

Cigarette Smoking and HIV Infection: Opportunities for Patient Care



Jonathan Shuter, MD & Stephanie Marhefka, PhD

June 19, 2019

Southeast AIDS Education & Training Center Webcast

Cigarette Smoking and Health (esp. Infections): Our Cultural Legacy

“Mr. Quilp deemed it prudent, as a precaution against infection from fever, and a means of wholesome fumigation, not only to smoke, himself, without cessation...”

Charles Dickens: *The Old Curiosity Shop* (1841).

“This is the way to keep off fever,” said Quilp, “this is the way to keep off every calamity of life! We'll never leave off, all the time we stop here--smoke away, you dog, or you shall swallow the pipe!”

Charles Dickens: *The Old Curiosity Shop* (1841).

“Tobacco taken in moderation by a healthy person does not produce any symptoms or any changes of importance.”

~*Hygeia*, 1928;6(1)46. A Journal of Individual and Community Health published by the American Medical Association



20,679* Physicians

say "LUCKIES are
less irritating"

"It's toasted"

Your Throat Protection
against irritation against cough

The figures quoted have been checked and certified to by EVELAND, ROSS, BROWN AND MONTGOMERY, Accountants

“I never take the flu shot. I don’t
need it because there’s
something in my cigar smoke that
prevents the flu.”

~Rush Limbaugh. Broadcast Jan. 12, 2005

HIV and Smoking: The early years

“I love to smoke. I keep hoping someone will discover it's a healthy habit because the smoke kills all the germs in your system.”
(Rock Hudson, undated)



Rock Hudson, 1925--1985

- The first high-profile, celebrity AIDS patient.
- Diagnosed in June 1984.
- HIV diagnosis made public in July 1985.
- Died October 2, 1985.
- Rock Hudson was not a healthy man prior to his HIV diagnosis. He was a heavy smoker, suffered a myocardial infarction in 1981 and required quadruple bypass surgery at the time.

HIV and Smoking: First mentions in the medical literature (1985)

The Vancouver Lymphadenopathy - AIDS Study: 4. Effects of exposure factors, cofactors and HTLV-III seropositivity on number of helper T cells

Martin T. Schechter,* MD, MSc, PhD
William J. Boyko,* MD, FRCPC
Eric Jeffries,* MB, MPH, FRCPC
Brian Willoughby,* MD, CCFP
Rod Nitz,* MD
Peter Constance,* MB, BS
Michael Weaver,* PhD
Barry Wiggs,* MSc
Michael O'Shaughnessy,† PhD

Can Med Assoc J 1985;133(4):286-92

- “We were surprised...to find a significant effect of cigarette smoking: Higher mean numbers of helper T-cells were found...in the seropositive men who smoked (p=0.001).”

Risk Factor Analysis among Men Referred for Possible Acquired Immune Deficiency Syndrome¹

GUY R. NEWELL, M.D.,*² PETER W. A. MANSELL, M.D.,*[†]
MICHAEL B. WILSON, M.ED.,* H. KEITH LYNCH, M.S.,*
MARGARET R. SPITZ, M.D.,* AND EVAN M. HERSH, M.D.†

Prev Med 1985;14(1):81-91

- “Unlike the two earlier studies, we found cigarette consumption to be a significant risk factor for KS/OI [Kaposi's sarcoma/opportunistic infection]. Cigarette inhalation products are known to contain *N*-nitroso products and may act synergistically with other chemical carcinogens.”

“The resulting overall effect [of smoking] on the progression of HIV-1 infection could be positive, negative, or indeterminate.” Burns DN et al. JAIDS 1991;4(1):76-83.

NOT EXACTLY A RINGING ENDORSEMENT OF AGGRESSIVE TOBACCO CONTROL IN PLWH

“If I live long enough to get cancer,
that’s great!”

~Reynolds NC. JANAC 2004;15:37-47.

“In the past, some clinicians treating HIV-seropositive patients did not emphasize the importance of smoking cessation because it was assumed that the long-term health consequences of smoking were unimportant in patients whose longevity would be seriously compromised by AIDS.”

Chaisson RE. Smoking cessation in patients with HIV. JAMA 1994;272:564.

The MACS Cohort (1997)

“These data indicate that cigarette smoking does not have a major effect on the progression of HIV-1 infection to AIDS or death but may affect the incidence of oral thrush.”

Galai N, Park LP, Wesch J, et al. Effect of smoking on the clinical progression of HIV-1 infection. JAIDS 1997;14:451-8.

The New York Times: Dec. 31, 2012

GLOBAL UPDATE

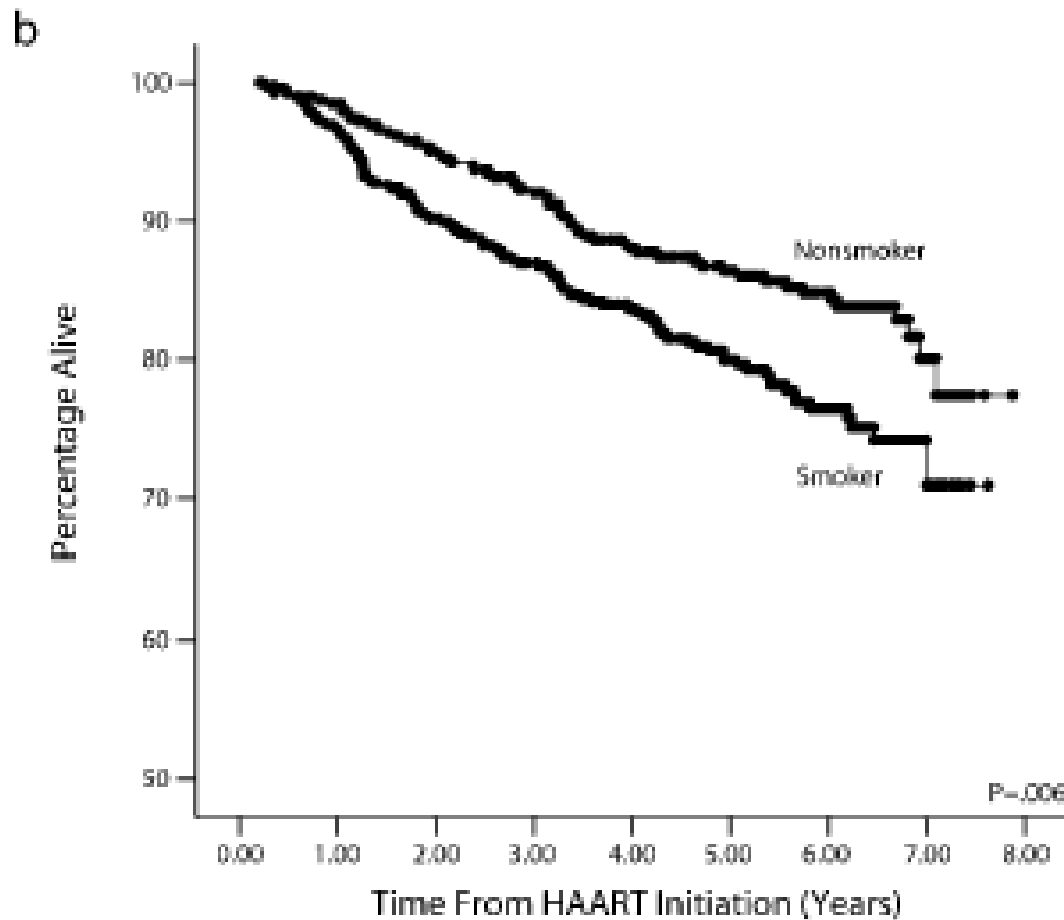
Mortality: H.I.V.-Positive Smokers Lose More Years to Tobacco Than to the Virus, a Study Says



