Leading Practices in Smoking Cessation for Cancer Patients and Families

October 18, 2018
1:00 - 2:00pm Eastern Time
Today’s learning objectives

1. Increase knowledge on the treatment benefits and health outcomes related to smoking cessation for cancer patients.

2. Learn about current practices in smoking cessation for cancer patients and families in Canada and abroad.

3. Promote exchange of these practices among practice and policy specialists to support implementation and adaptation across Canada.
Introducing our guest presenters

**Dr. Graham Warren**, M.D., PhD  
Vice Chairman for Research  
Department of Radiation Oncology  
Department of Cell & Molecular Pharmacology  
Cancer Prevention & Control Program  
Hollings Cancer Center  
Medical University of South Carolina

**Scott Antle**, Project Lead, Smoking Cessation & Program Manager, Colon and Cervical Screening, Cancer Care Program, Eastern Health, Newfoundland & Labrador
Respecting Traditions
Problem: We don’t view Smoking in the Continuum of Cancer

The Established Carcinogenesis Model

2010 Surgeon General's Report, Fig 5.1
Problem: We don’t view Smoking in the Continuum of Cancer

The Established Carcinogenesis Model

- Receptor binding
- Protein kinase A and B activation and other changes
- Mutations in oncogenes and tumor-suppressor genes
- Loss of normal growth control mechanisms

The Reality of Cancer

**Biologic Outcomes**
(tumor promotion, decreased cancer treatment efficacy)

**Clinical Outcomes**
(recurrence, toxicity, mortality)

**Value Outcomes**
(cost of cancer treatment, productivity, QOL/EOL, recurrence, toxicity, mortality)

2010 Surgeon General’s Report, Fig 5.1
The Established Carcinogenesis Model

The Historical Disconnect

The Reality of Cancer

Biologic Outcomes
(tumor promotion, decreased cancer treatment efficacy)

Clinical Outcomes
(recurrence, toxicity, mortality)

Value Outcomes
(cost of cancer treatment, productivity, QOL/EOL, recurrence, toxicity, mortality)

Addressing Tobacco Use by Cancer Patients

2010 Surgeon General’s Report, Fig 5.1
The 2014 Surgeon General’s Report

• Landmark SGR reviewing ~400 studies reporting on over 500,000 patients

• In cancer patients and survivors, the evidence is sufficient to infer a causal relationship between cigarette smoking
  – Adverse health outcomes
  – Increased all-cause mortality
  – Increased cancer-specific mortality
  – Increased risk for second primary cancers
  – Associated with increased risk of recurrence, poorer response to treatment, and increased treatment-related toxicity

## The 2014 SGR: Magnitude Estimates

<table>
<thead>
<tr>
<th>Effect</th>
<th>Studies</th>
<th>Associations (Significant)</th>
<th>RR Magnitude (median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Mortality</td>
<td>159</td>
<td>87% (62%)</td>
<td><strong>Current: 1.51</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Former: 1.22</strong></td>
</tr>
<tr>
<td>Overall Survival</td>
<td>62</td>
<td>77% (42%)</td>
<td></td>
</tr>
<tr>
<td>Cancer Related Mortality</td>
<td>58</td>
<td>79% (59%)</td>
<td><strong>Current: 1.61</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Former: 1.03</strong></td>
</tr>
<tr>
<td>Second Primary</td>
<td>26</td>
<td>100% (100%)</td>
<td></td>
</tr>
<tr>
<td>Recurrence</td>
<td>51</td>
<td>82% (53%)</td>
<td><strong>Current: 1.42</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Former: 1.15</strong></td>
</tr>
<tr>
<td>Response</td>
<td>16</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>Toxicity</td>
<td>82</td>
<td>94% (80%)</td>
<td></td>
</tr>
</tbody>
</table>
Negative Associations of Smoking
(one or more negative association)

Significant  Non-significant

Hematologic (n=17)
Breast (n=31)
Gynecologic (n=21)
Genitourinary non-prostate (n=23)
Prostate (n=17)
Gastrointestinal (n=37)
Lung (n=157)
Head/Neck (n=60)
Multiple (n=10)

0%  20%  40%  60%  80%  100%

Cessation and Overall Mortality

<table>
<thead>
<tr>
<th>Study</th>
<th>Hazard Ratio (95% CI) Calculated</th>
<th>(n)</th>
<th>Tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Mamgani et al., 2014</td>
<td>5.25 (3.47-7.95) (calculated)</td>
<td>267</td>
<td>H/N, larynx</td>
</tr>
<tr>
<td>Roach et al., 2016</td>
<td>2.07 (1.02-4.20)</td>
<td>119</td>
<td>Lung</td>
</tr>
<tr>
<td>Dobson Amato et al., 2015</td>
<td>1.79 (1.14-2.82)</td>
<td>224</td>
<td>Lung</td>
</tr>
<tr>
<td>Tao et al., 2013</td>
<td>1.76 (1.37-2.27)</td>
<td>411</td>
<td>Male multi sites</td>
</tr>
<tr>
<td>Passarelli et al., 2016</td>
<td>1.50 (RR 2.57 p vs. 2.34 q) (calc)</td>
<td>786</td>
<td>Breast</td>
</tr>
<tr>
<td>Browman et al., 2002</td>
<td>1.22 (0.79-1.87) (calculated)</td>
<td></td>
<td>Comparison of smokers of &gt;1 cig/day vs. &lt;1 cig/day including nonsmokers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>Hazard Ratio (95% CI) Calculated</th>
<th>(n)</th>
<th>Tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nia et al., 2005</td>
<td>0.34 (0.16-0.71)</td>
<td>204</td>
<td>Lung</td>
</tr>
<tr>
<td>Chen et al., 2010</td>
<td>0.54 (0.37-0.77)</td>
<td>163</td>
<td>Lung, SCLC</td>
</tr>
<tr>
<td>Sandoval et al., 2009</td>
<td>0.77 (0.34-1.73)</td>
<td>85</td>
<td>H/N, oral cavity</td>
</tr>
<tr>
<td>Choi et al., 2016</td>
<td>0.88 (RR 2.38 q vs. 2.71 p) (calc)</td>
<td>245</td>
<td>H/N</td>
</tr>
</tbody>
</table>

