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# PREPs Surveillance: Summary of Existing Survey Measures and Recommendations for Ongoing Efforts

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# PREPs Surveillance

Summary of Existing Survey Measures and  
Recommendations for Ongoing Efforts

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## Introduction

Over the past decade or more, tobacco companies have introduced cigarettes with lower content of some toxins than regular and light cigarettes. These new cigarettes, referred to as a class as Potential Reduced Exposure Products (PREPs), have typically been introduced into test markets, not nationwide, which means they are not yet widely known or recognized by name or description by most consumers. However, the introduction of these products is of great concern to public health advocates, who do not believe that enough research, particularly long term research, has been done to know whether or not the PREPs, even if proven to have reduced toxins, actually present a reduced health risk. The fear in the public health community is that smokers who might have been motivated to quit may reverse those quit plans if they perceive an alternative, safer smoking option exists with the PREPs. Likewise, there is concern that former smokers could be tempted back to smoking and non-smokers could be tempted to initiate smoking if they too perceive that PREPs present lower health risks than other cigarettes. Having faced a similar situation with the introduction of “light” cigarettes – i.e. new product, insufficient research about its health implications -- public health officials are feeling cautious about PREPs and have called for development of a science to evaluate PREPs, as well as ongoing surveillance.

The Center for Survey Research (CSR) at UMass Boston, under contract to the National Cancer Institute, is charged with leading a collaborative effort to develop survey questions for monitoring population responses to PREPs. The first step in that effort is to review and evaluate measures that have been developed to date, to recommend refinements or changes, and to propose new items to fill any gaps that may be revealed. The evaluation of existing measures was based on standard practice in survey item development and, when possible, examination of data on responses to the survey questions.

In order to obtain as complete a set of existing measures as possible, we reviewed published literature on consumer reactions to PREPs and solicited input about ongoing studies from members of the project advisory group<sup>1</sup>, members of the Harm Reduction Network, and other members of the tobacco research community. Appendix A is a list of studies we have included in the summary of current data on the subject of PREPs surveillance. Appendix B is the full listing of PREPs-related questions for each included study.

In summarizing what survey questions have been asked and what data are available, we have identified eight domains:

- Awareness
- Perceptions of risk and/or harmfulness
- Trial
- Interest in trial
- Current use
- PREPs as quit aids
- Smokeless (awareness, risk, trial/current use, quit aids)
- Miscellaneous topics (government safety oversight, tobacco industry image, ad images and terminology, important qualities in switching to a new product, genetically modified tobacco)

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<sup>1</sup> Jack Fowler, Gary Giovino, Lynn Kozlowski, Stephen Marcus, Anne McNeill, Rich O’Connor, Mark Parascandola, Linda Pederson, Gordon Willis

In the first section (A) of this report, we review and describe the existing measures, organized by these domains. In the second section (B), we consider how to proceed in developing measures for ongoing surveillance of PREPs, specifically making recommendations about important targets of surveillance for the short term and proposing strategies for further testing.

## **PART A. REVIEW AND DESCRIPTION OF EXISTING MEASURES**

### **I. Awareness**

Most surveys that cover anything about PREPs include some measure of PREPs awareness. The structure of different awareness questions is summarized in Diagram 1, with the initial distinction between questions that ask about PREPs in the abstract versus those that ask about specific brands, with further breakdowns within these groups.

**Diagram 1. The Structure of PREPs Awareness Questions**

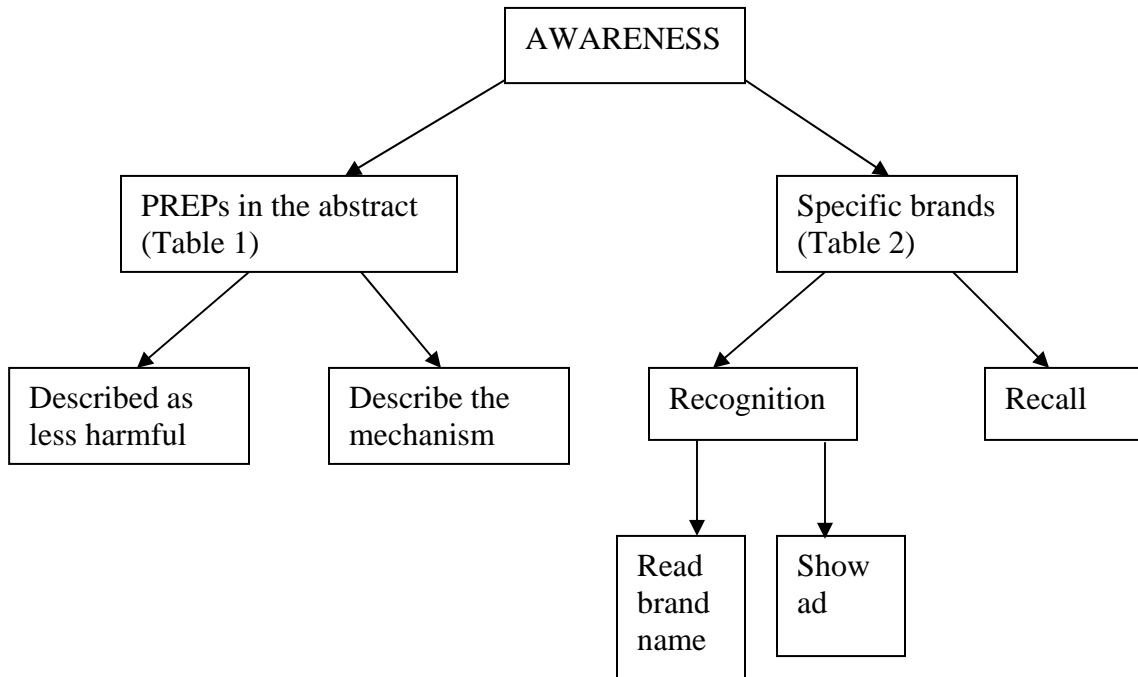


Table 1 summarizes the questions that have been used to measure awareness of PREPs as an abstract concept and shows the percentage of respondents aware of PREPs using two approaches, where data are available.

**Table 1. Measures of Awareness of Preps in General**

Source	Item Wording	Percent of smokers affirming awareness
	<b>Description of PREPs as “less harmful”</b>	
UMASS	Tobacco companies are developing new types of cigarettes and other tobacco products that are supposed to be less harmful. Have you heard of such products?	31%
ITC WAVE 2	Tobacco companies are developing new types of cigarettes or cigarette-like products that are supposed to be less harmful than ordinary cigarettes. Have you heard of such products?	39%
AHS	Cigarette companies are making new types of cigarettes or cigarette-like products that they claim are supposed to be less harmful than ordinary cigarettes. Have you heard of such products?	40%
CIPREP	Have you seen or heard of any new types of cigarettes or cigarette-like products that tobacco companies are developing that they claim are safer or less harmful than ordinary cigarettes?	19%
HUND 2006	In the past few years, tobacco companies in the United States have introduced new cigarette brands that claim to produce lower levels of cancer-causing chemicals in the smoke when compared to conventional light cigarettes. Please answer the following questions about these new products. Have you heard of these products?	NA
	<b>Description of Mechanism</b>	
BAND	Tobacco companies have recently introduced products that look like cigarettes, but which heat the tobacco, instead of burning it. They claim that these products contain less tar and produce less environmental tobacco smoke. They also say they that they give a lower concentration of cancer-causing chemicals in the smoke. Have you heard of these products?	13%

- Description of PREPs as less harmful: If the question asks whether a respondent is aware of a new cigarette described rather generally as designed to be “less harmful”, respondents understand this question to include cigarettes that are not PREPs but products which may be interpreted as “less harmful” because they are marketed as “natural” or “additive free”. This

is apparent when there is a followup question asking the respondent to name such a product, and they name brands such as American Spirit and Winston No Bull. Questions with a broad “less harmful” description have reports of over one-third having heard of such “less harmful” cigarettes (31% of smokers on the UMASS study, 39% of smokers on ITC WAVE 2, and 40% of smokers on AHS). The exception to these consistent findings is the CIPREP study conducted in Canada; that study found only 19% awareness among smokers.

