	0.07
Adherence, current regimen	51.5 (37, 77)	32.5 (17, 52)	0.0002
ART side effects	0 (0, 11)	0 (0, 8)	0.96
ART prescribing	0 (0, 15)	0 (0, 17)	1.00
ART problem solving	0 (0, 12)	0 (0, 2)	0.05
Pharmacological, non-ART	13.5 (6, 59)	23.5 (9, 58)	0.71
Nonallopathic	0 (0, 0)	0 (0, 0)	0.50
Nonpharmaceutical	0 (0, 2)	0 (0, 4)	0.46
Total utterances	360 (258, 531)	311.5 (239, 492)	0.03

- Adherence dialogue increased
- Little problem solving
- Most was “directive”
- Adherence no different



GUIDELINES FOR IMPROVING ENTRY INTO AND RETENTION IN CARE AND ANTIRETROVIRAL ADHERENCE FOR PERSONS WITH HIV

Developed by a Panel Convened by the
International Association of Physicians in AIDS Care

MISCELLANEOUS

- To see the full text of the guidelines, visit:
 - <http://www.annals.org/content/early/2012/03/05/0003-4819-156-11-201206050-00419?aimhp>; or
 - www.iapac.org for a direct link to the full text, as well as a table summarizing the guidelines recommendations.
- Visit the AETC NRC website for the most current version of this presentation: <http://www.aidsetc.org>
- Visit www.iapac.org to stay up-to-date on guidelines updates and guidelines-related activities, including CME opportunities.
- This presentation was developed by Benjamin Young, MD, PhD, IAPAC Vice President/Chief Medical Officer.

RECOMMENDATIONS:

ENTRY INTO/RETENTION IN CARE

- Systematic monitoring of successful entry into HIV care is recommended for all individuals diagnosed with HIV (**II A**).
- Systematic monitoring of retention in HIV care is recommended for all patients (**II A**).
- Brief, strengths-based case management for individuals with a new HIV diagnosis is recommended (**II B**).
- Intensive outreach for individuals not engaged in medical care within 6 months of a new HIV diagnosis may be considered (**III C**).
- Use of peer or paraprofessional patient navigators may be considered (**III C**).

PRACTICAL APPLICATIONS*: ENTRY INTO/RETENTION IN CARE

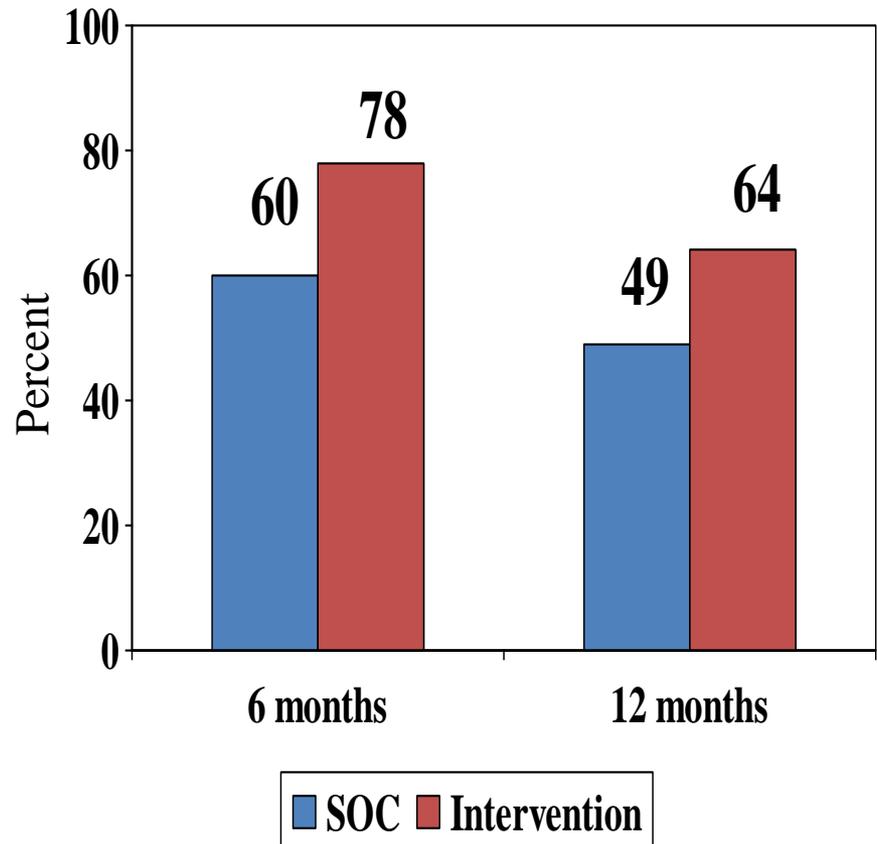
- Integration of multiple data sources, including surveillance data, administrative databases, and medical clinic records, may enhance monitoring of initial entry into and retention in HIV care.
- Many retention measures (for example, gaps in care, and visits per interval of time) and data sources (for example, surveillance, medical records, and administrative databases) have been used.
- *TPG: no strong recommendations on interventions*