Continued smoking increases risk ~1.6-1.7 as compared with quitting smoking

(smoking cessation can improve outcome?!?!)
Assessing Tobacco in Cooperative Groups

- Current Cigarette Use (21.9%)
- Current Other Tobacco Use (12.2%)
- Former Cigarette Use (21.3%)
- Former Other Tobacco Use (12.2%)
- Secondhand Smoke (2.6%)
- Any Tobacco Assessment at Follow Up (4.5%)
- Any Assessment of Tobacco (29%)
- No Assessment of Tobacco (71%)

# Tobacco Assessment by Oncologists

*(Always/Most of the time)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>IASLC (n=1507)</th>
<th>ASCO (n=1197)</th>
<th>NDCC (n=887)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask if use tobacco</td>
<td>90.2%</td>
<td>89.5%</td>
<td>90.2%</td>
</tr>
<tr>
<td>Ask if will quit</td>
<td>78.9%</td>
<td>80.2%</td>
<td>78.5%</td>
</tr>
<tr>
<td>Advise to quit</td>
<td>80.6%</td>
<td>82.4%</td>
<td>83.3%</td>
</tr>
<tr>
<td>Discuss medications</td>
<td>40.2%</td>
<td>44.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Actively treat</td>
<td>38.8%</td>
<td>38.6%</td>
<td>35.1%</td>
</tr>
</tbody>
</table>

Warren GW et al. *J Oncol Pract* 2013 Jul 29 Epub
Pommerenke et al. *AACR 2014 Annual Meeting*
### Effects of Perceptions on Practice

#### TABLE 5. Multivariate Associations of Perceptions and Barriers on Practice Patterns in Respondents

<table>
<thead>
<tr>
<th>Perceptions and Barriers</th>
<th>Ask Your Patients if They Smoke, OR (95% CI)</th>
<th>Ask Patients Who Smoke if They Will Quit, OR (95% CI)</th>
<th>Advise Patients Who Smoke to Stop, OR (95% CI)</th>
<th>Discuss Medication Options, OR (95% CI)</th>
<th>Actively Treat or Refer Patients, OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current smoking or tobacco use impacts treatment outcomes in cancer patients</td>
<td>1.79 (0.91–3.52)</td>
<td>1.07 (0.79–1.46)</td>
<td>1.21 (0.89–1.66)</td>
<td>1.19 (0.93–1.53)</td>
<td>1.16 (0.90–1.50)</td>
</tr>
<tr>
<td>Tobacco cessation should be a standard part of cancer treatment interventions</td>
<td>1.06 (0.55–2.04)</td>
<td>2.07 (1.56–2.75)</td>
<td>1.74 (1.31–2.32)</td>
<td>1.17 (0.92–1.49)</td>
<td>1.52 (1.18–1.96)</td>
</tr>
<tr>
<td>Waste of time- cessation does not affect outcomes in cancer patients</td>
<td>1.37 (0.90–2.07)</td>
<td>1.09 (0.89–1.33)</td>
<td>1.24 (1.02–1.51)</td>
<td>0.84 (0.73–0.96)</td>
<td>0.76 (0.66–0.88)</td>
</tr>
<tr>
<td>Inability to get patients to quit tobacco use</td>
<td>1.12 (0.71–1.77)</td>
<td>1.32 (1.07–1.61)</td>
<td>1.19 (0.97–1.47)</td>
<td>1.01 (0.87–1.16)</td>
<td>1.03 (0.89–1.19)</td>
</tr>
<tr>
<td>Patient resistance to cessation treatment</td>
<td>1.16 (0.75–1.82)</td>
<td>0.90 (0.72–1.11)</td>
<td>1.02 (0.82–1.27)</td>
<td>0.90 (0.77–1.05)</td>
<td>0.94 (0.81–1.11)</td>
</tr>
<tr>
<td>I have had adequate training in tobacco assessment and cessation interventions</td>
<td>1.03 (0.65–1.64)</td>
<td>1.40 (1.14–1.71)</td>
<td>1.19 (0.97–1.45)</td>
<td>1.39 (1.22–1.58)</td>
<td>1.64 (1.43–1.88)</td>
</tr>
<tr>
<td>Lack of training or experience in tobacco cessation interventions</td>
<td>1.23 (0.72–2.09)</td>
<td>1.01 (0.79–1.30)</td>
<td>1.06 (0.82–1.37)</td>
<td>0.70 (0.59–0.84)</td>
<td>0.92 (0.77–1.09)</td>
</tr>
<tr>
<td>Clinicians need more training in tobacco assessment and cessation interventions</td>
<td>0.95 (0.55–1.64)</td>
<td>1.35 (1.05–1.73)</td>
<td>1.23 (0.95–1.59)</td>
<td>1.33 (1.11–1.60)</td>
<td>1.06 (0.88–1.27)</td>
</tr>
<tr>
<td>Lack of time for counseling or to set up a referral</td>
<td>1.09 (0.68–1.76)</td>
<td>0.94 (0.76–1.15)</td>
<td>0.93 (0.75–1.15)</td>
<td>0.79 (0.69–0.91)</td>
<td>0.80 (0.69–0.93)</td>
</tr>
<tr>
<td>None or limited provider reimbursement</td>
<td>0.97 (0.61–1.55)</td>
<td>0.90 (0.73–1.11)</td>
<td>0.87 (0.70–1.08)</td>
<td>1.12 (0.97–1.30)</td>
<td>1.00 (0.86–1.16)</td>
</tr>
<tr>
<td>Lack of available resources or referrals for cessation interventions</td>
<td>0.93 (0.55–1.58)</td>
<td>0.87 (0.69–1.09)</td>
<td>1.10 (0.87–1.40)</td>
<td>0.92 (0.78–1.08)</td>
<td>0.70 (0.60–0.83)</td>
</tr>
</tbody>
</table>