- Description of the mechanism for harm reduction: A second way to measure general awareness of PREPs is to start the question with a description of the mechanism by which the harm reduction is supposed to be achieved. For example, see the wording in Table 1 for the BAND survey. Data from the BAND survey suggest a much lower level of awareness, with about 13% of smokers saying Yes to this question.

Table 2 summarizes questions designed to measure awareness of specific PREPs products. Two general approaches are used: recognition of products and unaided recall of products. Recognition has been measured by either showing a product advertisement or reading brand names.

- Present names of one or more specific PREPs: Use of a recognition question, in which the brand name is provided and respondents have to say if they’ve heard of it, yields higher reports of knowledge of specific brands, though the rates are very likely over-reports because a number of PREPs brands share names with other products. For example, Eclipse is also the name of a gum, Accord the name of a car, and Omni the name of a hotel. When respondents say they recognize those names, we cannot be certain that they are thinking of the cigarette brand or if they simply recognize the name more generally and, therefore, report having heard of it. Before showing advertisements of Advance and Eclipse, the CPPS asked participants whether they had ever heard of either of the two brands. The CPPS found about 11% awareness of at least one of the two products among current smokers. The HUND 2006 study asked recognition of four brands which resulted in much higher PREPs reports. Combined, 42% of smokers claimed recognition of at least one of these brands. FMO 2008 found 53% of smokers recognized at least one PREP name included in their list (see Table 2). We expect these rates are highly exaggerated, given other data about recognition of PREPs.
- Show a product advertisement: In the HAMILTON 2004 study, respondents were shown an ad for either Advance, Eclipse, or Omni along with ads for regular and light cigarettes (rotating the possible combinations). Respondents were told to look at the ads for as long as they would if they came upon them for the first time in a magazine. They were then asked, “Have you ever seen ads for these particular cigarette brands before?” Among smokers, awareness measured this way was just below 8% for the PREP shown. A study of the new Marlboro Ultra Smooth used a similar approach of showing an advertisement to respondents, but we do not know the final results for that study. These studies were not designed to provide general estimates of awareness of PREPs, but rather to investigate other aspects of reactions to particular products.

**Table 2. Measures of Awareness of Specific Preps**

Source	Item Wording	Percent of smokers affirming awareness (unless otherwise noted)
<b>Recognition – read names</b>		
CPPS	Next I would like to ask you some questions about two new brands of cigarettes on the market, called Eclipse and Advance, which will soon be available everywhere. They contain far less of many of the chemical compounds or toxins found in cigarettes that are believed to contribute to the risk of cancer and other illnesses. Have you heard of either of these brands?	11%
HINTS II	Next are some questions about new types of tobacco products that have been recently introduced. Have you ever heard of a tobacco product called...? {Eclipse, Quest, MUS, Ariva, Revel}	NA
HUND 2006	Have you heard of any of the following cigarette products ...?	Advance 20% Omni 13% Accord 11% Eclipse 24%
FMO 2008	New types of tobacco products have been recently introduced. Please indicate below whether you have ever tried or heard of the product. (Not heard of product, Heard of product but never tried, Have tried product for EACH... Eclipse, Quest, Marlboro UltraSmooth, Ariva, Revel, Accord, Advance, Omni, Exalt, Stonewall).	53% of smokers had heard of at least one PREP
<b>Recognition – show a product advertisement</b>		
HAMILTON 2004	Have you ever seen ads for these particular cigarette brands before?	8%
MUS	Have you ever seen advertisements for {Marlboro Reds, Lights, UltraLights, UltraSmooth} before?	NA
<b>Unaided Recall</b>		
HUND 2006	Please tell me the names that you recall of any of these new products.	No PREPs named.
BAND	Do you know the names of any of these products? [SPECIFY]	4% Eclipse (of smokers who'd heard of PREPs; less than 1% of all smokers)

Source	Item Wording	Percent of smokers affirming awareness (unless otherwise noted)
ITC WAVE 2	Can you name any of these new products? [Y/N] What are the names?	8% Eclipse 2% Omni (of the 27% of smokers who said they could name a PREP; 3% of all smokers)
AHS	Can you name any of these new products? {Y/N} What are the names?	1% Eclipse <1% Advance (of all smokers)
UMASS	Can you name any of these new products? [Y/N] Please tell me the names of one or two of these products.	6% Eclipse (of smokers who had heard of and said they could name a PREP; less than 1% of all smokers)
CIPREP	Can you name any new cigarette products that you think are less harmful? What are they?	No PREPs named.

- Unaided recall of brand names: Generally, use of recall questions, which requires respondents to come up with brand names on their own, yields very low reports and many of the brands respondents name aren't PREPs at all.
  - The HUND 2006 study asked unaided recall of brand names before asking for recognition, but none of the responses that were given turned out to be PREPs but were, instead, things like “natural” cigarettes (such as American Spirit) or nicotine replacement products (such as Nicorette and Nicoderm). This finding was not included in the published study, but reported in a personal communication.
  - The BAND survey, which had introduced the concept by describing the mechanism of harm reduction, asked the 13% percent of smokers who said they'd heard of a PREP if they knew the names of any of these products. Most (61%) said No, another 15% said they didn't know, and 14% refused. That's nine out of ten respondents combined, leaving only a handful who could name one, with Eclipse getting the highest report at 4%.
  - On the ITC WAVE 2 survey, smokers who were aware of PREPs were also asked if they could name a PREPs product. While 27% said they could, the number reporting specific brands is low (8% Eclipse and 2% Omni), with many reports of non-PREPs, such as Winston (6%), Marlboro Blend #27 (2%), American Spirit (1%), Lights (1%), medicinal nicotine (2%), smoke-free (3%), and herbal (3%). In addition, 26% named Quest, a nicotine step-down brand designed to assist quitting, but not a PREP.
  - On the AHS, virtually none of the recognized PREPs was named by even 1% of smokers, except for Quest, which was named by about 3%.
  - The UMASS study reports that among those who had heard of PREPs, 25% of smokers said they could name a PREPs product. However, only 6% of those who said they could name a PREP named Eclipse, a true PREP, on the first mention.



- In Canada, the CIPREP study asked smokers who were aware of PREPs cigarettes if they could name one, and 53% said Yes. However, as with the other studies, no one named an actual PREP.

## **Summary of Awareness Questions**

It is important to accurately track level of awareness of PREPs. Reviewing the different questions that have been used to measure awareness of PREPs, we believe that at least a couple of them seriously overstate the level of awareness. Specifically, using a general description of a PREP as “less harmful” yields too many reports of non-PREPs, as does the use of name recognition of some PREPs brands, especially those that share a name with another product. Providing the mechanism and advertising strategies, as BAND does, tends to reduce reported awareness, but the potential variation in mechanisms or advertising in future products could make this a cumbersome approach.

