At the Intersection of Smoking, HIV/AIDS and Cancer

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Memorial Sloan-Kettering Cancer Center
intersec·tion, noun

[Latin intersectus past participle of intersecāre, to cut through, sever]

1. a place where two or more roads meet, especially when at least one is a major highway; junction.

2. any place of intersection or the act or fact of intersecting.

3. Mathematics . a. Also called meet, product. the set of elements that two or more sets have in common. Symbol: \( \cap \) (cap)
What do we know about this intersection?

• Prevalence of many cancers in HIV/AIDS is higher
• Prevalence of tobacco use in HIV/AIDS is markedly high → increased cancer risk
• PLWHA are living longer & with better QoL, but they can ill afford to use tobacco
At the Intersection

Risk Factors
- Tobacco
- Alcohol
- Immune system deficits
- HPV infection
- Hepatitis B,C infections

Chronic diseases
- AIDS-defining cancers
- Non-AIDS defining cancers

Disease Continuum

Prevention  Detection/Screening  Treatment  Living with/Surviving  End of Life
# Prevalence of smoking in the U.S.

<table>
<thead>
<tr>
<th>Population</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. General</td>
<td>19.3%</td>
</tr>
<tr>
<td>Females</td>
<td>17.3%</td>
</tr>
<tr>
<td>Males</td>
<td>21.5%</td>
</tr>
<tr>
<td>U.S. Medicaid patients</td>
<td>31.0%</td>
</tr>
<tr>
<td>HIV+ National samples</td>
<td>45-51%</td>
</tr>
<tr>
<td>HIV+ Outpatient clinics</td>
<td>47-72%</td>
</tr>
<tr>
<td>Texas general population</td>
<td>17.9%</td>
</tr>
</tbody>
</table>

**Sources:**
1. CDC, 2010
2. CDC, 2012
3. Collins et al., 2001; Turner et al., 2001
4. Gritz, et al., 2004; Mamary, et al., 2002; Nahvi & Cooperman, 2009; Niaura et al., 1999
5. Burkhalter et al., 2005
6. Tesoriero et al. 2010
## Racial and Ethnic Smoking Disparities

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Males %</th>
<th>Females %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>White non-Hispanic</td>
<td>22.6</td>
<td>19.6</td>
<td>21.0</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>24.8</td>
<td>17.1</td>
<td>20.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15.8</td>
<td>9.0</td>
<td>12.5</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>---*</td>
<td>---*</td>
<td>31.4</td>
</tr>
<tr>
<td>Asian, non-Hispanic</td>
<td>14.7</td>
<td>4.3</td>
<td>9.2</td>
</tr>
<tr>
<td>Multiple race, non-Hispanic</td>
<td>28.4</td>
<td>23.8</td>
<td>25.9</td>
</tr>
</tbody>
</table>

*Data not reported because relative standard error ≥ 30%
## Texas and New York: A Tale of Tobacco & Two States

<table>
<thead>
<tr>
<th>State</th>
<th>Prevalence (rank)</th>
<th>Pack Price (rank)</th>
<th>Work Ban</th>
<th>Bar Ban</th>
<th>Restaurant Ban</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>17.9% (25th)</td>
<td>$8.97 (1st)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Texas</td>
<td>17.9% (27th)</td>
<td>$5.47 (36th)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Utah</td>
<td>9.8% (51st)</td>
<td>$5.70 (17th)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Kentucky</td>
<td>25.6% (1st)</td>
<td>$4.55 (40th)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S./State</th>
<th>% Population Latino</th>
<th>% Population Asian</th>
<th>% Population Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>16.7%</td>
<td>5.0%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Texas</td>
<td>38.1%</td>
<td>4.0%</td>
<td>12.2%</td>
</tr>
<tr>
<td>New York</td>
<td>18.0%</td>
<td>7.8%</td>
<td>17.5%</td>
</tr>
</tbody>
</table>

Sources: [http://www.smokefree.gov/map.aspx](http://www.smokefree.gov/map.aspx); last updated, 2011; [http://quickfacts.census.gov/qfd/states/48000.html](http://quickfacts.census.gov/qfd/states/48000.html)
Rates of HIV infection

HIV/AIDS Disparities
Estimated New HIV Infections in the United States, 2010, for the Most Affected Subpopulations