*Practical applications of A-level recommendations

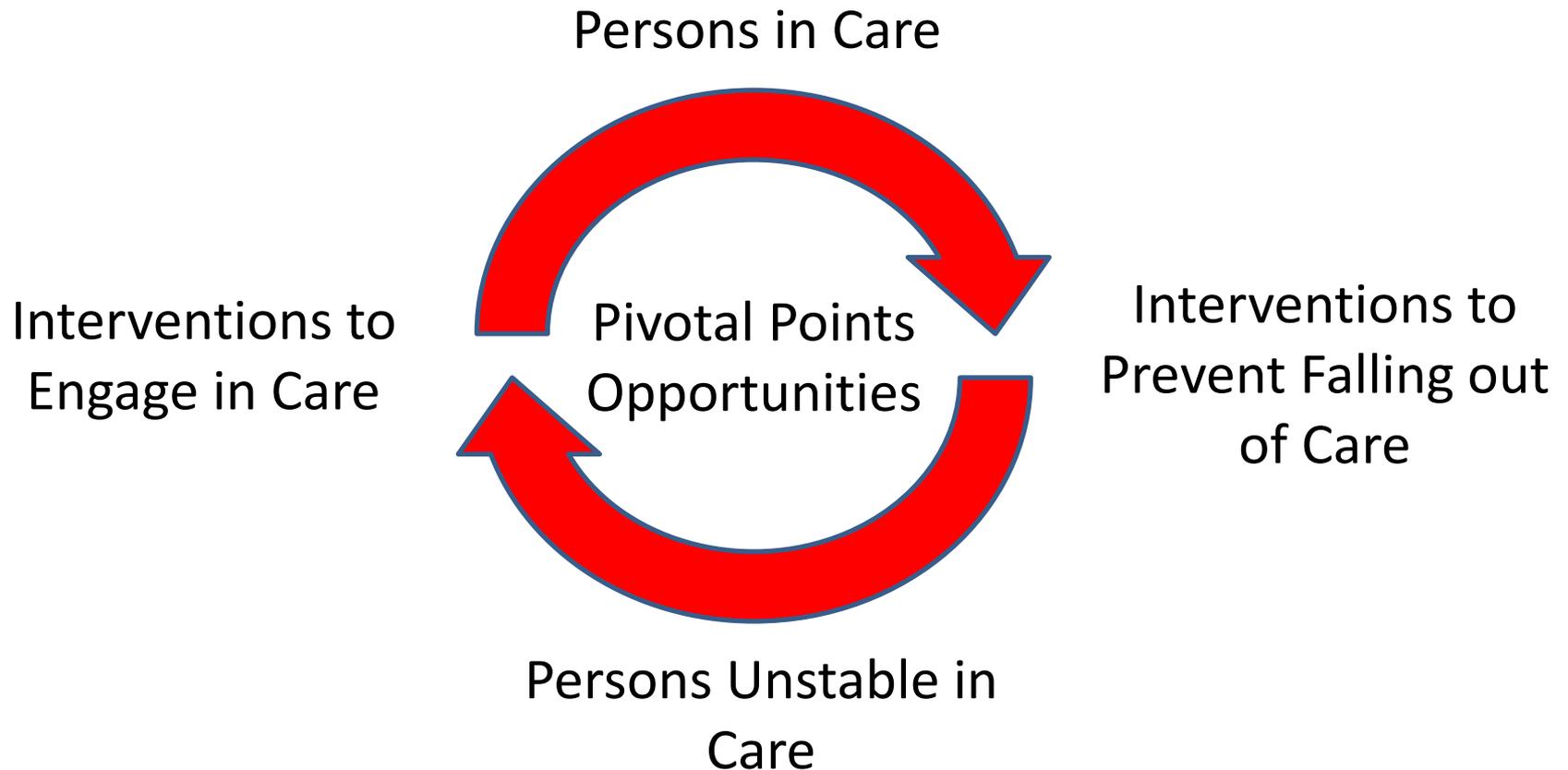
Intervention to Improve Linkage: ARTAS

273 participants, 4 cities
78% diagnosed <6 m
90 d of strength-based
case management

Replicated in ARTAS II



SPNS Model for Opportunities to Improve Adherence to Care



SPNS Outreach Intervention

- Baseline engagement predicts subsequent engagement, though not completely
- Factors associated with retention at 12 month follow-up (adjusted for race and last CD4)
 - Discontinued drug use, decreased structural barriers, decreased unmet needs, and stable beliefs about HIV

Lost – or just not following up?: Public health effort to re-engage HIV-infected persons lost to follow-up into HIV medical care: 108 (120)

Chi-Chi N. Udeagu, Tashonna R. Webster, Angelica Bocour, Pierre Michel and Colin W. Shepard

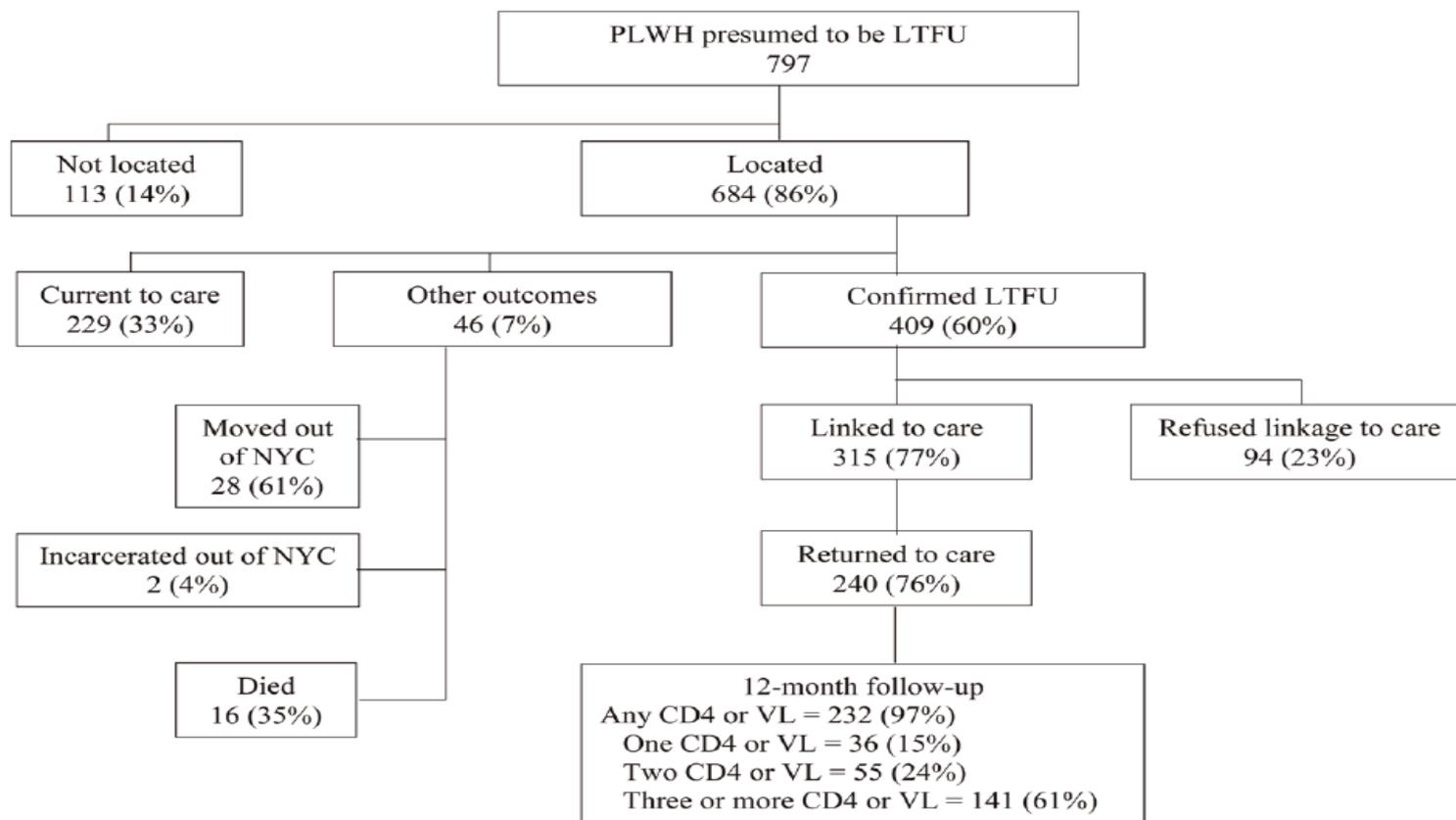


Fig. 1. Flow chart of PLWH presumed lost to follow-up (LTFU) selected from the HIV surveillance registry and assigned for partner services and return-to-care outreach in New York City, July 2008 – December 2010.