## **II. Perceptions of risk and/or harmfulness of PREPs**

It is important to keep in mind that respondents’ perceptions of risk would be highly related to the description of the product provided to them as well as the context of the question within the survey instrument. In some cases respondents are simply shown an actual advertisement which may or may not make claims about riskiness, while in other cases they are told that the product has fewer toxins or that “tobacco companies claim they have fewer toxins.” This will affect perceptions depending on the respondent’s attitude towards tobacco companies.

- Continuous scales

A popular choice for measuring risk is the use of a continuous numeric scale, often formatted as a ladder. The scales have varied on a number of dimensions: a) endpoints (0-10 versus 1-10), b) verbal anchors (anchoring to “regular cigarettes” versus no such anchor), and c) parameter being assessed (perceived health risk, amount of tar (HAMILTON 2004), amount of toxins (CPPS), or “things that might cause cancer” (HAMILTON 2004). Table 3 summarizes what has been done and what the results look like for smokers from the studies using a continuous scale approach.

The first three rows are all health risk ladders, so can be compared. The first is a 1-10 ladder with no anchor comparison to regular cigarettes (HAMILTON 2004). Regular cigarettes, in fact, when rated on the same ladder, yield an 8-plus. In the second row, 8-plus is just about what a light cigarette gets rated when using a 0-10 ladder that anchors regular cigarettes at a 10 (CPPS). On these two ladders, PREPs ratings are 5.4 and 6.0, relatively close to each other despite differences in the ladder. Shiffman (2003) uses a very similar approach to CPPS -- a 0-10 health risk ladder anchored at 10 for regular cigarettes -- but the results are quite different. The CPPS found that about 79% of smokers gave the PREPs a rating lower than 10 (regular cigarettes), compared to 91% for smokers in Shiffman’s study. Further, the CPPS had almost no one say (1%) that PREPs were completely safe (rated a 0), compared to 24% in the Shiffman study. These differences are large and suggest either a lack of reliability in the ladder rating system or a difference in the effect of the stimulus that respondents were offered, that is what they were told about the PREPs.

The fourth and fifth rows of the table both use ladders rating “things that might cause cancer” or “cancer-causing chemical compounds/toxins.” Wording is variable, but they appear to be aiming at the same thing. As before, HAMILTON 2004 uses a 1-10 ladder with no anchor and the CPPS is a 0-10 ladder anchored at 10 for regular cigarettes. The ratings for PREPs on these two ladders are 6.6 and 5.5, respectively. Clearly both are well below 10, but again, the difference suggests that we need to be cautious in how exactly we interpret results from ladders ratings, as they have no inherent meaning. Only HAMILTON 2004 used a ladder to ask about amount of tar (sixth row of table).

**Table 3. Summary of continuous ladders to measure PREPs risk perception**

Source	Question	PREPs Ratings	Lights Ratings	Regular Ratings	Important Features
1 HAMILTON 2004	This card has three health risk ladders that go from 1 to 10. The bottom rung of the ladder means very low health risk, which implies that even if you smoked the cigarette regularly for a long time, like 20 or 30 years, you probably wouldn't get a serious health problem. The top rung of the ladder means very high health risk, which implies that if you smoked the cigarette regularly for a longtime you'd be very likely to get a serious health problem. Please tell me where you would put each of the three cigarettes {Advance/Eclipse/Omni} on the health risk ladder.	5.4	5.8	8.2	1-10 HEALTH RISK ladder; no anchor comparison to regular cigarettes.  MUS used the same Q. No data available.
2 CPPS	Now think about the overall health risk ladder where 0 means no health risk and a 10 means the health risk of smoking regular, full-flavor cigarettes. Please tell me where you would put {Advance/Eclipse} on the health risk ladder?	6.0 79% believe it is lower than regular cigs (gave a rating <10); 1% said completely safe (rating=0)	8.3		0-10 HEALTH RISK ladder; anchor comparison to regular cig.
3 SHIFFMAN 2003	We don't have the wording of the risk question, but from the Shiffman article we know smokers were asked about the perceived risk of Eclipse, evaluated by rating its risk on a 0–10 scale, where 0 referred to "not smoking—all health risk eliminated" and 10 referred to the risk of smoking regular cigarettes.	91% believe it is lower than regular cigs (gave rating <10); 24% said completely safe (rating=0)			0-10 HEALTH RISK ladder; anchor comparison to regular cig.
4 HAMILTON 2004	Looking at these ladders again, please consider these three ads {Advance/Eclipse/Omni} again—this time rating them from 1-10 with respect to the level of things that might cause cancer you think each product contains. A rating of 10 would mean you see this cigarette as having a high content of things that might cause cancer and a rating of 1 means you think the product has a low content of things that might cause cancer.	6.6	6.9	8.8	1-10 AMOUNT OF THINGS THAT MIGHT CAUSE CANCER ladder; no anchor comparison to regular cigarettes.
5 CPPS	Now think again about the earlier ladder for the amount of cancer-causing chemical compounds or toxins in cigarettes, where a rating of 0 means no chemicals or toxins that cause cancer and a 10 stands for the amount of chemicals or toxins in a regular, full flavor cigarettes like Marlboro or Salem or Camel. Please tell me where you would put {Advance/Eclipse} to indicate its level of cancer-causing chemicals compounds or toxins.	5.5	7.6		0-10 AMOUNT OF CANCER-CAUSING CHEMICAL COMPOUNDS OR TOXINS ladder; anchor comparison to regular cig.
6 HAMILTON 2004	Looking at these ladders again, please consider these three ads {Advance/Eclipse/Omni} again—this time rating them from 1-10 with respect to the amount of tar you think each product contains. A rating of 10 would mean you see the product as having a high tar content and a rating of 1 means you think this cigarette has a low tar content.	5.3	5.4	8.4	1-10 AMOUNT OF TAR ladder; no anchor comparison to regular cigarettes.  MUS used the same Q. No data available.

- Risk compared to lights or regular cigarettes in a yes/no format

An alternative approach to measuring risk is a Yes/No question, comparing PREPs to light or regular cigarettes. ITC WAVES 1 and 2 ask, “As far as you know, are any of these new products less harmful than ordinary cigarettes?” In the WAVE 2 survey, of smokers aware of PREPS, 24% said less harmful, 53% said not less harmful, and 23% were unsure. The later WAVES (3 and 4) modified this wording slightly as follows: “Compared with ordinary cigarettes, are any of these new products less harmful?” There was a followup question as well, depending on the respondent’s answer. IF YES, “Are they a little or a lot less harmful than ordinary cigarettes?” IF NO, “Are they more harmful or the same as ordinary cigarettes?” Data are not currently

available from the later waves. The AHS asks a similar question, “Do you believe that any of these products are less harmful than ordinary cigarettes?” and 10% of smokers said they believed they were. Similar approaches were used in the HINTS II (“As far as you know, is {brand} less harmful than conventional cigarettes, equally harmful, or more harmful than conventional cigarettes?”) and the MUSFG (“Compared to your regular cigarette/lights/ultralights, how much is risk reduced with MUS?”). That survey followed up with the question, if a reduction in risk is expected, “What particular risks do you expect to change?” Data are not yet available for HINTS II or MUSFG.

- Less risk as a reason for interest in trying

A more indirect approach to assessing risk perception is to include reduced risk as part of a list of reasons one is interested in using or trying the products. For example, HINTS II asks, “What is the main reason you use/tried/used {brand}?” and offered “Instead of quitting, as a way to reduce health risks” as one of the answer options.

