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EXECUTIVE SUMMARY

The purpose of this document is to provide a review of the literature pertaining to consumer awareness, knowledge, attitudes and understanding of the descriptors "light", "mild", "ultra light" and similar terms as they apply to cigarettes.

Since the 1970's, many cigarette brands using the descriptors "light" or "mild" or some variation of these terms have appeared on the Canadian market. In 1997, there were over 190 brands, including about 85 brands bearing descriptors such as *Smooth Light, Mild, Light, Extra Light, Ultra Light, Light Smooth, Special Light, Smooth Mild, Ultra Mild, Extra Mild, Special Mild, Select Special Mild, and Select Ultra Mild*. These brands had a 52% market share in 1997.

The term "light" has been regulated with respect to food advertising and packaging. But its use is not regulated with respect to cigarettes. As well, the method of measuring cigarette yields, the means of determining what is low-yield or "light" and what is not, is known to be a poor predictor of delivery of toxic constituents to smokers. Smokers exhibit wide variations in smoking behaviour and are known to compensate when smoking cigarettes of a low standard yield, e.g., taking more puffs, deeper puffs, smoking the cigarette shorter, and blocking ventilation holes.

The main means of constructing a low-yield or "light" cigarette are rings of ventilation holes, which are used to dilute the smoke coming from the cigarette and thus reduce the measured yields. The current evidence suggests that these cigarettes may have a small effect in reducing the risk of cancer caused by smoking, but no effect on cardiovascular disease and an uncertain effect on pulmonary disease. Cessation is the only effective means of reducing the risks of smoking.

- ◆ Seventy-one percent of smoking respondents in an Ontario survey in 1996 said that they smoked "light" cigarettes. The Survey of Smoking in Canada found that 55% of smokers in its sample reported smoking "light" cigarettes. In this survey "light" cigarette smokers reported smoking fewer cigarettes (14.2 per day) than regular cigarette smokers (17.3 per day). Detailed demographic data have not been published to date.
- ◆ Forty-five percent of young Canadian smokers (15-19) reported smoking "light" cigarettes: 51% of female smokers, and 38% of male smokers.
- ◆ Switching to "lighter" cigarettes is common. Thirty-seven percent of male smokers and 42% of female smokers reported switching after starting. There are even indications of switching among youth.
- ◆ Many smokers are unaware of the existence or the purpose of ventilation holes in the filters of light cigarettes. Vent-blocking behaviour, which increases the yield of the cigarette, has been found to be common among smokers of "light" cigarettes.
- ◆ Surveys by health researchers and tobacco companies confirm that some Canadian

I. INTRODUCTION

Over the past 25 years, an increasing number of cigarette choices have been placed before Canadian smokers and potential smokers. These choices consist largely of "lighter" line extensions of established brands, e.g., Player's Light, Export "A" Ultra Light, Rothmans Extra Light, but also include a few brands created specifically for a lower or lowest tar position.^{1,2}

By the end of the 1970's, the cigarette market was changing rapidly. In 1975, as one result of amendments to the Canadian tobacco industry voluntary code, tar and nicotine yields were placed on cigarette packages and advertisements.³ Not long after, an industry document noted that "Smoking and Health has caused a general movement down the T & N [tar and nicotine] scale."⁴ Tobacco industry strategists could be found trying to protect their franchises from losses to perceived "lighter" brands,⁵ and planning to use the tar and nicotine issue to gain from other brands.⁴ As early as 1978, a strategy document noted evidence suggesting that "the advent of ultra-low tar cigarettes has actually retained some potential quitters in the cigarette market by offering them a viable alternative."⁴

Numerous brands with lighter-sounding names began to appear in the market. In 1976 and 1977 alone, at least eleven line extensions of existing brands and two new brands were launched.⁴ This process continued into the 1980's and continues today, though at a slower pace. Brands are also dropped, presumably for failing to build a viable market.

The net result of this process is that today's Canadian smokers often have an extensive assortment of choices within their own cigarette brand "families," as they are called in the industry. In 1997, one brand family of Canadian cigarettes reported sales for eight variations on the original brand: *Medium, Smooth, Smooth Medium, Smooth Light, Mild, Light, Extra Light* and *Ultra Light*.⁶ When the original is included and king-size and regular are thrown into the mix, there are eighteen separate choices within this particular family name. Two other families had fifteen listed choices each, while the rest varied from one to ten.

There were over 190 brands of manufactured cigarettes for sale in Canada in 1997.^{6,7} Of these, about 85 carried some form of the "light/mild" designation. These brands accounted for approximately 52% of the market, or about 23 billion cigarettes.⁶ Besides the terms listed above, smokers in 1997 could also choose from brands described as *Light Smooth, Special Light, Smooth Mild, Ultra Mild, Extra Mild, Special Mild, Select Special Mild*, and *Select Ultra Mild*. In 1999, *Extra Mild Lights* can be found on retail shelves.

The purpose of this document is to review the technical literature pertaining to consumer awareness, knowledge, attitudes and understanding of the descriptors "light", "mild", "ultra light" and similar terms as they are applied to cigarettes. Approximately 6.7 million Canadians are smokers,⁸ and most of these individuals smoke cigarette brands which are not only described by these terms, but which in fact are *defined* by these terms. What do these terms mean to these smokers?

In order to put smokers' subjective views and opinions into a meaningful perspective, it is important to look at some background on the issue and at what these terms may or may not mean in reality when they appear on cigarette packages. For convenience--and readability--the term "

light" as used in this document should often be understood to mean "the terms 'light' and 'mild' and all of the various gradations and permutations as used on cigarette packages."

II. METHOD

A number of databases were searched in the course seeking out literature. These included those at the National Clearinghouse on Tobacco and Health, the Office of Tobacco Control at Health Canada, and the American Office on Smoking and Health, as well as Medline and others. Researchers in the field were contacted, and this led to yet other resources. National Clearinghouse and Office of Tobacco Control staff were extremely helpful in finding references and/or providing materials.

A number of key tobacco industry documents released during in the *RJR-Macdonald Inc. v. Canada (Attorney General)* court action are known in the field, excerpted in documents or referenced in other studies, most notably Rob Cunningham's book *Smoke & Mirrors*, and were accessed in this fashion.