Lisa Marie Williams/Getty Images

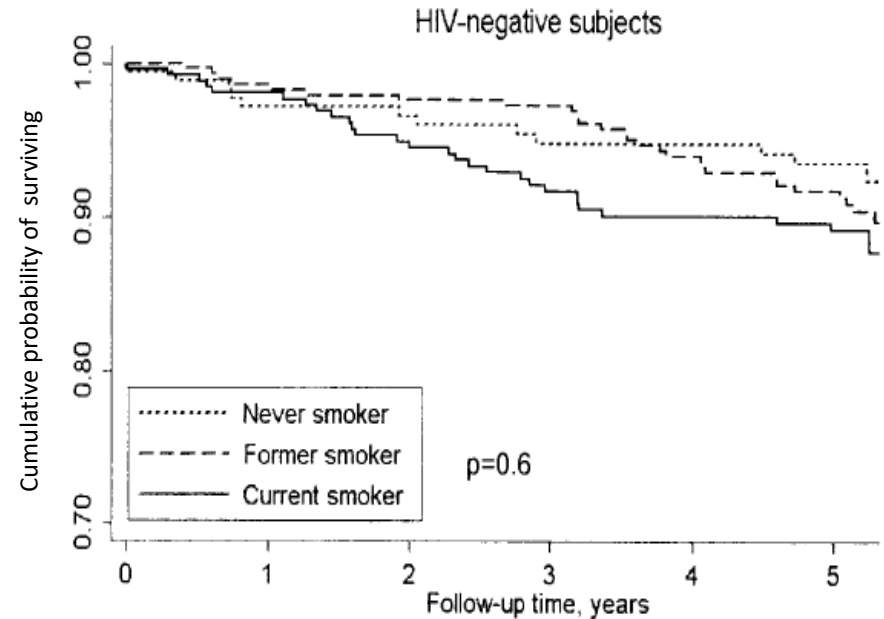
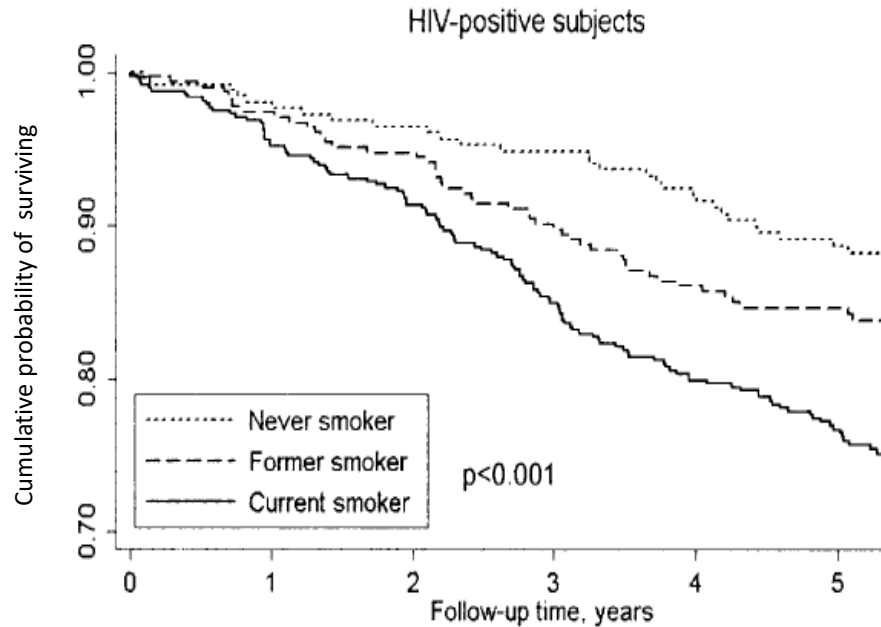
By DONALD G. McNEIL Jr.
Published: December 31, 2012

WIHS Cohort



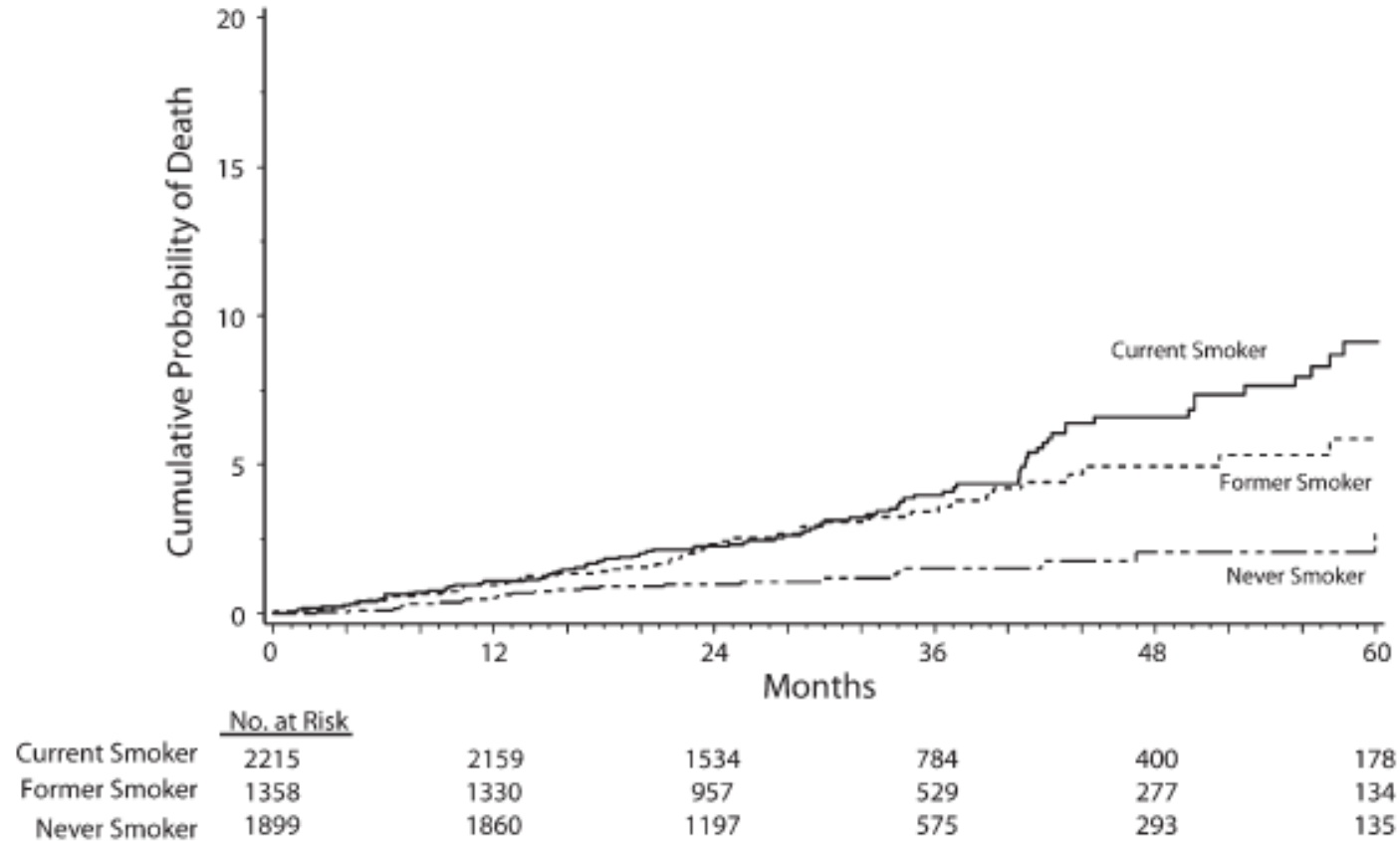
Feldman. Am J Publ Health 2006;96:1060-5.

