NEW TRENDS IN TOBACCO PRODUCT USE

MELISSA BLANK, PH.D.

MDBLANK@MAIL.WVU.EDU
Tobacco Use Trends

• Consistent declines in tobacco use over the last decade.

• Cigarette smoking rates at an all-time low:
  ➢ 19.0% for adults.
  ➢ 4.3% for adolescents.

Figure adapted from NSDUH, 2011; MMWR, 2012
Tobacco Use Trends

• Declines in adult cigarette use driven by heavy smokers (≥1 pack/day).

• Similar pattern observed for adolescent (aged 12-17) cigarette smokers.
Tobacco Use Trends

- Non-cigarette tobacco product use has increased or remained steady over the last decade.

Figure adapted from NSDUH, 2011
Tobacco Use Trends

- U.S. consumer sales data parallel national survey findings over this same decade.

Figure adapted from Connolly & Alpert, 2008
Tobacco Use Trends

• Rise in use of novel tobacco products.

• Recent surveys show rates of waterpipe smoking among young adult samples reaching those for cigarettes.

• Sales for e-cigs have doubled every year since 2008.

Barnett et al., 2013; Figure adapted from McMillen et al., 2012; Primack et al., 2012; T. Jarrett, personal communication (WVU Survey, unpublished data)
Tobacco Use Trends

• Tobacco use landscape has seemingly shifted.

• Policy and research efforts are historically cigarette-centric.

• Much less is known about use of alternative tobacco products (ATPs):
  ➢ characteristics of users.
  ➢ topography.
  ➢ dependence potential.
  ➢ health risks.
ATPs vs. Cigarettes

- Cost: ATPs are taxed lower.
- Sensory characteristics: ATPs are available in a variety of appealing flavors.
- Access: ATPs are more readily obtainable and more convenient to use.
- Beliefs: ATPs are perceived to be less lethal.

Delnevo et al., 2004; Freiberg, 2012; Goebel et al., 2000; Malone et al., 2001; Soldz & Dorsey, 2005
Example ATP: Cigarillos

- **Little Cigars:**
  - CIGARETTE
  - LITTLE CIGAR

- **Cigarillos:**
  - CIGARILLO (TIPPED)
  - CIGARILLO

- **Large Cigars:**
  - CIGAR

Figure adapted from American Legacy Foundation, Fact Sheet 2009
Cigarillos: Classification

**Little Cigars:** Weighing less than 3 pounds/1000, these products resemble cigarettes.

**Cigarillos:** Weighing more than 3 pounds/1000, cigarillos are classified as large cigars.

**Large Cigars:** Weigh more than 3 pounds/1000.

USDA 2-level classification
Tax: $1.01 vs. $0.40
USDA 2-Level Classification
Maxwell 3-Level Classification

Kozlowski et al., 2008
Cigarillos: Nomenclature

- “Cigar” = large cigars used by older and/or wealthier individuals.
- “Black & Mild” = thinner, inexpensive cigars referred to by brand name.
- “Cigarillo” not part of vocabulary.
- 1999: 32-44% from pre- to post-focus group discussion.
Cigarillos: Nomenclature

• Youth Risk Behavior Survey
  ➢ 2002 (“cigars, little cigars, or cigarillos”): 12.9%
  ➢ 2004 (“…cigarillos (such as Black and Milds)”): 20.7%
  ➢ 60% of cigarillo smokers did not report cigar use.

• 2009 Virginia Youth Tobacco Survey
  ➢ Q1 (“cigars, little cigars, or cigarillos”): 6.1%
  ➢ Q2 (“past 30 days…smoke Black & Milds”): 11.4%
  ➢ 57.3% of B&M smokers did not report cigar use.
Cigarillos: Beliefs

• Less addictive than cigarettes:
  ➢ “[cigarettes] have nicotine”, “it’s an addictive drug”.
  ➢ “B&M is straight tobacco with paper”.

• Less harmful than cigarettes:
  ➢ “Natural”, “fresh”, less “stuff”.
  ➢ “Black & Milds are tobacco?”