- Other questions that assess perceptions of exposure and risk

The CIPREP study done in Canada asked smokers who were aware of PREPS, “As far as you know, what is it about any of these products that might make them safer or less harmful?” They field coded open-ended responses as follows: Less tar/lower tar (11%), Less nicotine (16%), Fewer chemicals/toxics/carcinogens (19%), Less harmful ingredients in general (9%), Less additives (9%), Self-extinguishing cigarettes (5%), Different filters/no fiberglass (4%), Other mentions (6%). A quarter (25%) said they weren’t less harmful and another 15% said they did not know (multiple answers were possible).

The CPPS tried a number of different questions to try to get at perceptions of toxin exposure as well as risk, attempting to directly address the messages that were explicit or implied in the ads that respondents were shown. The survey asked the following questions:

A. If a smoker switched to {Advance/Eclipse} instead of continuing to smoke their regular cigarettes, do you think they would be exposed to fewer cancer causing chemicals? 61% of smokers said Yes.

B. Given your understanding of the materials about {Advance/Eclipse}, how many of the cancer causing chemicals found in regular cigarettes have been reduced in {Advance/Eclipse} – would you say...? All (16%), Most (26%), Some (46%), None (13%) (Smokers only)

C. If a smoker switched to {Advance/Eclipse} instead of continuing to smoke their regular cigarette, do you think that their chance of getting cancer would...? [increase, decrease, or not change] FOLLOWUP: Would you say it would {increase/decrease} a...? [large amount, moderate amount, small amount]. The combined results among smokers found 4% thought a switch would increase their chance of getting cancer a moderate amount, 57% expected no change, 10% thought their chance of getting cancer would decrease a small amount, 23% thought it would decrease a moderate amount, and 7% thought it would decrease a large amount.

D. Do you think if new smokers started out smoking {Advance/Eclipse}, they could smoke for more years before endangering their health? Definitely yes (5%), probably yes (48%), probably not (27%), definitely not (21%) (Smokers only)

In general, what sort of picture do the answers to these questions paint about smokers' perception of exposure and risk for PREPs? The results are not entirely consistent, which suggests that survey design can influence how much we believe the public is accepting the advertising messages. For example, from question A above, 61% see a decrease in exposure to cancer-causing chemicals, while from B, 88% see all, most, or some chemicals in PREPs reduced. Both numbers are high, but the latter one suggests a truly impressive effect of the materials that were presented (advertising plus industry graphs about toxins). The questions that follow these two on exposure can be used to understand whether or not that belief in reduced exposure translates into beliefs about smokers' chances of actually getting cancer. From question C, we find that about 40% believe that smokers' chances of getting cancer are decreased a small, moderate, or large amount. But question D suggests that slightly more people believe that PREPs offer reduced risk, as 53% report that a new smoker could definitely or probably smoke PREPs longer before getting cancer.

### **Summary of Risk Questions**

There are three main ways that risk has been assessed -- the continuous numeric scale (formatted as a ladder), yes/no questions that ask people to directly compare PREPs to lights or regular cigarettes, and a more indirect approach, letting respondents volunteer reduced risk as their reason for being interested in trying PREPs. The ladders differ along a number of dimensions (scale, anchor, and parameter assessed) and seem susceptible to variability in answers, though it can be very useful to have a continuous variable outcome measure for modeling. The yes/no format also seems like a good approach, in part because it is straightforward for respondents. The more indirect approach, letting respondents volunteer it as a reason for interest, also has merit in that it allows us to see how salient reduced risk is among other reasons for interest in the product. It is also important to include questions about both reduced exposure and reduced risk, as these ideas are closely connected in consumers' minds and may be critical in efforts to counter misperceptions in response to PREPs' marketing.

### **III. Trial**

There is somewhat less variation in the rather straightforward concept of having tried a PREP. Table 4 shows the detailed wording and data, where available, for the trial questions. The questions vary along two dimensions:

- reference period -- tried versus ever tried versus used in the past six months
- product reference -- any of the products or one of the products or product name.

The product reference used in a particular question was typically chosen to match either a preceding introductory sentence or two describing PREPs, or it followed other questions that referenced PREPs or PREPs brands.

There is quite a lot of variation in reports of having tried PREPs, but they mostly have to do with who was asked the information -- specifically, some surveys screened out respondents who had never heard of PREPs while some asked all smokers. Table 4 recalculates rates, when necessary, to refer to all smokers. The rate from HUND 2006 (11% of smokers) looks high compared to reports from HAMILTON 2004 (1% of smokers), from HINTS (5% of smokers), or from AHS

(5% of smokers). Even the 5% report from AHS may be too high, since some respondents were reporting about reduced harm cigarettes that are not really what we consider PREPs (e.g., “natural” cigarettes). Not surprisingly, questions that ask about trial of specific brands by name yield lower rates in general than the broader questions about use of “these kinds of products.” The Tobacco Use Supplement to the Current Population Survey, which asked about trial of specific brands, found reports ranging from less than one percent (for six brands that were listed) to about 2% for Eclipse.

**Table 4. Detailed questions and data about trial of PREPs**

<b>Source</b>	<b>Item wording</b>	<b>Percent of Smokers (unless otherwise noted)</b>
HUND 2006	Have you tried any of those products? (REFERRING TO 4 SPECIFIC BRANDS) [Y/N]	11%
BAND	Have you ever tried one of these products? [Y/N]	2%
HAMILTON 2004	Have you ever smoked any of the three cigarette brands? [Y/N] Which brands have you smoked?	1%
HINTS	Tobacco companies have recently introduced new types of cigarettes that are claimed to have fewer harmful chemicals or carcinogens. These have names like Eclipse, Accord, Advance, and Omni. Have you ever tried one of these products? [Y/N]	5%
HINTSII	You said that you have heard of {brand(s)}. Have you ever tried this product/any of these products? Which ones? [Accord, Advance, Ariva, Eclipse, Exalt, MUS, Omni, Quest, Revel, Stonewall]	No data available
ITC WAVE 1	Have you ever tried any of these products? [Y/N] Which products have you ever tried? Which products have you tried in the last 6 months?	No data available
ITC WAVE 2,	Have you tried any of these products in the last 6 months? [Y/N]	Less than 1%
ITC WAVES 3 AND 4	Have you tried any of these products in the last 6 months? [Y/N]	No data available
YSCS 24 MONTH FOLLOWUP	Have you ever tried [product = MUS; Ariva, Revel, or Exalt; Omni or Advance; Eclipse or Accord; Quest], even a puff? [Y/N]	No data available
CPPS	Have you ever tried either of them? [Y/N] Which have you tried? [Eclipse/Accord/Both]	3%
CPPS	Have you used either of these new products in the past 6 months? [Y/N] Which have you used? [Eclipse/Accord/Both].	Less than 1%

<b>Source</b>	<b>Item wording</b>	<b>Percent of Smokers (unless otherwise noted)</b>
AHS	Have you ever tried any of these products? [Y/N] Which one(s)?	5% (The individual brand reports for PREPs were less than 1% combined.)
AHS	Altogether, how long did you use {product}? [days, weeks, months, years] When was the last time you used {product}?	Only 1% reported duration in excess of 30 days, and no one reported use in the last 30 days.
UMASS	Have you ever tried any of these products? Which ones have you tried? Have you used any of these products in the past month?	4% (13% of those who had heard of PREPs. Less than 1% of smokers reported trial of an actual PREP)
FMO 2008	New types of tobacco products have been recently introduced. Please indicate below whether you have ever tried or heard of the product. (Not heard of product, Heard of product but never tried, Have tried product for EACH... Eclipse, Quest, Marlboro UltraSmooth, Ariva, Revel, Accord, Advance, Omni, Exalt, Stonewall).	8% of smokers had tried at least one PREP
TUS-CPS	Now I'm going to ask about your use of new tobacco products that are sometimes claimed to have fewer harmful chemicals. Have you ever tried a product called....	2% Eclipse <1% Accord <1% Arriva <1% Exalt <1% Revel <1% Omni <1% Advance (3% of daily smokers tried any PREP)

### **Summary of Trial Questions**

The trial questions that have been used are all of a similar type, though they vary by reference period and by product reference, based on whether a survey is asking about specific named products or PREPs in general. Questions that ask about PREPs in general likely suffer from the same overstatement as awareness questions because respondents include non-PREPs products, especially “natural” cigarettes and other “less harmful” tobacco products.