Veterans Aging Cohort

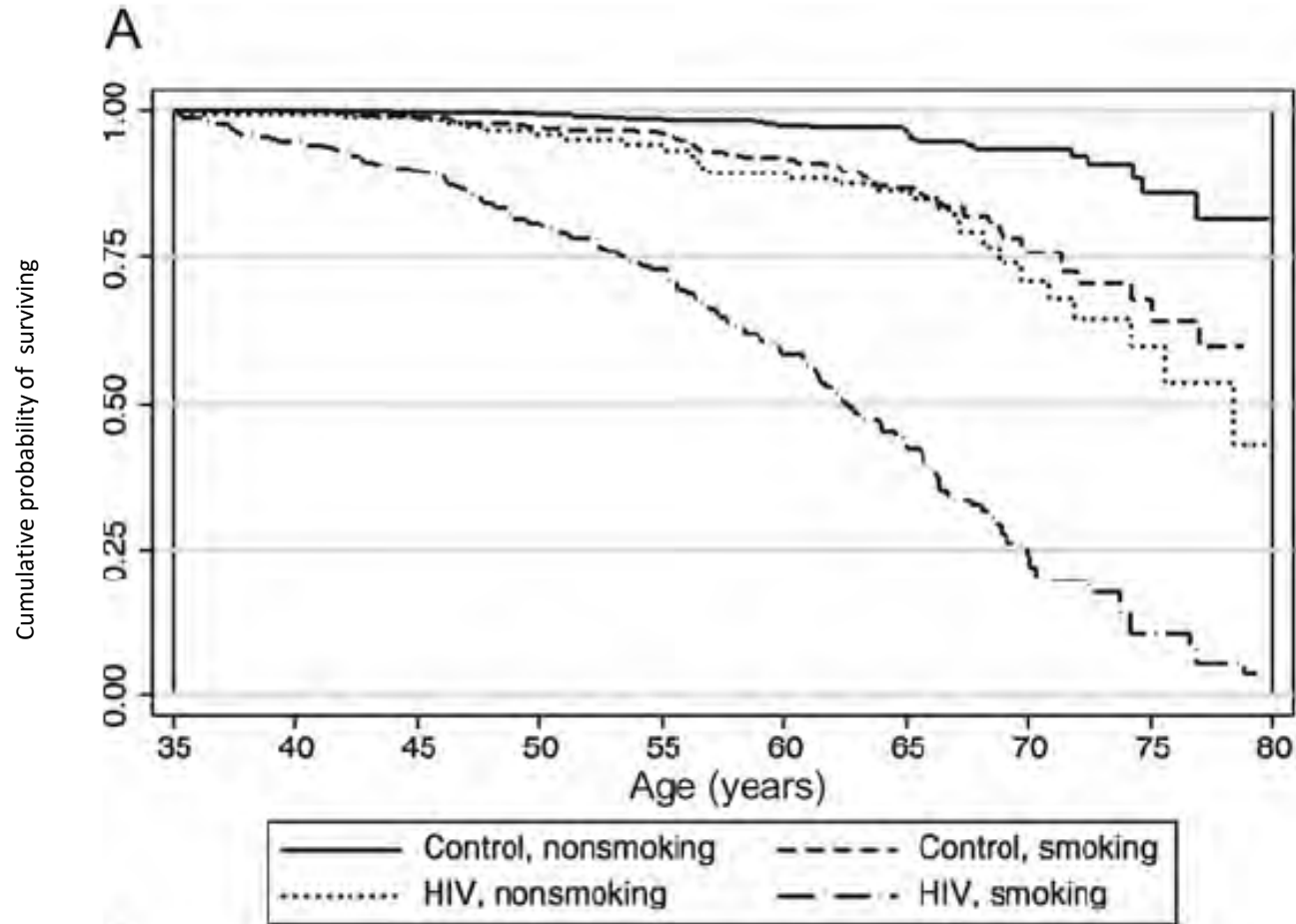


Crothers K. AIDS Educ Prev 2009;23 Supp:40-53

SMART Study Cohort



Danish HIV Cohort Study



Helleberg M. CID 2013;727-34

Impact of Cigarette Smoking and Smoking Cessation on Life Expectancy Among People With HIV: A US-Based Modeling Study

Krishna P. Reddy,^{1,2,8} Robert A. Parker,^{1,3,4,8} Elena Losina,^{1,8,9,11} Travis P. Baggett,^{3,8,13} A. David Paltiel,¹⁵ Nancy A. Rigotti,^{3,5,6,8} Milton C. Weinstein,¹⁴ Kenneth A. Freedberg,^{1,3,7,8,12,14} and Rochelle P. Walensky^{1,3,7,8,10}

¹Medical Practice Evaluation Center, ²Division of Pulmonary and Critical Care Medicine, ³Division of General Internal Medicine, ⁴Biostatistics Center, ⁵Tobacco Research and Treatment Center, ⁶Mongan Institute for Health Policy, ⁷Division of Infectious Diseases, Massachusetts General Hospital, ⁸Harvard Medical School, ⁹Department of Orthopedic Surgery, ¹⁰Division of Infectious Diseases, Brigham and Women's Hospital, ¹¹Department of Biostatistics, ¹²Department of Epidemiology, Boston University School of Public Health, ¹³Boston Health Care for the Homeless Program, and ¹⁴Department of Health Policy and Management, Harvard T. H. Chan School of Public Health, Boston, Massachusetts; and ¹⁵Yale School of Public Health, New Haven, Connecticut

(See the editorial commentary by Althoff on pages 1618–20.)

Background. In the United States, >40% of people infected with human immunodeficiency virus (HIV) smoke cigarettes.

Methods. We used a computer simulation of HIV disease and treatment to project the life expectancy of HIV-infected persons, based on smoking status. We used age- and sex-specific data on mortality, stratified by smoking status. The ratio of the non-AIDS-related mortality risk for current smokers versus that for never smokers was 2.8, and the ratio for former smokers versus never smokers was 1.0–1.8, depending on cessation age. Projected survival was based on smoking status, sex, and initial age. We also estimated the total potential life-years gained if a proportion of the approximately 248 000 HIV-infected US smokers quit smoking.

Results. Men and women entering HIV care at age 40 years (mean CD4⁺ T-cell count, 360 cells/μL) who continued to smoke lost 6.7 years and 6.3 years of life expectancy, respectively, compared with never smokers; those who quit smoking upon entering care regained 5.7 years and 4.6 years, respectively. Factors associated with greater benefits from smoking cessation included younger age, higher initial CD4⁺ T-cell count, and complete adherence to antiretroviral therapy. Smoking cessation by 10%–25% of HIV-infected smokers could save approximately 106 000–265 000 years of life.

Conclusions. HIV-infected US smokers aged 40 years lose >6 years of life expectancy from smoking, possibly outweighing the loss from HIV infection itself. Smoking cessation should become a priority in HIV treatment programs.

Keywords. smoking; tobacco; smoking cessation; life expectancy; HIV; United States; mathematical model.

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Smoking is the #1 killer of PLWH today

MAJOR ARTICLE HIV/AIDS

The Journal of Infectious Diseases

MAJOR ARTICLE



Mortality Attributable to Smoking Among HIV-1-Infected Individuals: A Nationwide, Population-Based Cohort Study

Marie Helleberg,^{1,7} Shoaib Atzal,² Gitte Kronborg,³ Carsten S. Larsen,⁴ Gitte Pedersen,⁵ Court Pedersen,⁶ Jan Gerstoft,¹ Borge G. Nordestgaard,^{2,7} and Niels Obel¹

¹Department of Infectious Diseases, Copenhagen University Hospital, Rigshospitalet, Copenhagen; ²The Copenhagen General Population Study, Copenhagen University Hospital, Herlev; ³Department of Infectious Diseases, Copenhagen University Hospital, Hvidovre; ⁴Department of Infectious Diseases, Aarhus University Hospital, Skejby; ⁵Department of Infectious Diseases, Aalborg University Hospital, Aalborg; ⁶Department of Infectious Diseases, Odense University Hospital, Odense; and ⁷Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

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CLINICAL SCIENCE

Narrowing the Gap in Life Expectancy Between HIV-Infected and HIV-Uninfected Individuals With Access to Care

Julia L. Marcus, PhD, MPH,* Chun R. Chao, PhD,† Wendy A. Leyden, MPH,* Lanfang Xu, MS,‡
Charles P. Quesenberry, Jr, PhD,* Daniel B. Klein, MD,‡ William J. Towner, MD,§
Michael A. Horberg, MD, MAS,|| and Michael J. Silverberg, PhD, MPH*

Helleberg M, et al. Clin Inf Dis 2013;56:727-34

Reddy KP, et al. J Inf Dis 2016;214:1672-81

Marcus JL, et al. JAIDS 2016;73:39-46

Scope of the problem

- Smoking prevalence in national samples of PLWH range from 42—70%
- General adult population smoking prevalence~15%

Annals of Internal Medicine

ORIGINAL RESEARCH

Cigarette Smoking Prevalence Among Adults With HIV Compared With the General Adult Population in the United States

Cross-sectional Surveys

Rennatus Mdodo, DrPH, MS; Emma L. Frazier, PhD, MS; Shanta R. Dube, PhD, MPH; Christine L. Mattson, PhD; Madeline Y. Sutton, MD, MPH; John T. Brooks, MD; and Jacek Skarbinski, MD

AIDS Education and Prevention, 21, Supplement A, 14–27, 2009
© 2009 The Guilford Press

AIDS Behav (2010) 14:824–835
DOI 10.1007/s10461-008-9449-2

ORIGINAL PAPER

REVIEW: THE NEED FOR SMOKING CESSATION AMONG HIV-POSITIVE SMOKERS

Shadi Nahvi and Nina A. Cooperman

Smoking Among HIV Positive New Yorkers: Prevalence, Frequency, and Opportunities for Cessation

James M. Tesoriero · Susan M. Gieryc ·
Alvaro Carrascal · Howard E. Lavigne

Tesoriero JM. AIDS Behav 2010;14:824-35.
Mdodo R. Ann Int Med 2015;162:335-44.
Nahvi S. AIDS Educ Prev 2009;21 Supp A:14-27

Stress and PLWH Smokers

“I think stress is a tremendous enemy of the body...Cigarettes work as a way of handling stress.”