III. BACKGROUND

1. The term "light" as used on food packaging:

In a Canadian survey of consumer awareness of nutrition information,⁹ 58% of respondents volunteered the response that "light" on a food package meant lower in fat. Other volunteered responses were: fewer calories, 41%; low/lower in sugar, 15%; low/lower in cholesterol, 7%; and less salt, 3%.

Clearly, when smokers or non-smokers see "light" on a cigarette package, their understanding of it is likely to be coloured in some way by the perception of the term as used elsewhere. That perception, in general, is that the term "light" on a package means "this product contains less of what is bad for you."

The use of the term "light" has been regulated with respect to food items. With a few exceptions, such as "light rum" or "light brown sugar" where "light" is known to refer to colour, or where it is used as a factual descriptor such as "light in texture" or "light tasting," a food product may be described as "light/lite" in Canada only under certain circumstances.¹⁰ Beer or ale, for instance, must contain 2.6% - 4% alcohol by volume. In other cases, certain standards for "low in..." must be met and information must be grouped with or clearly linked to the "light/lite" claim.

2. The term "light" and the cigarette:

Just as food packages often carry labels specifying the amounts of various ingredients and the calories in these products, cigarette packages carry labels citing the standard yields of tar, nicotine and carbon monoxide from each cigarette. But the situation is more complicated with cigarettes. For one thing, the method used to measure the standard yields in Canada and elsewhere is recognized to have serious limitations.¹¹ In any case, there are no regulations with respect to the standard yield range that a Canadian cigarette must be within in order to be called "light" or "ultra light" or any of the various combinations of terms.

Thus, the following brand categories have all been used in the Canadian market to describe cigarettes yielding 11 mg. of tar: regular, light, extra lights, special lights, smooth light, mild, extra mild and special mild.¹² According to a tobacco company spokesman, "'light' is relative to each brand. There is no strict logic behind it. Ultimately, it's the consumer who decides what cigarette is light for him."¹³

Because of concerns about the method of measuring cigarette yields, a National Cancer Institute Expert Committee was convened in the United States in December, 1994, and later issued a report.¹¹ In Canada in 1996 another expert committee (including some of the same individuals) with a different mandate issued the *Report of Canada's Expert Committee on Cigarette Modifications*.¹⁴ The ongoing questions about cigarette yield measurement and reporting are well beyond the scope of this review. However, because tar and nicotine are bound up with the understanding of many smokers with respect to the relative "lightness" of their cigarettes, and

because smoker misunderstanding of "light" cigarette construction is an issue, it is important to outline the measurement issue briefly, noting the mechanisms used to achieve the lower standard yields.

3. Key distinctions: content, yield and uptake

a) Cigarette content:

Some consumers may think that the numbers on the sides of their cigarette packs refer to the **contents** of those cigarettes,¹⁵ but this is not the case. An unsmoked cigarette does not contain tar or carbon monoxide; it instead has a potential for these products when burned, and it is only the amount actually inhaled that is of concern. As for nicotine, whatever the stated yield (ranging in 1997 in Canada from .09 mg. to 1.6 mg.⁷), an unsmoked cigarette actually *contains* 6-11 mg. of nicotine.¹⁶ Thus, any cigarette has a significant "reservoir"¹⁷ of nicotine from which smokers can draw.

b) Cigarette Yield:

The **yield** of cigarettes is determined using a standardized protocol for assessing tar, nicotine and carbon monoxide yields. In the U.S. this protocol used is known as the Federal Trade Commission, or FTC, method, whereas Canada adheres to the International Standards Organization (ISO) protocol. But both are based on the Cambridge Filter method, which involves analysing the smoke extracted from sample cigarettes by machine-smoking cigarettes at the rate of one 35 ml. puff of smoke of 2 seconds duration taken each minute, until the cigarette reaches a specified butt length.¹⁸ In other words, the machines draw upon the test cigarettes' potential for tar, nicotine and carbon monoxide in a very specific, standardized fashion.

It is this method of measurement that produces the standard yield numbers on cigarette packages in Canada and elsewhere. Further, it is these measured numbers which have allowed us to think in terms of "low-yield" or "high-yield" cigarettes. It is also this method and the numbers it produces which have enabled tobacco manufacturers to use descriptors such as "light" or "ultra light" to describe certain cigarette brands.

But this system of measurement, as noted above, is recognized as inadequate. The NCI Expert Committee asked to examine the evidence provided by years of studies concluded: "The FTC test protocol was based on cursory observations of human smoking behavior. Actual human smoking behavior is characterized by wide variations in smoking patterns, which result in wide variations in tar and nicotine exposure. Smokers who switch to lower tar and nicotine cigarettes frequently change their behavior, which may negate potential health benefits."¹⁹

c) Smoker Uptake:

The **uptake** by a smoker of cigarette combustion products cannot be predicted by the standard yields. As one expert expressed it: "Simply put, the FTC method [and the ISO method] uses machines that do not change their behavior to self-administer a preferred nicotine dose or in

response to the taste of the smoke, as human smokers do. It may be an accurate predictor of what smoking machines obtain under specifically programmed conditions, but it is not an accurate predictor of what people get from cigarettes."²⁰

4. **Smoker compensation:**

It is known that smokers can specifically compensate when smoking low yield cigarettes, by increasing depth of inhalation, puff volume, puff duration, or the number of puffs per minute, and by blocking the ventilation holes in the filter (see below). They may also smoke more cigarettes per day, but it has been noted that this can hardly be blamed on the per-cigarette yield measurements.²¹ In the hands of an adept smoker, a low-yield cigarette can deliver a much higher yield. As one researcher put it: "...to the extent you don't miss your former high-yield smoke, it probably has not gone away...."²²

To make an analogy with food labelling, it is as if "light" cheese were only "light" if eaten very precisely, and that one could enjoy full-fat cheese by chewing differently. Suppose that the more intensely one savoured a "light" chocolate bar, the more flavour, fat and sugar one took in. It might be instructive to ask whether the general human reaction under such circumstances would be to dismiss the "light" label--or to embrace it.

