Tobacco Cessation in Cancer Patients

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Institute of Medicine
National Cancer Policy Forum Workshop on Reducing Tobacco-Related Cancer Incidence and Mortality
Washington, DC
June 12, 2012
Overview

- Smoking prevalence among cancer survivors
- Addressing tobacco use in the oncology setting
  - Tailoring cessation treatments to cancer patients
  - Stigma
  - Cessation intervention trials
- NCI conference on Treating Tobacco Dependence at Cancer Centers
  - Treatment models
- MD Anderson Tobacco Treatment Program
- Research needs
Figure LCS1: Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by sex: 1992-2008

Current Smoking Among Chronic Disease Populations – NHIS, 2006

- Percent Current Smokers
  - No chronic disease: 36.9%
  - Smoking-related cancers (excl lung): 38.8%
  - Lung cancer: 20.9%
  - CVD: 30%
  - Emphysema: 49.1%
  - Chronic bronchitis: 41.1%
Smoking Status – Definitions
Patient History Database (PHDB), MD Anderson Cancer Center, 2000-2007

- Self-reported clinical intake assessment questionnaire completed by all newly registered patients.

- Approximately 93% of all newly registered patients completed the questionnaire.

- Smoking status is categorized as follows: current, recent quitter (quit less than 1 year prior to presentation to MDA), former (quit longer than 1 year prior to presentation to MDA) and never smokers.
Smoking Status of Cancer Patients
2000-2010
MD Anderson Cancer Center

Patient History Database, unpublished data

Note: ~45% of MDACC patients ≥ 60 yrs
<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Current</th>
<th>Recent Quitter</th>
<th>Former</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>18.4%</td>
<td>19.8%</td>
<td>46.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>H&amp;N</td>
<td>17.3%</td>
<td>9.8%</td>
<td>36.7%</td>
<td>36.2%</td>
</tr>
<tr>
<td>Esophagus</td>
<td>15.3%</td>
<td>8.5%</td>
<td>49.4%</td>
<td>26.8%</td>
</tr>
<tr>
<td>Bladder</td>
<td>16.1%</td>
<td>6.7%</td>
<td>50.9%</td>
<td>26.4%</td>
</tr>
<tr>
<td>Cervix</td>
<td>20.6%</td>
<td>5.7%</td>
<td>21.2%</td>
<td>52.5%</td>
</tr>
<tr>
<td>Breast</td>
<td>9.0%</td>
<td>3.3%</td>
<td>25.3%</td>
<td>62.4%</td>
</tr>
<tr>
<td>Prostate</td>
<td>9.2%</td>
<td>2.1%</td>
<td>46.2%</td>
<td>42.6%</td>
</tr>
<tr>
<td>Colorectal</td>
<td>9.4%</td>
<td>4.1%</td>
<td>35.2%</td>
<td>51.3%</td>
</tr>
<tr>
<td>Melanoma</td>
<td>11.5%</td>
<td>3.3%</td>
<td>31.9%</td>
<td>53.3%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>8.0%</td>
<td>4.7%</td>
<td>36.2%</td>
<td>51.2%</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>9.9%</td>
<td>4.3%</td>
<td>31.6%</td>
<td>54.2%</td>
</tr>
</tbody>
</table>
Accuracy of Self-Reported Tobacco Assessments in a Head and Neck Cancer Treatment Population

- N=50 head and neck cancer patients.
- Prospective analysis – self-reported and biochemically confirmed (serum cotinine) tobacco use during treatment (baseline and weekly → week 7): 93% compliance.
- 29.4% patients misrepresented smoking status according to cotinine levels.
- Accuracy increased by 14% with weekly vs. baseline self-report.

Warren et al, Radiotherapy and Oncology, 2011
Noted throat specialists report on 30-day test of Camel smokers...

NOT ONE SINGLE CASE OF THROAT IRRITATION due to smoking CAMELS!

