Tobacco Dependence: Assessment and Treatment

Douglas Arenberg
Disclosure

• MDCH Grant Funds to improve tobacco cessation service in the Michigan Medicine Health System
• Past paid service Consultant/Advisory panel member for Nucleix, a company developing lung cancer biomarkers
• I will not be discussing any specific products or medications relevant to either of these financial relationships
Goals

• I want to make you care more than I think you may already do

• If you already care a lot, I want to arm you with more efficient tools to help your patients....
  – Commit to cessation attempts (Improve motivational interviewing techniques)
  – Increase understanding of smoking as a nicotine addiction (smokers as victims)
  – Demonstrate some of this history of the tobacco industry
  – Succeed at cessation (Improve knowledge of tobacco cessation pharmacotherapy)
Tobacco Dependence

• Tobacco dependence is nicotine addiction
• It is a fatal disease (50% of those affected will die from it)
  • On average will claim 10 years of life
  • World Wide kills > 5 million people/year
  • In the US kills nearly ½ million people/year
GOOD NEWS: Tobacco Control policies impact tobacco use

Also the year Doug was born… coincidence?

Table: US Per capita Cigarettes smoked per year

In Public Policy...

The Health Consequences of Smoking: 50 Years of Progress

1964 → 2014
Unparalleled Public Health Benefits

• “Had there been no tobacco control … almost 5x more cigarettes would have been smoked in 2011 than actual”

• Lower smoking rates have saved about 8 million lives in the U.S.

• Average life expectancy increased ~10 years, a third of which – about 3 years – is due to reductions in tobacco use

• Only improved sanitation and vaccines can be credited with more lives saved in the last 100 years

BAD NEWS: This success has created a myth that the Tobacco Problem is “Solved”

- 42 million adults and 3 million middle & high school students are smokers (>1 billion globally)
  - E-cigarettes may represent the industry’s new weapon
- Tobacco causes 480,000 US deaths per year
- Annual costs: $132 billion in medical expenses, $157 billion in lost productivity

20th Century (“The Cigarette Century”) 100 million deaths
21st Century - 1 billion deaths projected, much if which results from the export of nicotine addiction to impoverished developing nations
Three Populations Smoke at Highest Rates

- The poor (>8 million smokers below poverty level)
- The least educated (>22 million smokers with a high school education, or less)
- Those with co-morbid mental health or addictive disorders (as many as half of all regular smokers)
If you wanted to devise a more potent way to kill people, you would have a hard time…

- Smoking remains the leading cause of preventable death in U.S.
- Since 1964, cigarette smoking killed > 20 million Americans
  - 2.5 million nonsmokers
  - More than 100,000 babies
- Worldwide more deaths than every war combined
Why?

Who went to a middle school with visible billboards?

Were these in wealthy or less affluent areas?
BEDFORD-STUYVESANT, NEW YORK

BACKGROUND

Bedford-Stuyvesant, another economically depressed territory is primarily Black: Hispanics comprise the next largest demographic segment.

Like the South Bronx, pack sales predominate and self-service displays for cartons and even packs are rare due to limited counter space and pilferage problems. Set-sell placement is generally in non self-service locations.

Cigarettes are primarily sold by independent ma and pa grocery stores. Supermarkets, liquor and drugstores appear to be underrepresented in cigarette sales compared to the general marketplace. Cigarettes are also sold from "pot joints," store front operations throughout the territory.

Common to Bed-Stuy and the South Bronx, some outlets have 6 foot high or floor to ceiling plexiglass where no items are self-service. The interaction in these outlets occurs by way of a small cubbyhole indirectly angled between consumer and retailer. Posters and metal signs provide the sole product visibility.

SALES

The most popular brands according to the retailers are Kool, Newport, Marlboro, Winston and Benson & Hedges. Although Benson & Hedges continues to be a strong performer, Newport's surge is what most retailers in this area are talking about.

