Cigarette Testing and the Federal Trade Commission: A Historical Overview[1]

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Cigarette manufacturers began advertising their products' tar and nicotine content before there was a standardized procedure for testing cigarette output. In 1955, after a series of cases challenging a variety of claims made for cigarettes (including tar and nicotine claims),[2] the Federal Trade Commission (Commission or FTC) published cigarette advertising guides. Among other things, the guides prohibited claims that a particular brand of cigarettes was low in tar and nicotine or lower than other brands "when it has not been established by competent scientific proof . . . that the claim is true, and if true, that such difference or differences are significant" (Federal Trade Commission, 1988a).

However, cigarette manufacturers continued to advertise tar numbers. In the absence of a standardized testing methodology, their claims resulted in what is often referred to as the "tar derby"—a multitude of inconsistent, noncomparable claims that did not give consumers a meaningful opportunity to assess the relative tar delivery of competing brands. The tar derby ended in 1960, when discussions with the Commission culminated in an agreement by the industry to refrain from tar and nicotine advertising (Federal Trade Commission, 1988b).

In 1964 the first Surgeon General's report on the health risks of smoking concluded that cigarette smoking was a cause of lung cancer in men (U.S. Department of Health and Human Services, 1964). In 1966 the Public Health Service stated that "The preponderance of scientific evidence strongly suggests that the lower the tar and nicotine content of cigarette smoke, the less harmful would be the effect" (U.S. Department of Health and Human Services, 1981, p. v).

It was in this environment that the Commission initiated two major steps in 1966 to encourage cigarette manufacturers to provide consumers with comparative information about their products' tar and nicotine yields.

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[1] These remarks are the views of the staff of the Bureau of Consumer Protection. They do not necessarily represent the view of the Commission or any individual commissioner.

[2] *See, e.g., R.J. Reynolds Tobacco Co. v. FTC*, 192 F.2d 535 7th Cir. (1951) (claims that Camel does not impair the physical condition of athletes and aids digestion); *American Tobacco Co.*, 47 F.T.C. 1393 (1951) (Lucky Strike cigarettes advertised as less irritating to the throat than competing brands and containing less tar than four other leading brands); *P. Lorillard Co.*, 46 F.T.C. 735 (1950) (Old Gold cigarettes advertised as lowest of seven leading brands in nicotine and throat irritating tars, and Beech-Nut cigarettes as providing "definite defense against throat irritation"). *See also, e.g., Leighton Tobacco Co.*, 46 F.T.C. 1230 (1950) (Phantom cigarettes represented as causing no irritation of any kind).

First, it ended the ban on tar and nicotine advertising by announcing that factual statements of the tar and nicotine content of mainstream cigarette smoke could be made if they were supported by tests conducted in accordance with the so-called "Cambridge Filter method" and if they were not accompanied by claims about reduced health hazards (Federal Trade Commission, 1988a). Second, it authorized establishment of a laboratory to analyze cigarette smoke and invited public comment on what modifications, if any, should be made to the Cambridge Filter method for purposes of the laboratory's procedures and how the test results should be expressed (*Federal Register*, 1966). The modified Cambridge Filter method ultimately adopted by the Commission is often referred to as the "FTC method."

By mid-1967 the laboratory was ready to begin testing cigarettes (*Federal Register*, 1967).[3] The Commission agreed, pursuant to Senator Warren Magnuson's request,[4] to report the test results to Congress periodically, a process that continues today.

From the outset, the testing was intended to obtain uniform, standardized data about the tar and nicotine yield of mainstream cigarette smoke, *not* to replicate actual human smoking. The Commission recognized that individual smoking behavior was just that—too individual to gauge what a hypothetical "average" smoker would get from any particular cigarette: "No two human smokers smoke in the same way. No individual smoker always smokes in the same fashion" (Federal Trade Commission, 1967). The purpose of the testing was "not to determine the amount of 'tar' and nicotine inhaled by any human smoker, but rather to determine the amount of tar and nicotine generated when a cigarette is smoked by machine in accordance with the prescribed method" (Federal Trade Commission, 1967). Indeed, the Cambridge Filter method did not attempt to duplicate an "average" smoker but was "an amalgam of many choices" (Federal Trade Commission, 1967). Because no test could accurately duplicate human smoking, the Commission believed that the most important thing was to make certain the results presented to the public were based on a reasonable, standardized method and could be presented to consumers in an understandable manner.