Using HIV Surveillance Registry Data to Re-link Patients to Care: the RSVP Project in San Francisco

Kate Buchacz¹, Mia J. Chen², Maree Kay Parisi², Maya Yoshida-Cervantes², Erin Antunez², Viva Delgado², Nicholas J. Moss³, Susan Scheer²

¹Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia, USA. ²San Francisco Department of Public Health, San Francisco, California, USA. ³Alameda County Public Health Department, Oakland, California, USA.

Figure 1. RSVP Timeline

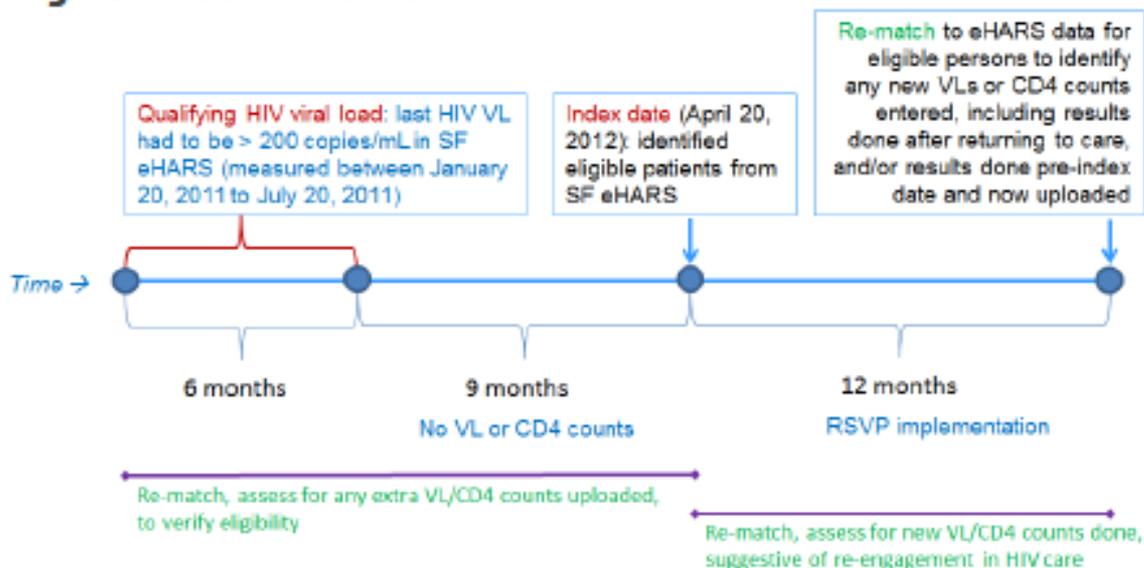


Figure 2. RSVP Implementation – Population Flowchart

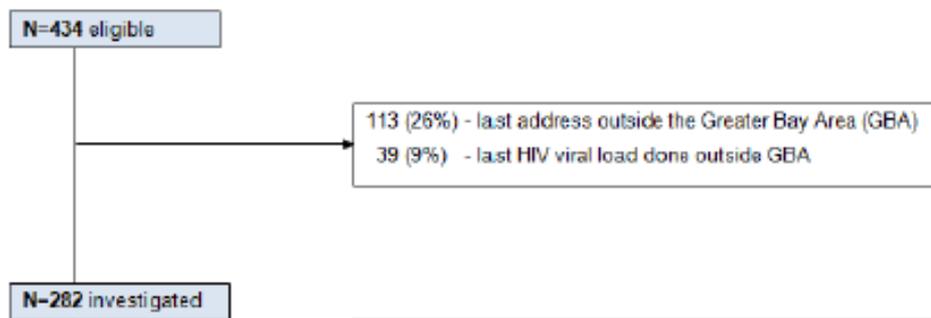
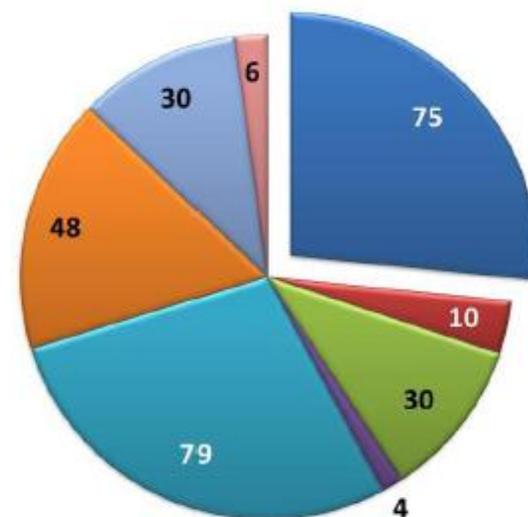


Figure 3. RSVP disposition for n=282 investigated persons



- Reached, agreed and interviewed
- Reached, agreed, no-shows to interview
- Reached, refused participation
- Reached, found ineligible
- Unable to locate
- Located, moved outside the area
- Located, in the area, unreachable
- Deceased

A Low-Effort, Clinic-Wide Intervention Improves Attendance for HIV Primary Care

Lytt I. Gardner,¹ Gary Marks,¹ Jason A. Craw,^{1,2} Tracey E. Wilson,³ Mari-Lynn Drainoni,^{6,7,8} Richard D. Moore,⁹ Michael J. Mugavero,^{11,12} Allan E. Rodriguez,¹³ Lucy A. Bradley-Springer,¹⁵ Susan Holman,^{4,5} Jeanne C. Keruly,⁹ Meg Sullivan,⁸ Paul R. Skolnik,¹⁶ Faye Malitz,¹⁰ Lisa R. Metsch,¹⁴ James L. Raper,^{11,12} and Thomas P. Giordano,^{17,18} for the Retention in Care Study Group^a