Racial, Ethnic, and Sexual Minority Disparities in HIV/AIDS

<table>
<thead>
<tr>
<th>Minority Group</th>
<th>% Population</th>
<th>% New HIV infections</th>
<th>% PLWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>12%</td>
<td>44%</td>
<td>44%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16%</td>
<td>21%</td>
<td>19%</td>
</tr>
<tr>
<td>MSM (men who have sex with men)</td>
<td>4%</td>
<td>63%</td>
<td>52%</td>
</tr>
</tbody>
</table>

Greatest number of new infections was:
- **Black MSM ages 13-24**, accounting for
- **45% of new HIV infections among black MSM**, and
- **55% of new HIV infections among all young MSM**

Cancer
Incidence of Cancer

Latest Incidence Rates for United States
All Cancer Sites
All Races (includes Hispanic), Both Sexes, All Ages

Age-Adjusted Annual Incidence Rate
(Cases per 100,000)

Quantile Interval

- Red: 497.5 to 515.2
- Orange: 478.7 to 497.4
- Yellow: 469.1 to 478.6
- Light blue: 459.3 to 469.0
- Light blue: 440.7 to 459.2
- Light blue: 390.0 to 440.6

US (SEER + NPCR) Rate (95% C.I.)
465.0 (464.7 - 465.4)

Hispanic Population in Texas

Demographic Data for Texas
2006-2010 American Community Survey 5-Year Data
Population: Hispanic
All Races (includes Hispanic), Both Sexes, All Ages

Percent
Quantile Interval
- 51.6 to 98.3
- 35.6 to 51.5
- 22.7 to 35.5
- 17.1 to 22.6
- 10.1 to 17.0
- 0.0 to 10.0

Created by statecancerprofiles.cancer.gov on 05/27/2013 12:30 pm.
Source: Demographic data provided by the Census Bureau and the American Community Survey.
For more information about Population: Hispanic see the dictionary.
Welcome to Our Website!

The AIDS Malignancy Clinical Trials Consortium (AMC) is a National Cancer Institute-supported clinical trials group founded in 1996 to support innovative trials for AIDS-related cancers. The AMC is composed of over 37 Clinical Trials Sites worldwide, five Working Groups, an Administrative Office, a Statistical Office, and an Operations and Data Management Office. Collectively, these components develop and oversee the scientific agenda, manage the groups’ portfolio of clinical trials and other scientific-based studies, and help to develop new protocols.

Four of the working groups deal with the cancers that affect HIV-positive patients—Kaposi’s Sarcoma, Lymphoma, Human Papillomavirus-related Cancers (for example, anal and cervical cancers), and Non-AIDS Defining Cancers (for example, lung cancer, head and neck cancer, liver cancer). The Laboratory Working Group oversees the Central Laboratories of the AMC and develops laboratory studies to answer important scientific questions related to cancer in
AMC Behavioral Research Working Group

Supported through administrative supplements (2011-2012) from the Center to Reduce Cancer Health Disparities (CRCHD) of the National Cancer Institute (NCI), the Behavioral Research Working Group (BRWG) was formed in 2011 to coordinate the pilot project research activities of six grantees. The main goal of this supplemental program is to increase participation of diverse under-represented populations (e.g., racial/ethnic groups, low socio-economic status, rural) in AMC clinical trials. The grantee projects have these broad aims: 1) develop and implement interventions for improving accrual and retention of patients from diverse backgrounds to AMC clinical trials; (2) test culturally appropriate behavioral strategies for maximizing the success of interventions; and; (3) maintain interdisciplinary partnerships within cancer health disparities and HIV-related clinical trials research.