Analyses are adjusted for country, work setting, years passed since terminal degree, percent of time devoted to patient care, and history of tobacco use.

Who Should Provide Support?
(NCI survey)

What provider do you prefer to provide cessation assistance?

I prefer to treat the patient myself (1%)

Primary Care physician (16%)

MD/DO level provider (4%)

Mid level provider (NP/PA) 19%

Other clinical support (nurse, social work) (9%)

Any other clinical staff (50%)

Pommerenke et al. AACR 2014 Annual Meeting
Automated Screening and Treatment

All New Patients

New Patient Screen

Positive Screen for Tobacco Use

Established Patient Screen

Negative Screen for Tobacco Use

Standard Clinical Cancer Care

Automated Referral to Cessation Service

Refuse Enrollment

Accept Enrollment

Individualized Tobacco Cessation Intervention

Warren GW et al., Cancer 2014
Participation at First Cessation Contact

2765 patients referred to cessation program

1384 patients with at least 5 cessation contact attempts

1126 patients contacted by cessation service

1075 appropriate referrals contacted by cessation service

1010 receptive to cessation assistance

1381 receive mailing on cessation support

258 patients not reached within 5 attempts

51 inappropriate referrals

35 unable to participate

30 refused participation

1.2% (16 patients) contacted cessation program

81.3% Contact Rate

2.8% Refused Participation

1. Includes 12 never smokers and 39 former smokers with no tobacco use in the past 30 days
2. Includes 12 patients in end-of-life situation and 23 patients in assisted living arrangement with contact by proxy
## New Patient Screen Yield

98.8% of patients captured with 3 questions

<table>
<thead>
<tr>
<th>Referral Question</th>
<th>% of Total Referrals for Current Users</th>
<th>% of Total Referrals for Former Users</th>
<th>% of Total Referrals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you now smoke cigarettes everyday, some days, or not at all?</td>
<td>93.7%</td>
<td></td>
<td>83.1%</td>
</tr>
<tr>
<td>Do you currently use any other tobacco products such as cigars, pipes, chewing tobacco, snuff, dip, SNUS, clove cigarettes, kreteks, or bidis?</td>
<td>6.3%</td>
<td></td>
<td>5.6%</td>
</tr>
<tr>
<td>About how long has it been since you last smoked a cigarette, even a puff?</td>
<td></td>
<td>89.0%</td>
<td>10.1%</td>
</tr>
<tr>
<td>About how long has it been since you last smoked/used other tobacco products such as cigars, cigarillos, little cigars, pipe tobacco, or used chewing tobacco, snuff, dip, or SNUS even once?</td>
<td>1.4%</td>
<td></td>
<td>0.2%</td>
</tr>
<tr>
<td>Are you currently using any of the following methods or strategies to try to quit?</td>
<td></td>
<td>2.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Are you interested in stopping tobacco use or speaking with our tobacco cessation specialist?</td>
<td></td>
<td>6.8%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Extending assessment to every month delayed referral in only 3 of 428 cessation referrals (0.7%)

