SCIENTIFIC ACTIVITIES AT THE CENTER FOR TOBACCO PRODUCTS

David L. Ashley, Ph.D.
Director, Office of Science,
FDA Center for Tobacco Products

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CTP has authority to regulate tobacco products intended for human consumption to reduce harm across the population

- Regulate the manufacture, marketing, and distribution of cigarettes, cigarette tobacco, roll-your-own, and smokeless

- Assert jurisdiction over other products that meet the definition of a tobacco product, including e-cigarettes, cigars, and hookah
IMPLEMENTING A PUBLIC HEALTH STANDARD

• Pursue a “public health” standard as tobacco cannot be regulated using FDA’s traditional “safe and effective” standard

• Take into account the benefits and the risks of regulatory actions to both users and non-users of tobacco products

• Assess the “net” population-level health impacts of tobacco products
THE SCIENCE OF TOBACCO REGULATION

- **Product**
  - Chemistry
  - Engineering
  - Microbiology

- **Tobacco Product User**
  - Toxicology
  - Pharmacology
  - Clinical medicine
  - Addiction
  - Product use behavior

- **Population as a Whole**
  - Environmental assessment
  - Epidemiology
  - Consumer perception
  - Statistical analysis
  - Evaluation
Restrict product changes to protect public health
Prohibit modified risk claims that state/imply reduced exposure or risk without an order
Decrease the harms of tobacco products
Educate the public about the dangers of tobacco use
HISTORICALLY MANUFACTURERS HAVE CHANGED PRODUCT CHARACTERISTICS

Unprotonated (free) Nicotine (mg/g)

- January 1999
- 2000
- “Before 2002”
- August 2004
- December 2006
- May 2007

Time
No regulated tobacco product can be changed or first introduced to market after March 21, 2011 without FDA evaluating the science and issuing a marketing order.

**New tobacco product applications:**
- The primary statutory pathway to market
- Premarket review
- Permitting the product to be marketed would be appropriate for the protection of public health.
**PATHWAYS TO MARKET**

**Substantial equivalence (SE)**

- An alternative to new product applications; characteristics are the same as a predicate product or characteristics are different but the product does not raise different questions of public health.
- Substantive scientific review has begun on all regular SE Reports submitted to date.
- FDA has fully resolved 51% of regular SE reports received to date either through an SE/NSE decision or by the report being withdrawn (most after receiving a deficiency letter).
- Products changed or introduced between February 15, 2007 and March 20, 2011, may be marketed in a provisional status awaiting FDA review of their SE reports submitted before March 23, 2011.
- FDA is also actively reviewing provisional SE reports (prioritized according to their potential to raise different questions of public health).
Substantial equivalence exemption

• An alternative to substantial equivalence in which the only change is to an additive, the product change is minor and a full substantial equivalence report is not necessary to ensure that permitting the tobacco products to be marketed is appropriate for the protection of public health.
DESIGN CHARACTERISTICS CAN ALTER CONSTITUENT DELIVERY OR PRODUCT USE

Paper
- Porosity
- Diffusivity
- Low ignition propensity
- Salt content
- Burn rate

Tipping paper
- Pressure drop
- Tip ventilation

Tobacco filler
- Blend
- Additives/acidity
- Cut Size
- Moisture

Cellulose acetate filter
- Denier (fiber density)
- Efficiency
- Resistance to draw
- Additives
### Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Smoke nicotine (mg/g tobacco)</th>
<th>Smoke TSNA (ng/g tobacco)</th>
<th>from content (ng/g tobacco)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NNN</td>
<td>NNK</td>
</tr>
<tr>
<td>Burley</td>
<td>5.40 ± 0.09</td>
<td>1,970.27 ± 81.87</td>
<td>174.12 ± 3.84</td>
</tr>
<tr>
<td>Bright</td>
<td>3.97 ± 0.10</td>
<td>35.30 ± 3.16</td>
<td>35.94 ± 4.00</td>
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<tr>
<td>Oriental Reconstituted</td>
<td>1.53 ± 0.03</td>
<td>84.23 ± 5.42</td>
<td>25.12 ± 2.32</td>
</tr>
<tr>
<td>Blend I</td>
<td>0.48 ± 0.02</td>
<td>241.70 ± 7.13</td>
<td>326.92 ± 7.38</td>
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<tr>
<td>Blend II</td>
<td>3.14 ± 0.07</td>
<td>486.68 ± 22.39</td>
<td>143.69 ± 7.51</td>
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<tr>
<td></td>
<td>2.42 ± 0.06</td>
<td>534.92 ± 23.58</td>
<td>179.70 ± 5.82</td>
</tr>
</tbody>
</table>

PROHIBIT MODIFIED RISK CLAIMS THAT STATE/IMPLY REDUCED EXPOSURE OR RISK WITHOUT AN ORDER

Modified risk tobacco product” means any tobacco product that is sold or distributed for use to reduce harm or the risk of tobacco-related disease associated with commercially marketed tobacco products.

