Impact of smoking cessation on cancer survivorship

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• No conflicts of interest
• Medications discussed are consistent with medical practice
Objectives:

1. Discuss the benefits of tobacco cessation during cancer treatment
2. Identify pharmacotherapy treatments for tobacco use and dependence
3. Learn to use the 5A's and Ask-Advise-Refer models of tobacco treatment.
Promoting health for cancer survivors

• Weight management
• Physical activity
• Healthful diet
• Reduced alcohol consumption
• Smoking cessation

(Shapiro 2018; NEJM, 379)
Tobacco and cancer

• First report from Surgeon General demonstrating link between cigarette smoking and cancer, 1964
• 50th anniversary report in 2014 cancer links
• 28.6% of cancer deaths attributable to smoking (Lortet-Tieulent 2016; JAMA Intern Med, 176)
**Figure 1A**  The health consequences causally linked to smoking

**Cancers**
- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- Liver
- Pancreas
- Kidney and ureter
- Cervix
- Bladder
- Colorectal

**Chronic Diseases**
- Stroke
- Blindness, cataracts, age-related macular degeneration
- Congenital defects—maternal smoking: orofacial clefts
- Periodontitis
- Aortic aneurysm, early abdominal aortic aneurysm, atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, *tuberculosis*, asthma, and other respiratory effects
- Diabetes
  - Reproductive effects in women (including reduced fertility)
  - Hip fractures
  - Ectopic pregnancy
  - Male sexual function—erectile dysfunction
- Rheumatoid arthritis
- Immune function
- Overall diminished health


*Note: The condition in red is a new disease that has been causally linked to smoking in this report.*
Trends in Tobacco Use and Lung Cancer Death Rates* in the US

*Age-adjusted to 2000 US standard population.


Slide from American Cancer Society, 2013
Tobacco cessation and cancer

As cancer prevention:

• Cessation reduces risk of cancer over time (SGR 2014)

• 10 years of cessation until risk is 50% of current smoker (Fry 2013; Reg Tox and Pharmacology, 67)

• 39% decrease in lung cancer risk after 5 years for people who smoked >10cpd (Tindle 2018; JNCI, 110)
Tobacco cessation and cancer

During cancer treatment:

• Improve treatment effectiveness

• Improve surgical outcomes (wound healing, pulmonary complications) with as little as 4 weeks preoperative cessation

• Reduces treatment side effects from radiation and chemotherapy

• For head and neck cancers: cessation within 12 weeks of diagnosis decreased mortality by 40%, > 1 year decreased mortality by 70%, after 2 years to level of never smokers (Browman 1993; NEJM, 328)
Tobacco cessation and cancer

After cancer treatment: (AACR 2013)

• Decrease recurrence rates and prevent new primary
• Improve survival times
• Improve quality of life
How big of a problem

• 2010, 54% of people with a cancer diagnosis were currently or had previously smoked (Ramaswamy 2016; Cancer, 122)
  • 1/3 currently smoked

• Represented by same groups who smoke in general population
  • Younger age, lower socioeconomic status (income/education), not having insurance or having Medicaid

• At least 50% of patients diagnosed with cancer who currently smoke make a quit attempt (Ramaswamy 2016)
  • Relapse rates range from 13-60%
Continued smoking among survivors

- Less than college degree
- Less than 50 years of age
- Divorced, separated, single
- Uninsured
- Diagnosed >10 years ago
- Cervical cancer (multiple risk factors)
- Breast/ovarian vs lung/prostate (compared to head-neck)

(Swoboda 2019; N&TR online first)
Other associated factors for continued smoking

• After controlling for demographic factors (Berg 2013; Psychooncology, 22):
  • Non-head/neck smoking related cancer diagnosis
  • Depressive symptoms
  • Hopelessness, stress, nicotine dependence (qualitative)
Counseling to quit

• **Only half** of survivors who smoke **have been advised to quit** by a health professional