“For some [HIV-positive] people, I think it would be super stressful for them to quit smoking. I would think that’s more negative.”

Reynolds NC. JANAC 2004;15:37-47.

Quitting was rated
8.6
on a Lickert scale of
importance (from 1-10)

Shuter. Am J Health Behav 2012; 36:75-85

Characteristics of HIV-infected Smokers

100%
used cigarettes

15%
used cigars

7%
used a pipe

3%
used chewing tobacco

30%
live with another smoker

Shuter. Am J Health Behav 2012;
36:75-85

Characteristics of HIV-infected Smokers

14

mean number of
cigarettes
smoked per day

29

mean number of
cumulative years
smoking

67%
contemplated
quitting

4.5

Fagerstrom
mean score of
highly-addicted
smokers

82%

had at least
one prior
attempt at
quitting

28%

Had more than
5 prior quit
attempts

Shuter. Am J Health Behav 2012; 36:75-85

Characteristics
Of
HIV-infected
smokers

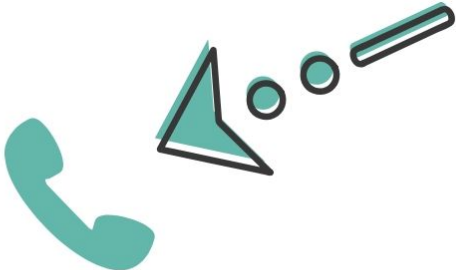
78% worried about the health effects of smoking



76% worried about the financial costs



32% had ever been referred
to a quitline



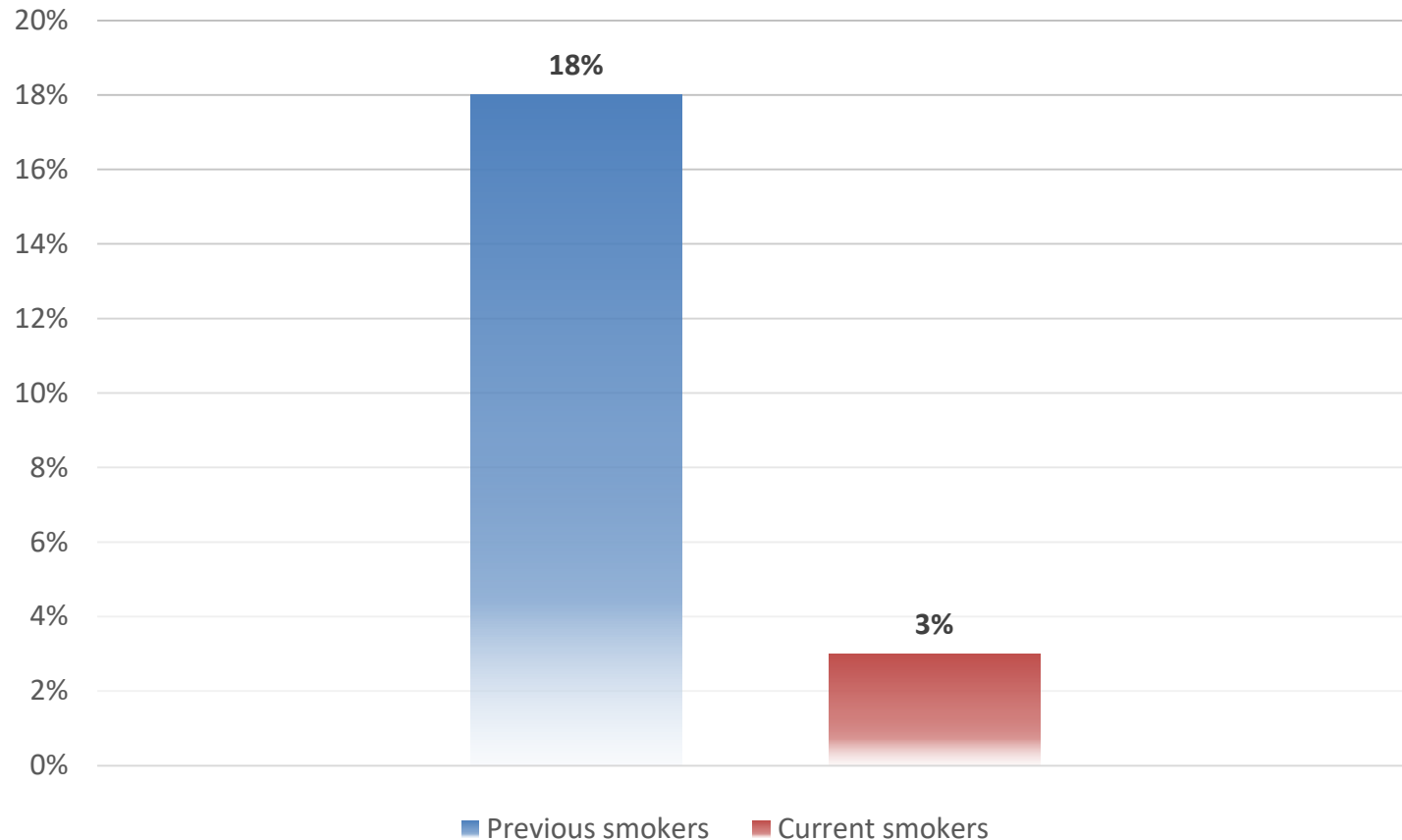
Only one patient had ever
taken bupropion or attended
any formal cessation
counseling



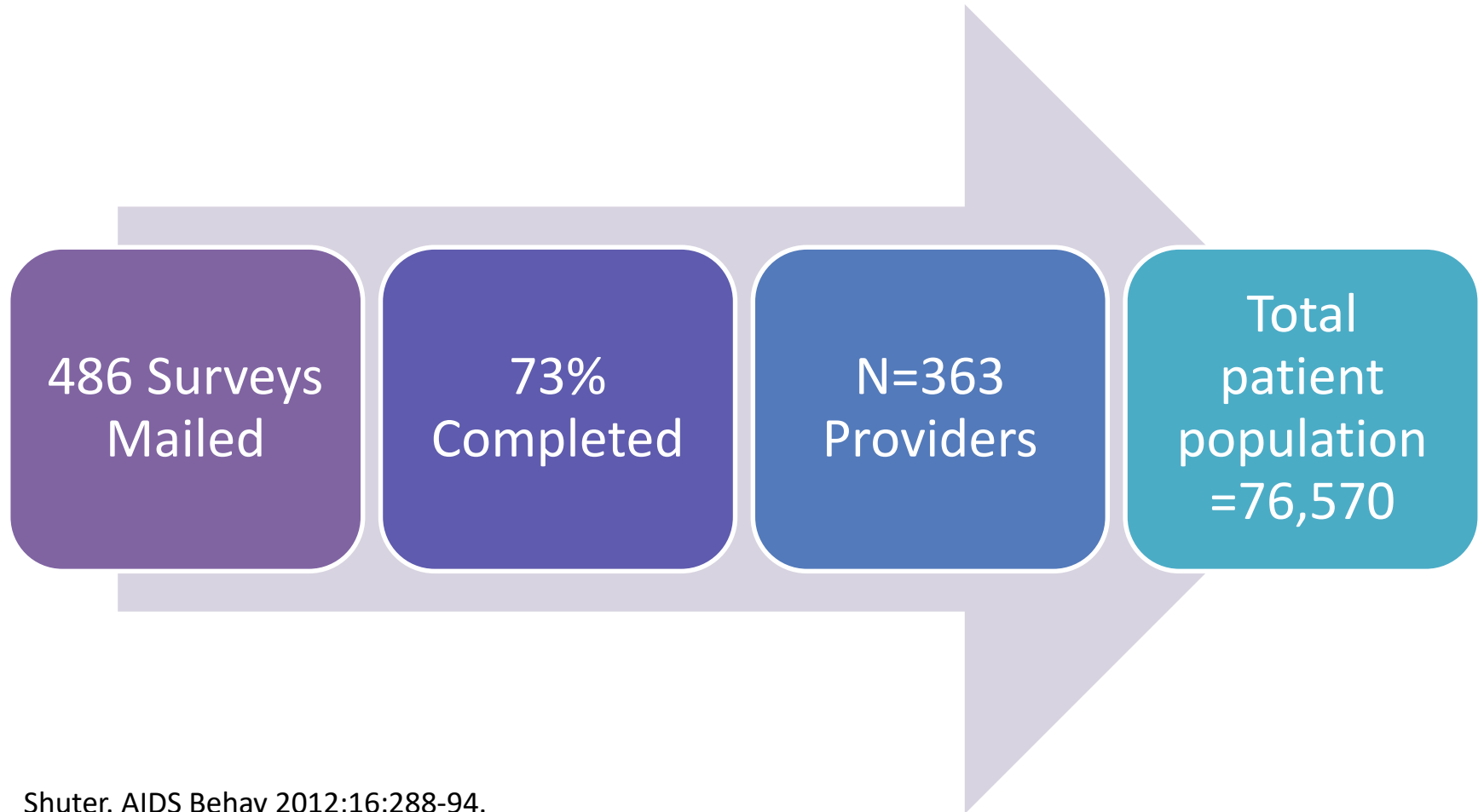
5% had been referred to a quit program

Shuter. Am J Health Behav 2012;36:75-85.