5. **The construction of a low-yield ("light") cigarette**

Methods of reducing cigarette yield involve engineering the cigarette to reduce or dilute the smoke collected for analysis. Ventilation holes in the filter bring in fresh air to dilute the smoke. Other methods available include using more porous paper, placing using less tobacco in each cigarette by using expanded tobacco, smaller cigarette diameter, shorter cigarette length, increasing the speed with which the paper burns, and increasing the length of the filter overwrap to allow fewer puffs.²³

Although other manufacturing elements have contributed, filter ventilation is the major factor in creating modern low-yield cigarettes.¹⁵ Unfortunately, it is also a design feature highly susceptible to interference from the smoker. These tiny holes may or may not be visible, and can reasonably easily be occluded, consciously or unconsciously, by a smoker seeking a better-tasting, higher-nicotine smoke.

Ventilated brands went from less than 1% of the Canadian market in 1975 to 42% of the market in 1983.²⁴ Ventilated filter cigarettes include most, if not all, of cigarettes with standard yields of less than 15 mg. of tar.¹⁵ In 1997, about 75% of Canadian cigarette brands reported tar yields under 15 mg.⁷

6. **"Light" or low-yield cigarettes and the risk to health**

After reviewing the evidence, the NCI Expert Committee in the U.S. concluded that "[t]he smoking of cigarettes with lower *machine-measured* yields has a small effect in reducing the risk of cancer caused by smoking, no effect on the risk of cardiovascular disease, and an uncertain effect on the risk of pulmonary disease."¹⁹ [emphasis in original] However, the epidemiology suggesting even that one "small effect" has been challenged:

...the epidemiological literature does not support the conclusion that Light cigarettes reduce the tar, nicotine, or even cancer risk more than do today's regular cigarettes because they are very similar cigarettes and because of compensatory smoking. Further, changes in inhalation practices with lower-tar cigarettes appear to be causing an epidemic of special kinds of lung cancer.²⁵

Suffice it to say that, as far as is known, any reduction in risk from "lighter" cigarettes appears to be small. One thing *is* well known. Whatever the yield of their preferred brand, smokers have vastly increased risks over non-smokers, and quitting smoking reduces those risks significantly.

V. WHO SMOKES "LIGHT" CIGARETTES?

1. Among adult smokers:

a) In Ontario:

In the 1996 Smoking, Smoking Cessation, Tobacco Control and Programming: A Qualitative and Quantitative Study (Q&Q Study) of 1760 Ontario adults (defined as 18+), 71% of smoking respondents indicated that they usually smoked "light" cigarettes.¹² ("Light" included ultra light/mild, Extra light/mild, light, mild, special lights/mild.)

b) In Canada:

In the Survey of Smoking in Canada, Cycle 4, (1995) 55% of all adult smokers (defined as 15+) reported that they usually smoked "light" cigarettes.²⁶ ("Light" was defined to include "mild", "ultra light" and "extra light".) This included 57% of female smokers and 53% of male smokers. Non-daily smokers were more likely to smoke "light" cigarettes than daily smokers, and this held true for both sexes.

Also in this national survey, smokers of "light" cigarettes reported smoking fewer cigarettes per day than smokers of regular cigarettes (14.2 cigarettes per day compared to 17.3 cigarettes per day). This finding was consistent for both males and females and type of smoker, so it does not reflect the presence of more females and non-daily smokers in the "light" cigarette camp.

Considering the percentage of brand switchers involved (see below), and the fact that one method of compensating is to smoke more, not fewer, cigarettes per day, an 18% lower consumption rate for "light" cigarette smokers is an interesting finding and bears further investigation.

Detailed demographic data about Canadian adult smokers of "light" cigarettes appear not to have been published to date. American research has found that smokers who chose to smoke "light" cigarettes tend to be older and better educated.²⁷

2. Among youth smokers:

In 1994, as part of the Youth Smoking Survey, Canadian smokers 15-19 were asked to describe the type of cigarette they usually smoke. In response to this open-ended question, 45% described the cigarettes they smoked as either "light" or "extra mild". The gender breakdown was consistent with adult smokers, with 51% of young female smokers reporting that they smoked "light" and "extra mild", in contrast to only 38% of young male smokers.²⁸

"Light" and "extra mild" cigarettes were less popular in Quebec and somewhat more popular in Ontario and the Prairie provinces. They were smoked by 50% of beginning smokers and 43% of current daily smokers.

American surveys conducted in 1987 and 1993 reported increasing light and ultra light use with increasing age among both young males and young females.²⁷ These surveys also reported higher

ultra light use among young females, and increasing use with higher education.

Further analysis of current Canadian data may yield more about the demographics of youth and adult smokers of "light" cigarettes and about their cigarette consumption relative to regular smokers. More detailed identification of type of cigarette smoked could be considered in the future if large enough numbers of smokers are being surveyed.

3. **Brand Switching:**

a) **Among adults**

In the Survey on Smoking in Canada,²⁶ 37% of males and 42% of females who were daily smokers reported switching to "light" cigarettes after starting smoking. For non-daily smokers, the number were 43% and 40%, respectively. Only 3% reported switching to regular cigarettes. Smokers were not asked why they switched.

In a small study done on low-yield (less than 4 mg. tar) cigarette smokers visiting the Ontario Science Centre, 9 of 14 (64%) participants said that they had switched for reasons of health; 6 of the 14 (43%) had switched in an attempt to quit.²⁹ This is a very small sample, but these are presumably Canadian smokers, and the finding is useful in that it confirms the switching trend.

b) **Among youth**

The Youth Smoking Survey found that the usage rate of "light"/"extra mild" cigarettes by female smokers was consistent within the 15-19 age group (51%), but that use by males increased with age, with only 33% of male smokers 15-17 reporting such use, but 42% of those aged 18-19.²⁸ This suggests that there is some switching among this group.