The multi-site collaborations are expected to comprise AIDS Malignancy Consortium (AMC) researchers, cancer health disparities (CHD) researchers, and community organizations. Jack Burkhalter, PhD, a behavioral scientist at Memorial Sloan-Kettering Cancer Center, is the current Chair of the BRWG. The grantees of this funding are:

BRWG Members (left to right): Dr. David Aboulafia, Virginia Mason Medical Center; Mr. Jeff Taylor, AMC Community Representative; Dr. Vivian Colon, University of Puerto Rico; Dr. Tracy Battaglia, Boston Medical Center; Dr. Elizabeth Siler, Boston Medical Center; Dr. Heather Goltz, Baylor Medical Center; Dr. Jack E. Burkhalter, Memorial Sloan-Kettering Cancer Center; Dr. Martha L. Hare, NCI Center to Reduce Cancer Health Disparities; Dr. Cathy Melvin, University of North Carolina School of Medicine; Dr. Mostafa Nokta, NCI Office of HIV and AIDS Malignancy; Dr. Rebecca Huppi, NCI Office of HIV and AIDS Malignancy; Dr. Ronald
Tobacco Use
Cigarette and smoke

- 4,500 compounds in tobacco and cigarette smoke
- Carcinogens: Nitrosamines, aldehydes, polycyclic aromatic hydrocarbons (PAHs)
- Other toxic agents:
  - Carbon monoxide (CO) → CVD
  - Ammonia, acrolein, acetone, heavy metals, benzopyrines, hydroquinone, nitrogen oxides, et al.
- Nicotine is addictive agent
- Long-term impact of nicotine in humans?
Health Consequences of Smoking

General Population

- **Cancers**
  - Acute myeloid leukemia
  - Bladder and kidney
  - Cervical
  - Esophageal
  - Gastric
  - Laryngeal
  - Lung
  - Oral cavity and pharyngeal
  - Pancreatic

- **Cardiovascular diseases**
  - Abdominal aortic aneurysm
  - Coronary heart disease
  - Cerebrovascular disease
  - Peripheral arterial disease

- **Reproductive effects**
  - Impaired fertility in women
  - Poor pregnancy outcomes (e.g., low birth weight, preterm delivery)
  - Infant mortality

- **Other adverse health effects**
  - Cataract, osteoporosis, periodontitis, erectile dysfunction

Leading causes of death in U.S. in 2000

Source: Mokdad et al. (2004) JAMA
Why is smoking so more prevalent among PLWHA?

Concentration of tobacco use risk factors

Other risk factors or barriers to cessation

HIV/AIDS

Stigma

Marginalization

Illicit substance and EtOH use

Mental illness

Low socio-economic position

Fatalism

Somatic pain

Social networks

Sensation-seeking

Other factors?
Meta-level influences on smoking among PLWHA?

- Sociocultural Norms
- Government Economics
- Research

Public Health Policies

- Advocacy

HIV/AIDS
- Mental illness
- Stigma Marginalization
- Low socio-economic position
- Illicit substance and EtOH use
HIV/AIDS: Why is tobacco cessation important?

**Immune system**

Impact of tobacco smoke on:

**Innate immunity:**
- Increased numbers of alveolar macrophages (AMs) → increased secretion of lysosomes and elastase → damage of connective and parenchymal tissues → emphysema, bronchitis, COPD
- AMs functionally impaired → secrete ↓ levels of pro-inflammatory cytokines → early responses to pathogens, upregulation of local host defenses
- NK cells critical in surveillance of tumor growth; NK cell activity ↓ significantly in in vitro and animal studies; rats exposed to cigarette smoke have increased spontaneous lung tumors

**Adaptive immunity:**
- Leukocytosis--but with impaired functioning
- Reduced serum levels of immunoglobulins in humans
- ↓ levels of specific antibodies in microbial infections (flu) but ↑ levels of autoantibodies → ↑ risk for certain autoimmune diseases

Source: Sopori, 2002
HIV/AIDS: Why is tobacco cessation important?

Cancer

- Cancer risk increases with age, and PLWHA population is aging\textsuperscript{1-3}
- HIV infection and immune system impairments as independent risk factors\textsuperscript{4-5}
- Since 1998, total cancer burden in AIDS has climbed:\textsuperscript{6}
  - Overall incidence of AIDS-defining (ADC) cancers declined
  - Incidence of non-AIDS defining cancers (NADC) increased
    - Anal, Hodgkin lymphoma, liver, lung, prostate
- In HIV+ population, increased cancer risk:\textsuperscript{7-9}
  - Oropharynx, larynx, pancreas, vagina/vulva, penis

\textsuperscript{1}CDC, 2012; \textsuperscript{2}Effros, 2008; \textsuperscript{3}Justice, 2010; \textsuperscript{4}Sigel et al., 2012; \textsuperscript{5}Silverberg et al., 2009; \textsuperscript{6}Shiels et al., 2011; \textsuperscript{7}Grulich; \textsuperscript{8}Engels et al., 2008; \textsuperscript{9}Shiels et al., 2009
HIV/AIDS: Why is tobacco cessation important?