Yes, these were the findings of noted throat specialists after a total of 2,470 weekly examinations of the throats of hundreds of men and women who smoked Camels—and only Camels—for 30 consecutive days.

THE TEST WAS REALLY FUN! EVERY Camel TASTED SO GOOD! AND I DIDN'T NEED MY DOCTORS REPORT TO KNOW CAMELS ARE MILD!

ELAINE O'BRIAN, and many, many others, have the thumbs up for the 30-Day Test of Camel Mildness under the observation of noted throat specialists.

... AND THOUSANDS MORE AGREE!

Start your own 30-Day Camel MILDNESS Test Today!

It's fun—so enlightening! All you do is smoke Camels, and only Camels, for 30 days. And there's no charge! Just try Camel. If you like it, you can buy it in your local "T-Zone" (T for taste, T for throats). So if you like things that are easy to remember, try Camel. You may be surprised how good they are!
Smoking and Tobacco Use are Important to Address in the Oncology Setting

- Rates of current smoking at diagnosis among patients with lung or H&N tumors are 40-60%.
- Initial high quit rates following surgery decline over time: 36.9% of patients were smoking 1 year after surgery for non-small cell lung cancer (NSCLC).
- Patients with cancers less strongly associated with smoking have lower long-term quit rates.
- Overall, up to 30-50% of patients smoking at diagnosis do not quit, or relapse following initial quit attempts.
- Relapse even occurs among patients who quit ≥ 1 year earlier

• Education about the link between cancer and smoking.

• Sensitivity to physical limitations imposed by disease and treatment (especially pertaining to diet and exercise).

• Medical contraindications to certain types of pharmacologic treatment must be recognized and appropriately managed.

• Psychological issues such as guilt, depression, anxiety, and stress should be considered and addressed.

• Recognition of delayed relapse.

Gritz et al, Cancer, 2006
Stigma, Shame, and Blame Experienced by Patients with Lung Cancer

• Total of 45 patients with lung cancer, UK, qualitative study (narrative interviews).

• Lung cancer stigma stronger than other cancers because of association with smoking.

• Interaction with family, friends, and doctors was often affected.

• Patients who had stopped smoking years ago or had never smoked felt unjustly blamed for their illness.

• Media stigma: Portrayal of death in anti-tobacco ads exacerbated fear and anxiety.

Chapple et al, BMJ, 2004
Assessment of Guilt and Shame in Patients with Non-Small-Cell Lung Cancer Compared with Patients with Breast and Prostate cancer.

• 172 patients with stage IV NSCLC, breast cancer, or prostate cancer.

• Mailed surveys included tests of generalized guilt, shame, depression, and anxiety as well as guilt, shame, and embarrassment related to one's cancer.

• A composite score of embarrassment related to one's cancer (perceived cancer-related stigma) was higher in patients with NSCLC ($P < .01$) than breast and prostate cancer.

• A history of smoking correlated with increased levels of guilt and shame, regardless of tumor type.

• Of the patients with NSCLC, 29.5% felt that their behaviors contributed to their cancer compared with 10.5% of the comparison patients.

• Need for patient-provider communication regarding issues of cancer causation, guilt, shame, depression and anxiety.

LoConte et al, Clin Lung Cancer, 2008
Differences in Primary Care Clinicians' Approach to Non-Small-Cell Lung Cancer Patients Compared with Breast Cancer.

- 1132 primary care physicians in Wisconsin, mail survey: response rate 59.4%, N=672.
- Physicians were randomized to receive one of four scenarios on the basis of cancer type and smoking status.
- Physicians’ referral patterns, length of follow-up, and knowledge about the benefits of chemotherapy were compared.
- Clinical scenarios: physicians were less likely to refer patients with advanced lung cancer than patients with advanced breast cancer (p < 0.001).
- More physicians knew that chemotherapy improved survival in advanced breast cancer than in advanced lung cancer (p = 0.0145).
- Breast cancer patients were more likely to be referred for further therapy, whereas lung cancer patients were often referred only for symptom control (p = 0.0092).
- No statistically significant differences between smoking and nonsmoking patients.