#### **IV. Interest in trial**

The questions that have been asked about interest in trying PREPs, shown in Table 5, either ask directly about specific brand interest or they ask about interest in reduced exposure/harm products in general, with the latter being the more common. Other important differences in the question wording include whether respondents were asked about trying, switching, or even purchasing a PREP, and whether there are any conditions placed on the trial, such as the price or

taste. Not surprisingly, variation in answer options leads to big variation in response distributions.

The questions that did not specify brand were asked of either all smokers or just those who were not aware of or had not tried a PREP. For example, after an earlier item that described PREPs in general, the BAND study and the AHS asked the same question about interest in trial (see Table 5 for wording). Of the smokers who were not aware of PREPs or had not tried them, 46% of those in BAND said that they would be interested. In the AHS data for smokers who were not aware of or had not tried a PREP, interest was a bit higher at 52%.

**Table 5. Detailed questions and data about interest in trying PREPs**

<b>Source</b>	<b>Item wording</b>	<b>Percent of Smokers (unless otherwise noted)</b>
BAND	Would you be interested in trying one of these products?	46% of smokers not aware of PREPs or had not tried them
AHS	Would you be interested in trying one of these products?	52% of smokers not aware of or had not tried a PREP
HINTS	If a new cigarette were advertised as less harmful than current cigarettes, how interested would you be in trying it? Would you say very interested, somewhat interested, or not interested	59% very/somewhat interested
FMO 2008	If a new cigarette were advertised as less harmful than current cigarettes, how interested would you be in trying it? (Not at all interested, Somewhat interested, Interested, Very interested, Extremely interested).	77% of smokers reported being somewhat interested, very interested or extremely interested
CIPREP	How likely would you be to switch to a safer or less harmful cigarette product if it were available? Would you be very, somewhat, not very or not at all likely?	51% very likely 27% somewhat likely
CIPREP	Would you be willing to pay a lot more, somewhat more, or no more than you are paying now, for a safer or less harmful cigarette product?	24% a lot/somewhat 72% no more
CIPREP	How likely would you be to switch to a safer or less harmful cigarette product instead of trying to quit smoking? Would you be very, somewhat, not very or not at all likely?"	32% very likely 29% somewhat likely
HUND 2006	Would you be interested in trying one of these products? (four brands)	50% Yes
CPPS	If they were priced right and tasted good, how likely is it that you would switch to Advance or Eclipse -- would you say very likely, somewhat likely, not very likely, not at all likely?	60% very/somewhat likely



<b>Source</b>	<b>Item wording</b>	<b>Percent of Smokers (unless otherwise noted)</b>
MUS	If offered a {brand} cigarette, how likely would you be to try it? (I definitely will; I probably will; I probably will not; I definitely will not). How likely are you to purchase a pack of {brand} in the next year?	NA
SHIFFMAN 2003	Exact wording not available. Smokers were asked about interest in purchasing Eclipse in the next 6 months.	57% very/somewhat likely

## **Summary of Interest in Trial Questions**

A number of variations in question wordings have been used. The main variations are whether you ask about specific brands or interest in PREPs in general, whether you ask about trying or switching or purchasing, and whether there are any conditions placed on the trial, such as price or taste. Even though switching seems like the highest hurdle -- a greater commitment than either trying or purchasing, and premised on good taste and fair price -- it yields high reports of interest.

## **V. Current use**

A number of surveys collected data about current use of PREPs, though they are split between asking about “now” and the past 30 days as the reference period. HINTS II and ITC asked about current use as follows (though we do not have the data):

- HINTS II -- “Do you now use {brand} every day, some days, not at all?”
- ITC WAVES 3 and 4 -- “Are you still using any of these products? How often do you currently use {product named}? Would that be daily, Less than daily but at least once a week, Less than weekly but at least once a month, Less than monthly, Or have you stopped using such products altogether?”

The UMASS and YSCS 6-month and 12-month follow-ups asked about use in the past month or 30 days. The YSCS, after establishing if the respondent had used any “other” tobacco products in the past 30 days, asked, “What other tobacco products did you use? Did you use... {Ariva, Revel, or Exalt; SCoR; OMNI or Advance; Eclipse or Accord; Quest}?” The usage rates from this survey are extremely low, less than 1%. The YSCS 24-month followup also asked about usage in the past 30 days for any of the PREPs (same list as for their other two surveys, except substituting MUS for SCoR) that the respondent had tried: “Have you smoked {product} in the last 30 days? During the last 30 days, on how many days did you smoke {product}?” We do not have the data from the 24-month followup. The UMASS study asked those who had tried a PREP (4% of smokers), “Have you used any of these products in the past month?” They found 24% report having used them in the past month – i.e. less than 1%.

## **Summary of Current Use Questions**

Once a threshold of trial is reached, current use will become a key surveillance concept. Questions that have been used to measure current use ask either about now or about the past 30 days. Mirroring standard questions for current cigarette or smokeless use would probably be the best idea.

## **VI. PREPS as quit aids**

Questions about PREPs as quit aids come mainly in two forms: direct questions about whether respondents think PREPs would be or have been used for quitting and indirect approaches that ask about reasons for interest, with quit aid as one of the reasons. Two studies tried slightly different approaches to the topic of PREPs as quit aids -- one study asked a hypothetical question

about switching to PREPs instead of quitting and the other asked about advertising messages. The exact wordings for questions about PREPs as quit aids are shown in Table 6.

**Table 6. Detailed questions and data about PREPs as quit aids**

<b>Source</b>	<b>Item wording</b>	<b>Percent of Smokers (unless otherwise noted)</b>
AHS	Did you use {product} instead of quitting cigarettes, as a way of cutting down on cigarettes, to help you quit smoking cigarettes?	2% said instead of quitting or to help quit; 3% said as a way of cutting down
ITC WAVES 2, 3,4	Did you use these products <u>as an alternative to quitting?</u> In the past six months, did you use any of these products <u>as a way of cutting down on your cigarette smoking?</u> Did you use these products <u>to help you quit?</u> ” (Emphasis added to highlight wording differences)	NA
CPPS	Do you think switching to {Advance/Eclipse} would be a useful step for someone who wants to quit smoking?	53% said Yes.
HUGHES 2005	NA	51% believe that PREPs can help reduce the number of cigarettes smoked each day; 53% believe that they can make it easier to quit smoking completely.
CIPREP	How likely would you be to switch to a safer or less harmful cigarette product instead of trying to quit smoking? Would you be very, somewhat, not very or not at all likely?	61% said very or somewhat likely to switch instead of quit.
HAMILTON 2004	Now I’d like you to think about the three advertisements that you saw. I want to know what message you think each ad is trying to give you. Look at the ad for {brand} while I read off some possible messages. For each possible message, tell me whether you think this is what the ad is trying to say. This cigarette will help someone quit smoking.	About 41% said Yes.