A National Survey of HIV Care Providers

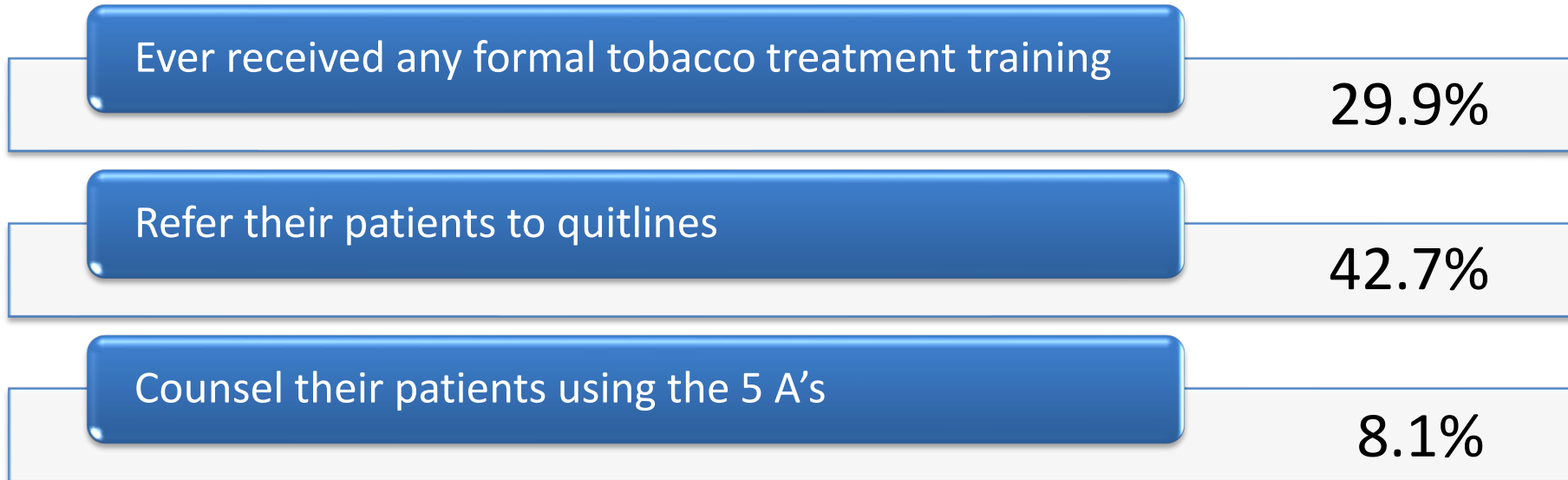


A National Survey of HIV Care Providers



Shuter. AIDS Behav 2012;16:288-94.

A National Survey of HIV Care Providers



Shuter. AIDS Behav 2012;16:288-94.

Five A's of Smoking Cessation

ASK

Identify and document tobacco use status for every patient at every visit. (You may wish to develop your own vital signs sticker, based on the sample below).

ADVISE

In a clear, strong, and personalized manner, urge every tobacco user to quit.

ASSESS

Is the tobacco user willing to make a quit attempt at this time?

ASSIST

For the patient willing to make a quit attempt, use counseling and pharmacotherapy to help him or her quit. (See *Counseling Patients To Quit* and pharmacotherapy information in this packet).

ARRANGE

Schedule followup contact, in person or by telephone, preferably within the first week after the quit date.

Tobacco Treatment for PLWH-2016



**Cochrane
Library**

Cochrane Database of Systematic Reviews

Interventions for tobacco use cessation in people living with HIV and AIDS (Review)

Pool ERM, Dogar O, Lindsay RP, Weatherburn P, Siddiqi K

Pool ERM. Cochrane Database Syst Rev 2016 June 13;(6):CD011120.

Tobacco Treatment for PLWH-2016

“There is very low quality evidence that combined tobacco cessation interventions were effective in helping people living with HIV achieve short-term abstinence.”

Interventions for tobacco use cessation in people living with HIV and AIDS (Review)

Pool ERM, Dogar O, Lindsay RP, Weatherburn P, Siddiqi K

Pool ERM. Cochrane Database Syst Rev 2016 June 13;(6):CD011120.

Clinical Pearls: Addressing HIV and Smoking



Remember: No Amount of Smoking is Safe

- Smoking even a few cigarettes a week is harmful

Address at Every Office Visit

- Consider one visit just to focus on smoking

Assess Motivation to Quit

- On a scale of 1 to 10 (with ten as the highest), how motivated are you to quit smoking?

If low, work to increase

If high, help with resources

Use Data for Persuasion

“Do you know smoking kills more people living with HIV each day than the virus?”

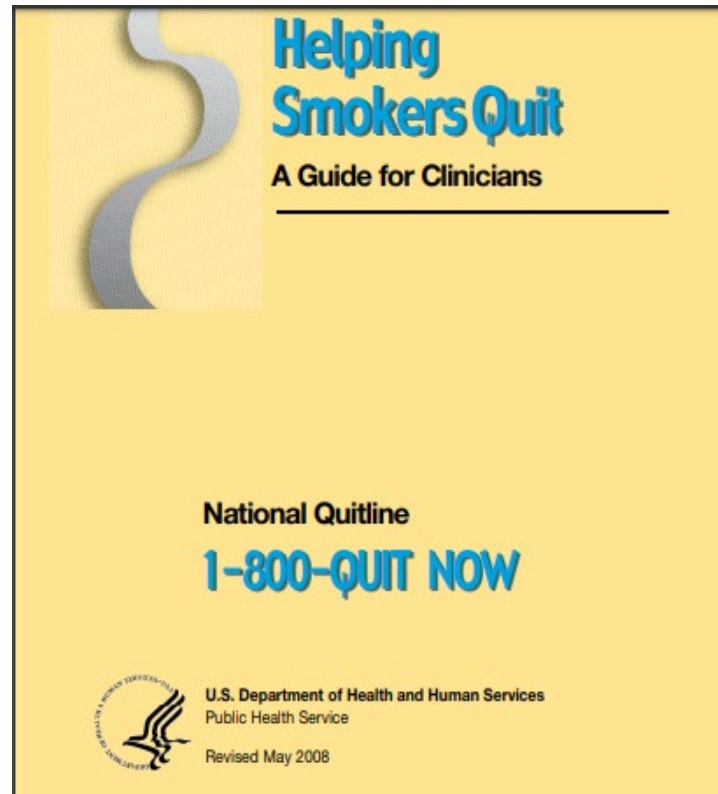
You work so hard to control your HIV. It doesn't make sense to work so hard on that and then die of a heart attack because of smoking.”

Appeal to the Value of Important Persons in Their Lives

“Children, grandchildren, significant others, and pets are hurt by your smoking. Quitting smoking will help their health and also ensure that you are able to be with them for years to come.”

Seek Additional Training/Information

- Take a seminar
- Read:



Use Free Resources



VIDEOS



NO JUDGMENTS - WENDALL

Visit tobaccofreeflorida.com/quityourway, where you'll find no judgment, just help.



Help Others Quit / For Health Professionals / Resources for Health Professionals

Resources for Health Professionals

Smokefree.gov is a trusted source for evidence-based smoking cessation tools and content. The tools below can be useful for both researchers and health care providers.