¹Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, and ²ICF International, Atlanta, Georgia; ³Department of Community Health Sciences, and Colleges of ⁴Medicine, and ⁵Nursing, SUNY Downstate Medical Center, Brooklyn, New York; ⁶Center for Health Quality, Outcomes & Economic Research, Edith Nourse Rogers Memorial VA Hospital, Bedford, ⁷Department of Health Policy and Management, Boston University School of Public Health, and ⁸Department of Medicine, Boston University School of Medicine, Massachusetts; ⁹Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, and ¹⁰Division of Science and Policy, Health Resources and Services Administration, Rockville, Maryland; ¹¹1917 HIV/AIDS Clinic, and ¹²Department of Medicine, University of Alabama at Birmingham; ¹³Division of Infectious Diseases, Miller School of Medicine, and ¹⁴Department of Epidemiology and Public Health, University of Miami, Florida; ¹⁵School of Medicine, University of Colorado Denver; ¹⁶Department of Medicine, University of Connecticut School of Medicine, Farmington; ¹⁷Department of Medicine, Baylor College of Medicine, and ¹⁸DeBakey VA Medical Center, Houston, Texas

Features of the clinic-wide intervention

- Theme: “Stay Connected for Your Health”
- Provider messages about importance of regular care and keeping appointments
 - Working as a team
 - Keeping you healthy
 - Best possible care
 - Staying ahead of the virus
- Brochure
- Posters (waiting room, exam rooms)

How to Stay Connected

- Keep all of your scheduled clinic appointments.
- Work as a team with your health care providers.
- Talk openly and honestly with your health care team.
- Ask questions that are important to you.

Why Is It Important to Keep All of Your Clinic Appointments?

Your Health Depends on It!

At your appointments

- We can check your health and make changes to your treatment plan if needed.
- We can give you the best medical care.
- You can take control of your health.

In one large study, people with HIV who attended all of their clinic appointments lived longer.

Source: Clinical Infectious Diseases, 2007.

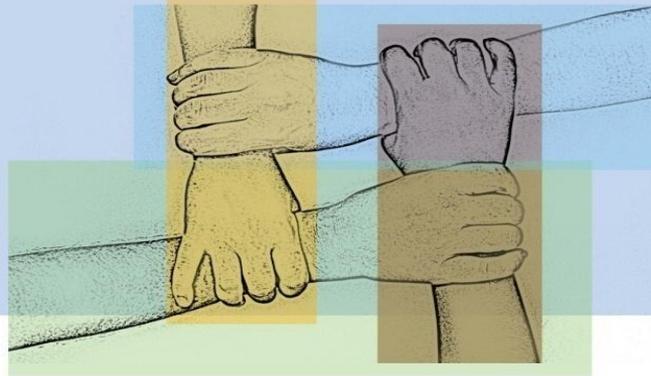
Remember—it is important to come to all of your clinic appointments whether you feel sick or feel well.

Ways to Remember Your Clinic Appointments

- Write all of your appointments in a calendar.
- Put reminders or alerts in your cell phone.
- Put your reminder card in a place where you will see it often.
- Make sure we have your correct telephone number and address.
- Let us know right away if your telephone number or address changes.

If something comes up and you can't keep a clinic appointment, please call us at least 2 days in advance. It is important to reschedule if you miss an appointment.

Stay Connected For Your Health



Together, we can make a difference.

Keep all of your clinic appointments.
Your health depends on it!

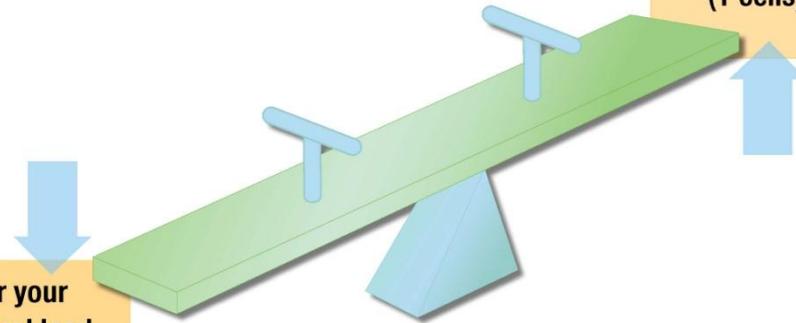


Come to All of Your Clinic Appointments

Take Control of Your Health

Lower your
HIV viral load

Raise your
CD4 count
(T cells)



Research shows that keeping your regular clinic appointments can improve your health and help you live longer.

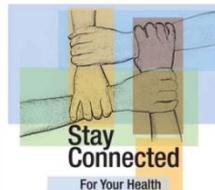


Table 2. Adjusted Percentage of Patients Keeping Next 2 Primary Care Visits During Preintervention and Intervention Periods, Retention in Care Study, 2008–2010

Variable	Patients Keeping Next 2 Visits, % (No.)		% Relative Improvement ^a	<i>P</i>
	Preintervention Year (2008–2009)	Intervention Year (2009–2010)		
Overall (no adjustment)	52.7 (8535)	58.2 (9227)	10.4	<.0001
Overall (adjusted)	49.3 (8535)	52.7 (9227)	7.0	<.0001
Patient type				
New or reengaging	45.2 (1147)	57.9 (1210)	28.2	<.0001
Active	48.1 (7388)	50.6 (8017)	5.3	<.0001
Viral load ^b				
Undetectable ^c	57.2 (5537)	60.4 (6287)	5.6	<.0001
Detectable	44.4 (2998)	51.5 (2940)	16.0	<.0001
CD4 cell count, ^b cells/mm ³				
<350	49.8 (3443)	55.0 (3616)	10.3	<.0001
≥350	53.3 (5012)	56.4 (5376)	5.7	<.0001
Scheduled visits for care, No.				
2–3 ^d	52.6 (3270)	55.1 (4098)	4.7	.003
4–6	49.4 (3589)	53.4 (3600)	8.2	<.0001
≥7	45.4 (1676)	50.8 (1529)	12.0	.001
Sex				
Male	52.6 (5491)	56.3 (5909)	7.0	<.0001
Female	50.1 (3012)	54.7 (3304)	9.1	<.0001