Warren GW et al., Cancer 2014
### Automated Cessation and Mortality

<table>
<thead>
<tr>
<th>Continuous Variables</th>
<th>N</th>
<th>Mean</th>
<th>Hazard Ratio</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis (years)</td>
<td>224</td>
<td>61.9</td>
<td>1.04</td>
<td>1.02–1.06</td>
<td>0.001</td>
</tr>
<tr>
<td>Pack-years</td>
<td>224</td>
<td>59.7</td>
<td>1.00</td>
<td>0.99–1.01</td>
<td>0.495</td>
</tr>
<tr>
<td>Days between diagnosis and last contact</td>
<td>224</td>
<td>100.9</td>
<td>0.999</td>
<td>0.998–1.001</td>
<td>0.227</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Categorical Variables</th>
<th>N</th>
<th>%</th>
<th>Hazard Ratio</th>
<th>95% CI</th>
<th>p</th>
</tr>
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<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>134</td>
<td>59.8</td>
<td>1.00</td>
<td>Ref.</td>
<td>0.051</td>
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<tr>
<td>Male</td>
<td>90</td>
<td>40.2</td>
<td>1.45</td>
<td>1.01–2.14</td>
<td></td>
</tr>
<tr>
<td>Clinical stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage I/II</td>
<td>81</td>
<td>36.2</td>
<td>1.00</td>
<td>Ref.</td>
<td>&lt;0.001†</td>
</tr>
<tr>
<td>Stage III</td>
<td>65</td>
<td>29.0</td>
<td>2.53</td>
<td>1.39–4.61</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td>78</td>
<td>34.8</td>
<td>8.72</td>
<td>4.93–15.40</td>
<td></td>
</tr>
<tr>
<td>ECOG status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>127</td>
<td>56.7</td>
<td>1.00</td>
<td>Ref.</td>
<td>0.265</td>
</tr>
<tr>
<td>≥1</td>
<td>97</td>
<td>43.3</td>
<td>1.26</td>
<td>0.84–1.89</td>
<td></td>
</tr>
<tr>
<td>Tumor histology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSCLC</td>
<td>197</td>
<td>87.9</td>
<td>1.00</td>
<td>Ref.</td>
<td>0.626</td>
</tr>
<tr>
<td>Other lung cancer</td>
<td>27</td>
<td>12.1</td>
<td>0.87</td>
<td>0.50–1.52</td>
<td></td>
</tr>
<tr>
<td>Quit status at referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>48</td>
<td>21.4</td>
<td>1.00</td>
<td>Ref.</td>
<td>0.393</td>
</tr>
<tr>
<td>Current</td>
<td>176</td>
<td>78.6</td>
<td>0.80</td>
<td>0.48–1.34</td>
<td></td>
</tr>
<tr>
<td>Quit status at last contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>95</td>
<td>42.4</td>
<td>1.00</td>
<td>Ref.</td>
<td>0.012†</td>
</tr>
<tr>
<td>Current</td>
<td>129</td>
<td>57.6</td>
<td>1.79</td>
<td>1.14–2.82</td>
<td></td>
</tr>
</tbody>
</table>

115 of 224 patients (51.3%) were deceased by the end of the follow-up period. The model is adjusted for all variables shown in this table based upon a Cox proportional hazards model. *N = 224 of 250 due to 22 records missing clinical stage, two missing pack-years, and two missing both clinical stage and pack-years. Bold indicates statistically significant at p < 0.05.

CI, confidence interval; ECOG, Eastern Cooperative Oncology Group; NSCLC, non–small-cell lung cancer.
Implementing Cessation into Practice

- The 5 A’s Model
  - Ask
  - Advise
  - Assess
  - Assist
  - Arrange

- Implementing cessation into clinical care should consider new and follow-up approaches

Warren et al. DeVita *Principles and Practice of Oncology* 11th ed. 2018
NCI/AACR Structured Questions

Published Online First February 17, 2016; DOI: 10.1158/1078-0432.CCR-16-0104

Special Report

Research Priorities, Measures, and Recommendations for Assessment of Tobacco Use in Clinical Cancer Research

Stephanie R. Land1, Benjamin A. Toll2, Carol M. Moinpour3, Sandra A. Mitchell1, Jamie S. Ostroff4, Dorothy K. Hatsukami5, Sonia A. Duffy6, Ellen R. Gritz7, Nancy A. Rigotti8, Thomas H. Brandon9, Sheila A. Prindiville10, Linda P. Sarna11, Robert A. Schnoll12, Roy S. Herbst13, Paul M. Cinciripini7, Scott J. Leischow14, Carolyn M. Dresler15, Michael C. Fiore16, and Graham W. Warren2,17,18

Cognitive Testing of Tobacco Use Items for Administration to Patients with Cancer and Cancer Survivors in Clinical Research

Stephanie R. Land, PhD1,2; Graham W. Warren, MD, PhD3,4; Jennifer L. Crafts, PhD5; Dorothy K. Hatsukami, PhD6; Jamie S. Ostroff, PhD7; Gordon B. Willis, PhD2; Veronica Y. Chollette, RN, MS2; Sandra A. Mitchell, PhD, CRNP, AOCN2; Jasmine N. M. Folz, MA5; James L. Gulley, MD, PhD5; Eva Szabo, MD9; Thomas H. Brandon, PhD10; Sonia A. Duffy, PhD, RN11; and Benjamin A. Toll, PhD12

Core Items

1. Have you smoked at least 100 cigarettes (5 packs=100 cigarettes) in your entire life?
   - Yes
   - No
   - Don’t know/Not sure

4. How many total years have you smoked (or did you smoke) cigarettes? Do not count any time you may have stayed off cigarettes.
   ______ Years    If you smoked less than one year, write “1.”

5. On average when you have smoked, about how many cigarettes do you (or did you) smoke a day?
   A pack usually has 20 cigarettes in it.
   ______ Number of cigarettes per day

6. How long has it been since you last smoked a cigarette (even one or two puffs)?
   First check which one of the following choices applies to you. Then, if applicable, write a number on the line for how many days, weeks, months, or years it has been since your last cigarette.
   - I smoked a cigarette today (at least one puff).
   - 1-7 days. ➔ Number of days since last cigarette: ______
   - Less than 1 month. ➔ Number of weeks since last cigarette:
   - Less than 1 year. ➔ Number of months since last cigarette: ______
   - More than 1 year. ➔ Number of years since last cigarette: ______
   - Don’t know/Don’t remember
Warren et al. Lancet Oncol 2014
Smoking and Therapeutic Response