The term “sold or distributed” includes labeling and advertising, as well as any communication actions “directed to consumers through the media or otherwise.”
EVALUATION OF MODIFIED RISK CLAIMS MUST ADDRESS IMPACT ON THE POPULATION AS A WHOLE

Increased Harm

Product is more toxic to the user
Instead of quitting, smokers become dual users
Products are used in a way that makes them more harmful
Youth/Adults initiate more
Former smokers relapse more

Reduced Harm

Product is less toxic to the user
Smokers switch completely to less toxic products
Products are used in a way that makes them less harmful
Initiation is reduced
Former smokers relapse less
“Use of tobacco products is driven by their appeal or attractiveness to potential consumers and sustained by their pharmacological addiction or dependence potential.”

STATUTORY BASIS FOR TOBACCO PRODUCT STANDARDS

Through rulemaking, the Tobacco Control Act allows adoption of “...tobacco product standards... appropriate for the protection of public health.” Sec 907.

- Nicotine yields
- Reduction or elimination of constituents, including smoke constituents
- Construction, components, ingredients, additives, constituents, and properties of the tobacco product
- Provisions for testing or measuring product characteristics
- Restrictions on sale and distribution
- Form and content of labeling
### SMOKING CESSATION LEADS TO BETTER HEALTH OUTCOMES

<table>
<thead>
<tr>
<th>Age at time of quitting smoking</th>
<th>Additional life expectancy due to quitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-34 years old</td>
<td>10 years</td>
</tr>
<tr>
<td>35-44 years old</td>
<td>9 years</td>
</tr>
<tr>
<td>45-54 years old</td>
<td>6 years</td>
</tr>
</tbody>
</table>

VERY LOW NICOTINE PRODUCTS MAY ENCOURAGE QUITTING

25% of participants who were originally not interested in quitting spontaneously quit smoking 4 weeks after completing the study.

SOME TOXIC AND CARCINOGENIC CONSTITUENTS VARY WIDELY IN PRODUCTS

VOLATILE ORGANIC COMPOUNDS CAN BE REDUCED BY USING CHARCOAL IN THE FILTER

TOBACCO pH ALTERS THE RELATIVE LEVELS OF THE FORMS OF NICOTINE
SMOKELESS UNPROTONATED (FREE) NICOTINE DELIVERY IS CONTROLLED THROUGH pH OF THE PRODUCT


March 4, 2015 | Science Board to the FDA - Scientific Activities at the Center for Tobacco Products
UNPROTONATED (FREE) NICOTINE CONTROLS DELIVERY KINETICS TO USERS OF SMOKELESS TOBACCO

EDUCATE THE PUBLIC ABOUT THE DANGERS OF TOBACCO USE

• Science is needed to identify the most effective means of accomplishing public health goals using information tools
  • Education campaigns
  • Health warnings
  • Harmful/potentially harmful constituents
EDUCATING AT RISK AUDIENCES ON THE DANGERS

General “At Risk” Market
Multicultural
Rural
American Indian/
Alaska Native
LGBT

10 Million

Prevention

Investing in our Future

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The Court of Appeals for the DC Circuit held that the particular graphic warnings adopted in FDA’s regulations violated the First Amendment.

FDA will undertake research to support a new rulemaking consistent with the Tobacco Control Act.
 PUBLIC DISPLAY OF HPHC DATA

• 904 (d) “the Secretary shall publish in a format that is understandable and not misleading to a lay person, and place on public display (in a manner determined by the Secretary) the list established under subsection (e).”
RESEARCHING SCIENTIFIC PRIORITIES

• Diversity of Tobacco Products
• Reducing Addiction
• Reducing Toxicity and Carcinogenicity
• Adverse Health Consequences
• Communications
• Marketing of Tobacco Products
• Economics and Policies
• Expand the scientific foundation for FDA tobacco product regulation
  – Survey implementation (NYTS, NATS, NHIS)
  – Laboratory analyses
• Provide scientific information which informs CTP about the harm of tobacco products and constituents
  – Microbiological agents on smokeless tobacco
  – Improved and alternate biomarkers to assess product harm
  – Smokeless tobacco carcinogen pharmacokinetics for risk assessment
  – Genetic toxicology of smokeless products
COLLABORATING WITH THE NATIONAL INSTITUTES OF HEALTH

- Tobacco Regulatory Science Program (TRSP)
- Tobacco Centers of Regulatory Science (TCORS)
- Population Assessment of Tobacco and Health (PATH)
- NIH Competitive Revision Applications for Research Relevant to tobacco product regulation
- Administrative Supplements to NIH-funded Program Projects/Center Grants: Research and Pilot Projects Relevant to tobacco product regulation
- Research Training Grants
COLLABORATING WITH NON-GOVERNMENT RESEARCH INSTITUTIONS

- RTI International
  - Graphic Health Warnings study
  - Consumer perceptions of tobacco products and claims research
- Westat
  - Population Assessment of Tobacco or Health (PATH) study
THE PUBLIC HEALTH IMPERATIVE TO GET THIS RIGHT

• Progress since the first SGR
• But still the leading cause of preventable disease and death; now 480,000 annual cigarette-related deaths
• 90% of all adult smokers started before age of 18
  ✓ Half become addicted before they are old enough to legally buy tobacco
• Each day:
  ✓ Approximately 3,300 kids smoke a cigarette for the first time
  ✓ Approximately 2,800 kids smoke a cigar for the first time
  ✓ Approximately 1,300 kids use smokeless tobacco for the first time
• The stronger the science base the more likely we are to institute lasting change and have far-reaching impact
THANK YOU