The Commission next attempted to increase consumer awareness of the ratings produced by its laboratory. In 1970 it proposed a trade regulation rule that would have required disclosure of tar and nicotine ratings in all cigarette

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[3] For the first dozen years of its existence, the laboratory tested only for tar and nicotine. In 1980 the protocol was modified to add testing for carbon monoxide.

[4] Expressing the opinion held at that time by many people in the Federal Government, Senator Magnuson stated that "By encouraging smokers to switch to low tar/nicotine cigarettes, we can contribute meaningfully to the physical health of our nation. Publication of the Commission's testing results is one important facet

The Commission expressed its views concerning dissemination of tar and nicotine figures in an October 1967 letter to the National Association of Broadcasters: "The Commission favors giving smokers as much information about the risks involved in smoking as is possible and to that end favors mandatory disclosure of tar and nicotine content, as measured by a standard test."

advertising (*Federal Register*, 1970). The rulemaking was suspended indefinitely a short time later, when five of the major cigarette manufacturers and three small companies agreed voluntarily among themselves to include the ratings produced by the Commission's protocol in their advertisements. That agreement, modified to reflect the discontinuance of the Commission's laboratory, remains in effect today.[5]

There are a number of ways to lower a cigarette's tar and nicotine rating, including adding filters that literally trap some of the constituents of the tobacco smoke before they reach the machine, wrapping the tobacco plug in paper that burns relatively quickly, and placing ventilation holes around the circumference of the filter so that when a smoker or smoking machine puffs on the cigarette, air is drawn into the filter and the resulting diluted mixture of air and smoke yields lower tar and nicotine ratings than an undiluted puff of smoke would yield. The last technique is often referred to as "aeration."

These types of changes in cigarette technology have focused the Commission's attention on its protocol on two separate occasions since 1970. In both cases, the Commission solicited public comments on certain aspects of the FTC method. However, in neither instance did the information received by the Commission form a sufficient basis for changing the protocol, even though the limitations on the predictiveness of the FTC method caused by compensatory smoking were clearly recognized by the mid-1980's. ("Compensatory behavior" is the tendency of consumers to offset the benefits of a positive change in their behavior by making a second, negative change. For example, a smoker who switches to a brand with lower tar and nicotine ratings might smoke more cigarettes each day or smoke each one more intensively, that is, inhale more deeply and/or take more puffs per cigarette.) Following is a review of the two events referred to above.

Aeration first became an issue for the Commission in 1977, when Lorillard, Inc., suggested that the depth to which cigarettes were inserted in the Commission's smoking machine be decreased when the standard depth would block some of a cigarette's ventilation holes, thereby impairing its filtration system and resulting in higher ratings than if the holes were open. The Commission solicited public comments on this question and also on whether the insertion depth should be decreased beyond the point where consumers cover the cigarette with their fingers or lips (*Federal Register*, 1977).

Of the seven cigarette companies that commented, only Lorillard supported varying the standard insertion depth. However, none of the responders addressed the question of whether the new insertion depth would be more consistent with actual smoking practices. After reviewing

[5] The American Tobacco Company did not sign the voluntary agreement, but similar disclosures have been contained in its advertisements, pursuant to a 1971 consent agreement with the Commission. [*In re American Brands, Inc.*, 79 F.T.C. 255 (1971).]

the comments, the Commission noted that the development of cigarettes with ventilation holes near the tip had complicated the comparability of its tar and nicotine ratings,[6] but "that a change in the insertion depth would cause a lack of continuity with previous test results" (*Federal Register*, 1978, pp. 11856, 11857). The Commission decided not to modify the protocol "in the absence of information indicating that a new insertion depth would be more consistent with the manner in which smokers insert cigarettes in actual use" (*Federal Register*, 1978, p. 11857).

