Smoking cessation and lung cancer screening

Wayne Warnken, MD
Community Health Center - Burlington

Garth W. Garrison, MD
Associate Professor of Medicine
University of Vermont Medical Center
Conflicts

Garth Garrison
• No relevant financial conflicts of interest
• No relationships including funding from tobacco industry or related entities

Wayne Warnken
• No relevant financial conflicts of interest
• No relationships including funding from tobacco industry or related entities
Impact of cigarette smoking

- 2-4 fold increase risk of coronary disease
- 2-4 fold increase risk of stroke
- 25-fold increase risk of lung cancer
Smoking in Vermont remains a problem
Challenges to approaching smoking cessation in rural settings

- Higher smoking rates in rural counties
- More challenging to access medical care
- Fewer resources for counseling and support

*Must make good use of the contacts with patients*
Medicare coverage requirement for LDCT screening

- Beneficiary eligibility criteria:
  - Age 55 – 77 years;
  - Asymptomatic (no signs or symptoms of lung cancer);
  - Tobacco smoking history of at least 30 pack-years (one pack-year = smoking one pack per day for one year; 1 pack = 20 cigarettes);
  - Current smoker or one who has quit smoking within the last 15 years; and
  - Receives a written order for LDCT lung cancer screening that meets the following criteria:
    - For the initial LDCT lung cancer screening service: a beneficiary must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision making visit, furnished by a physician (as defined in Section 1861(r)(1) of the Social Security Act) or qualified non-physician practitioner (meaning a physician assistant, nurse practitioner, or clinical nurse specialist as defined in § 1861(aa)(5) of the Social Security Act). A lung cancer screening counseling and shared decision making visit includes the following elements (and is appropriately documented in the beneficiary’s medical records):
      - Determination of beneficiary eligibility including age, absence of signs or symptoms of lung cancer, a specific calculation of cigarette smoking pack-years; and if a former smoker, the number of years since quitting;
      - Shared decision making, including the use of one or more decision aids, to include benefits and harms of screening, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure;
      - Counseling on the importance of adherence to annual lung cancer LDCT screening, impact of comorbidities and ability or willingness to undergo diagnosis and treatment;
      - Counseling on the importance of maintaining cigarette smoking abstinence if former smoker; or the importance of smoking cessation if current smoker and, if appropriate, furnishing of information about tobacco cessation interventions; and
      - If appropriate, the furnishing of a written order for lung cancer screening with LDCT.
    - Written orders for both initial and subsequent LDCT lung cancer screenings must contain the following information, which must also be appropriately documented in the beneficiary’s medical records:
      - Beneficiary date of birth;
      - Actual pack - year smoking history (number);
      - Current smoking status, and for former smokers, the number of years since quitting smoking;
      - Statement that the beneficiary is asymptomatic (no signs or symptoms of lung cancer); and
      - National Provider Identifier (NPI) of the ordering practitioner.

For subsequent LDCT lung cancer screenings, the beneficiary must receive a written order for LDCT lung cancer screening, which may be furnished during any appropriate visit with a physician (as defined in Section 1861(r)(1) of the Social Security Act) or qualified non-physician practitioner (meaning a physician assistant, nurse practitioner, or clinical nurse specialist as defined in Section 1861(aa)(5) of the Social Security Act). If a physician or qualified non-physician practitioner elects to provide a lung cancer screening counseling and shared decision making visit for subsequent lung cancer screenings with LDCT, the visit must meet the criteria described above for a counseling and shared decision making visit.

Written orders for both initial and subsequent LDCT lung cancer screenings must contain the following information, which must also be appropriately documented in the beneficiary’s medical records:

- Beneficiary date of birth;
- Actual pack - year smoking history (number);
- Current smoking status, and for former smokers, the number of years since quitting smoking;
- Statement that the beneficiary is asymptomatic (no signs or symptoms of lung cancer); and
- National Provider Identifier (NPI) of the ordering practitioner.
“Counseling on the importance of maintaining cigarette smoking abstinence if former smoker; or the importance of smoking cessation if current smoker and, if appropriate, furnishing of information about tobacco cessation interventions;”
Linking smoking cessation to LDCT

- As much as 50% of enrollees will be active smokers
- Smokers in screening MAY be more willing to consider cessation
- In NLST, screening + smoking cessation → **38% decline in lung cancer death**
  - Vs 20% overall
  - 7 years of abstinence was similar to effect of screening overall!
- Inconsistent impact in studies however – are we using the right methods?

LDCT is a good point of contact to discuss smoking
Smoking cessation nearly doubles the benefit of screening

Am J Respir Crit Care Med. 2016 Mar 1;193(5):534-41
Stages of cessation - Transtheoretical model (TTM)
Risk denial as a barrier

“I’m just getting ready to turn 50 and I keep thinking that’s not going to happen ‘til I’m over 70 or 80...So you just kind of, I guess, denial.”