A. Relative SF

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>LD CS</th>
<th>HD CS</th>
<th>Control</th>
<th>LD CS</th>
<th>HD CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A549</td>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td><img src="image3" alt="Graph" /></td>
<td><img src="image4" alt="Graph" /></td>
<td><img src="image5" alt="Graph" /></td>
<td><img src="image6" alt="Graph" /></td>
</tr>
<tr>
<td>H460</td>
<td><img src="image7" alt="Graph" /></td>
<td><img src="image8" alt="Graph" /></td>
<td><img src="image9" alt="Graph" /></td>
<td><img src="image10" alt="Graph" /></td>
<td><img src="image11" alt="Graph" /></td>
<td><img src="image12" alt="Graph" /></td>
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</tbody>
</table>

B. Tumor Doubling

<table>
<thead>
<tr>
<th></th>
<th>RT alone</th>
<th>RT + CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (days)</td>
<td><img src="image13" alt="Graph" /></td>
<td><img src="image14" alt="Graph" /></td>
</tr>
</tbody>
</table>

C. SW1116

- RT alone: ![Image](image15)
- RT + CS: ![Image](image16)

D. Relative SF

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>CS Continued</th>
<th>CS Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>H460</td>
<td><img src="image17" alt="Graph" /></td>
<td><img src="image18" alt="Graph" /></td>
<td><img src="image19" alt="Graph" /></td>
</tr>
<tr>
<td>A549</td>
<td><img src="image20" alt="Graph" /></td>
<td><img src="image21" alt="Graph" /></td>
<td><img src="image22" alt="Graph" /></td>
</tr>
</tbody>
</table>
MONEY: Attributable Failure
## Annual Cost of Failures Due to Smoking (in the U.S.)

### Estimated National Cost for 1.6 Million Cancer Patients

Baseline Failure
(in non-smoking) 0.3

Smoking Risk 1.6

<table>
<thead>
<tr>
<th>Smoking Prevalence</th>
<th>Cost of Next Line Cancer Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$10,000</td>
</tr>
<tr>
<td>0.05</td>
<td>85424K</td>
</tr>
<tr>
<td>0.10</td>
<td>170847K</td>
</tr>
<tr>
<td>0.20</td>
<td>341695K</td>
</tr>
<tr>
<td>0.30</td>
<td>512542K</td>
</tr>
<tr>
<td>0.40</td>
<td>683390K</td>
</tr>
<tr>
<td>0.50</td>
<td>854237K</td>
</tr>
</tbody>
</table>
Attributable Cost in Canada

- Canadian population: 36,585,000
  - Canadian cancer incidence: 206,200
  - 5-year cancer mortality rate: 40%
  - Smoking prevalence in Canada: 16.9%
    - NOTE: ~30% of cancer patients who smoke misrepresent
    - Adjust to ~20% prevalence
  - Canadian smoking cancer patient prevalence: ~41,240
- 4,789 attributable first line failures due to smoking
- Annual cost of first line treatment
  - For $10K per failure: ~$48 million
  - For $50K per failure: ~$239 million
# Magnitude Comparison

<table>
<thead>
<tr>
<th></th>
<th>Genome Driven Oncology&lt;sup&gt;1&lt;/sup&gt;</th>
<th>“Tobacco Cessation Adjuncted Oncology”</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of cancer patients who may benefit</td>
<td>5%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Cost of sequencing</td>
<td>$500 - $3,000 (est. average $1,500)</td>
<td>$0</td>
</tr>
<tr>
<td>Cost of treatment</td>
<td>$15,000 - $250,000 (est. average $80,000)</td>
<td>$200 - $1,500 ($974: intensive + V + NRT)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Clinical benefit</td>
<td>54% response for 29.5 median months</td>
<td>~40% reduction in mortality</td>
</tr>
<tr>
<td>Cost per 1000 total patients</td>
<td>$4.075 million</td>
<td>$0.164 million</td>
</tr>
<tr>
<td>Cost ratio per 1000 total patients</td>
<td>~25:1</td>
<td>~25:1</td>
</tr>
</tbody>
</table>

1. Marquart J et al., *JAMA Oncol* 2018  
2. CPAC Cost Estimates for Smoking Cessation 2017
Institutional Approaches: Expectations
(assuming ‘Opt-Out’ approach)

Phone
On site
70-80% Contact/Participate

Off site (quitline)
30-60% Contact/Participate

Standardized Screening

Smoking

Interactive Voice Recorder (IVR)
10-55% Contact/Participate (little known)

Contact/Participate

In Person
On site
30-60% Contact/Participate

Off site
<20% Contact/Participate (unknown)
AAR and AAC

• **ASK**
  - Identify use with structured assessments

• **ADVISE**
  - ALL CLINICAL STAFF should advise
  - “Tobacco is BAD for your cancer treatment and quitting is the best thing you can do to help us succeed with your cancer treatment
  - “I don’t know how to get you to quit, but our cessation service will contact you to help”
  - “How are you doing this week?”
  - “You quit (or reduced)? Awesome! Great job!”

• **REFER or CONNECT (or TREAT DIRECTLY)**
Primary Care Message

I’m concerned about these findings.

We’re going to start working on this, but we also need to talk about quitting smoking. If this is cancer, quitting smoking can help you live longer and feel better.

ONE OF THE BEST THINGS YOU CAN DO RIGHT NOW IS DECIDE TO QUIT SMOKING, AND I CAN HELP YOU
Summary

- Mortality Risks of Continued Smoking
  - vs. not smoking (2014 SGR): ~1.5-1.6
  - vs. quitting after diagnosis: ~1.6-1.7
  - VERY LOW NUMBER NEEDED TO TREAT

- $3.4 billion annual cost of smoking on cancer treatment in the U.S. after first line cancer treatment failure

- 70-80% contact rate for cessation support (by phone)

- Plain term yields
  - 1/3 will quit
  - 1/3 will reduce
  - 1/3 will not change
What Do You Think We Should Do?

