



# Consumer Knowledge and Perceptions About Harmful and Potentially Harmful Constituents in Tobacco and Tobacco Smoke: Findings from FDA Focus Groups

**Greta K. Tessman, MA**  
**Center for Tobacco Products**  
**Food and Drug Administration**

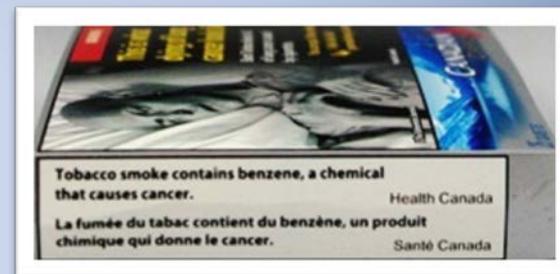
**August 15, 2013**



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# Examples of Publicly Presenting Tobacco Constituent Information

- References to constituent levels used in pro-tobacco advertising to encourage continued smoking
- Constituents presented on tobacco packaging
  - A number of countries require a limited number of constituents and the quantities of these constituents to be listed on the side of packages.
  - Some countries are replacing numerical emission information with qualitative descriptors of constituents on the side of packages.





# Literature Review

Studies have found that consumers:

- Have limited knowledge and awareness of chemicals in tobacco products
- Are often misled by numbers, such as the quantity of a particular constituent
- Mistakenly believe that “low tar” and “light” cigarettes cause fewer health problems
- May have reduced motivation to quit smoking if they hold mistaken beliefs about the health consequences of smoking “low tar” and “light” cigarettes
- Have misinterpreted advertisements that stated or implied that one product is less harmful than a comparable product



# FDA Focus Groups: Purpose and Objectives\*

- **Purpose:** To explore consumer knowledge and perceptions of HPHCs in tobacco products and how to disseminate information regarding HPHCs
- **Objectives:**
  - Assess consumer knowledge of HPHC tobacco constituents
  - Identify gaps in consumer knowledge
  - Explore what information consumers would want to know about HPHCs and options for effectively presenting this information
  - Understand consumer willingness to read and seek out information on HPHCs
  - Gather information about what would motivate consumers to engage with this information



# Participants and Locations

- 16 focus groups segmented by gender, age, education, and smoking status
  
- **Participants (N=149):**
  - Regular smokers
  - Occasional smokers
  - Those that had plans to quit smoking
  - Teens at risk of smoking initiation (13-17 years old)
  
- **Locations:**
  - Greenbelt, MD
  - Miami, FL
  - Nashville, TN
  - Baton Rouge, LA

- 90 minute semi-structured discussions led by a professional moderator
- Participants began by discussing what they knew about chemicals in tobacco products and how important it was to know this information
- Participants were asked to react to study stimuli, discussing initial reactions, content, format, and usefulness of the information
- Participants saw three stimuli: cigarettes, smokeless, RYO

## Sample Study Stimulus

Chemical	Cancer	Lungs	Heart and Blood Flow	Fetal Development and Fertility	Addiction	Amount Per Cigarette
	-Lung -Throat -Bladder -Cervical -Stomach -Kidney -Pancreas	-Asthma -COPD -Cough -Shortness of breath	-Heart disease -Heart attack -Stroke -Hardening of the arteries	-Trouble getting pregnant -Early births -Low birth weight -Pregnancy complications	-Difficulty quitting -Strong desire to use -Withdrawal symptoms	
Acetaldehyde	•	•	•	•	•	Standard puffing: 0.2 - 3.74 mg Inhalense puffing: 44.3 - 62.2 µg
Acetamide	•					52.0 - 923 µg
Acetone		•				74.0 - 1223 µg
Acrolein		•	•	•		Less than 10.0 µg
Acrylamide	•					1.8 - 23.3 µg
Acrylonitrile		•				12.5 ng
Aflatoxin B1	•			•		1.8 - 4.9 ng
4-Aminobiphenyl	•					31.3 - 103.6 ng
1-Aminonaphthalene	•					17.3 - 212.0 ng
2-Aminonaphthalene	•					14.7 - 210.0 µg
Ammonia		•				7.3 µg
Anabazine		•				22.5 - 91.4 µg
o-Anisidine	•			•	•	32.0 - 181.0 ng
Arsenic	•	•				19.9 - 377.0 ng
A-a-C (2-Amino-9H-pyrido[2,3-b]indole)	•					71.0 ng
Benzo[a]anthracene	•					7.4 - 63.9 ng
Benzo[b]aceanthrylene	•		•			55.3 µg
Benzene	•					11.6 - 29.4 ng
Benzo[b]fluoranthene	•		•	•		17.8 - 19.7 ng
Benzo[k]fluoranthene	•			•		Less than 35.0 µg
Benzo[b]furan	•			•		16.7 - 51.1 ng
Benzo[a]pyrene	•		•	•		Less than 15.0 µg
Benzo[c]phenanthrene	•					0.5 ng
Beryllium	•			•		12.9 - 96.5 µg
1,3-Butadiene		•	•			13.0 - 402.0 ng
Cadmium	•	•	•	•		8.6 µg
Caffeic acid	•					



# Key Focus Group Findings

## Prior to exposure to study stimuli:

- Most participants:
  - Thought it was important to know about the chemicals in their tobacco product and to know how the chemicals impact health
  - Understood using tobacco could cause many health problems
  - Believed tobacco products contain fewer than 50 chemicals
  - Believed tobacco companies add most of the chemicals
  - Perceived products labeled “organic” as not containing chemicals
- Few were aware that harmful chemicals come from the tobacco itself or are created during the process of curing and burning