Use Free Resources: State Quit Lines (1-800-QUIT-NOW) & Websites

- <http://quitnowalabama.com/>
- <https://www.healthy.arkansas.gov/programs-services/topics/quit-tobacco>
- <http://tobaccofreeflorida.com/>
- <https://dph.georgia.gov/ready-quit>
- <http://www.quitwithusla.org/>
- <https://www.quitlinenc.com/>
- <https://www.scdhec.gov/health/tobacco-cessation/tobacco-quitline>
- <http://www.vdh.virginia.gov/tobacco-free-living/quit-now-virginia/>

Use Free Resources

- Smokefree.gov
- BecomeAnEx.org
- PositivelySmokeFree.org

Encourage use of Pharmacotherapy

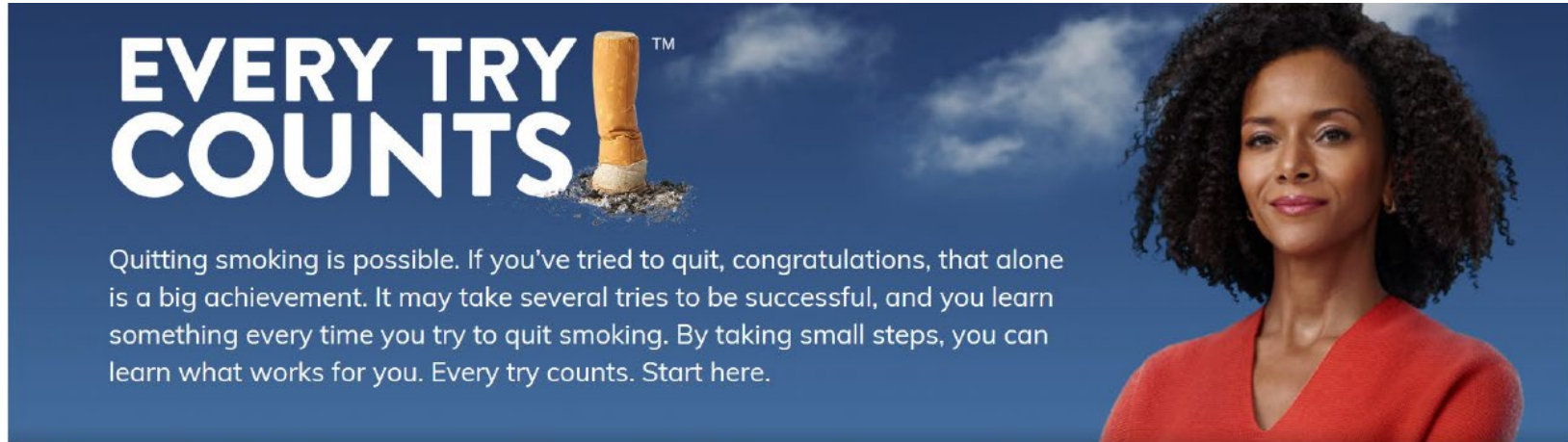
- All 3 Types of cessation aids have been used in people living with HIV
 - Nicotine replacement therapy (NRT) } Start on Quit Day
 - Patch is most effective
 - Bupropion } Start 7 Days Before Quit Day
 - Varenicline }
 - Best single agent
- Combination therapy shown to be more effective*
- Recommendations based on general population
- Interactions with ART are limited

*May not yet be FDA approved

Acknowledge the Difficulty of Quitting

- Heavily practiced behavior
 - Tied to behaviors, relationships, and management of pain, stress, boredom, and loneliness
- Quitters need new strategies to be successful

Celebrate the Small Victories

A promotional graphic for the 'Every Try Counts' campaign. It features a woman with curly hair in a red top on the right. On the left, the text 'EVERY TRY COUNTS' is written in large white letters, with a lit cigarette standing upright on a small patch of ground next to it. Below the text is a paragraph of motivational text.

EVERY TRY COUNTS™

Quitting smoking is possible. If you've tried to quit, congratulations, that alone is a big achievement. It may take several tries to be successful, and you learn something every time you try to quit smoking. By taking small steps, you can learn what works for you. Every try counts. Start here.

- Multiple attempts are typically needed
- Celebrate the successes
 - Cutting down is great progress!
- Don't quit on your patients
 - Be their cheerleader

Positively Smoke Free

An evidence-based website for smoking cessation among people living with HIV, and other potential options under study



Our Practice Is Our Passion

You CAN Quit!

You don't have to do it on your own. Ask your provider about quitlines, quit smoking programs, and medicines that help.

If you smoke to cope with anxiety, depression, or other addictions, read this:

- ◆ In a survey of ex-smokers with HIV, half said that they did NOT experience any increase in anxiety or depression after they quit and, in fact, many (30%) reported improvement in their mood after quitting.
- ◆ Almost all (93%) of these ex-smokers stated that their use of other drugs and alcohol did not increase after quitting smoking. In fact, a large number (23%) cut down on other addictive substances.

If you could use a little more spending money, read this:

- ◆ One pack-a-day smokers save about **\$2,500 a year** (over \$200 a month) when they quit.
- ◆ Half a pack-a-day smokers save about **\$1,250 a year** (over \$100 a month) when they quit.

POSITIVELY SMOKE FREE

Free help is just a phone call away:

National toll-free quitline number
1-800-QUITNOW (1-800-784-8669)

New York State quitline number
1-866-NYQUITS (1-866-697-8487)

There are also helpful sites on the internet:

www.smokefree.gov

www.quitnet.com

www.positivelysmokefree.com

POSITIVELY SMOKE FREE

Funded by Montefiore Medical Center and the American Legacy Foundation, a national public health foundation devoted to tobacco use prevention and cessation.

www.americanlegacy.org

The material in this brochure does not necessarily reflect the views of the American Legacy Foundation, its staff, or its Board of Directors.

HIV, Smoking, & You

Live
POSITIVELY SMOKE FREE
with HIV

*"You work hard to build up
your health . . .*



*. . . Don't let it go up
in smoke"*

People living with HIV live with stress. Stress from having an illness and taking medications, stress from money problems, stress from depression and anxiety, stress from living with addiction, stress from relationships, stress from loneliness...

SMOKING IS AN UNHEALTHY WAY TO DEAL WITH STRESS

Did you know that when you smoke...?

- ◆ You **increase** the amount of HIV in your blood (your viral load)
- ◆ You are **more** likely to get **pneumonia** and **thrush**
- ◆ You are **more** likely to have a **heart attack** or **stroke**
- ◆ You are **more** likely to get **emphysema** or **cancer**
- ◆ You are **more** likely to suffer from **asthma** attacks
- ◆ You **spend** money that you could use for other things
- ◆ You **harm** the health of your children and others around you

The Good News is that when you quit...

- ◆ You can **decrease** the amount of HIV in your blood (your viral load)
- ◆ You will be **less** likely to get **pneumonia, thrush, emphysema** and **cancer**
- ◆ Your heart will be **healthier** within a few minutes
- ◆ Your lungs will be **healthier** within a few days
- ◆ You will be **less** likely to suffer from **asthma** attacks
- ◆ You will **save** a lot of money
- ◆ You will **protect** the health of your children and others around you
- ◆ You will **feel, look, and smell** better



"One of the most important things you can do if you have HIV and smoke is to quit smoking. You'll feel better and live longer."

– C. Everett Koop, MD, ScD
U.S. Surgeon General
1981-1989



"I smoked for over 40 years. I stopped when I found out I had a heart attack. My breathing is better now. I feel healthier than I have in a long time. I think that if you can overcome smoking, you can overcome anything."

– D.S., 56 year old man living with HIV

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¡Tú puedes dejarlo!

No estás solo. Consulta con tu proveedor para informarte sobre líneas telefónicas de ayuda para dejar de fumar, programas para dejar de fumar y medicamentos de que te ayuden a dejar de fumar.

Si fumas para aliviar tu ansiedad, depresión u otras adicciones, lee esto:

- ◆ En una encuesta de ex-fumadores con VIH, la mitad de ellos ha afirmado que NO han experimentado mayor ansiedad ni depresión después de dejar de fumar y el 30% declaró haber notado una mejoría en su humor.
- ◆ Casi todos (93%) de estos ex-fumadores expresaron que después de dejar de fumar no aumentó el consumo de otras drogas ni de alcohol. A decir verdad, un 23% de ellos redujo el consumo de otras sustancias adictivas.

Si te gustaría tener más dinero para gastar en otras cosas, lee esto:

- ◆ Las personas que fuman un paquete diario ahorran **\$2500 por año** (cerca de \$200 por mes) cuando dejan de fumar.
- ◆ Las personas que fuman medio paquete diario ahorran **\$1250 por año** (cerca de \$100 por mes) cuando dejan de fumar.