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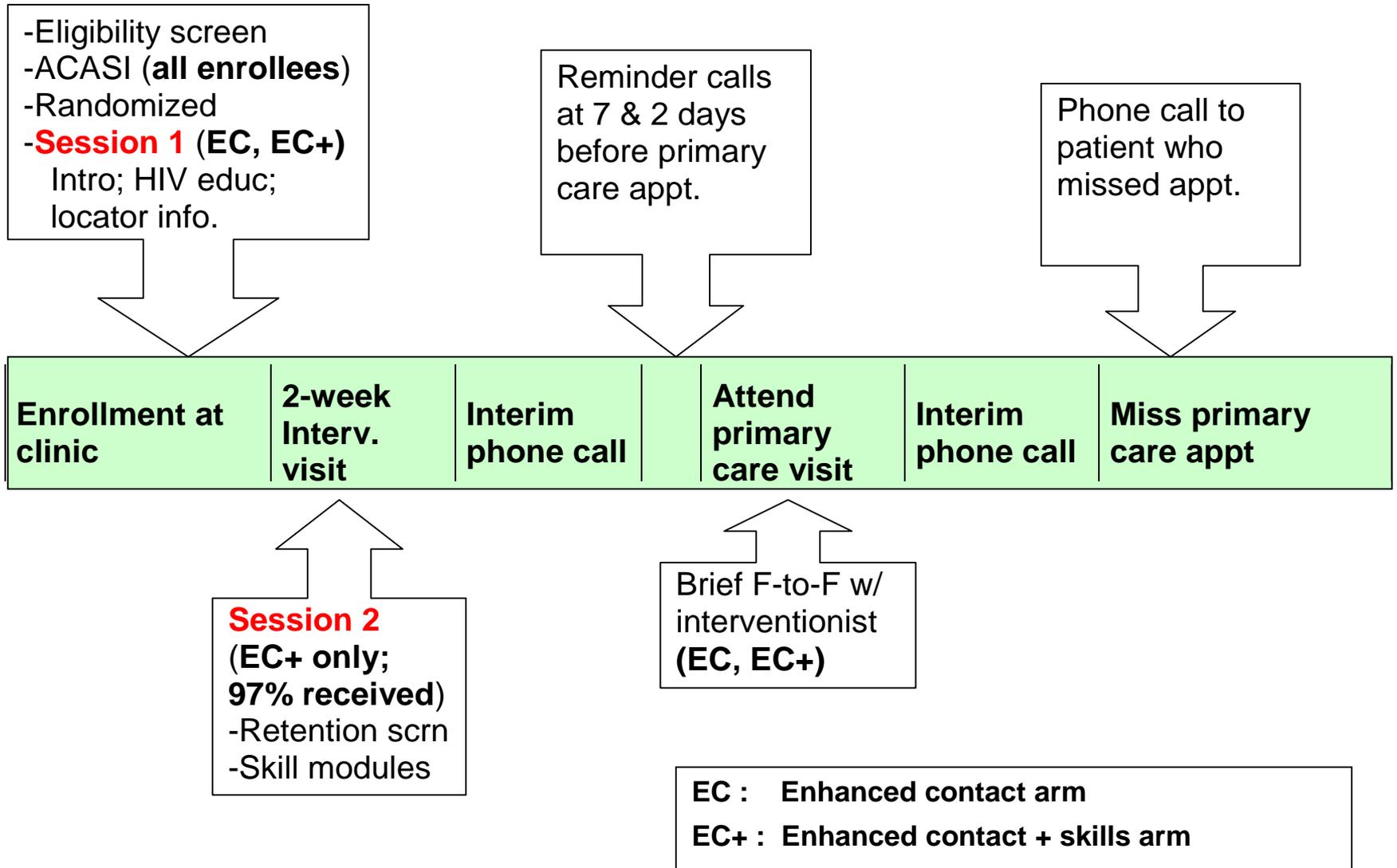
Table 3. Adjusted Mean Proportion of All Primary Care Visits Kept Among Patients During Preintervention and Intervention Periods, Retention in Care Study, 2008–2010

Variable	Visits Kept, Mean Proportion (No.)		Relative Improvement, % ^a	<i>P</i>
	Preintervention Year (2008–2009)	Intervention Year (2009–2010)		
Overall (no adjustment)	0.700 (9407)	0.724 (10 344)	3.4	<.0001
Overall (adjusted)	0.679 (9407)	0.699 (10 344)	3.0	<.0001
Patient type				
New or reengaging	0.649 (1310)	0.699 (1371)	7.6	<.0001
Active	0.678 (8097)	0.694 (8973)	2.4	<.0001
Viral load ^b				
Undetectable ^c	0.723 (6142)	0.738 (7131)	2.0	.0004
Detectable	0.622 (3265)	0.656 (3213)	5.5	<.0001

Enhanced Personal Contact With HIV Patients Improves Retention in Primary Care: A Randomized Trial in 6 US HIV Clinics

Lytt I. Gardner,¹ Thomas P. Giordano,² Gary Marks,¹ Tracey E. Wilson,³ Jason A. Craw,¹ Mari-Lynn Drainoni,^{4,5,6} Jeanne C. Keruly,⁷ Allan E. Rodriguez,⁸ Faye Malitz,⁹ Richard D. Moore,⁷ Lucy A. Bradley-Springer,¹⁰ Susan Holman,¹¹ Charles E. Rose,¹ Sonali Girde,^{1,12} Meg Sullivan,⁶ Lisa R. Metsch,¹³ Michael Saag,¹⁴ and Michael J. Mugavero,¹⁴ for the Retention in Care Study Group^a

Phase 2 Timeline of Intervention Activities



Enhanced Personal Contact With HIV Patients Improves Retention in Primary Care: A Randomized Trial in 6 US HIV Clinics

Table 2. Retention in Care Outcomes by Intervention Arm, Retention in Care Study, 2010–2012 (N = 1838)

Study Arm	Visit Constancy, % ^a	Risk Ratio (95% CI)	Visit Adherence, % ^b	Risk Ratio (95% CI)
Enhanced contact only (n = 615)	55.8	1.22 (1.09–1.36)	72.5	1.08 (1.05–1.11)
Enhanced contact plus skills (n = 610)	55.6	1.22 (1.09–1.36)	70.9	1.06 (1.02–1.09)
Standard of care (n = 613)	45.7	Ref	67.2	Ref

Abbreviation: CI, confidence interval.

^a Defined as percentage of participants with a care visit in each of 3 consecutive 4-month intervals.

^b Defined as each patient's kept visits divided by scheduled appointments (excluding canceled).