**Pulmonary disease and respiratory symptoms**

- Dyspnea, wheezing, and pulmonary emphysema exacerbated by smoking are markedly elevated among PLWHA compared to HIV-neg smokers\(^1-^3\)
- Among HIV+ smokers, increased risk for bacterial pneumonia, not PCP\(^4\)
- Permanent declines in pulmonary function after bacterial or PCP pneumonias\(^6\)
- PLWHA report respiratory symptoms as salient health concerns related to smoking and cite improvement in respiratory symptoms as a benefit of smoking cessation\(^7\)

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\(^1\) Wallace et al., 1997;  \(^2\) Diaz et al., 2000;  \(^3\) Diaz et al., 2003;  \(^4\) De et al., 2013;  \(^6\) Morris et al., 2000;  
\(^7\) Burkhalter et al., 2005
HIV/AIDS: Why is tobacco cessation important?

Cardiovascular disease

- CO believed to be primary culprit in CVD
- In HIV/AIDS, CVD and risk prevalent:
  - Increased acute MI Rates (in women)\(^1\)
  - Increased rates of hypertension\(^1\)
  - Metabolic abnormalities
    - Dyslipidemia\(^1-3\)
    - Insulin resistance and diabetes\(^1,4\)
    - Endothelial dysfunction\(^5,6\)
    - Altered fat distribution\(^2,7-9\)

\(^1\)Triant et al., 2007; \(^2\)Carr et al., 1998; \(^3\)Hadigan et al., 2003; \(^4\)Brown et al., 2005; \(^5\)Stein et al., 2001; \(^6\)Hsue et al., 2004; \(^7\)Carr et al., 1999; \(^8\)Hadigan et al., 2001; \(^9\)Periard et al, 1999; \(^10\)Lichtenstein et al., 2001
Some intersections are dangerous
Nicotine dependence
• Tolerance
• Time spent acquiring/using
• Long-term impairment
• Decreased number of DA receptors
• Decreased DA cell sensitivity
• Decreased of reward circuits to stimulation by natural reinforcers
• Compensation for reward deficits through smoking stimulation

Behavioral learning
• Conditioning: Environmental cues become associated with smoking; triggers uncontrollable cravings when later exposed to these cues, even in absence of cigarettes
• Learned "reflex" is extremely robust, can emerge even after years of abstinence
• Negative reinforcement via relief of unpleasant withdrawal symptoms
• Cognitions (beliefs, attitudes) about the function of smoking in their lives, e.g., “manage stress” “relax me” “cope”

Tobacco dependence
Daily or intermittent smoking
Nicotine withdrawal
• Irritability
• Depression/anxiety
• Restlessness
• Impaired concentration
• Increased appetite
• (Constipation)
U.S.P.H.S. Clinical Practice Guideline: 2008 Treating Tobacco Use and Dependence

- 2008 - Updated Guideline
- Literature from 1975 - 2007
- Approx. 8,700 total articles
## 5 A’s brief intervention for health care providers

<table>
<thead>
<tr>
<th>Ask about tobacco use</th>
<th>Identify and document tobacco use status for every patient at every visit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advise to quit</td>
<td>In a clear, strong and personalized manner urge every tobacco user to quit.</td>
</tr>
<tr>
<td>Assess willingness to make a quit attempt</td>
<td>Is the tobacco user willing to make a quit attempt at this time?</td>
</tr>
<tr>
<td>Assist in quit attempt</td>
<td>For the patient willing to make a quit attempt, use counseling and medicine to help him or her quit.</td>
</tr>
<tr>
<td>Arrange follow-up</td>
<td>Schedule follow-up contact, preferably within the first week after the quit date.</td>
</tr>
</tbody>
</table>

Source: USPHS Clinical Practice Guidelines, 2008
ASK: Tobacco Use Screener

In the past 30 days, have you smoked cigarettes or used any other forms of tobacco (cigars, pipe, smokeless tobacco)?