That switching to "lighter" brands occurs even among youth was noted by tobacco company research in the early 1980's:

... in marked contrast to Project Sixteen [a study of a few years earlier], within even the youngest groups there were respondents who had made small moves for health concern reasons. It can be reasonably supposed that the very proliferation of extensions is telling even the most devil-may-care smoking segment that there must be something to all this talk about smokings [sic] dangers, or else why would so many brands exist? This was true also among the youngest males, usually the least sensitive smokers one can conceive of.³⁰

This study noted that youth switching "underscores how brand machismo turns off earlier now, and the way that health concerns are taken more quickly and seriously to heart now than before."³⁰

V. **SMOKERS AND "LIGHT" CIGARETTES**

1. **Smoker awareness and understanding of "light" cigarette construction**

a) **Knowledge of the existence and purpose of filter ventilation**

Smoker understanding (and misunderstanding) of what "light" means for cigarette construction is an important issue. If they do not know that there are rings of ventilation holes in the filters of these cigarettes, they may unknowingly or unconsciously block them with lips or fingers. Even if smokers know about the vents and *consciously* block them (sometimes even using tape or cutting the filter), they do not always understand the implications, an American survey found.³¹ They appear to be more aware that blocking the holes will increase taste, than that this will increase tar and nicotine.³¹ In fact, vent-blocked cigarettes routinely deliver much larger amounts of tar and nicotine and other combustion products than predicted by their standard yields.³¹

The Q&Q Study¹² found that many Ontario smokers do not understand filter ventilation:

- 57% thought filters were no different on light and regular cigarettes or didn't know.
- 69% thought the tobacco was different in "light" cigarettes or didn't know.
- 44% had not seen or heard of holes in the filters or didn't know.
- 39% of those who knew of the holes had tried to block them.

- 63% of light smokers did not know that blocking filter holes increases amount of tar.

b) Prevalence of vent blocking behaviour:

As well as indicating a higher toxic constituent intake, blocking behaviour says something about smokers' knowledge of "light" cigarettes (if the blocking is unconscious), and about their understanding or attitude (if it is conscious). Given that some blocking is done unknowingly, it is not possible to estimate actual blockage just by asking smokers about it. A reasonably reliable way of testing for vent-blocking and compensation is to examine the stain pattern on the butts of ventilated cigarettes. Blocking the ventilation holes leaves a specific type of stain on the used filters.¹⁵ An unblocked filter looks like a bull's-eye, with a circular stain in the middle, surrounded by white filter where the diluting air has been coming through. To the extent that the filter is blocked, it will evidence more staining in the outer part of the filter. A completely blocked filter is evenly stained throughout.

In eight studies reviewed for the NCI Expert Committee, the prevalence of "extreme vent blocking" found ranged from 1 to 210 per 1000, with a median of 19%, and the prevalence of "at least some blocking" varied from 61 to 580 per 1000, with a median of 50%.²¹

Two studies reviewed for this current report were done among Canadian smokers. One examined a sample of low-yield (≤ 4 mg.) butts found in sand-lined ashtrays in five indoor shopping areas in Toronto on four weekdays over a two-month period.³² Fifty-eight per cent of the 135 filters collected showed some signs of vent blocking and 19% showed evidence of extreme vent blocking. The authors concluded that "hole-blocking is a major mode of compensatory smoking in smokers of these cigarettes." (In Canada, cigarettes ≤ 4 mg. are invariably called "Extra Mild" or "Ultra Mild".⁷) Among some Canadian "Extra Mild" and "Ultra Mild" cigarette smokers (or at least those found in Ontario) there is a lack of understanding of their cigarettes and how they

work.

The other study,²⁹ as noted earlier, involved examining the smoking habits of fourteen low-yield cigarette smoking visitors to the Ontario Science Centre who responded to a poster advertising a study of smoking habits. Despite the small sample, this study is interesting for its thoroughness. Each participant answered an extensive questionnaire about their smoking habits, had their breath analysed for CO and their saliva for nicotine and cotinine, smoked a cigarette which was analysed later for vent-blocking, and filled out a second questionnaire on the way they smoked their low-yield cigarettes. An analysis of the butts indicated that seven (50%) of the fourteen vent-blocked cigarettes they smoked, three of them completely so. None of them were aware of blocking.

2. Views about "light" cigarettes and health

The literature leaves no doubt that *some* Canadian smokers believe that "light" cigarettes are less hazardous to their health. What remains to be developed is a more precise understanding of the numbers nationally who believe this, the extent of the health reduction they believe exists, and the impact of this belief on their behaviour and health.

Only two Canadian surveys, one national and one provincial, were found to have looked at smokers' views of "light" cigarettes. An earlier tobacco company survey also looked at this issue.

a) Survey on Smoking in Canada (1995):

The Survey on Smoking in Canada, Cycle 4, asked smokers to volunteer what they thought was meant by the term "light" or "mild" on cigarette packs.²⁶ Thirty-three percent volunteered "less tar"; 45%, "less nicotine"; 10%, "milder taste"; and 14% volunteered "means nothing". Other responses volunteered "in numbers too small to be significant" included "safer/healthier", "lighter weight", "less addictive" and "an advertising gimmick". There was little difference between male and female responses, except that males were more likely (17%) than females (10%) to perceive that "light" means nothing.

Given the responses on the health issue outlined below, the non-significant response on "safer/healthier" on this survey is anomalous and may be due to one or more factors. On the questionnaire, interviewers appear to be instructed to note a maximum of two volunteered responses. Thus, those who have tar and nicotine at the top of their mind presumably did not get

a chance to respond on health. As well, those who simply equate "low tar" or "low nicotine" with "safer/healthier" may not think to mention the health issue separately.

b) Q&Q Study (1996):

This study¹² took a different approach, asking "light" smokers in Ontario how important reducing the risk of smoking was to them as a reason for smoking "light" cigarettes. Of 302 "light"

smokers, 14% saw it as "very important" and another 30% saw it as "somewhat important." Thus, almost half of these smokers who either started with or switched to "light" cigarettes saw them to some degree as a healthier alternative, as a means to reducing the risks of continued smoking, with all that implies.