Wassenaar et al, J Thorac Oncol, 2007
Smoking Cessation Interventions in Cancer Patient Populations

- Few studies (~12), mostly small sample sizes and no biochemical validation.

- Highest quit rates in lung, H&N populations (70% at 1 year, Gritz et al, 1993, validated).

- Interventions closer to cancer diagnosis more successful.

- Large RCT (n=246) of bupropion vs placebo (plus NRT & counseling) showed no main effect of tx (mixed pt sample), but depressed pts benefitted from bupropion (Schnoll et al, 2010).

- Targeting smoking, depression and alcohol use in H&N ca pts resulted in higher 6 mo quit rates in intervention group (cog/beh tx + meds) vs usual care (Duffy et al, 2006).
Smoking Cessation Interventions in Cancer Patient Populations

- Peer-based telephone counseling intervention in adult survivors of pediatric ca vs self-help (n=796) – sig intervention effect, long term (12 mos) (Emmons et al, 2005).

- Barriers to trial enrollment – low eligibility (current smoking status), distance from tx, multiple languages, medical contraindications, comorbidities (depression, alcohol), guilt/fear of stigma, fatalism, quit/relapse patterns, etc.
National Cancer Institute Conference on Treating Tobacco Dependence at Cancer Centers

By Glen Morgan, PhD, Robert A. Schnoll, PhD, Catherine M. Alfano, PhD, Sarah E. Evans, PhD, Adam Goldstein, MD, MPH, Jamie Ostroff, PhD, Elyse Richelle Park, PhD, Linda Sarna, DNSc, RN, and Lisa Sanderson Cox, PhD

Tobacco Control Research Branch and Office of Cancer Survivorship, National Cancer Institute; Bethesda, MD; Department of Psychiatry, University of Pennsylvania, Philadelphia, PA; Department of Family Medicine, University of North Carolina, Chapel Hill, Chapel Hill, NC; Behavioral Science Service, Memorial Sloan-Kettering Cancer Center, New York, NY; Department of Psychiatry and Health Policy, Harvard Medical School, Boston, MA; School of Nursing, University of California, Los Angeles, Los Angeles, CA; Department of Preventive Medicine and Public Health, University of Kansas Medical Center, Kansas City, KS

Morgan et al, J Oncology Practice, 2011
Highlighting the importance of treating tobacco dependence in the context of cancer care and survivorship.

Reviewed guidelines for treating tobacco dependence in cancer patients and cancer survivors.

Discussed models for tobacco dependence treatment in the oncologic context.

Discussed barriers to the implementation of tobacco dependence treatment in cancer centers.

Reviewed strategies to overcome barriers.

Explore scientific questions related to tobacco dependence treatment that require further study.

Morgan et al, 2011
National Cancer Institute Conference on Treating Tobacco Dependence at Cancer Centers
December 2009

- Survey of 58 NCI cancer centers – 60% offer some form of tobacco use treatment (often limited to disease sub-populations); <50% have designated personnel; availability of tobacco use treatment programs lags behind other models of care (e.g., nutrition). Resource needs – motivation and commitment of oncology leadership, funding, personnel.

