Quitting Smoking After a Cancer Diagnosis:
Smoking Cessation Treatment Works and Can Improve Cancer Care

Liz Klass, RN, TTS and Julia May, TTS
Lurie Tobacco Cessation Program in Supportive Oncology
Department of Preventive Medicine
Cancer Connections
April 13, 2019
How Cigarette Smoking Causes Cancer

7,000 chemicals

69 known carcinogens
Health Consequences Causally Linked to Smoking

Figure 1A  The health consequences causally linked to smoking

<table>
<thead>
<tr>
<th>Cancers</th>
<th>Chronic Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oropharynx</td>
<td>Stroke</td>
</tr>
<tr>
<td>Larynx</td>
<td>Blindness, cataracts, age-related macular degeneration</td>
</tr>
<tr>
<td>Esophagus</td>
<td>Congenital defects—maternal smoking: orofacial clefts</td>
</tr>
<tr>
<td>Trachea, bronchus, and lung</td>
<td>Aortic aneurysm, early abdominal aortic atherosclerosis in young adults</td>
</tr>
<tr>
<td>Acute myeloid leukemia</td>
<td>Coronary heart disease</td>
</tr>
<tr>
<td>Stomach</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Liver</td>
<td>Atherosclerotic peripheral vascular disease</td>
</tr>
<tr>
<td>Pancreas</td>
<td>Chronic obstructive pulmonary disease, tuberculosis, asthma, and other respiratory effects</td>
</tr>
<tr>
<td>Kidney and ureter</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Cervix</td>
<td>Reproductive effects in women (including reduced fertility)</td>
</tr>
<tr>
<td>Bladder</td>
<td>Hip fractures</td>
</tr>
<tr>
<td>Colorectal</td>
<td>Ectopic pregnancy</td>
</tr>
</tbody>
</table>


**Note:** The condition in **red** is a new disease that has been causally linked to smoking in this report.
What is the rate of continued smoking after a cancer diagnosis?

A. 6%
B. 10%
C. 28%
D. 40%

*Smoking rates among cancer patients are substantially higher than that in their comparable age group within the general population.*
## Impact of Smoking on Cancer Treatment

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Radiation</th>
<th>Chemotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Increased complications from general anesthesia</td>
<td>- Reduced treatment efficacy</td>
<td>- Potential exacerbation of side effects including:</td>
</tr>
<tr>
<td>- Increased risk of severe pulmonary complications</td>
<td>- Increased toxicity and side effects, including:</td>
<td>- Immune suppression</td>
</tr>
<tr>
<td>- Detrimental effects on wound healing, including:</td>
<td>- Xerostomia (dry mouth)</td>
<td>- Weight loss</td>
</tr>
<tr>
<td>- Compromised capillary blood flow</td>
<td>- Oral mucositis</td>
<td>- Fatigue</td>
</tr>
<tr>
<td>- Increased vasoconstriction</td>
<td>- Loss of taste</td>
<td>- Pulmonary and cardiac toxicity</td>
</tr>
<tr>
<td>- Increased risk of infection</td>
<td>- Pneumonitis</td>
<td>- Increased incidence of infection</td>
</tr>
<tr>
<td></td>
<td>- Soft-tissue and bone necrosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Poor voice quality</td>
<td></td>
</tr>
</tbody>
</table>
Much to Gain from Quitting

Sufficient evidence for a **causal** relationship:

- Decreased risk for developing a new cancer
- Improved prognosis

Suggestive evidence for a **causal** relationship:

- Improved response to treatment
- Decreased treatment-related toxicity
- Decreased risk of recurrence

**It is never too late to quit**
It is "incumbent on the cancer care community to incorporate effective tobacco cessation as an integral component of quality cancer care”

Source: ASCO, 2009
A Call to Action

Addressing a Core Gap in Cancer Care — The NCI Moonshot Program to Help Oncology Patients Stop Smoking

Robert T. Croyle, Ph.D., Glen D. Morgan, Ph.D., and Michael C. Fiore, M.D., M.P.H., M.B.A.