Newport seems to have become very popular among young Black smokers as the "in" cigarette in the New York area. In addition, switchers from Kool cite the cooler more refreshing taste as the reason.

All Benson & Hedges packings sell, the Green is strongest followed by the Lights Menthol, Gold and Lights Regular.

Retailers say customers won't even steal the ultra low tars.

OUTDOOR

All of the cigarette companies except American Tobacco currently have specific outdoor campaigns for major brands tailored to the Black market.

Philip Morris is well represented, with a strong showing for Marlboro (generic) and Virginia Slims (Black).
Smoking as a matter of ‘individual choice’

• This is the industry mantra
  – Puts the blame/stigma on the smoker, and paints the industry as a free-market service provider

• >95% of smokers start before age 18
  – How many teenagers are rational decision makers?

• Once a teen has smoked a single cigarette the addictive potential is almost immediate

• Once addicted, smoking is no longer a choice
Tobacco Industry Outspends State Tobacco Prevention Efforts 23:1

- Federal Cigarette Tax Revenues: $25.6 billion
- Tobacco Industry Marketing & Promotion: $15 billion
- Total CDC-Recommended Spending Level: $8.36 billion
- State Tobacco Program Budgets: $0.5 billion

Campaign for Tobacco-Free Kids, Federal Trade Commission, American Heart Association, American Cancer Society, American Lung Association
Cigarettes are precisely engineered and refined to rapidly deliver nicotine to the CNS, within about 7 seconds of inhaling cigarette smoke.
Natural Rewards Elevate Dopamine Levels

**FOOD**
- NAc shell
- Empty
- Box Feeding

**SEX**
- DA Concentration (% Baseline)
- Sample Number
- Female Present

Di Chiara, Eur J Pharmacol, 1999; Fiorino et al., 1997
Drugs Increase Dopamine Neurotransmission

Di Chiara and Imperato, PNAS, 1988
Using the Five A’s to Treat Tobacco

<table>
<thead>
<tr>
<th>Ask about tobacco use</th>
<th>Identify and document tobacco use status for every patient at every visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advise to quit</td>
<td>Urge every tobacco user to quit. Clear, strong, personalized</td>
</tr>
<tr>
<td>Assess willingness to</td>
<td>Is the tobacco user willing to make a quit attempt this time?</td>
</tr>
<tr>
<td>Assist in a quit attempt</td>
<td>For the patient willing to quit, offer medication and provide or refer for counseling to help the patient quit</td>
</tr>
<tr>
<td></td>
<td>For patients unwilling to quit at the time, provide interventions designed to increase future quit attempts</td>
</tr>
<tr>
<td>Arrange follow-up</td>
<td>For the patient willing to quit, arrange for follow-up contacts, beginning with the first week after the quit date</td>
</tr>
<tr>
<td></td>
<td>For patients unwilling to make a quit attempt at the time, re-assess at the next clinic visit</td>
</tr>
</tbody>
</table>
Ask: Screen all patients for tobacco use

- Ensures that tobacco use is documented for **every patient at every clinic visit**. “The 5th vital sign”
  - You make a difference with even a minimal (<3’) intervention;
  - Intensity of intervention and tobacco cessation outcome are directly related
  - Even for those unwilling to make a quit attempt at this time, brief MD interventions increase motivation and future quit attempts
  - Smokers who receive MD advice/assistance report greater health care satisfaction
  - Tobacco use interventions are **highly cost effective**
ASSIST—Aid the patient in quitting

- Help the patient develop a quit plan (e.g., set a date, identify challenges “Tell me about your first cigarette of the day…”)
- Recommend the use of FDA approved medication
- Provide practical tips (“Change your routine…”)
- Provide support during treatment/cessation efforts
- Provide supplementary materials, including information on quit-lines (1-800-QUIT-NOW)
- Use EHR tools
### Medication (Dose) Side effects Notes