- Priorities to enhance quality of care for tobacco dependence:
  - Develop consensus regarding assessment of smoking status
  - Refine EMRs and clinical trials to ensure identification and referral of smokers
  - Evaluate novel treatment of cancer patients
  - Evaluate methods to overcome barriers to providing treatment

Morgan et al, 2011; Goldstein et al, 2012
<table>
<thead>
<tr>
<th>Program Characteristics</th>
<th>Massachusetts General Hospital</th>
<th>Memorial Sloan-Kettering Cancer Center</th>
<th>MD Anderson Cancer Center</th>
<th>Moffitt Cancer Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of tobacco users</td>
<td>Electronic assessment/referral</td>
<td>Inpatient/ambulatory RN assessment</td>
<td>Referral-provider, self, electronic follow-up</td>
<td>Comprehensive admission (EMR)</td>
</tr>
<tr>
<td>Eligibility</td>
<td>Current smokers, recent quitters (past 12 mo)</td>
<td>Current smokers, recent quitters (past 30 d)</td>
<td>Current smokers, recent quitters (past 12 mo)</td>
<td>Current smokers, recent quitters (past 90 d)</td>
</tr>
<tr>
<td>Treatment Intensity</td>
<td>Level 4*</td>
<td>Level 4</td>
<td>Level 4</td>
<td>Level 3**</td>
</tr>
<tr>
<td>Treatment modality</td>
<td>Individual counseling, referral to quitline, self-help</td>
<td>Individual, telephone</td>
<td>Individual, telephone, web-cam</td>
<td>Identification of tobacco users</td>
</tr>
<tr>
<td>Funding source(s)</td>
<td>Hospital budget/clinical revenue</td>
<td>Hospital budget/clinical revenue</td>
<td>State tobacco settlement funds</td>
<td>Hospital budget</td>
</tr>
</tbody>
</table>

*Level 4: any hospital contact and postdischarge support lasting more than 1 month

**Level 3: any hospital contact and postdischarge support lasting 1 month or less

Morgan et al, 2011
The mission of the Tobacco Treatment Program is to implement a comprehensive tobacco-cessation and relapse prevention program for all M. D. Anderson Cancer Center patients and employees.

Paul Cinciripini, Ph.D.  
Director

Janice Blalock, Ph.D.  
Assistant Director

Maher Karam-Hage, M.D.  
Associate Medical Director
## TTP Referral Sources – FY11*

<table>
<thead>
<tr>
<th>Source</th>
<th>Referrals</th>
<th>Patients</th>
<th>Yield**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>193</td>
<td>131</td>
<td>68%</td>
</tr>
<tr>
<td>Health Care Provider</td>
<td>708</td>
<td>288</td>
<td>41%</td>
</tr>
<tr>
<td>Nursing Staff</td>
<td>1489</td>
<td>208</td>
<td>14%</td>
</tr>
<tr>
<td>EMR pilot***</td>
<td>404</td>
<td>56</td>
<td>14%</td>
</tr>
</tbody>
</table>

* Patients can be referred by more that one source. Patient counts are unique within source, but not across sources.

** Yield is percent of referrals who become patients

*** 3 centers – Head & Neck, Lymphoma, Cancer Prevention

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** MD Anderson Tobacco Treatment Program **
Clinical Service

• Program offers:
  – In-person and/or telephone behavioral counseling
  – Prescription medications & nicotine replacement
  – Deliver services by telephone and in inpatient rooms as needed
  – Multidisciplinary team (psychologists, psychiatrist, social workers, PA, nurse)
  – Assessment and treatment of comorbid psychiatric disorders, depressive/anxiety symptoms, substance use and abuse
  – Assess and treat patient’s family members
  – No cost to patients and employees
Assessment and Treatment Plan

- Initial assessment with clinical interview and battery of standardized questionnaires
  - Tobacco history
  - Level of nicotine dependence
  - Level of motivation to change tobacco use behavior
  - Psychological aspects of the cancer experience
  - Comorbid psychiatric disorders, depressive/anxiety symptoms, substance use and abuse
  - Expired CO, plasma cotinine and buccal swab (genetics)
  - Medication, health and surgical history
  - Concurrent Illness
  - Pending treatments at M.D.A. (surgeries, transplants, etc.)