- Every day
- Some days
- Not at all

Source: Modified BRFSS, Joint Commission “compliant” tobacco screener
Algorithm for Tobacco Use Intervention

Does patient now use tobacco?

IF YES

Does patient recently use tobacco?

IF YES

Prevent relapse

IF NO

No intervention required-encourage continued abstinence

IF YES

Provide appropriate tobacco dependence treatments

IF NO

Promote motivation to quit

IF NO

Source: USPHS Clinical Practice Guidelines, 2008
Tobacco Cessation Interventions in HIV/AIDS
# Tobacco Cessation Trials in HIV/AIDS

<table>
<thead>
<tr>
<th>Trial</th>
<th>Method</th>
</tr>
</thead>
</table>
| **1. Ingersoll et al., *AIDS and Behavior* 2009**  
Eligible participants: HIV+ adults, daily smokers, not pregnant, medically cleared  
• N=40 HIV+ smokers VA university hospital ID clinic | Interventions (2 arms):  
1. Self-guided reading + NRT patch  
2. One session with motivational interviewing + NRT patch |
| **2. Lloyd-Richardson et al., *Addiction*, 2009**  
Eligible participants: HIV+ adults, current smokers (5 cpd past mo.)  
• N=444 HIV+ smokers from six O/P HIV clinics & two PC offices in SE New England | Interventions (2 arms):  
1. Standard care (2 sessions with HE)+ NRT  
2. Motivationally Enhanced (4 sessions)+ NRT |
| **3. Vidrine et al., *Nicotine & Tobacco Research*, 2012**  
Eligible participants: HIV+ adult current smokers (≥5 cpd), CO ≥7 ppm  
• N=474 HIV+ smokers from health center, Houston, TX | Interventions (2 arms):  
1. Usual care (advice, print materials, instructions on how to get NRT patches)  
2. Cell phone (11 calls tailored/timed to quitting) |
| **4. Humfleet et al., *Nicotine & Tobacco Research*, 2012**  
Eligible participants: Smoke most days of the month, be registered patients at the facilities.  
• N=209 HIV+ smokers from CBOs, SFGH clinic | Interventions (3 arms):  
1. Individual care (IC; six 40-60 min. sessions)+ NRT  
2. Web-based (6 steps modeled on IC model)+ NRT  
3. Self-help (brief visit/print) + NRT |
| **5. Moadel et al., *JAIDS*, 2012**  
Eligible participants: HIV+ adults, smoking w/in past 5 days, motivated to quit  
• N=145 HIV+ smokers from ID Clinic, Bronx | Interventions (2 arms):  
1. Standard care (brief advice, print materials, offer of NRT)  
2. Positively Smoke Free (PSF) 8-session group co-led by peer and professional, 90 min. each |
At the Intersection of HIV/AIDS and Cancer: A Qualitative Needs Assessment of Community-Based HIV/AIDS Service Organizations

Jack E. Burkhalter, PhD\(^1\), Sean Cahill, PhD\(^2,3\), Elyse Shuk, MA\(^1\), John Guidry, PhD\(^4\), Geoffrey Corner, BS\(^1\), Alexandra Berk, MA\(^1\), Norman Candelario, MSW\(^4\), Mark Kornegay\(^4\), and Erica I. Lubetkin, MD, MPH\(^5\)

Abstract

Due to advances in treatment, persons living with human immunodeficiency virus (HIV) or acquired immunodeficiency syndrome (AIDS) are living longer, but with aging, immune deficits, and lifestyle factors, they are at increased risk for cancer. This challenges community-based AIDS service organizations (ASOs) to address the growing cancer needs...
Feasibility of Tobacco Use Intervention with Low-Income PLWHA in Community-Based AIDS Service Organizations

Burkhalter, Feinstein (MSKCC), Lubetkin (CCNY), Guidry (GMHC) and Community-Based AIDS Service Organizations

Primary Aim:

- Examine the feasibility of a motivational tobacco cessation intervention using respiratory biomarker feedback and facilitated uptake of public health cessation services in low-income PLWHA who smoke
  - Served in community-based HIV/AIDS organizations.

- Feasibility indicator
  - Participant acceptance of the intervention as measured by the percentage of eligible and consented participants completing the assigned interventions and the one-month assessments.

