Smoking Cessation
A Clinicians Perspective

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Overview

- Tobacco control – what we have accomplished and the road ahead
- Role of the health care professional
- Using pharmacotherapy
- Electronic cigarettes – helpful, harmful or both?

JAMA. 2014;311(2):164-171
Improvement in Life Expectancy at Age 40 yrs Associated with Tobacco Control

• Between 1964 and 2012 estimated life expectancy at age 40 increased 7.8 yrs for men and 5.4 yrs for women

• Tobacco control associated with ~30% of this increase for both sexes

• 8 million fewer premature smoking-related deaths due to tobacco control efforts

JAMA. 2014;311(2):164-171
Survival Probabilities for Current Smokers and for Those Who Never Smoked

A. Women

Survival from the Age of 25 Yr (%)

Age (yr)

B. Men

Survival from the Age of 25 Yr (%)

Age (yr)

Risks of Death for Participants Who Continued to Smoke and for Those Who Quit Smoking.

<table>
<thead>
<tr>
<th>Duration of Quitting</th>
<th>Hazard Ratio (99% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continued Smoking</td>
<td>2.9 (2.7–3.1)</td>
</tr>
<tr>
<td>Quit smoking at 55–64 yr</td>
<td>1.7 (1.5–2.0)</td>
</tr>
<tr>
<td>Quit smoking at 45–54 yr</td>
<td>1.5 (1.3–1.7)</td>
</tr>
<tr>
<td>Quit smoking at 35–44 yr</td>
<td>1.2 (1.0–1.4)</td>
</tr>
<tr>
<td>Quit smoking at 25–34 yr</td>
<td>1.0 (0.8–1.1)</td>
</tr>
<tr>
<td>Quit smoking at &lt;25 yr</td>
<td>1.0 (0.8–1.2)</td>
</tr>
</tbody>
</table>

Benefits of Stopping Smoking in the United Kingdom Million Women Study

Image Description:

**Graph B: Death from Lung Cancer**

- **Y-axis**: Relative Risk
- **X-axis**: Age of Former Smokers at Cessation (yr)
- Data points:
  - **Current smokers**: Relative Risk of 25.0
  - **Women who never smoked**: Relative Risk of 1.6, 1.8, 3.3, and 5.9

Source: N Engl J Med 2014;370:60-68
Estimated Relative Risk of Myocardial Infarction After Quitting Smoking

![Graph showing estimated relative risk over time since quitting smoking](image)

NEJM 1985;313:1511-14
The Health Consequences of Smoking – USDHHS 2014

**Cancers**
- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- **Liver**
- Pancreas
- Kidney and ureter
- Cervix
- Bladder
- Colorectal

**Chronic Diseases**
- Stroke
- Blindness, cataracts, age-related macular degeneration
- Congenital defects—maternal smoking: orofacial clefts
- Periodontitis
- Aortic aneurysm, early abdominal aortic atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, **tuberculosis**, asthma, and other respiratory effects
- **Diabetes**
- Reproductive effects in women (including reduced fertility)
- Hip fractures
- **Ectopic pregnancy**
- Male sexual function—erectile dysfunction
- **Rheumatoid arthritis**
- **Immune function**
- Overall diminished health
Intervention Plan for Patients Who Smoke – the 5As

- Ask – all patients about smoking
- Advise – all smokers to stop
- Assess – readiness to quit – (motivate)
- Assist – patients who want to stop – (quit date, counseling/self-help materials, consider pharmacologic support)
- Arrange – follow-up visits/phone calls

**JAMA 1991;266:3172-73**
Public Health Initiatives to Reduce Smoking

• Increasing excise taxes
• Restrictions on smoking in public places
• Higher healthcare premiums and non-hiring practices by businesses
• Reducing density of stores selling cigarettes - pharmacies (including grocery stores with pharmacies)
• Anti-smoking advertising/counseling
• Tobacco 21
Effect of Cigarette Price on Consumption

A France

B South Africa

Most smokers quit on their own – only 8% of ex-smokers attributed their success to medications – Gallup Poll 2013

Varenicline and combination therapy (nicotine patch plus lozenges or buproprion plus NRT) associated with highest abstinence rates > single NRT and buproprion

Early data supporting more prolonged therapy

Pharmacotherapy cost ~ tobacco cost
Nicotine metabolism, Gender and Nicotine Patch Efficacy

• Nicotine metabolized by cytochrome P450 – CYP2A6 – significant individual variability

• Rapid metabolizers have lower quit rates using nicotine patch therapy — Clin Pharmacol Ther 2006;79:600-608

• Premenopausal women metabolize nicotine more rapidly than men (20%) - accentuated by oral contraceptives — Clin Pharmacol Ther 2006;79:480-8

• Women have lower cessation rates than men using nicotine patch (~50%) — Nicotine & Tobacco Research 2008;10:1245-51
Nicotine and Replacement Therapy

• Nicotine yield per cigarette increasing – 1.68mg to 1.81 mg (8%) between 1998 and 2012 – Nicotine & Tobacco Research Jan 31, 20

• Heavier smokers under-replaced by a single nicotine patch – Clin Pharmacol Ther 1993;54:98-106
Comparative Effectiveness of 5 Smoking Cessation Pharmacotherapies in Primary Care Clinics

- 1346 primary care clinic smokers – averaging ~1ppd
- Patch and Bupropion - 8 weeks and lozenges - 12 weeks
- Cessation counseling - Wisconsin Tobacco Quit Line
- 7-day point prevalence abstinence - patient self-report

Arch Intern Med. 2009;169:2148-2155
Maintenance Treatment With Varenicline for Smoking Cessation in Patients With Schizophrenia and Bipolar Disorder

- 87/247 = 35% abstinent at 12 weeks
- Randomized to continue varenicline or placebo to 1 year
- Suicidality, major depression, substance abuse excluded
- 27 counseling sessions
- Safe

JAMA 2014;311:145-154
Smoking vs. Pharmacotherapy - Cost

• Brand name cigarettes ~> 7$/pack in Iowa

• Nicotine patch (21mg) – #14/52$ - Walgreens

• Nicotine lozenges (4mg) - #81/39$ - Walgreens

• Buproprion (150mg) - #60/27$ - Wal-Mart

• Varenicline (1mg) - #56/~230$
Electronic Cigarettes

• > 250 e-cigarette brands
• Emit lower levels of toxicants compared with traditional cigarettes
• No clear evidence they facilitate smoking cessation

Concerns:
• Promoting development of nicotine addiction in young people
• Undermine quitting
• Undermine de-normalization of smoking
Exogenous Lipoid Pneumonia

• 42 y/o with dyspnea, cough and fever after beginning to use electronic cigarette

• Glycerin added to nicotine - produces “smoke” when vaporized

Chest 2012;141:1110-13
Take – Home Points

• Substantial progress has been made in reducing tobacco-related disease – but we still have a ways to go

• Few things we do make as much of a health difference as preventing/reducing tobacco use

• Most smokers quit on their own - pharmacotherapy can help

• Benefit/harm of E-cigarettes yet to be determined