POSITIVAMENTE SIN FUMAR

Si necesitas ayuda, sólo tienes que hacer una llamada gratis:

Número nacional gratuito de ayuda para dejar de fumar
1-800-QUITNOW (1-800-784-8669)

Número de ayuda para dejar de fumar del Estado de Nueva York
1-866-NYQUITS (1-866-697-8487)

Si lo deseas, puedes consultar otros sitios útiles en la internet:

www.smokefree.gov
www.quitnet.com
www.positivelysmokefree.com

POSITIVAMENTE SIN FUMAR

Fundado por Montefiore Medical Center y la American Legacy Foundation, una fundación nacional de salud pública dedicada a la prevención y cese del consumo de tabaco.

www.americanlegacy.org

El material incluido en este folleto no refleja necesariamente la opinión de la American Legacy Foundation, sus empleados ni su directiva.

El VIH, el tabaco y tú

Vive
Positivamente Sin Fumar
con VIH

“Trabaja con empeño para construir tu salud . . .



. . . No permitas que se haga humo”

Positively Smoke Free Website

POSITIVELY SMOKE FREE
You work hard to build up your health... don't let it go up in smoke!

Page 1 of 6

Choose a Session

- 1 session
- 2 session
- 3 session
- 4 session
- 5 session
- 6 session
- 7 session
- 8 session

Welcome to Positively Smoke Free!

You have made a very big decision. You have decided to quit smoking. And we are here to help you prepare for your quit date in 4 weeks. As members of the Positively Smoke Free team, it is our pleasure to provide you with a program that is **specially designed for people living with HIV who smoke**. We know that there are many pressures out there and that quitting smoking won't be easy. We want to be here for you, and to help you succeed in getting cigarettes out of your life for good.

To help you succeed, **Positively Smoke Free** will focus on the specific issues you face as someone who is living with HIV. You will be provided with 8 sessions designed specially for you. **And, don't forget to read the right side of the page!** It includes quotes, facts, and lots of interesting information that will help you quit smoking.

Know Your Strengths

Your experience living with HIV has probably taught you some lessons that will help you through the quitting process:

- **People living with HIV are the champions of changing behavior** to protect their health and the health of their loved ones. Safer sex behaviors and using clean needles are two clear examples.
- Many people living with HIV/AIDS have learned to rely on their spiritual faith to get them through hard times. **Your faith during**

POSITIVITY!

The beginning is always today.
—Mary Wallstonecraft

The 3 Me's

Everyone has internal voices that help them make decisions. What are yours saying right now about joining this program?

Little Me. "This program is boring. Let's go do something fun instead."

Adult Me. "You're doing a great job taking care of your HIV. Your next biggest health problem is that you smoke. You're going to need a lot of help to quit, and this program looks like it's designed just for you. And, it's free!"

Critical Me. "There you go, trying to quit again. What a waste of time. You know you're going to fail, so why even try?"

PSF on the web – Promising Findings

Feasibility and Preliminary Efficacy of a Web-Based Smoking Cessation Intervention for HIV-Infected Smokers: A Randomized Controlled Trial

Jonathan Shuter, MD, Daniela A. Morales, MPH,* Shannon E. Considine-Dunn, MPH, MSW,† Lawrence C. An, MD,† and Cassandra A. Stanton, PhD‡*

Objective: To evaluate the feasibility and preliminary efficacy of a Web-based tobacco treatment for persons living with HIV (PLWH).

Design: Prospective, randomized controlled trial.

Setting: HIV-care center in the Bronx, New York.

Subjects: Eligibility criteria included HIV infection, current tobacco usage, interest in quitting, and access to a computer with internet. One hundred thirty-eight subjects enrolled, and 134 completed the study.

Intervention: Positively Smoke Free on the Web (PSFW), an 8-session, 7-week targeted tobacco treatment program for PLWH, was compared with standard care (brief advice to quit and self-help brochure). All subjects were offered nicotine patches.

Main Outcome Measures: The main feasibility outcomes were number of sessions logged into, number of Web pages visited, number of interactive clicks, and total time logged in. The main efficacy outcome was biochemically verified, 7-day point prevalence abstinence 3 months after intervention.

Results: PSFW subjects logged into a mean of 5.5 of 8 sessions and 26.2 of 41 pages. They executed a mean of 10 interactive clicks during a mean total of 59.8 minutes logged in. Most required reminder phone calls to complete the sessions. Educational level, anxiety score, and

home access of the Web site were associated with Web site usage. Ten percent of the PSFW group vs. 4.3% of controls achieved the abstinence end point. Among those who completed all 8 sessions, 17.9% were abstinent, and among women completers, 30.8% were abstinent.

Conclusions: Web-based treatment is a feasible strategy for PLWH smokers, and preliminary findings suggest therapeutic efficacy.

Key Words: HIV, smoking, cigarette, tobacco, treatment, internet

(J Acquir Immune Defic Syndr 2014;67:59–66)

INTRODUCTION

Persons living with HIV (PLWH) in the United States smoke cigarettes at approximately triple the rate of the general adult population,^{1,2} and tobacco use has emerged as a leading killer in the highly active antiretroviral therapy era. One recent study concluded that 61% of deaths in PLWH were directly attributable to smoking, and that smoking reduced longevity by an average of 12 years.³

Smoking increases the risk of both opportunistic and “typical” infections in PLWH.⁴ It is driving alarming rises in the incidences of cardiovascular disease, lung cancer, and head and neck cancers in this population.^{5,6} It is also associated with inferior adherence to highly active antiretroviral therapy and poorer quality of life.^{7,8}

Positively Smoke Free Group Therapy



A Successful Pilot Study

A Randomized Controlled Trial of a Tailored Group Smoking Cessation Intervention for HIV-Infected Smokers

Alyson B. Moadel, PhD,* Steven L. Bernstein, MD,† Robin J. Mermelstein, PhD,‡
Julia H. Arnsten, MD, MPH,§ Eileen H. Dolce, PA,|| and Jonathan Shuter, MD||

Background: More than half of the persons living with human immunodeficiency virus (HIV; PLWH) in the US smoke cigarettes, and tobacco use is responsible for considerable morbidity and mortality in this group. Little is known about the efficacy of tobacco treatment strategies in PLWH.

Design: Randomized controlled trial comparing Positively Smoke Free (PSF), an intensive group-therapy intervention targeting HIV-infected smokers, to standard care.

Methods: A cohort of 145 PLWH smokers, recruited from an HIV-care center in the Bronx, New York, were randomized 1:1 into the PSF program or standard care. All were offered a 3-month supply of nicotine replacement therapy. PSF is an 8-session program tailored to address the needs and concerns of HIV-infected smokers. The sessions were cofacilitated by a graduate student and an HIV-infected peer. The primary outcome was biochemically confirmed, 7-day point-prevalence abstinence at 3 months.

Results: In the intention-to-treat analysis, PSF condition subjects had nearly double the quit rate of controls (19.2% vs. 9.7%, $P = 0.11$). In the complete case, as-treated analysis, assignment to PSF was associated with increased odds of quitting (odds ratio_{adj} 3.55, 95% confidence interval 1.04 to 12.0). Latino ethnicity and lower loneliness score were predictive of abstinence. The subjects in the PSF condition exhibited significant decreases in daily cigarette consumption and significant increases in self-efficacy and in motivation

to quit. Attendance of ≥ 7 sessions was associated with higher quit rates.

Conclusions: These findings suggest a positive effect of PSF on cessation rates in PLWH smokers. Loneliness and self-efficacy are influential factors in the smoking behaviors of PLWH.

Key Words: HIV, tobacco use, cigarette, smoking, treatment

(*J Acquir Immune Defic Syndr* 2012;61:208–215)

INTRODUCTION

Over half of persons living with human immunodeficiency virus (HIV; PLWH) in the United States smoke cigarettes.^{1,2} As longevity has improved secondary to effective antiretroviral therapy, alarming increases in the rates of tobacco-related illnesses including cancers³ and coronary events⁴ have been observed. Cigarette smoking is also associated with increased rates of opportunistic infections,⁵ poorer quality of life,⁶ and inferior medication adherence⁷ in PLWH. One large cohort study estimated that 24% of deaths in PLWH in the modern highly active antiretroviral therapy (HAART) era are attributable to the use of tobacco.⁸

As a group, PLWH smokers have high rates of substance use and comorbid psychiatric illness.⁹ They are exposed to a range of additional stressors including poverty,¹⁰ racism/discrimination,¹¹ stigmatization,¹² loneliness,¹² and

Hot off the press – A multicenter trial of PSF group therapy (PI: Shuter)

- 442 PLWH smokers from 2014—2017.
- Three sites – two in the Bronx and one in Washington DC.
- Randomized participants 1:1 to PSF group therapy or brief advice to quit. All participants were offered 3 months of nicotine patches.
- Biochemically confirmed abstinence was assessed at 3 months and 6 month post-intervention.