Secondary Aims:

- Estimate the differences between the experimental intervention (AIR) and the control condition (Treatment as Usual; TAU) on
  - Motivation to quit smoking
  - Uptake of New York State Smokers’ Quitline referral and follow-through
  - Satisfaction with participation

- Explore moderators of participant motivation to quit smoking
  - Respiratory symptoms, depression, fatalism, substance use, and patient activation

- Assess potential factors influencing study participation by community organizations
  - Receptivity of HIV/AIDS service organizations to recruit and support the intervention;
What can motivate PLWHA to quit smoking?

A - I - R

Community Setting
Harm Reduction Philosophy

Personalized Respiratory Feedback

Supportive Care Environment

Autonomy and Competency support

Elicit Aspirations and Goals
Self-Determination Theory

- 3 psychological needs:
  - **Autonomy**---degree to which individuals feel they are responsible for the initiation of their behavior
  - **Competence**---degree to which the individual feels they are able to achieve the desired goal or outcome
  - **Relatedness**---extent to which the person feels connected to others in a warm, positive, and authentic manner

- The extent to which these needs are **supported by the environment** leads to personal growth, adjustment, and to better physical health.

- To the extent that these needs are supported, the theory predicts that smokers will experience greater psychological energy to reach and maintain that goal.

Source: Deci & Ryan, 1985
Motivational Interviewing

A patient-centered yet directive method for enhancing intrinsic motivation to change by helping patients to explore and resolve their ambivalence about change.

1) Express empathy
2) Avoid arguments
3) Develop discrepancy between problem behavior and broader goals
4) Support self-efficacy (belief that they can change)
5) Promote empowerment and personal choice

Sources: Rollnick & Miller (1995); Miller & Rollnick (1991)
Self-Determination Theory and Motivational Interviewing

**A-I-R Trial: Schema**

**Phase I: Preparatory**
- Preparatory testing with \( n = 10 \) PLWHA smokers
- Update Study procedures & manuals
- Recruit 50 PLWHA smokers
- Baseline questionnaire

**Phase II: Pilot Trial**
- **Treatment as Usual**
  - Subjects: 25 PLWHA smokers
  - Interventionists: Trained staff at community partner agencies
  - Session components:
    - Education
    - Brochures
    - Refer-to-quit State Quitline
    - After session questionnaire

- **AIR Treatment**
  - Subjects: 25 PLWHA smokers
  - Interventionists: Drs. Burkhalter, Lubetkin
  - Session components:
    - Motivational interviewing
    - Education
    - Brochures
    - Lung Health Report
    - Refer-to-quit State Quitline
    - After session questionnaire

- One month follow-up questionnaire
- Individual interviews \( n = 12 \)

*Recruitment and intervention conducted at participating Community Advisory Board members’ (AIDS service) organizations*
A-I-R

- Respiratory biomarker assessment
- Tobacco counseling
- Motivational interviewing
- Lung Health Report
- Print material
- Offer of referral to Quitline

Pre-intervention, conducted by RA:
- Baseline survey measures
- Carbon monoxide breath test
- ATS Respiratory Symptoms
- Spirometry with lung age

AIR Intervention, conducted by PhD/MD:
- Review of smoking history
- Discussion of aspirations/goals
- How do aspirations fit with smoking?

- Provide Lung Health Report and review
- NYSDOH HIV/Smoking brochure
- Medicaid coverage of cessation meds
- NYS Smokers’ Quitline brochure

- Provide and discuss Lung Health Report
- Offer to refer to NYS Quitline
- Q&A
Respirator Biomarker Feedback
Lung Age Example
Birth age 50; Lung age 80
# Aspirations Index