Table 3. Analysis of Canceled, Kept, and Missed Visit Counts by Study Arm (N = 1838)

Study Arm	Canceled Visits ^a		Kept Visits		Missed Visits	
	Mean Counts per Person	P Value ^b	Mean Counts per Person	P Value	Mean Counts per Person	P Value
Enhanced contact (n = 615)	1.41	.12	4.12	<.0001	1.56	.01
Enhanced contact plus skills (n = 610)	1.49	.01	4.14	<.0001	1.70	.50
Standard of care (n = 613)	1.31	Ref	3.59	Ref	1.75	Ref

^a Scheduled visits canceled by the clinic or patient ahead of time.

^b Log-linear Poisson regression model estimate.

Table 4. Unadjusted Pooled Interventions Versus Standard of Care Risk Ratios for Baseline Characteristics, Retention in Care Study (N = 1838)

Variable	Visit Constancy, %			Visit Adherence, %		
	EC and EC + Skills Arms ^a , % (No.)	Standard of Care Arm, % (No.)	Risk Ratio (95% CI)	EC and EC + Skills Arms, % (No.)	Standard of Care Arm, % (No.)	Risk Ratio (95% CI)
Overall (N = 1838)	55.7 (1225)	45.7 (613)	1.22 (1.10–1.35)	71.7 (1212)	67.2 (606)	1.07 (1.04–1.10)
Sex						
Male (n = 1158)	53.4 (778)	43.0 (380)	1.24 (1.09–1.42)	72.5 (770)	68.9 (375)	1.05 (1.02–1.09)
Female (n = 665)	59.7 (437)	50.7 (228)	1.18 (1.02–1.37)	70.4 (432)	65.1 (226)	1.08 (1.03–1.13)
Age group, y						
18–39 (n = 560)	46.0 (365)	42.6 (195)	1.08 (.89–1.32)	66.7 (850)	63.9 (410)	1.04 (.99–1.10)
≥40 (n = 1275)	59.8 (859)	47.1 (416)	1.27 (1.13–1.43)	73.6 (361)	68.7 (194)	1.07 (1.04–1.10)
Race/ethnicity						
Black (n = 1262)	55.9 (853)	44.7 (409)	1.25 (1.10–1.43)	70.1 (846)	65.5 (406)	1.07 (1.03–1.11)
White (n = 235)	46.5 (159)	43.4 (76)	1.07 (.79–1.46)	75.6 (156)	72.7 (73)	1.04 (.96–1.12)
Other race (n = 53)	63.6 (33)	35.0 (20)	1.82 (.95–3.48)	74.5 (32)	66.0 (20)	1.13 (.96–1.33)
Hispanic (n = 288)	62.0 (180)	52.8 (108)	1.17 (.95–1.44)	76.1 (178)	71.3 (107)	1.07 (1.00–1.14)
Patient type						
New ^a (n = 526)	50.3 (352)	43.7 (174)	1.15 (.94–1.40)	71.7 (869)	67.8 (437)	1.06 (1.00–1.12)
Established (n = 1312)	57.9 (873)	46.5 (439)	1.24 (1.11–1.40)	71.7 (343)	67.0 (169)	1.07 (1.04–1.10)
Unmet needs, last 6 mo						
Yes (any) (n = 761)	49.1 (523)	47.5 (238)	1.04 (.88–1.21)	69.2 (693)	67.5 (370)	1.03 (.98–1.07)
No (none) (n = 1077)	60.5 (702)	44.5 (375)	1.36 (1.20–1.54)	73.6 (519)	67.0 (236)	1.10 (1.06–1.14)
Any illicit drug use, last 3 mo						
Yes (n = 341)	44.9 (227)	46.5 (114)	0.97 (.76–1.23)	63.6 (224)	62.8 (113)	1.01 (.94–1.09)
No (n = 1497)	58.1 (998)	45.5 (499)	1.28 (1.15–1.43)	73.7 (988)	68.3 (493)	1.08 (1.05–1.11)
On antiretrovirals						
Yes (n = 1437)	57.2 (963)	46.6 (474)	1.23 (1.10–1.37)	72.5 (954)	67.9 (468)	1.07 (1.03–1.10)
No (n = 401)	50.0 (262)	42.5 (139)	1.18 (.94–1.48)	68.9 (258)	65.3 (138)	1.06 (.99–1.12)
Baseline CD4 count, cells/μL						
≥350 (n = 1013)	58.1 (668)	49.9 (345)	1.17 (1.03–1.32)	73.9 (662)	69.5 (341)	1.06 (1.03–1.10)
<350 (n = 707)	55.1 (477)	43.0 (230)	1.28 (1.08–1.52)	69.9 (475)	66.3 (229)	1.05 (1.01–1.10)
Baseline viral load						
Suppressed ^d (n = 1005)	58.6 (659)	50.6 (346)	1.16 (1.02–1.31)	74.9 (651)	71.9 (341)	1.04 (1.01–1.08)
Not suppressed (n = 768)	51.2 (522)	40.7 (246)	1.26 (1.06–1.50)	67.7 (518)	62.1 (246)	1.09 (1.04–1.14)
Insurance						
Private (n = 253)	54.3 (162)	56.0 (91)	0.97 (.77–1.22)	79.4 (161)	77.2 (88)	1.03 (.96–1.10)
Medicare (n = 360)	61.7 (227)	42.9 (133)	1.44 (1.15–1.80)	74.2 (226)	64.9 (132)	1.14 (1.07–1.22)
Medicaid (n = 736)	61.6 (502)	50.0 (234)	1.24 (1.07–1.44)	70.6 (499)	66.2 (233)	1.07 (1.02–1.11)
Other/Ryan White (n = 456)	46.4 (312)	37.5 (144)	1.21 (.95–1.55)	68.9 (305)	67.0 (144)	1.03 (.97–1.10)

Efficacy in most subgroups (detectable VL, low CD4, young, minority, public insurance or no insurance)

No efficacy in active drug users, people with at least one unmet need

TABLE 1. Percentage of Appointments Kept by Demographic and Clinical Factors and by Communication and Relationship Factors

	Percentage of Appointments Kept	P*
Sex		0.005
Male (n = 880)	66	
Female (n = 483)	62	
Race		<0.001
White (n = 211)	74	
Nonwhite (n = 1152)	63	
Alcohol use in the past 6 months		0.004
Yes (n = 561)	64	
No (n = 797)	66	
Drug use in the past 6 months		<0.001
Yes (n = 293)	57	
No (n = 1070)	67	
Ever used IV drugs		<0.001
Yes (n = 544)	59	
No (n = 819)	69	
On ART		<0.001
Yes (n = 905)	68	
No (n = 458)	58	
VL		<0.001
Suppressed (VL < 75 cells/mL) (n = 650)	72	
Unsuppressed (VL > 75 cells/mL) (n = 672)	59	
CD4 count		<0.001
High (CD4 > 400 cells/mm ³) (n = 596)	69	
Low (CD4 < 400 cells/mm ³) (n = 734)	62	
My HIV provider really knows me as a person		<0.001
Highest rating (n = 956)	65	
Less than highest rating (n = 407)	55	
Always treated with a great deal of respect and dignity		0.015
Highest rating (n = 1060)	64	
Less than highest rating (n = 323)	56	
Involved in decisions about your care as much as you wanted		0.289
Highest rating (n = 1038)	64	
Less than highest rating (n = 325)	61	
My HIV provider always explains things in a way I can understand		0.073
Highest rating (n = 1007)	64	
Less than highest rating (n = 356)	59	
My HIV provider always listens carefully to me		0.008
Highest rating (n = 1004)	64	
Less than highest rating (n = 359)	57	

*Calculated using *t* tests.
VL, viral load.