A similar survey in the United States²⁵ found that 38% of Ultra-light smokers in a national sample saw reducing risks as a "very important" reason, compared to 19% of Light smokers. The higher figures may have something to do with the more unrestrained advertising environment over the years in the U.S.

c) Project Viking Survey (1986):

Again and again, Canadian tobacco industry documents reviewed indicate a clear understanding that the terms "light" and "low-tar" carry the implication of "safer/healthier."^{1, 2, 4, 30, 33, 34} This served as a direct basis for some marketing plans:

Player's Extra Light is *perceived* as significantly milder than Player's Light. Hence it is assumed Player's Extra Light *is seen as* a healthier version of Player's Light....Player's Extra Light continues to be positioned as a milder, therefore healthier, version of Player's Light. It remains *a health oriented alternative* for interested Player's smokers. Its role will continue to be as such [emphasis added].³⁵

As well, at least one comprehensive industry survey looked at smokers' perceptions about the safety of lower-yield cigarettes. The Project Viking survey³⁶ asked 1022 smokers and quitters to rate the statement "Low tar cigarettes are safer," on a five-point scale: Agree completely, Agree somewhat, Neither agree nor disagree, Disagree somewhat, Disagree completely. The "net agreement" on the statement for the whole group was -1%, i.e., those who had an opinion were about evenly divided on the question. (In contrast, the statement "No proven link between smoking and any disease" came in at -50%, and -70% among "long-term quitters".)

Not surprisingly, "current smokers", "non-attempters to quit" and "unsuccessful quitters" were slightly more likely to agree that "Low tar cigarettes are safer", while "long-term quitters" were less likely. There was no breakdown by type of cigarette smoked.

d) American surveys:

American research has found that people who smoke low tar cigarettes and those who switch to them are more likely to believe that some brands are more hazardous than others, and that their brand is less hazardous than higher-yield brands.^{25, 27}

e) Implications:

Taking the more conservative national figure of 55% for smokers of "light" cigarettes and

combining it with the Ontario findings about reducing risk produces some interesting numbers: In this fashion we can estimate that Canada has about 3,685,000 "light" cigarette smokers of whom approximately 516,000 see reducing the risks of smoking as a "very important" reason why they smoke "light" cigarettes. An estimated 1,105,500 smokers see it as a "somewhat important" reason.

These figures could overestimate the reality by 100% and Canada would still be left with over three-quarters of a million smokers who feel that they are having a positive impact on their health by using "light" cigarettes. Numbers like this could have a significant impact on quitting behaviour and public health (cf. quitting, below). As noted above, there needs to be a better and deeper understanding of this whole issue.

3) Quitting and the "Light" brands:

a) Brand switching as a quit mechanism

Some smokers see smoking or switching to "light" cigarettes as a step towards quitting. The 302 "light" smokers in the Q&Q Study were asked how important smoking "light" cigarettes was as a step towards quitting for them: 42% indicated that it was important. Thirteen percent responded that it was "very important", while 29% saw it as "somewhat important".¹²

The small Toronto study²⁹ noted earlier found that 6 (43%) of 14 participants reported switching to low-yield cigarettes in an attempt to quit smoking.

The 1987 National Health Interview Survey (NHIS) in the U.S. found that of participants who had switched brands, 38% had switched to lower yield cigarettes as a quit strategy.²⁷

b) Actual quitting behaviour

Those smokers who see switching to "light" cigarettes as a step towards quitting are important from both the tobacco industry and the public health points of view. The question is, just how accurate are their perceptions that switching to a "lighter" cigarettes is going to help them to quit?

Tobacco company researchers noted: "We have evidence of virtually no quitting among smokers of those brands [less than 6 mg. of tar], and there are indications that the advent of ultra low tar cigarettes has actually retained some potential quitters in the cigarette market by offering them a viable alternative."⁴ This finding was among Canadian smokers in the late 1970's who were smoking at the lower end of the tar yield scale.

Some years later, a couple of American surveys (the 1987 NHIS and the 1986 Adult Use of Tobacco Survey [AUTS]) offered support for this industry finding. They found that of respondents who had ever been regular smokers, those who smoked low-tar and those who had switched to those brands were *more likely* to have made a recent quit attempt, but *less likely* to be among the ranks of former smokers.²⁷

As well, the 1986 AUTS found that prevalence of cessation actually increased with increasing tar yield.²⁷ Only 34% of ever-smokers who smoked ≤ 6 mg. tar yield had quit, compared to 58% of those who smoked ≥ 16 mg. tar yield. The 7-15 mg. tar yield group was in the middle, with 42% cessation. Only 37% of those who had ever switched to reduce tar/nicotine had quit, in contrast to 51% of those who had never switched. When the sample was divided into three age categories 17-34, 35-64 and 65+, the switching data held up in all three, and tar yield groupings held in every category except 17-34.

It would be extremely interesting, and important, to see the equivalent Canadian figures on quitting now that the modern "light" cigarette has been on the market for a quarter-century. At the moment, there appears to be no published information on the quitting behaviour of Canadian smokers according to the type of cigarettes smoked.

c) **The likelihood of quitting if informed...**

That health reassurance provided by "light" cigarettes is a factor in continuing smoking is supported by data provided by the Q&Q study in Ontario.¹² Researchers asked smokers about the likelihood of their quitting if they found out that "light" cigarettes could produce just as much tar as regular cigarettes. Forty-one percent said that they would be likely to stop: 7% were "very likely" and 34%, "somewhat likely".

A similar question asked in an American survey²⁵ produced a similar result. One in three Ultra-light smokers and one in four Light smokers indicated that they would be at least "somewhat likely" to quit smoking. Only 12% and 9%, respectively, indicated that they would be at least somewhat likely to go back to Regular cigarettes.

d) **Implications**

Almost one in four Canadians is a former daily smoker, and over the last two decades, health concerns have been routinely cited by almost 60% of these individuals as their main reason for quitting.³⁷ Just as routinely, each year about 40% of all current smokers try unsuccessfully to quit. This was so in the late 1970's⁴ and it was still so in 1994-95.³⁷ Given the millions of individuals involved, if there is even a small level of health reassurance provided by smokers' perceptions of "light" cigarettes, those perceptions will have had, and will continue to have, a significant impact on human lives and public health.