• Product modifications reduce health risks:
  ➢ “Do you want cancer? No. So we toss that [paper] off…”

Baker et al., 2001; Malone et al., 2001; Page & Evans, 2004
Cigarillos: Current Evidence

- Cigarillos contain higher levels of nicotine than cigarettes.
- Cigarillo smoke contains similar toxicants as cigarette smoke: tar, carbon monoxide (CO), etc.
- Cigarillo smoking linked to cancer and cardiovascular disease.

Baker et al., 2000; Henningfield et al., 1999; Shanks & Burns, 1998
Pilot Study

Two, counter-balanced conditions: lit or unlit (sham control) B&M cigarillo of preferred flavor and tip type.

*Baseline → Product use → *5-60 min → Product use → *5-60 min

10 puffs
30 sec IPI

*CO and plasma nicotine sampling, subjective ratings of withdrawal and product effects

Blank et al., 2011
16 B&M Smokers

<table>
<thead>
<tr>
<th>Percentage/Variable</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>% African American</td>
<td>62.5%</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>18.8%</td>
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<tr>
<td>% Male</td>
<td>62.5%</td>
</tr>
<tr>
<td>% Wine Flavor</td>
<td>43.8%</td>
</tr>
<tr>
<td>% Plastic Tip</td>
<td>43.8%</td>
</tr>
<tr>
<td>Age in Years</td>
<td>27.7 (10.8)</td>
</tr>
<tr>
<td>B&amp;M/Day</td>
<td>1.9 (2.5)</td>
</tr>
<tr>
<td>Years Smoking</td>
<td>3.4 (3.5)</td>
</tr>
<tr>
<td>Past 30-day ETOH Use</td>
<td>4.5 (4.2)</td>
</tr>
<tr>
<td>Past 30-day MJ Use</td>
<td>0.8 (1.4)</td>
</tr>
<tr>
<td>% Cigarette Smokers</td>
<td>56.3%</td>
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</tbody>
</table>
B&M Nicotine Delivery

↑ = product administration
Filled symbol = significant difference from baseline (-5) within condition
* = significant difference between Active and Sham at that timepoint
B&M Nicotine Delivery

*Cigarette: 20.5 2.8 ng/ml
B&M: 6.0 0.9 ng/ml

Cobb et al., 2008; *Ad libitum smoking
↑ = product administration
Filled symbol = significant difference from baseline (-5) within condition
* = significant difference between Active and Sham at that timepoint
B&M Carbon Monoxide Delivery

*Cigarette: 9.1 1.3 ppm
B&M: 17.5 1.0 ppm
B&M Subjective Ratings

↑ = product administration
Filled symbol = significant difference from baseline (-5) within condition
* = significant difference between Active and Sham at that timepoint
B&M Subjective Ratings

Cobb et al., 2008; Ad libitum smoking bouts
B&M Smoking Topography

Total Puff Volume

- **Bout 1**
- **Bout 2**

<table>
<thead>
<tr>
<th>Milliliters</th>
<th>Active</th>
<th>Sham</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bout 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bout 2</td>
<td></td>
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</tbody>
</table>

- Total puff volume comparison between active and sham smoking conditions.
Blank et al., 2008; *Ad libitum smoking bout
Do you smoke cigarettes?

- YES: 58.4%
- NO: 41.6%

Frequency of cigarettes per day:

- <10: 60
- 15-20: 30
- >25: 10
Polytobacco Use

• Use of ATPs more likely among cigarette smokers than non-smokers.

• Early evidence suggests that ATPs supplement, rather than replace, cigarettes among smokers.

• Relative to use of a single tobacco product, use of multiple products may increase risk of nicotine dependence and adverse health conditions.

Accortt et al., 2002; Bombard et al., 2008; Ferrence & Stevens, 2000; Nasim et al., 2012; Tercyak & Audrain, 2002; Rath et al., 2012; Wetter et al., 2002
New Tobacco Landscape

• Surveillance measures: account for emerging ATP use and polytobacco use.

• Laboratory and clinical research: characterize the basic effects of, and evaluate existing treatments for, ATPs used alone and in combination with cigarettes.

• Prevention and cessation efforts: dispel the myths associated with use of ATPs.