Higher Quality Communication and Relationships Are Associated With Improved Patient Engagement in HIV Care

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TABLE 2. Higher Proportion of Appointments Kept for Patients Giving Highest Ratings of Provider Communication and Relationship Factors

Provider Factors	Giving Highest Rating (%)	Association of Highest Rating of Provider Factor With Percentage of Appointments Kept (β , 95% Confidence Interval)		
		Unadjusted*	Adjusted 1†	Adjusted 2‡
My HIV provider really knows me as a person	84.5	0.09 (0.05 to 0.13)	0.06 (0.03 to 0.10)	0.04 (0.003 to 0.08)
Always treated with a great deal of respect and dignity	93.6	0.08 (0.02 to 0.14)	0.07 (0.01 to 0.13)	0.03 (−0.04 to 0.10)
Involved in decisions about your care as much as you wanted	91.8	0.03 (−0.03 to 0.09)	0.04 (−0.01 to 0.09)	−0.01 (−0.07 to 0.05)
My HIV provider always explains things in a way I can understand	89.0	0.04 (−0.00 to 0.09)	0.07 (0.02 to 0.11)	0.04 (−0.01 to 0.10)
My HIV provider always listens carefully to me	88.8	0.07 (0.02 to 0.11)	0.06 (0.01 to 0.11)	0.02 (−0.04 to 0.07)

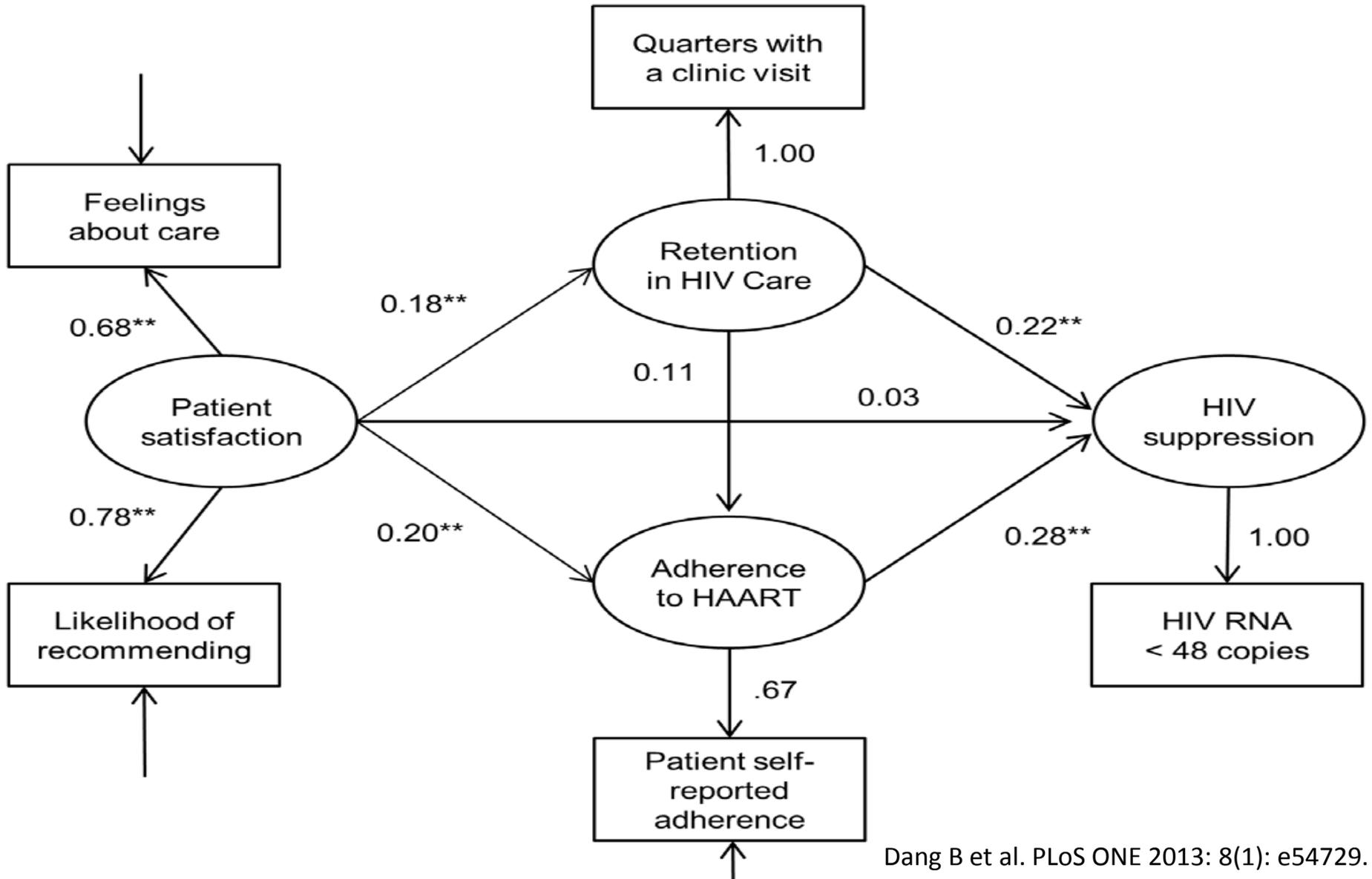
Bold values in Table 2 are statistically significant ($p < 0.05$).

*Simple linear regression.

†Multiple linear regression, performed separately for each communication/relationship variable; adjusted for age, sex, race, intravenous (IV) drug use, alcohol use in the past 6 months, and drug use in the past 6 months.