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The Lurie Tobacco Cessation Program in Supportive Oncology

Program Directors: Brian Hitsman, PhD and Timothy Pearman, PhD
Tobacco Treatment Specialists: Julia May, BS and Liz Klass, RN

PI: Leonidas Platanias, MD, PhD
Director, Robert H Lurie Comprehensive Cancer Center
Grant Number: 3P30CA060553-24S1
Framework for Intervention

- **Biological**
  - Physical Addiction
  - Withdrawal Symptoms
  - Use = Relief
  - Reward

- **Psychological**
  - Paired Activities
  - Routines/Habits
  - Triggers
  - Stress Management
  - Coping with Emotions

- **Social**
  - Connections
  - Fitting in
  - Family/Partners
  - Cultural Norms
Our Approach

Pharmacotherapy

Behavioral Counseling

NCCN Guidelines Version 1.2018
Smoking Cessation

CHANTIX®
(varenicline) TABLETS

Northwestern Medicine

Robert H. Lurie Comprehensive Cancer Center of Northwestern University
Behavioral Counseling

• ~ 4 appointments over 12 weeks
  • In-person visits at the Cancer Center
  • Over-the-phone counseling
  • Referral to external/community resources

• Developing practical skills for behavior change
  • Identifying triggers for smoking
  • Managing smoking urges
  • Addressing concerns about quitting
Medication

• 7 FDA approved medications:
  First line treatments:
  - Combination Nicotine Replacement
  - Varenicline

• Safe and complimentary to cancer treatment regiment
Varenicline and Counseling: A Northwestern Clinical Trial

A placebo-controlled randomized clinical trial of 24 weeks of varenicline to treat nicotine dependence among cancer patients: Cessation and safety outcomes and the importance of adherence

Schnoll et al Psycho-Oncology 2019

- 207 patients with cancer enrolled
- Abstinence strongly associated with adherence
- Safe to use as extended therapy
- No difference in adverse events between groups
Looking Ahead:
Questions?

Thank You!
1-312-921-QUIT
lurietobaccocessation@nm.org
Combination Therapy

Adding Medication to Counseling

Table 6.24. Meta-analysis (2008): Effectiveness of and estimated abstinence rates for the combination of counseling and medication vs. counseling alone (n = 9 studies)\(^a\)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Number of arms</th>
<th>Estimated odds ratio (95% C.I.)</th>
<th>Estimated abstinence rate (95% C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling alone</td>
<td>11</td>
<td>1.0</td>
<td>14.6</td>
</tr>
<tr>
<td>Medication and counseling</td>
<td>13</td>
<td>1.7 (1.3–2.1)</td>
<td>22.1 (18.1–26.8)</td>
</tr>
</tbody>
</table>

Adding Counseling to Medication

Table 6.22. Meta-analysis (2008): Effectiveness of and estimated abstinence rates for the combination of counseling and medication vs. medication alone (n = 18 studies)\(^a\)

<table>
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<tr>
<th>Treatment</th>
<th>Number of arms</th>
<th>Estimated odds ratio (95% C.I.)</th>
<th>Estimated abstinence rate (95% C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication alone</td>
<td>8</td>
<td>1.0</td>
<td>21.7</td>
</tr>
<tr>
<td>Medication and counseling</td>
<td>39</td>
<td>1.4 (1.2–1.6)</td>
<td>27.6 (25.0–30.3)</td>
</tr>
</tbody>
</table>
Specific Characteristics of the Cancer Population

Motivated to Quit; Longer window of relapse, More highly addicted

- Patients with cancer have a protracted timeline for smoking relapse
  - Most relapse appears to occur 2-6 months after quitting [Simmons et al. 2013]
  - For smokers in general, relapse risk is greatest 1-2 weeks after quitting [Hughes et al. 2004]
Combination Therapy: Extended Treatment
Cancer population at Northwestern Memorial

A placebo-controlled randomized clinical trial of 24 weeks of varenicline to treat nicotine dependence among cancer patients: Cessation and safety outcomes and the importance of adherence
Schnoll et al Psycho-Oncology 2019

STUDY DESIGN AND TREATMENT

Varenicline: Day 1-3 0.5 mg once daily, Day 4-7 0.5 mg twice daily, Day 8-84 1.0 mg twice daily
Behavioral counseling (7 sessions): 60 mins Pre-Quit (week 0), 30 mins TQD (week 1), 20 mins weeks 4, 8, 12, 14, 18
Summary of Study Results

• For smokers with cancer, varenicline appears to produce a quit rate that generally mirrors that observed with the general population.

• Extending varenicline treatment to 24 weeks improved quitting at 24 weeks for participants who were adherent to medication.

• There was no increase in side effects, AEs, or SAEs with 24 weeks vs 12 weeks.