There is a key question that needs to be answered, if at all possible: to what extent do smokers who cannot quit end up with "light" cigarettes in an ongoing attempt to protect their health, and to what extent are cigarettes labelled "light" inhibiting cessation by people who would otherwise succeed?

4. **"Benefits sought"**

Project ELI,³⁴ a 1982 study done for a tobacco company, in a segment entitled "Benefits Sought", made an interesting classification of the reasons for smoking low tar and nicotine cigarettes:

1. health consideration, i.e., coughing, etc;
2. concern about the safety of cigarette smoking due to publicity and articles;
3. pressure to smoke safer cigarettes exercised by relatives and friends;
4. attempts to give up smoking altogether.

Reasons 2 and 4 have been discussed in relation to "light" cigarettes, but the impact of 1 and 3 appears not to have been considered to date in the health literature.

a) Relief from current health problems:

If smokers perceive "lighter" cigarettes as healthier, and some certainly do, then it makes sense that they would try switching to try to address immediate health concerns and symptoms such as smokers' cough. Among American smokers, it has been found that people smoking lower-tar yields and those who switched were more likely to report that their health had been affected by their smoking and to respond that a doctor had advised them to quit.²⁷

Project Eli actually found some perception of relative relief among smokers of lowest tar brands, i.e., that their throat was "not as sore" or that they "don't cough as much."³⁴ While it can hardly be generalized to the population, this perception, to whatever extent it might exist, raises two interesting questions. Can low tar and nicotine cigarettes, perhaps smoked to minimize delivery, sometimes reduce such symptoms as smokers' cough and sore throat? Does smoking a "lighter" brand act as a placebo, convincing some smokers that their symptoms are not as bad?

A review of studies of the health impact conducted for the NCI Expert committee found some studies which suggested that smokers of lower yield cigarettes in fact have lower rates of respiratory symptoms compared to higher yield brands, but also other studies which found little or no difference.³⁸ As with much else around this issue, it is almost certainly the individual smokers' *perception* that matters more than anything. If some switchers perceive their symptoms have been relieved, then this may well reinforce any perception of the brand as "healthier" and this in turn may translate into reassurance about the long-term consequences of smoking and affect the likelihood of cessation. (In the Survey on Smoking in Canada, 1994/95, current health concerns [25%] ranked up beside future health concerns [32%] as the most commonly cited reasons for quitting.³⁷) As well, if friends and family perceive fewer symptoms on the part of the smoker, then that too may have an impact on pressure to quit.

As it has not been addressed in the health literature, the role of current health considerations in "light" cigarette smoking invites some investigation.

b) Less pressure from family and friends:

The third reason identified by the industry research as a reason for smoking "light" cigarettes -- "pressure to smoke safer cigarettes exercised by relatives and friends"--brings out an important point overlooked in the health literature reviewed. It is not only the perceptions of smokers with respect to "light," "mild," etc. that are important, *but also the perceptions of those who care about them and who are in a position to influence their behaviour--their families and friends.*

Perhaps some families directly pressure their smoking loved ones to smoke "safer" cigarettes, but it also seems likely that some or much of the pressure is actually to quit and that the "light" cigarettes are perceived as a compromise. It is known that families and friends are important motivators to quit and that family support is a strong predictor of success in cessation.³⁹ Thus, to the extent that the term "light" may lessen the fears of family and friends about smokers, it may also reduce their prominence as a motivating factor and diminish the urgency of their support and their concern about possible cessation failure--thus enhancing the chances of cessation failure.

The Survey on Smoking in Canada asked the same open-ended question about the meaning of the term "light" to never-smokers and former smokers, and like smokers they produced a non-significant "safer/healthier" response.²⁶ However, the same caveat about the question holds. As well, while less likely than current smokers to believe that "light" means "less tar" or "less nicotine" they nonetheless believed this in substantial numbers: 23% and 43% for former smokers, and 14% and 36% for never-smokers. To the extent that a belief in low tar and nicotine translates into "safer", then the influencers of smokers are susceptible--if less so than smokers themselves.

Former smokers' views with respect to "light" cigarettes could be important for another reasons as well. It is known that about one-third of long-term quitters, i.e., persons who have not smoked in over one year, eventually return to smoking. We not know to what extent, if any, has the presence of so many "light" and "mild" brands helps to induce former smokers to try cigarettes again, e.g., just to taste the new brand on the theory that a "light" cigarette probably isn't too bad, or on the theory that a light cigarette wouldn't have enough nicotine to draw one back into addiction.

In the Project Viking survey looked at earlier, the group identified as "long-term quitters" evidenced a net agreement of -18% with the statement "Low-tar cigarettes are safer."³⁶ While well below "unsuccessful quitters" at 6%, this is far from complete disagreement (-100%). To the extent that it represents former smokers' views today, it indicates potential vulnerability.

Research into former smokers' and non-smokers' perceptions of "light" cigarettes could potentially shed some light on cessation difficulties and cessation maintenance.

c) **Reduction of guilt:**

As any cessation counsellor can attest, for many smokers there is considerable guilt involved in smoking. Tobacco company research suggests that some smokers' view "light" cigarettes not only as a means to deal with the issues just outlined, but also with guilt: "LTN's allow consumers to continue to smoke under social duress. As a category, low-tar brands are seen as a means to yield to health considerations, social pressures and personal guilt feelings [emphasis in original]."³⁴

Overall, it is possible that for some smokers, "light" cigarettes are perceived not as a step to quitting smoking, *but as a means to entrench it.*

5. **“Light” brand discrimination:**

a) **Confusion about relative rankings:**

i. **Is “light” lighter than “mild” or is “mild” milder than “light”?**

Consumer confusion about the terms used to describe cigarettes cropped up quickly as the numbers of brands expanded. In 1978, an industry marketing plan identified a problem: The “proliferation of ‘mild’ claims and brand name descriptives, i.e., special mild, extra mild, extra light, has created confusion among consumers on specific brand attributes.”³³ In 1982, a study by the same company tried to identify consumers’ understanding of the relative positions of Export “A” regular, Export “A” Medium, Export “A” Light, and Export “A” Mild.⁵

There was no confusion of the position of the regular brand or medium, which were massively rated as “strongest” and “second strongest”, respectively. On the other hand, there was clear confusion with respect to “light” and “mild”, with 55% of these smokers thinking Export “A” Light was the “least strong” while another 38% thought that position belonged to Export “A” Mild. Smokers of “light” (59%) and “mild” (44%) were slightly more likely than the group as a whole to think that their chosen brand was the least strong of the alternatives available within the brand family. (Smokers were in a position to create their own perceptions. In 1997, Export “A” Light had a standard yield of 13 mg. tar and 1.2 mg. nicotine; Export “A” Mild, 12 mg. and 1.1 mg.)

