Mayo Model for Treating Tobacco Dependence

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http://ndc.mayo.edu
The needs of the patient come first
Mayo Clinic

Rochester, Minnesota

Scottsdale, Arizona

Jacksonville, Florida
Per Capita Cigarette Consumption

- Year of the Camel
- Star Tribune
  - $7 BILLION DEAL
  - Industry settles Minnesota suit before jury starts deliberations
  - Ramifications likely to ripple across U.S.
  - Jurors say they regret not having their say

- Minnesota Tobacco Trial
- Camel, 75 Years Anniversary

- Surgeon General's Report on Environmental Tobacco Smoke

- Camel's 75th birthday
On one point, however, there is nearly complete consensus of opinion, and that is that primary malignant neoplasms of the lungs are among the rarest forms of disease.
Age-Adjusted Cancer Death Rates,* Females by Site, US, 1930-2003

*Per 100,000, age-adjusted to the 2000 US standard population. †Uterus cancer death rates are for uterine cervix and uterine corpus combined.

Note: Due to changes in ICD coding, numerator information has changed over time. Rates for cancer of the lung and bronchus, colon and rectum, and ovary are affected by these coding changes.


American Cancer Society, Surveillance Research, 2007
The Cigarette Death Epidemic in Perspective

- Annual smoking deaths
- Environmental tobacco smoke deaths
- All World War II
- Annual auto accidents
- Vietnam War
- AIDS 1983-1990
- Annual murders
- Annual heroin, morphine & cocaine deaths

No. (000s)
# Treating Tobacco Dependence in a Medical Setting

## Best Practices

- **USPHS Guideline** ([www.ahrq.gov](http://www.ahrq.gov))
- Behavioral, addictions, pharmacologic treatment, and relapse prevention
- Neurobiology of tobacco dependence
- “Teachable moment”
- Telephone quitlines
- Public policy-Taxes and smoke-free workplaces

Hurt RD, VA in the Vanguard, 2005
Cigarettes and Tobacco Dependence

- Cigarette smoke – complex mixture of 4,000 chemicals with over 60 known carcinogens
- Most efficient delivery device for nicotine that exists- better than intravenous
- Cigarette manufacturers have modified cigarettes over the past decades to maximize nicotine delivery to the brain
- High doses of arterial nicotine cause upregulation of the nicotinic acetylcholine receptors
- Genetic factors influence tobacco dependence
- Left untreated 60% of smokers die from a tobacco-caused disease

Hurt RD, Robertson CR JAMA 280:1173, 1998
Perry, DC, et al. J Pharmacol Exp Ther, 289:1545, 1999
Smoking Saturates Nicotinic Receptors

Brody, A.L.  Arch Gen Psychiatry.  63;907-915, 2006
Mayo Clinic Nicotine Dependence Center Treatment Program

• Established April 1988

• Integrated approach – behavioral, addictions, pharmacotherapy, relapse prevention and motivational interviewing.

• Outpatients- Individual counseling by TTS.

• Inpatients- Hospital nurse Tobacco Use Intervention Protocol and Nurse Practitioner TTS

• Residential treatment program
Treating Tobacco Dependence
Principles of Treatment

• Behavioral
• Addictive disorders
• Pharmacologic
• Relapse prevention
General Principles of Motivational Interviewing

- Expressing Empathy
- Developing Discrepancy
- Supporting Self-Efficacy
- Rolling with Resistance
The “Spirit” of Motivational Interviewing “The Dance”

- **COLLABORATION**
  Not Confrontation

- **EVOCATION**
  Not Education/Advice

- **AUTONOMY**
  Not Authority

Eliciting values, hopes, assumptions, fears, expectations and challenges
Individualized Plan

http://ndc.mayo.edu
| Clinical decision-making using clinician skills and knowledge of pharmacology to decide on medication selection and doses |
| Patient involvement: past experience and/or preference |
| Nicotine patch, varenicline and/or bupropion viewed as “floor” medications |
| Short acting NRT products for withdrawal symptom control |
| Combination pharmacotherapy frequently used |