• Get every cancer patient who smokes into a tobacco treatment program
  – Get everyone in as a priority for starting cancer treatment
• Does everyone really need high intensity intervention?
  – Who needs more vs. less support?
  – What is the true best intervention in the context of cancer care?
• What are the biologic effects of smoking?
  – Will this affect targeted therapeutics?
  – Are there existing treatments that are more effective?
• What are the most cost effective approaches to improving cancer treatment outcomes?
  – Cessation vs. paying for 2\textsuperscript{nd}-3\textsuperscript{rd}-4\textsuperscript{th}-… line care?
An Example from Practice: Developing and Implementing Smoking Cessation Supports for Cancer Patients

Scott Antle
Project Lead, Smoking Cessation
Program Manager,
NL Colon Screening / Cervical Screening Cancer Care Program, Eastern Health
Acknowledgments

• Smoking Cessation Project Working Group
• Dr. Suzanne Drodge
• Smoking Cessation Pilot Planning Group
• Out Patient Pharmacy Health Sciences Centre, Eastern Health
• Department of Children, Seniors and Social Development
• Smoking Cessation Pilot Program Clinicians
• CPAC Prevention Team
Objectives

• Demonstrate the need for smoking cessation in Ambulatory Oncology in NL
• Describe the process of planning a smoking cessation pilot program to include provision of Pharmacotherapy
• Achieving Success (Current State)
• Challenges/Lessons Learned
• The Future
The Case for Smoking Cessation

"There are two treatment options: nicotine gum to get off the patch, or the patch to get off nicotine gum."
The Case for Smoking Cessation

• NL has among the highest rates of daily smoking in the country (Approximately 1 in 5 people)

• NL has the highest ASI for all cancers at 586.8/100,000 (Canadian Cancer Stats 2017)

• Among the highest ASM at 233.3/100,000

• 22% of new patients to the cancer care program in NL self-identify as current smokers
Cancer patients were told of the benefits of being smoke free
The Cancer program could refer to Smokers Helpline for support or possible pharmacotherapy assistance through provincial drug plan
In 2015 CPAC issued a call for proposals in tobacco cessation and cancer care
The Cancer Care Program was successful in receiving funding to plan a smoking cessation program
Setting the Plan

“Since we’re not allowed to smoke in the office, I put tobacco in the brownies.”

Reprinted from The Funny Times / PO Box 18530 / Cleveland Heights, OH 44118
phone: (216) 371-8600 / e-mail: ft@funnytimes.com
Setting the Plan

• **Where to start:**
  – Acquired a staff resource
  – Formed working groups/committees
  – Reviewed best practice, gather evidence
  – Understand current provision of cessation and pharmacotherapy
  – Formed partnerships and key champions
  – Think in terms of **Sustainability**

**Just jump in!!!**
Setting the Plan

• The NL project used the sustainable plan from Washington University [www.sustaintool.org](http://www.sustaintool.org) to focus the planning path forward

• The sustainability assessment, allowed the project to:
  – Identify gaps
  – Strengthening & form relationships (SHL, Dept. of CSSD)
  – Develop a plan (patient flow/algorithm)
  – Identify key champions and potential resources
  – Initiate a cultural shift in cancer care re: smoking cessation
  – Develop & seek feedback from physicians, staff and patients
Building Momentum

• Challenge was to enhance and build on the awareness of the importance of smoking cessation in Ambulatory Oncology among:
  – Physicians & staff
  – patients

• Think in terms of System Change...
  – Provide patients with the tools to make a difference in their treatment (70% of patients want to do something to take control of their health )
  – Enhance the notion of smoking cessation is a supportive service
  – Smoking cessation becomes a standard of care
Building Momentum

• The project sought to seek feedback and build knowledge to support the beginnings of system change...
  – Engaged Content Experts (Dr. Bill Evans)
  – Staff/Physician/Patient Engagement
  – Education Opportunities (TEACH)
  – Leveraged other CPAC projects (FNIM, Screening for Distress)

• The process was support by CPAC through:
  – Knowledge translation (webinars and F2F meetings)
  – Information sharing
Building Momentum

• All feedback indicated the need for **free access to pharmacotherapy**

• **Tipping Point:**
  – CPAC’s dissemination of cessation costs in comparison to traditional treatments
Building Momentum

ENGAGEMENT SUCCESS IN THE PLANNING OF A SMOKING CESSION AND RELAPSE PREVENTION PROGRAM IN AN AMBULATORY ONCOLOGY SETTING

Scott Antle1, Dr. Farah McCrane1, Natalie Moody2, Bernie Squires3, Elaine Warren1, Dr. C. Suzanne Drodge 1, 3
Cancer Care Program, Eastern Health, St. John’s NL, Health Promotion, Eastern Health, St. John’s NL, Department of Children, Seniors and Social Development, Government of Newfoundland and Labrador, St. John’s NL, Memorial University of Newfoundland, Faculty of Medicine, St. John’s NL

LEARNING OBJECTIVES
- Plan a smoking cessation and relapse prevention clinic program in Cancer Care NL.
- Achieve high level engagement among leadership and staff to increase awareness of smoking cessation.

BACKGROUND AND PROJECT OBJECTIVES
Evidence is conclusive on the adverse relationship of continued tobacco use after a cancer diagnosis on cancer treatment side effects and survival. The 2014 U.S. Surgeon General Report on Smoking and Health concluded there was sufficient evidence to infer a causal relationship between cigarette smoking and increased all-cause mortality and cancer-specific mortality. Therefore, smoking cessation may be one of the best things a cancer patient can do after a cancer diagnosis. Additionally, smoking cessation should be a standard of care in ambulatory oncology settings.