<table>
<thead>
<tr>
<th>Medication (Dose)</th>
<th>Side effects</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Varenicline (1 mg twice daily)  
Start with 0.5 mg daily. Increase gradually to target dose | Nausea (29%)  
Vivid dreams (10%)  
No increased in adverse psychiatric events | Take with meals to reduce nausea, and take PM dose earlier to reduce dream symptoms. Reduced dose in severe renal insufficiency |
| Bupropion (150 mg twice daily)  
Start with one dose daily and begin two | Insomnia, agitation, dry mouth, headache. | Contraindicated in patients with seizure disorder or predisposition  |

Explain how these medications increase quitting success and reduce withdrawal symptoms “Use the right tools”
<table>
<thead>
<tr>
<th>Medication (Dose)</th>
<th>Side effects</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nicotine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transdermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7, 14, 21 mg)</td>
<td>Skin irritation</td>
<td>Works best when combined with ‘on demand’ nicotine products*</td>
</tr>
<tr>
<td>Change daily, remove at night</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lozenge (2 mg 4 mg)</strong> Dissolve 1 lozenge inside cheek q 4 hours as needed</td>
<td>Throat irritation</td>
<td></td>
</tr>
<tr>
<td><strong>Gum (2 mg, 4 mg)</strong> Chew one piece every 4 hours as needed</td>
<td>Throat irritation</td>
<td>Bite and ‘park’ in cheek until the tingling is gone, then start chewing again</td>
</tr>
<tr>
<td><strong>Nasal spray (10 mg/ml)</strong> 1-2 sprays in each nostril every hour as needed.</td>
<td>Nasal or throat irritation</td>
<td></td>
</tr>
<tr>
<td><strong>Inhaler (10 mg cartridge)</strong> 4 puff/minute over ~20 minutes; New cartridge every two to four hours as needed.</td>
<td>Throat irritation</td>
<td></td>
</tr>
</tbody>
</table>
Warnings you can ignore?
...and some you should not
For the Patient Unwilling to Quit

• Patients unwilling to make a quit attempt during a visit may
  – Lack information about the harms of tobacco use, or the required financial resources
  – Be demoralized because of previous relapse
  – Nicotine dependence does NOT promote rational thoughts

• These patients may respond to Motivational Interviewing
  – Express empathy (Be an advocate, you are on their SIDE)
  – Develop discrepancy (“You worry about your cholesterol, but…”)
  – Roll with resistance (“I know you are feeling pressured about smoking”)
  – Support self-efficacy (“You can do this, and I will help”)

For the Patient Who Has Recently Quit

- Smokers who have recently quit face a high risk of relapse
- Most relapse occurs early, but some occurs months or even years after the quit date
  - Encouragement, and congratulations!
  - But ask about difficulties as well
  - This is why quit dates are so important
Thoughts on E-Cigarettes

• Safer ≠ safe
• Acceptance of addiction? (nicotine is not harmless)
• Data suggests they encourage dual usage (cigarettes and e-cigs) > cessation
• Can’t make ENDs available to smokers and not available to teens
  • Preserves the customer base?
Nicotine addiction and the physician

• At least 70 percent of smokers see a physician each year, and almost one-third see a dentist
  – Still more see PAs, NPs, RNs, PT/OT, pharmacists, counselors, etc.
• Smokers cite a physician’s advice to quit as an important motivator for attempting to stop smoking
• We are uniquely positioned to intervene in tobacco use
• Little of what we do has the potential impact of helping a smoker quit
Facts and principles of practice...

- 70 percent of smokers report wanting to quit
  - Unassisted quit rate success is 5-7%
  - Relapse is the rule rather than the exception and should NOT stop smokers or their doctors from repeat quit attempts
  - Nearly all successful quitters have made multiple (>3) quit attempts
  - Most smokers who relapse want to try quitting again within 30 days
If you remember NOTHING else

• Smoking is not a “choice”, its an addiction

• Typically started in teenage years
  – How many teens do you know that make rational short-term decisions about long term health
  – How susceptible are teens to effective marketing?