<table>
<thead>
<tr>
<th>Goal</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXAMPLE GOAL:</strong> To learn how to draw portraits of people.</td>
<td>Rating</td>
</tr>
<tr>
<td>How important is this to you?</td>
<td>6</td>
</tr>
<tr>
<td>How likely is it that this will happen in your future?</td>
<td>4</td>
</tr>
<tr>
<td>How much have you already achieved this goal?</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 1: To...</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>How important is this to you?</td>
<td></td>
</tr>
<tr>
<td>How likely is it that this will happen in your future?</td>
<td></td>
</tr>
<tr>
<td>How much have you already achieved this goal?</td>
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<table>
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<tr>
<th>Goal 2: To...</th>
<th>Rating</th>
</tr>
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<tbody>
<tr>
<td>How important is this to you?</td>
<td></td>
</tr>
<tr>
<td>How likely is it that this will happen in your future?</td>
<td></td>
</tr>
<tr>
<td>How much have you already achieved this goal?</td>
<td></td>
</tr>
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<thead>
<tr>
<th>Goal 3: To...</th>
<th>Rating</th>
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<tbody>
<tr>
<td>How important is this to you?</td>
<td></td>
</tr>
<tr>
<td>How likely is it that this will happen in your future?</td>
<td></td>
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<tr>
<td>How much have you already achieved this goal?</td>
<td></td>
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<thead>
<tr>
<th>Goal 4: To...</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>How important is this to you?</td>
<td></td>
</tr>
<tr>
<td>How likely is it that this will happen in your future?</td>
<td></td>
</tr>
<tr>
<td>How much have you already achieved this goal?</td>
<td></td>
</tr>
</tbody>
</table>
Your Lung Health Report

This personal lung health report uses information that you provided today. The report includes results from your breath tests and the lung symptoms that you reported. We hope that this report will help you as you think about your smoking, effects on your health, and how smoking affects the goals that you have for yourself.

<table>
<thead>
<tr>
<th>Test results:</th>
<th>What this means for you:</th>
<th>If you quit smoking:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO Level: _____ ppm</td>
<td><strong>Carbon monoxide (CO)</strong> is a poison created by burning tobacco. With every puff, you breathe in CO. CO levels of 10 ppm or more can lead to fatigue, shortness of breath, and over time, increase your risk for heart disease.</td>
<td>Your CO level will drop to normal. You can feel more energy, better breathing, and have lower risk for heart disease.</td>
</tr>
<tr>
<td>Lung Age: _____ years</td>
<td><strong>Lung age</strong> is the “functional” age of your lungs. If you are 40 years old and your lung age is 50 years, your lungs are breathing like those of someone who is 10 years older than you.</td>
<td>Your lung age will become more like your real age. Your lungs will begin to recover.</td>
</tr>
<tr>
<td>Breathing Symptoms:</td>
<td>If you have any of these breathing symptoms, smoking may be the cause, or smoking may worsen symptoms. You may develop lung cancer or emphysema if you continue to smoke.</td>
<td>Breathing symptoms may go away or lessen. Your risk for lung disease goes down.</td>
</tr>
</tbody>
</table>

- Cough
- Phlegm
- Wheezing
- Shortness of breath
## Phase I: Pre-pilot AIR Outcomes, n = 9

<table>
<thead>
<tr>
<th>Measure (score range)</th>
<th>Pre-</th>
<th>Post-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to quit smoking (4-28)  I will make an effort to quit smoking within the next month.</td>
<td>14.3 (8.3)</td>
<td>23.2 (5.0)**</td>
</tr>
<tr>
<td>Quitting self-efficacy (4-28)  I feel confident in my ability to quit smoking.</td>
<td>17.0 (7.3)</td>
<td>22.0 (4.9)*</td>
</tr>
<tr>
<td>Support for autonomy (7-42)  I feel that my smoking study counselor has given me choices and options about smoking (including not quitting).</td>
<td>--</td>
<td>41.3 (1.7)</td>
</tr>
<tr>
<td>Took up Quitline referral</td>
<td>--</td>
<td>8 (89%)</td>
</tr>
<tr>
<td>Quality of counseling  Excellent</td>
<td>--</td>
<td>8 (89%)</td>
</tr>
<tr>
<td>Average</td>
<td>1 (11%)</td>
<td></td>
</tr>
<tr>
<td>Overall tx satisfaction:  Highly satisfied</td>
<td>--</td>
<td>8 (89%)</td>
</tr>
<tr>
<td>Moderately satisfied</td>
<td>1 (11%)</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05; **p<.01
Back at the intersection

Noisy, messy, complicated, frustrating, confusing, sometimes dangerous and tricky, with few signposts...

...but this is where much of life and discovery takes place, and with all of its challenges there can be much satisfaction and personal reward in the work!
Thank you!