- Gressard et al. BMC Public Health (2017)

- Risk minimizing beliefs may lower quit intentions (Borland R. Prev Med. 2009)

- Negative LDCT results may reinforce smoking behaviors
Smoking Cessation within the Context of Lung Cancer Screening

• LUNA (MD Anderson): Quitline vs integrated/tailored care
• MATCH (Mayo): Digital cessation intervention vs standard care
• PLUTO (Minnesota): telephone based intervention +/- pharmacist directed therapy
• CASTL (MSK): differential impact of: motivational interviewing, NRT patch, NRT lozenge, message framing (gain vs. loss)
• LUNG (MUSC): gain-framed intervention vs NRT
• PROACT (VA): starter packs of NRT mailed w/screening results
LDCT and smoking cessation – key points

- Benefit of smoking cessation can equal benefit of screening
- Discussing smoking is REQUIRED to start screening
- Smokers MAY be more open to discussing cessation
- Best ways to integrate screening and cessation being investigated
Common approach: 5As for encouraging cessation

- Ask
- Advise
- Assess
- Assist
- Arrange

Straight forward to integrate into Shared Decision Visit
5Rs for those not ready to quit

- Relevance
- Risks
- Rewards
- Roadblocks
- Repetition
Medication options for the management of smoking cessation

<table>
<thead>
<tr>
<th>Drug</th>
<th>Efficacy*</th>
<th>Pros</th>
<th>Cons</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patches</td>
<td>1.6x</td>
<td>• No cravings</td>
<td>• Skin reactions</td>
<td>• 21mcg patch 4-6 weeks, then taper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removes oral habit</td>
<td></td>
<td>• Start at 14mcg if &lt;10 cig/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removes reward cycle</td>
<td></td>
<td>• Start at 14mg if &lt;45kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Change every 24 hours*</td>
</tr>
<tr>
<td>Gum</td>
<td>1.5x</td>
<td></td>
<td>• No acidic drinks</td>
<td>• Chew and park</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 1 piece every 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 2mg if &lt;25 cig/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 4mg in heavier smokers</td>
</tr>
<tr>
<td>Lozenges</td>
<td>2x</td>
<td>• No chew and park</td>
<td></td>
<td>• 1 lozenge every 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fine for dentures</td>
<td></td>
<td>• 2mg if &lt;25 cig/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• 4mg in heavier smokers</td>
</tr>
<tr>
<td>Inhaler</td>
<td>1.9x</td>
<td>• Some need the oral habit</td>
<td>• Can’t Inhale</td>
<td>• Suck like a straw, don’t inhale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Requires Rx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal Spray</td>
<td>2</td>
<td>• Removes oral habit</td>
<td>• Quicker onset than others</td>
<td>• 1-2 sprays/hour</td>
</tr>
<tr>
<td>Other drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buproprion SR</td>
<td>1.7x</td>
<td>• Removes reward of smoking</td>
<td>• Insomnia</td>
<td>• 150mg daily for 3 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Headaches</td>
<td>• Increase to BID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nightmares</td>
<td>• Start quit attempts in 7 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Seizures</td>
<td></td>
</tr>
<tr>
<td>Varenicline</td>
<td>2.3x</td>
<td>• Reduces cravings</td>
<td>• Mood affects</td>
<td>• .5mg one daily for 3 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Insomnia</td>
<td>• .5mg BID for 4 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Headaches</td>
<td>• 1mg daily to complete 12 weeks</td>
</tr>
</tbody>
</table>

*Efficacy is compared to placebo. I.e. 2x means twice as effective as placebo

*Some people need to take of patch at nighttime as nicotine affects sleep
-Combination of patch plus short acting nicotine is 1.3 times more effective that a single nicotine agent
WHEREVER YOU ARE ON YOUR PATH TO QUITTING, HELP IS HERE.

TAKE THE FIRST STEP

We’ve gathered advice from experts and former tobacco users to help you prepare to quit now and stay quit.

GET HELP QUITTING

Increase your chances of successfully quitting when you sign up for free support available online, in person or by phone.

FREE PATCHES, GUM & LOZENGES

Get quit medications when you register for a free support program.
Decide to Quit

Quitting can seem overwhelming. Tobacco is part of your life and change is hard. We know.

We also know amazing change can happen when you have the right support and tools to guide you.

BecomeAnEX works because it was built for you—with expert knowledge from Mayo Clinic and real tobacco users who understand the struggle and how to quit.

Your path to a tobacco-free life starts with a personalized approach to quitting: your EX Plan. We'll help you from there!
Smokefree Apps

Get 24/7 support with a Smokefree app for your smartphone. These free apps offer help just for you based on your smoking patterns, moods, motivation to quit, and quitting goals. Tag the locations and times of day when you need extra support. Available for iOS and Android phones.

QuitGuide
QuitGuide is a free app that helps you understand your smoking patterns and build the skills needed to become and stay smokefree.

quitSTART
The quitSTART app takes the information you provide about your smoking history and gives you tailored tips, inspiration, and challenges to help you become smokefree.
quitSTART app
Numerous other apps; limited studies on efficacy

“NCI QuitGuide”  
iOS, Android

“Smoke Free–Quit Smoking” – David Crane  
iOS/Apple watch, Android

“Quit Genius” – Digital Therapeutics  
iOS, Android

“Livestrong MyQuit”  
iOS, Android