The document noted that “the confusion over the relative positioning of Mild & Light exists almost equally amongst Export Family smokers and competitive smokers.”⁵

ii. **Brand image and “light”**

Cigarette families are carefully positioned. The brand image, that is, consumers’ perceptions of the brand, are extremely important in marketing generally, and especially in cigarette marketing.⁴⁰ Part of that image is the perceived strength of the brand. “[B]ecause of their heritage, some brands, and particularly Rothman’s, Export “A” or Belvedere, project an image of excessive strength down to their lightest versions.”³⁴ When “light” or “ultra light” are added to a brand name perceived as ‘strong,’ they are often still perceived as stronger in contrast to brands traditionally perceived as less strong.^{5,30} As well, stronger brands tend to be seen as more masculine, lighter ones as more feminine.

For some traditional brands their image has been a disadvantage,⁵ in the so-called ‘tar derby’, but for others it has helped:

Switching out of Medallion and the 1 mg segment in total suggests that being “the healthiest, mildest” isn’t enough when faced with “almost as healthy, almost as mild” brands (like Matinee Slims) offering more taste and an image position which says more than “I smoke this brand because it’s the lowest.” Even among Very Low and Ultra Low smokers, the distinction between the brands on the health -vs- strength dimension has become hazy: Matinee Extra Mild and Slims, Select, Craven “A” Special are all seen as

being stronger than Medallion, but they're also seen as being tastier, healthier options [emphasis in original].¹

These observations are over fifteen years old, and it is not clear how much they pertain to the market today. However, they do illustrate that brand image, by its very nature, is emotional and non-rational; and so is its impact, apparently, on smokers' perceptions of descriptive terms.

b) Consumer categorization of descriptive terms

After the tar and nicotine yields went on Canadian cigarette packages, an industry strategy document noted: "Twenty-nine percent of all smokers now consider the amount of T&N to be very important in brand choice; 25% consider it to be fairly important, only 23% consider the amount of T&N not important at all."⁴

However, it is important to note that, despite the confusion over terms noted earlier, it is smokers' perceptions of the descriptive terms, rather than an understanding of the yield ratings on the packages, which has carried the "down-switching"--the industry term for brand-switching motivated by a desire to smoke lower-yield cigarettes. The importance of the descriptive terms is clear from a section entitled "Evaluation of Brands and Brand Discrimination" in Imperial Tobacco's Project ELI Focus Groups Final Report (July, 1982):

LTN [low tar and nicotine] smokers discriminate among various brands on tar/nicotine levels, taste, packaging and image.

Though most participants are not aware of specific tar/nicotine levels, they do group cigarettes into general categories -- regular cigarettes, light or/mild cigarettes, and the ultra milds.³⁴

This observation by industry researchers that there is a general grouping phenomenon operating among Canadian smokers has been confirmed elsewhere. American researchers have also noted that smokers tend to "think of tar yields in terms of these three broad categories" of Regular, Light and Ultra light and also tend to know with confidence which of these three categories they smoked.²⁵ It should be noted that, in the U.S., cigarette advertising carries the tar, nicotine, and carbon monoxide yields, but only a small percentage of brands, generally low-yield ones, carry them on the package.⁴¹

An American study⁴² and another conducted in Australia⁴³ (where a form of yield levels are published on cigarette packages) both noted that smokers have great difficulty understanding and processing cigarette yields. Tested for their knowledge of the tar yield numbers of their cigarettes, they usually did not know them, and generally they did not know where given yield ranges stood on the scale of high- to low-tar yield numbers. Nor, in general, did they know where their own brand stood. Leaving aside the question of the usefulness of the yields as measured to any given smoker, the yields as presented had little comparative value for smokers.

The Youth Smoking Survey found that only 39% of Canadian youth 15-19 were able to correctly identify the standard tar yield of their cigarettes, 42% identified the nicotine yield and 26% the carbon monoxide yield. "Light" cigarette smokers were no more aware of yield levels than those

who smoked regular cigarettes.⁴⁴

No study of Canadian smokers' understanding of the yield numbers was identified. However, the results would undoubtedly be much the same as in the U.S. and Australia. In order to use the yield rating to rank his or her brand, a Canadian smoker would have to examine numerous packages (or get a list of reported yields) and find the highest and the lowest. Therefore, it is not surprising that for comparative purposes Canadian smokers would use general groupings around more easily understood concepts, i.e., regular, light and ultra light.

c) **Implications of the three-part categorization**

The real question goes beyond the yields. As the researcher who did the American tar yield study noted: "People don't care about tar; they don't know what it is. They care about harmfulness; they care about risk."⁴⁵ And the evidence shows that at least some smokers understand words like "light" and "ultra light" on cigarette packages to be telling them something about risk.

The American researchers quoted above with respect to the grouping into general categories investigated smokers' perception of the three categories by asking smokers how many Lights/Ultra-lights someone would have to smoke to get the same tar as from one Regular cigarette.²⁵ Less than 10% of smokers in a national sample knew that a Light cigarette could give

the same tar as a regular. Most responded "Don't know" and the next common answer was "two". In a Massachusetts state sample where those who answered "don't know" were asked to "make a guess", the largest response was "two" (41%). For Ultra-lights, the modal response was "4 or more" (30%).

Once again, because of the advertising climate in the U.S., these results must be treated with caution. Results from a similar experiment in this country would give some valuable insight in Canadian smokers' perceptions.