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Proportion quit at 3-months		Proportion quit at 6-months	
PSF group therapy	Control	PSF group therapy	Control
28/216 (13.0%)	15/226 (6.6%)	28/215 (13.0%)	30/225 (13.3%)
P=0.04		P=1.0	



Positively Smoke Free - Mobile

- A pilot trial of mobile Positively Smoke Free (PSF-M), a smartphone-based tobacco treatment program for PLWH smokers
- N=100
- Study closed April 2017
- Demonstrated feasibility and acceptability of smartphone-based programs for smoking cessation

Positively Smoke Free - Mobile

Welcome back to PSF Mobile.
Thanks for coming to the site to check in. Please let us know how you've been doing over the **last 24 hours.**

I haven't had a cigarette.

I had a cigarette but it was just a slip.


I had a cigarette and I'm back to smoking.


Just take me to PSF Mobile.


PSF SESSIONS



← BACK


I'm Craving!

Review the D-Pack 

Listen to a Song 

Call my Support 

Play a Game 
External site 

Craving tip of the day 

PSF SESSIONS

← BACK

Need someone to talk to?

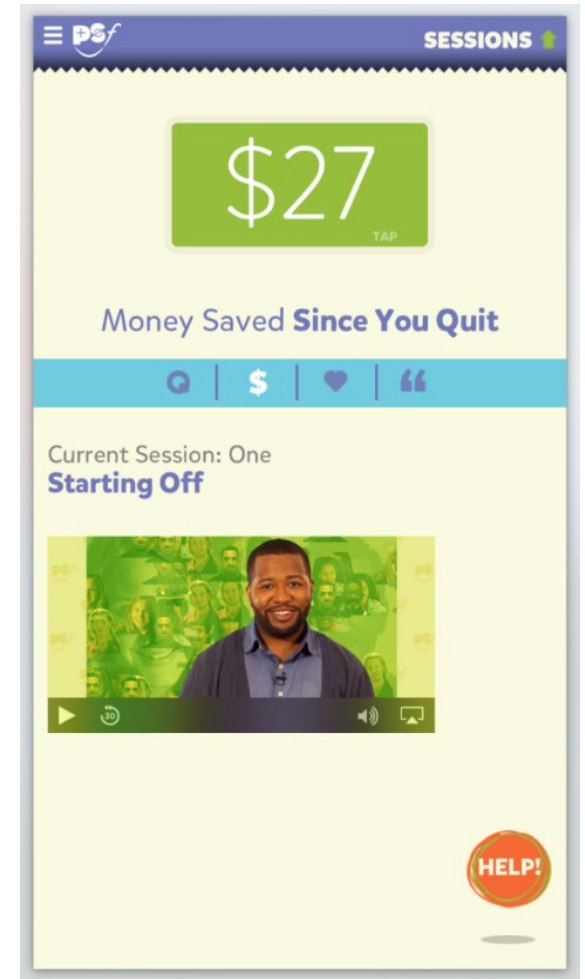
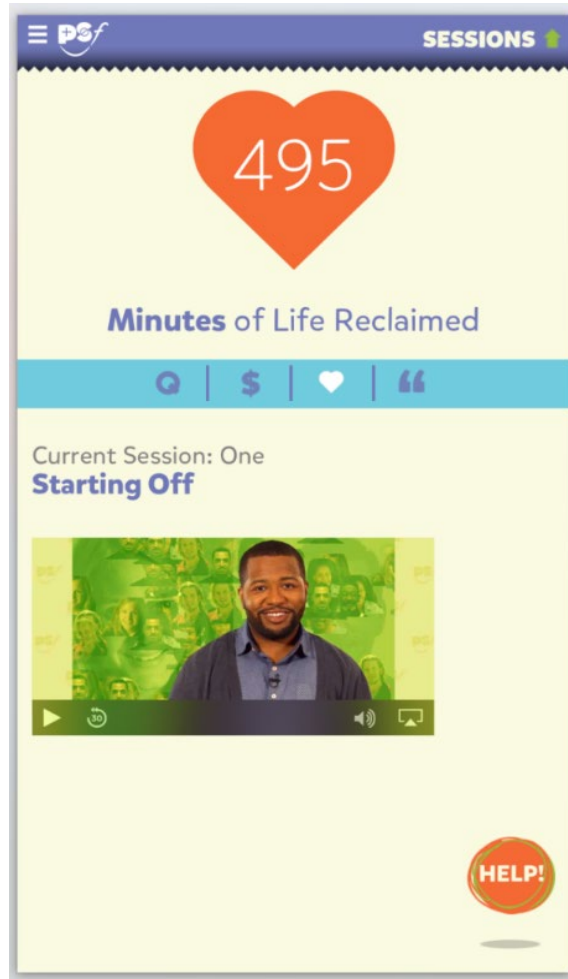
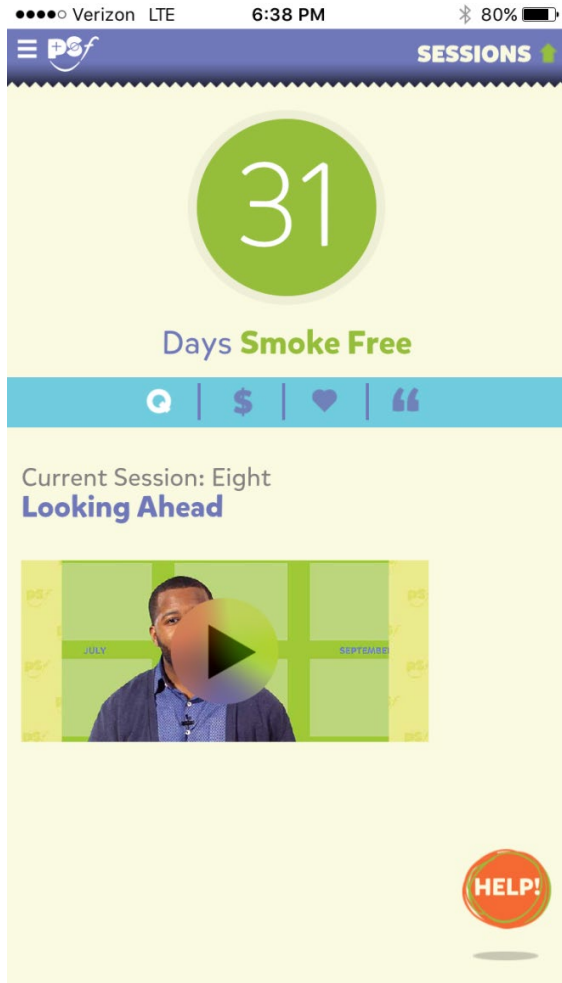
1-800-QUITNOW

A Quitline Coach will be available to give you free expert help.

The Coach will work with you to develop a personalized quit plan and give you support and advice, coping strategies to help you deal with cravings, and the latest information about cessation medications.

In some states, you can also request a free starter kit of Nicotine Replacement Therapy (NRT).

Positively Smoke Free - Mobile



Pilot trial results

Feasibility measures

– Engagement

- Mean # homepage visits= 83.3 ± 70.5
- 77.1% used the HELP button at least once (mean= 3.0 ± 3.8)
- 75.0% reviewed the D-pack
- 58.3% phoned a friend
- 29.2% played a game
- 4.2% played a song
- Mean # of videosessions viewed= 5.7 ± 2.3
- Mean # texts received= 131 ± 38.9
- 66.0% texted CRAVE at least once
- 10.4% texted STOP

Shuter J, Kim RS, An LC, Abrams LC. Feasibility of a smartphone-based tobacco treatment for HIV-infected smokers. Nic Tob Res 2019 [epub ahead of print].

COULD YOU BE A CAVEMAN?

THEN...



Mike Keefe THE DENVER POST 8-8-09

NOW...



Positively Smoke Free: The Online Community

- Definitive trial of Positively Smoke Free on the Web + social network vs. American Heart Association Getting Healthy web program.
- N=550 (Montefiore + Johns Hopkins).
- Enrollment planned 2016-2019. 450 enrolled to date.
- www.positivelysmokefree.com – it is open to the public!

Future Directions

- Positively Smoke Free group therapy by videoconference (S. Marhefka, PhD, USF)
 - Enrollment across Florida starting November 2019
- Positively Smoke Free – Kenya (S. Himmelhoch, MD, MPH, University of Maryland & J. Shuter, MD)
 - Enrolling starting fall-winter 2019

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THANK YOU!