### **Summary of PREPs as Quit Aids Questions**

Quit aid questions have been asked as hypotheticals (would they be useful as quit aids) and actual (did you use them that way), as well as indirectly (with respondents naming quit aid as a reason for interest in PREPs). While we do not feel that this is a key surveillance topic at this time, if use increases, the best approach would probably be asking about actual use as quit aids.

## **VII. Smokeless PREPs**

Awareness of traditional smokeless products (snuff and chewing tobacco) has been measured by surveys for many years. Now that some smokeless PREPs are available, there is interest in measuring awareness and perceptions of them. The issue is somewhat more complicated than surveillance of combustible PREPs due to two potential standards against which to assess harmfulness: cigarettes and traditional smokeless tobacco products.

## **VIIA. Smokeless Awareness**

ITC WAVE 2 and AHS, asked the following question: “Are you aware of any smokeless tobacco products, such as snuff or chewing tobacco, which are not burned or smoked but instead are usually put in the mouth? [Y/N]”. These surveys show similarly high rates (82% and 76%, respectively) of awareness of smokeless products among smokers.

To date, only two surveys have attempted to measure awareness of non-combustible PREPs by naming them along with other types of PREPs and asking the respondent if he/she had heard of them. For instance, HINTS II asks respondents, “Next are some questions about new types of tobacco products that have been recently introduced. Have you ever heard of a tobacco product called...{Eclipse, Quest, Marlboro UltraSmooth, Ariva (S), Revel (S)}”. Each product is asked about individually, and the products followed by an (S) indicate the smokeless products listed in the question. Respondents are given another chance to mention a product not included in the above list: “Have you heard of any other types of new tobacco products. These would include products like Accord, Advance, Omni, Exalt (S), and Stonewall (S). [Y/N]”. And if yes, “What other products have you heard of?” The FMO 2008 mail survey also asks about awareness of smokeless products along with other PREPs: “New types of tobacco products have been recently introduced. Please indicate below whether you have ever tried or heard of the product. [Not heard of product, Heard of product but never tried, Have tried product for EACH...Eclipse, Quest, Marlboro UltraSmooth, Ariva (S), Revel (S), Accord, Advance, Omni, Exalt (S), Stonewall (S)]”. Among the four smokeless products listed, rates of awareness among smokers who have heard of but have not tried the product ranged from 3% – 6%. Therefore, awareness of these products appears to be comparable to combustible PREPs.

## **VIIb. Smokeless risk in relation to cigarettes**

The ITC WAVE 2 and AHS surveys followed up their question about traditional smokeless products with very similar questions asking respectively, “As far as you know, are any smokeless tobacco products less harmful than ordinary cigarettes?/Do you believe that any of the smokeless tobacco products are less harmful than ordinary cigarettes?” A yes response for the ITC WAVE 2 survey was almost 11% among smokers who were aware of smokeless products. The AHS survey found 7% of respondents who thought smokeless products were safer than ordinary cigarettes. It is important to remember that based on the awareness question the respondent just heard, these rates likely measure traditional smokeless products only. HINTS II had a similar question which measures the new products: “As far as you know, is {brand} [Less harmful than conventional cigarettes; equally harmful; more harmful than conventional cigarettes]?” The brand filled in above would be the brand the respondent had been aware of when offered the recognition of brand names questions and those which the respondent said they had tried, but there are no data available for that survey at this time.

The AHS survey followed up with several more questions for smokers on smokeless products. They asked, “Do you believe that some smokeless tobacco products are less harmful than other smokeless tobacco products?” Almost 12% of smokers said yes. Next, respondents were asked, “Can you name the smokeless tobacco products that are the least harmful?” and only approximately 2% said that they could. However, when pressed for the names of these products, none of the respondents were able to name a valid “less harmful” smokeless product. Instead, respondents mentioned traditional smokeless products, like Copenhagen and Snuff. Similarly, when smokers were asked if they had ever used the products they believed were less harmful (1.4% yes), again none mentioned a real PREP.

### **VIIc. Smokeless Trial/Current Use**

Several studies have asked smokers whether or not they have ever tried smokeless tobacco products. The HINTS survey asked the following, “Tobacco companies have also recently introduced new types of smokeless tobacco products. These have names like Ariva, Exalt, and Revel. Have you ever tried one of these products?” Less than 2% of smokers said yes to this question. The FMO 2008 mail survey asks about awareness of smokeless products along with other PREPs. “New types of tobacco products have been recently introduced. Please indicate below whether you have ever tried or heard of the product. [Not heard of product, Heard of product but never tried, Have tried product for EACH...Eclipse, Quest, Marlboro UltraSmooth, Ariva (S), Revel (S), Accord, Advance, Omni, Exalt (S), Stonewall (S)]”. Rates of ever use among smokers was 1% or less for each of the four smokeless products. The YSCS Baseline survey asked youth smokers if they used any other tobacco products in the past 30 days, and if so, whether or not they used Ariva, Revel or Exalt. None of the youth smokers had used any of these products. In sum, rates of use of smokeless products are extremely low among adult and youth smokers. The YSCS 24-month follow-up and HINTS II also asked respondents if they ever tried smokeless products using brand recognition, as well as if they are currently using them, but there are not any data available for those two surveys at this time.

### **VIIId. Smokeless Quit Aids**

The AHS survey asked respondents about using smokeless products as a quit aid as a follow-up to their question about awareness of traditional aids (“Are you aware of any smokeless tobacco products, such as snuff or chewing tobacco, which are not burned or smoked but instead are usually put in the mouth?”). The survey asks, “Did you use any of these products... [instead of quitting cigarettes; as a way of cutting down on cigarettes; to help you quit smoking cigarettes]?” Fewer than one in ten (7%) of smokers said they used the products to cut down on cigarettes, almost 3% said they used them to help quit cigarettes and about 5% said they used the products *instead* of quitting cigarettes. The HINTS II survey asked two questions which would measure whether or not smokers are using the newer products as quit aids, but there are not any data available for that survey at this time.

### **Summary of Smokeless Questions**

In light of the new “snus” type products coming on the market and being promoted to smokers, it is of interest to measure awareness of them, to know how consumers perceive their relative harmfulness in comparison to cigarettes and other smokeless products, to measure trial and current use of them, and to understand their appeal as possible quit aids. Only a few surveys have asked about the new products, and awareness and use are low, but that will likely change.

We recommend that surveillance of smokeless PREPs be measured as a separate concept from combustible PREPs.

## VIII. Miscellaneous topics

### Government safety oversight

A number of PREPs-related studies have broached the subject of government oversight of new tobacco products or their advertising. Some of the questions are about what consumers think should be done, while others are about what consumers think is actually done. As shown in Table 7, a summary of relevant question wording and data, where available, the HUND 2006 study used both a knowledge question and an opinion question, both about the product itself. The BAND study also asked an opinion question, worded slightly differently from HUND 2006 in that they named the US FDA for oversight, rather than “a governmental agency”, as worded in HUND 2006. HAMILTON 2004 and CPPS asked knowledge questions about oversight of advertising claims, not the product:

**Table 7. Detailed questions and data about government safety oversight**

Source	Item wording	Percent of Smokers
HUND 2006	Do you think these products are evaluated for safety by the government before they can be sold to consumers?	49% Yes
BAND	Do you think these products are evaluated for safety by the government before they can be sold to consumers?	51% Yes
HUND 2006	Do you believe that a governmental agency SHOULD be required to evaluate the safety of these products before they are sold to consumers?	84% Yes
BAND	Do you believe that the U.S. Food and Drug Administration SHOULD be required to evaluate the safety of these products before they are sold to consumers?	88% Yes
HAMILTON 2004	If an advertisement claims that a cigarette has less dangerous substances, do you think that a government agency has to approve the claim?	67% Yes
CPPS	If a magazine advertisement, such as the ones I've shown you, claims that a cigarette has fewer toxins, do you think that a government agency approved the claim?	47% Yes

### Tobacco industry image questions

It would be reasonable to assume that consumer's perceptions of the riskiness of PREPs is a function of the extent to which they trust cigarette manufactures and their advertising. Likewise, to the extent that consumers believe that the tobacco companies are trying to reduce the harmfulness of their products, consumers may come to see them as more responsible and

trustworthy. Hence, measuring perceptions of the industry could be an important component of monitoring reactions to PREPs.