In 2015 the Cancer Care Program of Eastern Health received funding from the Canadian Partnership Against Cancer (CPAC) to develop a plan for delivery of a smoking cessation and relapse prevention clinical program. Key project deliverables would result in a plan for the development of a sustainable cessation program that integrates cessation counseling, pharmacotherapy and behavioral therapy, providing a patient the best opportunity to become smoke free.

With approximately 22% of new cancer patients identifying as a current smoker upon entry into the cancer care program, a best practice cessation program can have a significant benefit for cancer patients in NL.

METHODS
A variety of methods were used to engage staff and physicians on the planning for a clinical smoking cessation program (key project deliverables). Methods included:
- Presentations at department meetings and orientation from Clinical and Divisional Directors.
- Presentations by current experts.
- Grand rounds on tobacco cessation specific to cancer care.
- Staff focus groups (Table 1).
- Stakeholder surveys (Table 2).
- Patient surveys (Figures 1 and 2).
- Educational opportunities for staff and physicians to include standard clinical guidelines.
- Feedback on draft clinic pathway for smoking cessation with a multi-disciplinary approach to operations.
- Creation and strengthening of new and existing community partnerships in smoking cessation.

RESULTS
From the initial introduction of a smoking cessation clinical plan, engagement among staff and physicians was high. A sense of “ownership” in program planning and development was created early as program staff and physicians understood the benefit a cessation program offered their patients. The introduction of a smoking cessation program in departmental meetings was followed up with expert presentations, strengthening of community partnerships and feedback mechanisms which solidified the benefits of smoking cessation to oncology care. In addition, the smoking cessation planning project aligned with other CPAC funded initiatives to build on the strength of those projects along common outcomes or deliverables. From this work various themes and outcomes developed:
- Champions emerged among cancer program staff and physicians across several disciplines to include medical and radiation oncology.
- Groups recognized the positive impacts of smoking cessation and the opportunity to influence patients as requests for smoking cessation tools increased.
- Planning feedback from staff was regular and beneficial as demonstrated in feedback from staff driven focus groups (Table 1).
- Inquiries on current pharmacotherapy coverage, and increased referral to the Smokers helpline were observed as a patient survey indicated that more than 90% of the time they were asked about their smoking history (Figure 1).
- Patients were given a sense of ownership in project planning as through surveys 79.2% believed the cancer program should offer smoking cessation programs.
- Endorses and engagement from external partners such as the Canadian Cancer Society and Smokers Helpline.

CONCLUSION
A high level of engagement among physicians, staff and external partners is crucial for the development of a clinical program for smoking cessation in cancer care which will provide significant benefit to cancer patients in NL. Without such engagement a sustainable program would not be possible.
Achieving Success:

• The timing of the economic data aligned with the goals of the Provincial Government’s Way Forward document to reduce NL’s smoking rates

• Cessation was identified as a key to achieving a reduction in smoking rates

• An opportunity emerged to present a proposal for a pilot clinical smoking cessation program in the cancer care
Achieving Success: Smoking Cessation Pilot Program November 2017

- A proposal was submitted that built the case for:
  - Free access to pharmacotherapy
  - Benefits to the patient
  - Economic benefits
  - Overall goal of a sustainable smoking cessation program in cancer care

- Smoking Cessation Pilot Program
  - ½ day 1x week
  - Pilot targeting new head/neck, lung, breast and gyne cancer patients
  - 4 Clinicians (Multi-disciplinary)
  - Partner with the Out-patient pharmacy to provide Pharmacotherapy
  - Smokers Help Line referrals
Challenges/lessons learned

“But, can you help me quit smoking?”

Success Ln
Failure Dr
Challenges

• Cancer programs are complex environments
• Provide patients with a simple process of receiving pharmacotherapy
• Cultural change is required to make cessation a standard of care:
  – Staff
  – Leadership
  – Physicians
• Sustainability
Lessons Learned

• Data systems and patient flow
  – Complex environments and geography

• Simplify the need
  – Use the cost-benefit relationship as an advantage

• Keeping the process moving
  – Share information among key champions, executive/clinical leadership

• Expect the unexpected
  – Think long term!
Pilot thus far... Evaluation

• Patients tell us...
  – Improved quality of life with a reduction in smoking behaviours
  – Many are motivated to quit smoking
  – Value the clinical appointment
  – Prefer to stay in touch with the clinician (understand the diagnosis)
  – Provision of pharmacotherapy is essential
The Future...

• A second CPAC project with the **goal** of advancing smoking cessation in Ambulatory Oncology

• **3 themes:**
  • Change Management
    – Smoking cessation a standard of care
  • Educational Development
    – Staff, physicians and patients
  • Telehealth
    – Smoking cessation services available in regional cancer centres
IT’S NEVER TOO LATE TO
Quit Smoking
We are here to help.