- Medical record documentation & provider communication
Counseling and Pharmacological Intervention

- Behavioral treatment based on cognitive behavioral strategies
  - 6 to 8 counseling sessions; 45-90 minutes
  - Intensity of counseling dependent on:
    - Level of nicotine dependence
    - Upcoming surgery/cancer treatments
    - Presence of comorbid psychiatric disorders
    - Spousal involvement
  - As needed telephone follow-up
  - Long term follow-up: 3, 6 and 12 months
Counseling and Pharmacological Intervention

- Pharmacological Intervention
  - Varenicline (Chantix)
  - Bupropion (Wellbutrin, Zyban)
  - NRT (nicotine replacement therapy)
  - Various medication combinations
- Ongoing assessment of abstinence
  and related clinical issues
### Demographic and Behavioral Information (N = 1577) 2006-2011

<table>
<thead>
<tr>
<th>Demographic and Behavioral Information</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong></td>
<td>790</td>
<td>50.1</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>161</td>
<td>10.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>75</td>
<td>4.8</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>1.3</td>
</tr>
<tr>
<td>White</td>
<td>1302</td>
<td>83.6</td>
</tr>
<tr>
<td><strong>Psychiatric Comorbidity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>559</td>
<td>41.1</td>
</tr>
<tr>
<td>No</td>
<td>802</td>
<td>58.9</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Behavior Information</th>
<th>Mean</th>
<th>SD</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>53</td>
<td>10.2</td>
</tr>
<tr>
<td>FTND</td>
<td>4.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Cigarettes/Day</td>
<td>19</td>
<td>11.9</td>
</tr>
<tr>
<td>Years Smoked</td>
<td>34.9</td>
<td>12.2</td>
</tr>
</tbody>
</table>

MD Anderson Tobacco Treatment Program
41% present with at least one comorbid diagnosis and, of those, approximately 40% have ≥ 2 disorders.
## TTP Patients Smoking-Related Cancers 2006-2011

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>241</td>
<td>31.1</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>258</td>
<td>33.3</td>
</tr>
<tr>
<td>Colorectal</td>
<td>48</td>
<td>6.2</td>
</tr>
<tr>
<td>Bladder</td>
<td>45</td>
<td>5.8</td>
</tr>
<tr>
<td>Leukemia (acute myeloid)</td>
<td>13</td>
<td>1.7</td>
</tr>
<tr>
<td>Cervical</td>
<td>19</td>
<td>2.5</td>
</tr>
<tr>
<td>Kidney</td>
<td>39</td>
<td>5.0</td>
</tr>
<tr>
<td>Pancreas</td>
<td>18</td>
<td>2.3</td>
</tr>
<tr>
<td>Esophagus</td>
<td>29</td>
<td>3.7</td>
</tr>
<tr>
<td>Stomach</td>
<td>17</td>
<td>2.2</td>
</tr>
<tr>
<td>Vulva</td>
<td>12</td>
<td>1.6</td>
</tr>
<tr>
<td>Other*</td>
<td>35</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>774</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

1-ACS and literature based evidence for smoking as a risk factor

*Other = cancer sites with frequency < 1%
Cessation Rates over Time: Smoking-Related Cancers (N=774) vs. Non-Smoking Related (N=685) 2006-2011

Non-smoking-related vs smoking-related at EOT
Odds ratio: 0.694
95% CL: 0.534 – 0.901

MD Anderson Tobacco Treatment Program
Research Needs: Systemically Collect Smoking Status as Core Data in All Oncology Clinical Trials

- At diagnosis, trial registration and every trial visit – during treatment and throughout follow-up to long-term survival or death.

- Detailed history and status using standardized instruments from cessation research and national surveys (NHIS, BRFSS).

- Measurement of cotinine for assessment of exposure, and objective validation of abstinence.

- Build a large clinical trials database with the power to assess treatment complications, toxicities, outcome, recurrence, SPTs, and survival for multiple cancer sites and across treatment modalities.

- Conduct prospective RCTs to establish optimal cessation treatment regimens and timing of treatment.