The CPPS asked a few questions about smokers’ perceptions of the tobacco industry:

- “How honest do you think cigarette companies are about the safety of their products?” (Completely honest, Somewhat honest, Neither honest nor dishonest, Somewhat dishonest, Completely dishonest) (20% of smokers said completely or somewhat honest, 16% said neither honest nor dishonest, 63% said completely or somewhat dishonest.)
- “Compared to other product manufacturers, how honest do you think cigarette companies are about the safety of products - would you say they are more honest than other companies, less honest than other companies, or about as honest as other companies?” (3% of smokers said more honest, 41% said less honest, and 56% said as honest as other companies.)
- “Do you think that in the past few years tobacco companies have changed for the better, for the worse, or do you think that they have not changed?” (36% of smokers said they have changed for the better, 8% said for the worse, and 56% said they have not changed.)

**Ad Images and Terminology -- “light”, “smooth”, “ultra”, etc.**

One of the issues that the public health community faces is how to prepare for the advertising and marketing of PREPs. A number of surveys tried to understand how some advertising images were viewed and others attempted to gain insight to how certain words are understood by smokers. The MUS study asked a number of questions about specific terms:

- “What does the word “light” mean to you?”
- “What does the word “smooth” mean to you?”
- “What does the term “ultra” mean to you?”

In MUS focus groups, smokers were asked what the statements “UltraSmooth” and “FilterSelect” meant to them.

MUS also asked advertising viewers to decide how well the advertised cigarette brand they saw fit a number of characteristics: “I’d like you to give me your impression of {brand} on a variety of characteristics using a scale of -3 (completely unlikely) to +3 (completely likely). Based on the advertisement you looked at, tell me how closely you believe {brand} fit each characteristic listed below:”

Taste good	Interesting	Low tar	Addictive
Worth trying	Fun	Smell good	Exciting
Friends would like	Make me nauseated	Good with a drink	Dangerous
Stimulating	Satisfying	Mild	Stupid
Hard to quit	Mature	Cause cancer	Sophisticated
Harsh	Strong	Make me cough	

HAMILTON 2004 also asked about ad images: “Now I’d like you to think about the three advertisements {Advance/Eclipse/Omni} that you saw. I want to know what message you think each ad is trying to give you. Look at the ad for {brand} while I read off some possible messages. For each possible message, tell me whether you think this is what the ad is trying to say.

This cigarette tastes better than others.

This cigarette is a good one to smoke when you're with friends."

(This series also included "This cigarette is safer or healthier than others" and "This cigarette will help someone quit smoking", but they are covered elsewhere in this summary.)

### Important qualities in switching to a new product

In the PREPs studies we reviewed, we found one (CIPREP) that asked smokers to think about what product characteristics would be important in considering whether to switch to a PREP: "If a safer or less harmful cigarette product were available, how important would each of the following qualities be for you in considering whether to switch to such a product? Using a scale from 1 to 7, where 1 is not at all important and 7 is extremely important, and the mid-point 4 is neither, how important would each of the following be?

- the taste of the new product;
- the ability to easily inhale the new product;
- the extent to which the new product was less harmful to a smoker's health;
- the extent to which the new product was less harmful to the health of non-smokers from second-hand smoke;
- the extent to which the new product was similar in price to cigarettes now on the market;
- the extent to which the new product looks like an ordinary cigarette"

Following is a summary of the smokers' ratings on this item:

Important Qualities in a Safer or Less Harmful Cigarette	% Who Say Quality Is		
	Extremely Important (score=7)	Somewhat Important (score=5-6)	Not Important (score=1-3)
Extent of Harm to Non-Smokers' Health	67	14	11
Extent of Harm to Smoker's Health	66	14	12
Taste of Safer or Less Harmful Cigarette	39	28	18
Price Similarity to Ordinary Cigarettes	38	18	26
Ability to Easily Inhale	32	22	28
Looks Like an Ordinary Cigarette	23	22	36

### Use of genetically modified tobacco

The BAND survey asked a series of questions about genetically modified tobacco, covering awareness, perceived dangers, dissemination of information, and desire to avoid genetically modified tobacco:

- "Does your cigarette brand contain any genetically modified tobacco?" (12% of smokers said Yes)
- "Do you think that smoking genetically modified tobacco is more dangerous than smoking tobacco that has not been genetically modified?" (32% of smokers said Yes)
- "Do you think that tobacco companies should be required to inform consumers as to whether or not any of the tobacco used in their cigarette brand has been genetically modified?" (81% of smokers said Yes)



- “Would you avoid using a cigarette brand if you found out it contained genetically modified tobacco?” (46% of smokers said Yes)

### **Summary of Miscellaneous Questions**

Of the various other topics that have been covered in PREPs surveys, government oversight and industry image questions are, perhaps, most interesting and useful. Questions about government oversight have covered both the products themselves as well as the advertising, and they covered what people think is actually done as well as what they think should be done. These types of measures could be useful for promoting policy change regarding FDA or FTC oversight. The questions about industry image are useful because the belief that the industry is trying to make their products less harmful could improve their image and potentially reduce support for punitive actions against the industry.

## **PART B. RECOMMENDATIONS FOR DEVELOPMENT OF SURVEILLANCE ITEMS**

We see the need for development of two different types of survey items with regard to consumer reactions to PREPs: 1) Population surveillance items – for ongoing tracking in order to detect important trends that could have public health ramifications; 2) Communications research items – to understand how the population may respond to variations in marketing of PREPs when and if they become widely available and reach a higher level of awareness in the population. Of the concepts that we have reviewed to date, this is how we would allocate them to these two categories:

- | Population Surveillance  | Communications Research   |
|--|---|
| <ul style="list-style-type: none"><li>• Awareness</li><li>• Trial</li><li>• Interest in trial among adult former smokers and youth</li></ul> | <ul style="list-style-type: none"><li>• Perceptions of harmfulness</li><li>• Government oversight</li><li>• Tobacco industry image</li><li>• Advertising images</li></ul> |

Because all indications are that population levels of awareness and trial of available PREPs is quite low (between less than 1% and 8 % of smokers), extensive population monitoring of patterns of current use and impact on changes in tobacco use behavior seems unnecessary at this time. Once levels of PREPs awareness and trial increase, we would advocate introduction of current use measures in the surveillance program. Likewise, we see the communications research, which would need to be done with regard to specific products, as a critical planning-ahead strategy. In order to be prepared to respond should these products become more widely available, it is important to learn how best to construct public health messages and policy to reduce negative health consequences. This communications research will not be discussed further in this report. The remainder of this section is about development of population surveillance items that are needed immediately.