‡Multiple linear regression with single model, including all communication/relationship variables; adjusted for age, sex, race, IV drug use, alcohol use in the past 6 months, and drug use in the past 6 months.

Patient Satisfaction



Domestic Intervention RCTs Underway

- CDC/HRSA RIC study final results
- Cunningham R01 (peer intervention in jail releasees)
- El Sadr R01 (navigator x contingency mgmt [CM] in substance using MSM)
- Giordano R01 (peer mentoring in hospitalized out-of-care)
- HPTN 065 Study (CM for linkage in newly dx)
- Metsch and Del Rio “Hope” (CM in hospitalized substance users)
- Metsch R01 (substance use tx and navigation in crack users)
- Mugavero R01 (combination CDC and PACT in newly dx)

Improving adherence: Practical strategies

- Track no-show and out-of-care
- Get as much contact information as possible
- Collaboratively problem solve and reduce barriers
- Reduce out-of-pocket costs
- Reduce unmet needs (transportation, housing, food)
- Treat substance use and depression, mental health problems
- Increase patient-provider relationship, trust, cultural competence
- Decrease stigma, increase motivation (peers)
- Increase social support (partner, family member, peer)
- Reminders, calendars, flexible appointment scheduling
- Customer service and patient satisfaction; streamline clinical operation
- Outreach and in-reach
- Collaboration and warm hand-offs
- Pill boxes
- Mail-out refills

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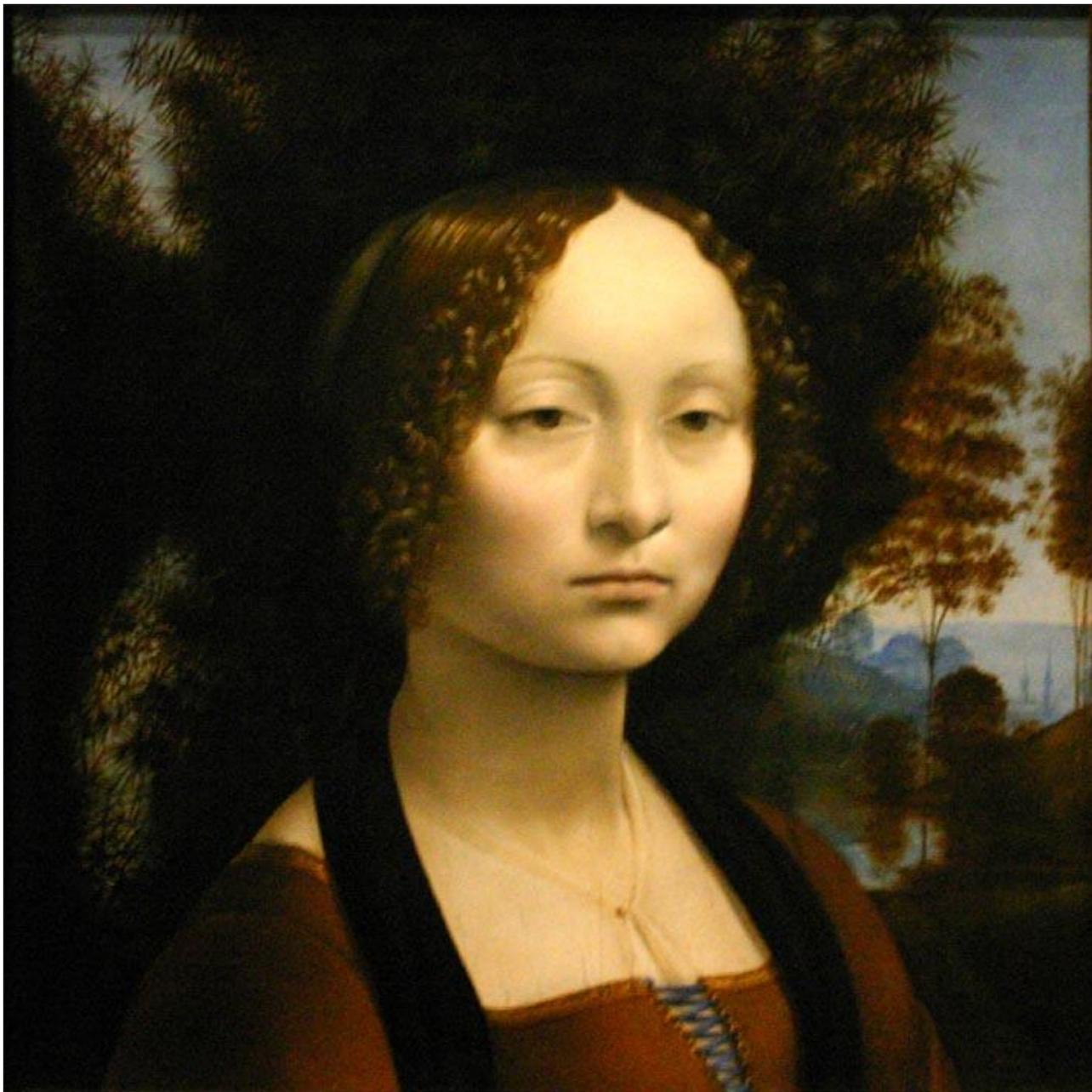
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Measure	Need missed visit data?	Ease of calculating	Follow-up time needed	Potential for misinterpretation*	Proximity to “retention in care”
Missed visit	Yes	Easy	>6 m	High: if no scheduled visits, will be falsely low; if automatic rescheduling, will be falsely high	Patient: moderate; Clinic: distant
Appointment adherence	Yes	Moderate	Pt: >1 yr Clinic: 1 d	High: if no scheduled visits, will be falsely high; if automatic rescheduling, will be falsely low	Patient: moderate; Clinic: distant
No-show rate	Yes	Moderate	Pt: >1 yr Clinic: 1 d	High: if no scheduled visits, will be falsely high; if automatic rescheduling, will be falsely low	Patient: moderate; Clinic: distant
Persistence: 3, 4 m intervals	No	Moderate	>6 m	Mod: will underestimate RIC for patients not needing frequent visits	Close
Persistence: 6 m intervals	No	Moderate	>1 yr	Moderate: will overestimate RIC for patients needing frequent visits	Moderate
Persistence: HRSA/HAB	No	Moderate-to-difficult	>1 yr	Moderate: will overestimate RIC for patients needing frequent visits	Moderate
Gaps	No	Pt: Easy Clinic: Diff.	>1 yr	Low	Close

*All can be misinterpreted if patients unknowingly transferred care elsewhere, were incarcerated, or died.