• Health professional advice to quit increases likelihood of cessation

• 2009 survey of NCI-designated comprehensive cancer centers (Goldstein 2013, NTR, 15)
  • 21% offered NO tobacco-use treatment
  • 62% routinely offered education material
  • 50% identified tobacco use among patients
  • Less than half had identified staff to provide tobacco use treatment
Clinician barriers to counseling

- Cancer treatment providers focused on cancer treatment
  - Nearly 30% of cancer deaths attributed to smoking
- Inadequate training to provide cessation counseling
- Fear that discussing smoking will result in more guilt and shame

(Croyle 2019; NEJM, online first)
• Ask about tobacco use, document in medical record

• Advise cessation at every visit – make the connection between current health and smoking. Discuss how quitting will improve health.

• Brief (1-2 min) interventions work!

• Provide or refer to individual, group, or telephone counseling
• Usually requires multiple interventions

• Provide counseling for problem-solving and skill building

• Listening and reflecting is more effective that lecturing.

• Combine counseling with medications

• If unwilling to quit now, use motivational interventions to leave the door open for future discussion
### Counseling

<table>
<thead>
<tr>
<th>Method</th>
<th>Risk Ratio (95% CI) compared to minimal or usual care</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavioral counseling</strong></td>
<td></td>
</tr>
<tr>
<td>Individual counseling (Lancaster, 2005)</td>
<td>1.39 (1.24-1.57)</td>
</tr>
<tr>
<td>Group counseling (Stead, 2005)</td>
<td>1.98 (1.60-2.46)</td>
</tr>
<tr>
<td>Telephone Quitline counseling (Stead, 2013)</td>
<td>1.37 (1.26-1.50)</td>
</tr>
<tr>
<td><strong>Physician counseling (Stead, 2013)</strong></td>
<td></td>
</tr>
<tr>
<td>Brief advice</td>
<td>1.66 (1.42-1.94)</td>
</tr>
<tr>
<td>Brief counseling</td>
<td>1.86 (1.60-2.15)</td>
</tr>
<tr>
<td>Brief counseling vs advice</td>
<td>1.37 (1.20-1.56)</td>
</tr>
</tbody>
</table>
Cessation pharmacotherapy

- NRT
  - Transdermal patch
  - Gum
  - Lozenge
  - Inhaler
- Nasal spray
Dosing nicotine patch, gum, lozenge

**Nicotine patch**
- > 10 cigs/day = 21 mg for 4-6 weeks
- Step down 2-4 weeks as tolerated
- <10 cigs/day = 14 mg for 4-6 weeks
- Step down 2-4 weeks as tolerated

**Nicotine gum/lozenge**
- Smoke within 30 minutes of waking = 4 mg
- Smoke after 30 minutes of waking = 2 mg
- Alone, use at least 9 pieces/day
- Combine with patch, use as needed to treat cravings
Non-nicotine medications

First line agents

Second line agents

Clonidine Hydrochloride Tablets, USP
0.1 mg

Nortriptyline Hydrochloride Capsules, USP
10 mg

*Each Capsule Contains:
Nortriptyline Hydrochloride equivalent to 10 mg Nortriptyline
Dispense in a tight container, as defined in the USP, with child-resistant closure.
Usual Dosage: See package insert for dosage and full prescribing information.
Store at 20°C to 25°C (68°F to 77°F) [See USP Controlled Room Temperature].

Manufactured by:
Watson Pharma Ventures Limited
Verna, Saurashtra 370 722 INDIA
Code No. GD/MD/2006/1

Distributed by:
Mayne Pharma
Greenville, NC 27834
Rev. 01/16
# Dosing bupropion and varenicline