### **Development of Population Surveillance Items**

Awareness and Trial. It is important to assess population awareness of PREPs as accurately as possible. We suggest that awareness and trial of combustible and non-combustible PREPs be assessed separately. We believe, at least for now, that the audiences for the products may be very different. Historically, non-combustibles have been almost exclusively used by men of certain demographics. Though there is clearly a new effort to expand the appeal for the new PREPs non-combustibles, for now it might be prudent to keep the non-combustible questions separate from the combustibles. Further, the question wording is simplified if the concepts are kept separate. The preceding summary of awareness questions demonstrates a number of different approaches that have been used, but none seems ideal.

Interest in trial. Smokers' interest in PREPs is important to the extent that using them would reduce their likelihood of quitting. However, if smokers were asked whether they'd be interested in trying a cigarette that was less harmful than the one they are currently smoking, it is hard to imagine why someone would say no, if only not to look irrational. On the other hand, if smokers are asked about their interest in an actual product or a potentially less harmful product, then interest in trying could be influenced by how much safer than their current cigarette they believe it to be, or how they think the taste would compare. Consequently, we don't feel that it is particularly useful to measure current smokers' interest in trying a product that they are either aware of but haven't yet tried or that they are not aware of. However, we do feel that non-

smokers' interest in trying a hypothetical new tobacco product that was *known to be* less harmful would be a useful concept for surveillance because it would be an indication of the proportion of former smokers vulnerable to relapse and the proportion of non-smokers vulnerable to initiation.

We recommend below two different strategies for assessment that seem worthy of further testing. For each one, we present some preliminary ideas about what questions to ask, a general description of the strategy, and the pros and cons of each approach.

## **STRATEGY 1**

### **Possible questions to ask using strategy 1**

1. Tobacco companies are developing new types of cigarettes or cigarette-like products that are supposed to be less harmful than ordinary cigarettes. Have you heard of such products? (Yes/No)

(IF YES)

- 1a. Can you recall any brand names of these products?
  - 1b. (IF YES) Please tell me the names of any you recall.
  - 1c. Have you used any of these products in the past 12 months? (If so, which ones?)
2. (Non-smokers only) If a new cigarette were developed that was scientifically proven to be less harmful than ordinary cigarettes, how likely would you be to try it? (Very likely, somewhat likely, not very likely, not at all likely).
3. Tobacco companies are developing new types of smokeless tobacco products that are supposed to be less harmful than ordinary smokeless tobacco, products that don't involve spitting. Have you heard of such products? (Yes/No)

(IF YES)

- 3a. Can you recall any brand names of these products?
  - 3b. (IF YES) Please tell me the names of any you recall.
  - 3c. Have you used any of these products in the past 12 months? (If so, which ones?)

### **General Description of strategy 1**

This strategy asks if respondent is aware of new tobacco products that are described as potentially less harmful, then follows up with a request for unaided recall of brand names. To estimate awareness, one calculates the percentage of the open-ended responses that are actual known PREPs and multiplies that proportion by the percentage claiming awareness to the initial question. For example, in the UMASS study, 31% of smokers said they had heard of new types of cigarettes and other tobacco products that are supposed to be less harmful. Of those, only one quarter said they could name one. Of those that offered names, only 6% actually named a PREP

(Eclipse) and another 3% mentioned a “smokeless” product. Giving the benefit of the doubt to the mentions of “smokeless”, the highest possible percentage of smokers who said they could name a product who were actually aware of a PREP was 9%. This method would reason that among the other 75% of smokers who said they were aware of PREPs but could not name one, 9% were actually aware of a PREP and the others were probably thinking of “natural” or other types of conventional products. Extrapolating to all smokers, we’d estimate that a total of 3% (9% of 31%) who have heard of such products, were aware of a PREP.

**Pros and Cons of strategy 1**

- Pros**
- This measures awareness of the concept of PREPs and potentially removes the inflation factor due to confusion of PREPs with other products.
  - It allows for surveillance of perceptions of reduced harm in other tobacco products not recognized as PREPs.
  - If any PREPs start to be widely advertised and marketed, the percent recalling the brand can be expected to rise.
- Cons**
- Coding of open-ended responses is labor-intensive.
  - The estimation process requires a more complex operational definition of awareness.
  - This strategy does not yield an “aware/unaware” code at the individual level, and consequently any internal analyses of demographics of awareness would not be possible.

**STRATEGY 2**

**Possible questions to ask using strategy 2**

- 1 I’m going to read you the names of some relatively new cigarette brands. For each one, please tell me whether or not you have ever heard of it.

	YES	NO
Eclipse		
Accord		
Advance		
Marlboro Ultrasmooth		
Quest		
(Add in some phony names and regular cig names)		

(IF YES TO ANY)

2. You say you have heard of (name(s)). Do you believe that (any of those products are/that product is) less harmful than the usual brands of light cigarettes or do you believe that they are not less harmful than the usual brands? (At least one is less harmful/None are less harmful)

(IF MORE THAN ONE MENTIONED AS “LESS HARMFUL”)

3. Which do you believe are less harmful? (Read names of recognized brands and get yes/no on less harmful for each one?)
4. In the past 12 months, have you smoked any of those brands? (If so, which one(s)?)
5. (Non-smokers only) If a new cigarette were developed that was scientifically proven to be less harmful than ordinary cigarettes, how likely would you be to try it? (Very likely, somewhat likely, not very likely, not at all likely).
6. I'm going to read you the names of some relatively new tobacco products that are not smoked. They are either sucked or held in the mouth. For each one, please tell me whether or not you have ever heard of it.

	YES	NO
Ariva		
Revel		
Exalt		
Stonewall		
Camel Snus		
Taboka		
Skoal Dry		
(Add in some phony names)		

(IF YES TO ANY)

7. You say you have heard of (names). Do you believe that (any of those products are/that product is) less harmful than the usual smokeless tobacco or do you believe that they are not less harmful than the older products? (At least one is less harmful/None are less harmful)

(IF MORE THAN ONE MENTIONED AS “LESS HARMFUL”)

8. Which do you believe are less harmful than the usual chewing tobacco, dip or snuff? (Read names of recognized brands and get yes/no on less harmful for each one?)

9. Do you believe that any of (READ NAMES OF PRODUCT(S) THEY'VE HEARD OF] is/are less harmful than cigarettes or do you believe that they are about as harmful as cigarettes? (At least one is less harmful/None are less harmful)

(IF MORE THAN ONE MENTIONED AS "LESS HARMFUL")

10. Which do you believe (is/are) less harmful than cigarettes? (Read names of recognized brands and get yes/no on less harmful for each one?)
11. In the past 12 months, have you used any of those products? (If so, which one(s)?)

### **General Description of strategy 2**

This strategy asks for recognition of brand names with the brands being introduced as "new products" NOT "potentially less harmful products". Then, for those who indicate awareness of any, follow up to see if they think any of them are less harmful than a standard brand.

### **Pros and Cons of strategy 2**

**Pros** This assesses familiarity with existing PREPs brands, and if one starts to be marketed intensively and become more generally available, the rate of its recognition should increase.

Although recognition rates are likely to be inflated for brands that are similar to other products (e.g. Accord, Eclipse), if none are seen to be less harmful in the follow-up question, the identification of the brand as a PREP could be discounted.

It avoids inflation of the awareness rate that occurs when unnamed "new, less harmful" products are the descriptor.

**Cons** This strategy might underestimate awareness in two ways:

A) If a respondent is aware that a brand has been advertised as less harmful, but doesn't believe the advertising, they would be coded as being unaware of any PREPs. This would not be a problem if the agreed upon operational definition of awareness was **knowledge of a specific PREP that a respondent perceives as less harmful.**

B) If a respondent is aware that PREPs have been developed, but has not paid attention to particular brand advertising or promotion, they would be coded as being unaware of any PREPs.