Hurt RD, VA in the Vanguard, 2005
<table>
<thead>
<tr>
<th>Pharmacotherapy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First line</strong></td>
<td></td>
</tr>
<tr>
<td>• nicotine gum</td>
<td></td>
</tr>
<tr>
<td>• nicotine patches</td>
<td></td>
</tr>
<tr>
<td>• nicotine nasal spray</td>
<td></td>
</tr>
<tr>
<td>• nicotine inhaler</td>
<td></td>
</tr>
<tr>
<td>• nicotine lozenge</td>
<td></td>
</tr>
<tr>
<td>• bupropion</td>
<td></td>
</tr>
<tr>
<td>• varenicline</td>
<td></td>
</tr>
<tr>
<td><strong>Second line</strong></td>
<td></td>
</tr>
<tr>
<td>• clonidine</td>
<td></td>
</tr>
<tr>
<td>• nortriptyline</td>
<td></td>
</tr>
</tbody>
</table>
High Dose Patch Therapy

Conclusions

- High dose patch therapy safe for heavy smokers
- Smoking rate or blood cotinine to estimate initial patch dose
- Assess adequacy of nicotine replacement by patient response or percent replacement
- More complete nicotine replacement improves withdrawal symptom relief
- Higher percent replacement may increase efficacy of nicotine patch therapy

# High Dose Patch Therapy

## Dosing Based on Smoking Rate

<table>
<thead>
<tr>
<th>Smoking Rate</th>
<th>Dose (mg/d)</th>
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<tbody>
<tr>
<td>&lt;10 cpd</td>
<td>7-14 mg/d</td>
</tr>
<tr>
<td>10-20 cpd</td>
<td>14-21 mg/d</td>
</tr>
<tr>
<td>21-40 cpd</td>
<td>21-42 mg/d</td>
</tr>
<tr>
<td>&gt;40 cpd</td>
<td>42+ mg/d</td>
</tr>
</tbody>
</table>

Treating Tobacco Dependence in a Medical Setting

**Pharmacotherapy**

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Hurt RD, VA in the Vanguard, 2005
# Mayo Nicotine Dependence Center
## Residential Treatment Program

- 8 day multicomponent treatment in a residential unit
- Tobacco-free protected milieu
- Daily physician and counselor rounds
- Group and individual therapy and education sessions
- Tailored pharmacotherapy
- Proactive follow-up for relapse prevention

## Mayo Clinic Nicotine Dependence Center

**April 1988 through April 2008**

<table>
<thead>
<tr>
<th>Service</th>
<th>Count</th>
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<tbody>
<tr>
<td>Initial Counseling</td>
<td>38,774</td>
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<tr>
<td>Follow-up Counseling</td>
<td>17,531</td>
</tr>
<tr>
<td>Residential</td>
<td>1,099</td>
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</tbody>
</table>
## Mayo Nicotine Dependence Center
### Treatment Outcomes

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Success Rate</th>
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<tbody>
<tr>
<td>Individual outpatient counseling</td>
<td>23-27%</td>
</tr>
<tr>
<td>Individual bedside counseling</td>
<td>32%</td>
</tr>
<tr>
<td>Residential treatment</td>
<td>52%</td>
</tr>
</tbody>
</table>

Croghan IT et al, Addict Behav 34:61, 2009  
Center for Tobacco-Free Living
Rationale and justification

- Tobacco dependence is an important health issue
- The NDC Staff provides state of the art treatment
- Presently only a small fraction of tobacco users who come to Mayo Clinic receive information or treatment
- Integrating a state-of-the-art education and tobacco treatment center into Pulmonary Care will reach out to and send an important message to our patients
SPARC research findings

- Patients’ negative expectations are very different from their actual positive experience at NDC
- Telling their story is meaningful and motivating for patients
- Patient-centered motivational interviewing helps patients engage in treatment
- Disease model encourages patients to enter treatment

Center for Tobacco-Free Living must support the messages of NDC counseling
I want to be a good role model to my kids, but I am afraid I couldn’t cope without cigarettes.
Center for Tobacco-Free Living Experience

Audiences include patients, family members, friends, health care providers

- 600 people per day will pass the Center
- Easy access for others in Mayo/Gonda complex

- Transform understanding of tobacco dependence
- Empower patients and provide hope, assurance, understanding,
- Easy access to treatment, education, and accurate health information
Mayo Clinic NDC Education Program

- Patient intervention material
- Tobacco Treatment Specialist Certification
- Annual conference
- Motivational interviewing courses
- Distance education
- Customized workshops
- Self-study DVD

http://ndc.mayo.edu or 1-800-344-5984
We owe it to our grandchildren.