<table>
<thead>
<tr>
<th><strong>Bupropion</strong></th>
<th><strong>Varenicline</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiate up to 2 weeks before quit date</td>
<td>Initiate 1 week prior to quit date</td>
</tr>
<tr>
<td>150 mg daily for 3 days</td>
<td>0.5 mg daily for 3 days</td>
</tr>
<tr>
<td>150 mg twice daily for 7 - 12 weeks</td>
<td>0.5 mg twice daily for 4 days</td>
</tr>
<tr>
<td>Can be combined with nicotine patch</td>
<td>1 mg twice daily for 12 - 24 weeks</td>
</tr>
</tbody>
</table>
No significant increase in neuropsychiatric adverse events attributable to varenicline or bupropion relative to nicotine patch or placebo.
Relative efficacy of medication

EAGLES Trial, 2016
No evidence that the use of smoking cessation pharmacotherapies increased the risk of serious cardiovascular adverse events during or after treatment was observed. However, warning still on varenicline.
## Pharmacotherapy

<table>
<thead>
<tr>
<th>Method</th>
<th>Risk ratio (95% CI) compared to placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine replacement (Stead, 2012)</td>
<td></td>
</tr>
<tr>
<td>Combination NRT vs. single product</td>
<td>1.34 (1.18-1.51)</td>
</tr>
<tr>
<td>Patch</td>
<td>1.64 (1.52-1.78)</td>
</tr>
<tr>
<td>Gum</td>
<td>1.49 (1.40-1.60)</td>
</tr>
<tr>
<td>Lozenge</td>
<td>1.95 (1.61-2.36)</td>
</tr>
<tr>
<td>Inhaler</td>
<td>1.90 (1.36-2.67)</td>
</tr>
<tr>
<td>Nasal spray</td>
<td>2.02 (1.49-2.73)</td>
</tr>
<tr>
<td>Varenicline (Cahill, 2013)</td>
<td>2.27 (2.02-2.55)</td>
</tr>
<tr>
<td>Bupropion SR (Cahill, 2013)</td>
<td>1.69 (1.53-1.85)</td>
</tr>
</tbody>
</table>
The 5 A’s (AHRQ – 2008 Guidelines)

• **Ask** about tobacco use. Identify and document tobacco use status for every patient at every visit.
• **Advise** to quit. In a clear, strong, and personalized manner urge every tobacco user to quit.
• **Assess** willingness to make a quit attempt. Is the tobacco user willing to make a quit attempt at this time?
• **Assist** in quit attempt. For the patient willing to make a quit attempt, offer medication and provide or refer for counseling or additional treatment to help the patient quit. **For patients unwilling to quit at the time, provide interventions designed to increase future quit attempts.**
• **Arrange** followup. For the patient willing to make a quit attempt, arrange for follow-up contacts, beginning within the first week after the quit date. **For patients unwilling to make a quit attempt at the time, address tobacco dependence and willingness to quit at next clinic visit.**
ASK: Do you currently use tobacco?

YES

ADVISE: to quit.

ASSESS: Are you willing to quit now?

YES

ASSIST: provide appropriate tobacco dependence treatment

NO

ASSIST: intervene to increase motivation to quit

NO

ASSESS: Have you recently quit? Any challenges?

YES

ASSIST: Provide relapse prevention.

NO

ASSESS: Have you ever used tobacco?

YES

ASSIST: Encourage continued abstinence.

NO

ARRANGE FOLLOW UP
Ask-Advise-Refer (Connect)

• Start with 5 A’s except instead of Assess, ask if patient will accept a referral for tobacco treatment counseling.
• Refer to individual, group, or telephone counseling
• Provide medications
• Send referral to connect patient to services
  • Active referrals increase counseling enrollment >10-fold
  • Warm referrals (provider calls in clinic/at bedside)
• Funded by Nevada Division of Public and Behavioral Health and operated by National Jewish Health (Denver, CO)

• Provides free cessation coaching (age 13+) and medications (age 18+) to Nevada residents

• Nicotine replacement has eligibility criteria that will include cancer survivors beginning April 2019.
• Enroll by phone: 1-800 QUIT NOW (784-8669)
• Online: nevadatobaccoquitline.com
• Provider referral via fax, web portal or eReferral from medical record
• Chat with a coach
Contact: Thomas Ylioja, PhD, MSW
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303-728-6506