## Key Focus Group Findings (cont.)

### Reactions to study stimuli:

- Most participants:
  - Appeared surprised by the number of chemicals they saw
  - Found the chemical names, amounts, and units of measure confusing
  - Said they would look at the list of chemicals for their product at least once if it was put in front of them
- Few said they would actively seek out a list for their product or use the information to compare products
- Several expressed that chemicals are everywhere (e.g., air, water, food) and therefore, it really didn't matter that chemicals are in tobacco products



# Communication Concepts

Developed communication concepts to guide the development of a prototype and supplemental communication/education based on gaps in knowledge and potential misinterpretations identified through the formative research process

1. The chemicals come from the tobacco leaf itself and different parts of a tobacco product such as the tobacco smoke, glues, inks, paper, and additives
2. For smokeless products, many of the chemicals come from the tobacco leaf. For smoked products, many of the chemicals come from burning the tobacco leaf.
3. Tobacco companies are required to test their tobacco products for these chemicals on the list and report the amounts to the FDA
4. Science has linked the chemicals on this list to health problems or potential health problems.



## Communication Concepts (cont.)

5. These lists do not necessarily include all of the health problems that may be caused by the tobacco product.
6. These lists do not necessarily include all of the chemicals that may be harmful.
7. The amount of a chemical listed for a specific tobacco product does not necessarily indicate the likelihood of experiencing a health problem.
8. The number of chemicals listed for a specific tobacco product does not necessarily indicate the likelihood of experiencing a health problem.
9. When a chemical is listed without a quantity it may mean the chemical was not detected or the information is not currently available.

- Incorporated communication concepts into design and text
  - Supplemental text and icons used to augment list of chemicals and associated health outcomes
- Developed prototypes for “Brand X” cigarettes, smokeless tobacco, and roll-your-own
- Applied good practices of health communication, including plain language, white space, and color
- Conducted cognitive testing for information accessibility, basic understandability, and readability

## Sample Prototype

**IODACCO PRODUCT:** Brand X Cigarette

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All tobacco products contain chemicals.

The purpose of this list is to provide information about the chemicals in this tobacco product that researchers have linked to health problems. Research is on going to find out which chemicals in tobacco and tobacco smoke cause harm.

There may be other health problems and chemicals that have not been discovered yet.

Tobacco companies test their cigarettes for these chemicals and report the amounts to the FDA.

**Please note:** There is no safe tobacco product. Based on what we currently know, you can not tell your chance of developing a health problem by the number of chemicals or the amount of a chemical in a tobacco product.

Amount Per Gram	Amount Per Cigarette	CHEMICAL	Cancer	Lung Disease	Heart and Blood Vessel Problems	Reproductive Problems	Addiction
	770-964 µg	Acetaldehyde	■	■			■
	+	Acetamide	■				
+	+	Acetone		■			
+	60-240 µg	Acrolein			■		
	+	Acrylamide	■				
	3-15 µg	Acrylonitrile	■	■			
		Aflatoxin B1	■				
	ND	4-Aminobiphenyl	■				
	3-4 ng	1-Aminonaphthalene	■				
	ND	2-Aminonaphthalene	■				
170-370 mg	10-130 µg	Ammonia		■			
+	+	Anabasine					■
+	+	o-Antikdine	■				
40-120 ng	+	Arsenic	■		■	■	

**KEY**

**Chemicals have been linked to:**

- Cancer
- Lung Disease
- Heart and Blood Vessel Problems
- Reproductive Problems
- Addiction

**ND** Not Detected

**+** The information is not currently available

**Where do these chemicals come from?**

Many of these chemicals come from the **tobacco leaf** and the **smoke**. The rest come from the filter, glue, ink, paper and additives.

mg= milligram

# Sample List Prototype



## Tobacco Product: Brand X Cigarette

All tobacco products contain chemicals.

The purpose of this list is to provide information about the chemicals in this tobacco product that researchers have linked to health problems. Research is on going to find out which chemicals in tobacco and tobacco smoke cause harm.

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Please note: There is no safe tobacco product. Based on what we currently know, you can not tell your chance of developing a health problem by the number of chemicals or the amount of a chemical in a tobacco product.

Amount Per Gram	Amount Per Cigarette	CHEMICAL	Cancer	Lung Disease	Heart and Blood Vessel Problems	Reproductive Problems	Addiction
70-84 µg	+	Acetaldehyde	■	■			■
	+	Acetamide	■				
+	+	Acetone		■			
+	10-20 µg	Protein			■		
	+	Acrylamide	■				
	3-11 µg	Acrylonitrile	■	■			
		Flutoux B1					
	ND	Aminobiphenyl	■				
	3-4 ng	Ammonaphthalene	■				
	ND	o-Aminonaphthalene	■				
170-320 ng	10-110 µg	Annonia			■		
+	+	Anabasine					■
+	+	o-Anisidine	■				
40-120 ng	+	Arenic	■				■
	+	A-a-C [2-Amino-9H-pyrido[2,3-b]indole]	■				
+	+	Benz[a]anthracene	■			■	
		Benz[ <i>b</i> ]acanthrylene					
	~50 µg	Benzene	■	■			

### KEY

Chemicals have been linked to:

- Cancer
- Lung Disease
- Heart and Blood Vessel Problems
- Reproductive Problems
- Addiction

ND Not Detected

+ The information is not currently available



### Where do these chemicals come from?

Many of these chemicals come from the tobacco leaf and the smoke. The rest come from the filter, glue, ink, paper and additives.

mg= milligram  
µg = microgram  
ng = nanogram  
pg= picogram

- List prototypes were then tested in an experimental study designed to assess consumer understanding of HPHC information
  - Consumer understanding was based on comprehension of the information included in the sample list prototypes
  
- Drs. Johnson and Portnoy will present the purpose, aims, design, and results of the experimental study

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# QUESTIONS?