To the extent it is used, this three-part classification system (regular, light/mild, ultra light/ultra mild) while apparently simplifying things for some smokers, raises some interesting questions that are not addressed in the current health literature. What does a smoker thinking generally in terms of three levels make of combinations such as "extra light/mild", "special light/mild" or "smooth light/mild", all of which are used as descriptors for brands currently for sale in Canada? Or, for that matter, of the "Extra Mild Lights" which have recently appeared for sale?

Some of descriptors are used in fairly narrow yield bands (e.g., "ultra mild", 0.7-3 mg. tar) whereas others range across the spectrum (e.g., "extra mild", 3-12 mg. tar).⁷ It would seem useful to get some information on how the use of the various terms may interact with the informal classification system that smokers use. For example, what might smokers expect from cigarettes called "Extra Mild Lights"? What would they get?

6. **The ongoing search for "taste and satisfaction"**

For those smokers who are interested in brand switching, the process involves more than tar and nicotine, health concerns or attempts to quit, important as those are as motivators. Canadian tobacco industry documents reveal a preoccupation on the part of both tobacco companies and smokers with what both refer to as "taste and satisfaction". As one document put it: "[M]any smokers require a certain level of taste or satisfaction but will go as low in T & N as their physical makeup will allow them."⁴ However, the more the tobacco smoke inhaled is diluted, the less it provides of taste and satisfaction.

"The competitive reality," noted the Project ELI Report, "is that as tar levels drop, taste is negatively affected."³⁴ Under the heading "Absolute Tar level vs. Taste", it set out the issue precisely:

LTN [low tar and nicotine] smoking is certainly less satisfying than smoking stronger cigarettes. For that reason, consumers continue to search, particularly when new brands become available. However, they are not searching for just a lower tar cigarette. They are searching for a better-tasting lower-tar cigarette [emphasis in original].³⁴

Another company charted tar yield ranges in a way that reveals its understanding of how cigarettes along the scale are perceived⁴⁶ --though, as noted earlier, its customers would not generally think of the cigarettes in these yield terms:

Tar range:	Seventeen (16 & over)	Fourteen (13-15 mg)	Eleven (10-12 mg)	Eight (7-9 mg)	Six (4-6 mg)	Two (1-3 mg)
Basic Promise:	Full flavour & smoking satisfaction	Full smoking flavour. Good satisfaction	Acceptable level of smoking satisfaction	Low numbers moderate smoking quality	Lowest numbers with some flavour reward	Lowest possible numbers

The damning "lowest possible numbers" says it all. Most smokers are not pleased with the taste or the mechanics of a highly-ventilated lowest standard yield cigarette. As one health researcher wrote: "Despite the publicity about disease risks of smoking and the widespread belief that ultra-low-yield cigarettes are less hazardous, most smokers will not cross the street for one, let alone walk the advertised mile."²² Even those who actually smoke the lowest yield brands are ambivalent about their choice: "Although Ultra Low smokers view their brands as the healthiest, mildest brands available, they also see them as offering the least taste and satisfaction as well as having the least attractive packaging and not being for successful people."¹

All of this shows up in the sales figures. The interest in lower tar notwithstanding, the lowest tar brands (≤ 3 mg. tar), "Ultra Milds" and some "Extra Milds", held less than 3% of the Canadian cigarette market in 1997.^{6,7} (In contrast, Player's Light (which comes in at a robust 13 mg. of tar, within the "full smoking flavour, good satisfaction" boundary) is the king of "light"

cigarettes, with a full one-third of that market, and the leading seller of all Canadian cigarettes, with over 17% of the total market.)

All of this confirms that smokers have some ability to distinguish between various yields of cigarettes on the basis of "taste and satisfaction" and that this has an impact on brand choice. Just how smokers' perceptions of "taste and satisfaction" interact with their perceptions and understanding of the terms "light" and "mild" and the various permutations listed in the Introduction, remains to be investigated.

VI. SUMMARY OF EXPERT RECOMMENDATIONS AND SUGGESTIONS:

In a number of instances, individuals and groups examining the question of low-yield or "light" cigarettes have made recommendations or suggestions about how to deal with the issues posed by smokers' misunderstanding of "light" cigarettes. These can be classified into research, education and regulatory issues.

1. Research:

- ◆ That continuing research be done into the whole area of lower yield cigarettes, including analyses of existing data, regular focus groups and surveys to see how various tobacco products and communications are received by the public, especially research examining the degree to which people use apparently less hazardous products as an alternative to quitting, the extent to which these products may function as starter products or are preferentially used by people relapsing from abstinence.⁴⁷

2. Education:

- ◆ That smokers be informed that the health benefits, if any, of switching to "lighter" or "lower-tar" cigarettes are minimal when compared with the benefits of quitting.^{41, 22}
- ◆ That smokers be informed about the mechanisms used to make cigarettes "light", most notably filter-ventilation, and about how to smoke to minimize intake, e.g., don't block vents, smoke fewer cigarettes per day, take fewer puffs on each cigarette, and leave longer butts, etc.¹⁵

(Two slightly different versions of a graphic system to help smokers judge if they are vent-blocking or not have been recommended for publication on cigarette packages or as an insert.^{15, 21} See Appendix A.)

- ◆ That health professionals such as physicians, nurses, respiratory therapists, physician assistants, chemical dependency counsellors, psychologists, health educators, pharmacists and dentists, be educated about the dangers of low-yield cigarettes so that they can pass this information along to patients.¹⁵

3. Regulatory:

- ◆ That education/warnings about light/low-yield cigarettes be required on packages,¹⁵ on package inserts,^{15, 41} on advertising and/or at point-of-sale.⁴¹
- ◆ That the holes on ventilated cigarettes be required to be visible, as well as textured so that the lip can feel them.⁴⁸

It has also been recommended that "light" claims be restricted,¹² including the statements from the two expert committees, below:

- ◆ “Brand names and brand classifications such as “light” and “ultra light” represent health claims and should be regulated and accompanied, in fair balance, with an appropriate disclaimer.”¹⁹
- ◆ “Words like light, mild, extra mild, etc., are often associated with risk reduction. The use of such words needs to be controlled in some fashion.”¹⁴

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