Ask your health care professional for information on how quitting smoking can help with your cancer treatment.
Leading Practices in Smoking Cessation Program Scan Resources
Smoking Cessation Program Scan Resources

http://www.cancerview.ca/preventionandscreening/tobacco/#leadingpractices
LEADING PRACTICES IN CLINICAL SMOKING CESSATION

CANADIAN PROGRAM SCAN RESULTS
APRIL 2018 (v5.0)
Summary of updates from April 2018

• Most programs sustained + expansion to new settings
  • 4 programs discontinued
• Strong alignment with pan-Canadian evidence-based guidelines
• New information added on health care providers who are authorized to prescribe cessation aids
• Cytisine is now authorized in Canada as smoking cessation medication
  • Currently not publicly funded in any jurisdiction
• Two jurisdictions (NB + NL) expanded cessation aid coverage
• Opportunities remain to increase access to smoking cessation aids across all jurisdictions
Cessation Aids and Coverage in Canada

**Cessation Aid Legend:**
- Bupropion (BUP)
- Varenicline (VAR)
- Cytisine (CYT)
- Nicotine Replacement Therapy (NRT, e.g., patch, gum, lozenge, mist, inhaler)

**Health Professionals Who Can Prescribe Cessation Aids:**
- Pharmacists
- Physician Billing Code General (e.g., Health Promotion Counselling)
- Physician Billing Code Smoking Cessation Specific
- Nurse Practitioners
- Dentists

**British Columbia (BC):**
- BC Smoking Cessation Program started in 2017
  - Eligibility Details:
    - NRT: BC resident, active and valid Medical Services Plan coverage, obtain from community pharmacy, free for up to 12 continuous wks/yr.
    - BUP/VAR: BC resident, active and valid Medical Services Plan coverage. Beneficiaries in FairPharmaCare plan have coverage for up to 12 continuous wks/yr, or beneficiaries in PharmaCare Plans B, C, or G eligible for free meds for up to 12 continuous wks/yr.

**Yukon:**
- QuitPath started in 2009
  - Eligibility Details:
    - 18+ and enrolled in QuitPath, free 12 wks/yr.

**Northwest Territories:**
- Northwest Territories Health Care Plan started in 2014
  - Eligibility Details:
    - 18+ and not covered by NHT or other benefits program, free for 12 wks/yr.

**Nunavut:**
- Extended Health Benefits started in 2011
  - Eligibility Details:
    - 18+ and not covered by NHT or other benefits program, free for 12 wks/yr.

**New Brunswick (NB):**
- New Brunswick Prescription Drug Program (NBPD) started in 2016
  - Eligibility Details:
    - BUP/VAR: 18+ and covered by NBPD or NBDP, NHT, or other benefits program for 12 weeks of NRT (84 patches/960 lozenges) per year. Special authorization can cover an additional 12 wks.

**Newfoundland and Labrador:**
- Newfoundland and Labrador Smoking Cessation Program for Individuals with Low Income started in 2011
  - Eligibility Details:
    - BUP/VAR: 18+ who are registered under Newfoundland and Labrador Prescription Drug Program Foundation, Access, or 65+ Plan. Co-pay up to $75 for meds for 12 weeks.

**Prince Edward Island (PEI):**
- QuitCare started in 2001
  - Eligibility Details:
    - 18+ and enrolled in QuitCore program eligible for $75 reimbursement on NRT and BUP.

**Saskatchewan:**
- Saskatchewan Drug Plan started in 2011
  - Eligibility Details:
    - Covered under Supplementary Health Plan. Plan 1 receive for reduced cost medial (8395) for 12 wks/yr; recipients of the Saskatchewan Employment and Income Assistance Program do not pay deductible.

**Manitoba:**
- Manitoba Pharmacare started in 2011
  - Eligibility Details:
    - 18+ and covered by Pharmacare eligible for reduced cost meds (bupropion) for 12 wks/yr; recipients of the Manitoba Pharmacare Program and Income Assistance Program do not pay deductible.

**Ontario:**
- Ontario Drug Benefit Program started in 2011
  - Eligibility Details:
    - Ontario Drug Benefit Program recipients receive coverage for prescription medications for smoking cessation up to 12 wks/yr. Provided they are enrolled in a smoking cessation program.

**Quebec:**
- Quebec Public Prescription Drug Insurance Program started in 2002
  - Eligibility Details:
    - Some health zones subsidize the cost of NRT and/or VAR.

**Nova Scotia:**
- Eligibility Details:
  - Some health zones subsidize the cost of NRT and/or VAR.

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**April 2018 (v5.0)**

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Canadian Partnership Against Cancer (CPAC)
Leading Practices in Chronic Smoking Cessation: Coverage of Cessation Aids (v5.0)

Available at www.cancercare.ca/tobacco

Production of this infographic has been made possible through a financial contribution from Health Canada through the Canadian Partnership Against Cancer.
Summary of updates from April 2018

• Most programs sustained + expansion to additional settings
• Strong alignment with pan-Canadian evidence-based guidelines
• New cultural competency training opportunities and resources for staff introduced in some jurisdictions
LEADING PRACTICES IN SMOKING CESSATION FOR PERSONS LIVING WITH MENTAL ILLNESSES AND/OR ADDICTIONS

CANADIAN PROGRAM SCAN RESULTS
APRIL 2018 (v2.0)
Summary of updates from April 2018

- Sustained programs + expansion to new settings
- Strong alignment with pan-Canadian evidence-based guidelines
- NT began offering tailored quitline services for persons living with mental illnesses and/or addictions (new total 11/13 jurisdictions).
- 3 jurisdictions (NT, ON, NS) new or updated smoking cessation policies, protocols or capacity building initiatives to support persons living with mental illnesses and/or addictions (new total 11/13 jurisdictions).
How can I use the program scans in my practice?

- Informing decision-making around adoption/adaptation of programs
- Developing knowledge products (e.g., briefings, presentations, reports)
- Supporting knowledge transfer and exchange
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