Another controversy concerning the test method arose in the early 1980's and involved the Brown & Williamson Tobacco Corporation's (B&W) Barclay cigarette, which was designed with a channel ventilation system rather than air holes.[7] Competitors claimed that Barclay, which had received an official FTC rating of 1 mg tar in 1981, did not test accurately on the FTC smoking machine because the channels remained open during testing but were rendered inoperable in practice. After careful consideration, the Commission determined that its present test method did not accurately measure Barclay's tar, nicotine, and carbon monoxide. It revoked the 1-mg rating, estimating that Barclay should be rated between 3 and 7 mg of tar (based on testing by independent consultants) and invited comments on a number of issues relating to possible modification of its testing method, including using new cigarette holders on the smoking machine that would simulate the reduction in ventilation that occurred when people smoked Barclay (*Federal Register*, 1983). The Commission asked which modifications would yield the most appropriate results for all cigarettes and whether modification of the cigarette testing method would result in unintended consequences and affect possible innovation in cigarettes design (*Federal Register*, 1983).

The Commission also took this opportunity to reiterate that its ratings were relative; that the amount of tar, nicotine, and carbon monoxide any particular cigarette delivered depended on how it was smoked; and that in the case of ventilated filter cigarettes, delivery would be increased if ventilation holes were blocked (*Federal Register*, 1983). It then invited

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[6] Quoting its 1967 statement that the purpose of testing was not to determine the amount of constituents inhaled by a human smoker but to determine the amount generated when a cigarette was smoked by a machine in accordance with a prescribed protocol (see above), the Commission noted that:

> The point of this statement was that the FTC's "tar" and nicotine values represented valid standards for making comparisons among different cigarettes. Thus, if the consumer smoked each different cigarette the same way, he would inhale "tar" and nicotine in amounts proportional to the relative values of the FTC figures. A person who smoked a 10 mg "tar" cigarette would ingest half the "tar" he would by smoking a 20 mg "tar" cigarette providing he smoked the same way. The development of cigarettes with ventilation areas within 11 mm of the tip has complicated this simple relationship. (*Federal Register*, 1978, p. 11856)

[7] In conventional aerated cigarettes, air and smoke mixed together as they passed through the filter. Outside air drawn into Barclay's channels, however, went directly into the smoker's mouth before first mixing with any smoke; dilution was supposed to occur in the mouth, not in the filter. Competitors alleged that because the exit holes for the channels were close to the smoker's lips, they were crushed or covered by lips, thus reducing dilution.

comments on a wide range of issues concerning compensatory smoking behavior:

> Should the Commission further examine the implications for its testing program of the issues raised by compensatory smoking behavior, including hole blocking, when consumers smoke lower "tar" cigarettes? What is the evidence that smokers use higher "tar" cigarettes differently than lower "tar" cigarettes? What is the evidence regarding the extent of hole blocking by smokers of different ventilated filter cigarettes? Are there problems regarding compensatory smoking behavior which are significant enough to warrant further exploration of changes in the method, beyond those necessitated by the Commission's findings concerning Barclay? What lines of inquiry would generate the most useful information if such an examination is undertaken? For example, should the Commission explore a system of categories or "bands" of "tar" content rather than specific numerical estimates? Also, should consumers be advised that the cigarettes' actual "tar" delivery depends on how it is smoked? (*Federal Register*, 1983)

Shortly after the initial comment period closed,[8] a Federal district court issued an opinion in the Commission's action against B&W over advertisements that continued to describe Barclay as a 1-mg tar cigarette, despite the Commission's revocation of Barclay's 1-mg rating [*FTC v. Brown & Williamson Tobacco Corp.*, 580 F. Supp. 981 (D.D.C. 1983), *aff'd in part, remanded in part*, 778 F.2d 35 (D.C. Cir. 1985)]. During that litigation, B&W contended that "recent scientific evidence demonstrates that the FTC system is so flawed that it is itself deceptive" [580 F. Supp. at 984].[9] The court recognized that compensatory smoking behavior complicated the ratings question but rejected B&W's contention that the system provided no benefit to consumers:

> The FTC system attempts only to determine how much relative tar and nicotine a smoker would get in his mouth were he to smoke two cigarettes in the same manner. B&W has utterly failed to show that the system does not do this. Nor has it shown that a better method for determining the relative health

[8] Comments responsive to the April 13, 1983, *Federal Register* notice were originally due by June 30, 1983. On June 4, 1984, however, the Commission reopened the comment period because certain information that was relevant to the questions addressed in that notice, but had been previously under a court-ordered seal, was now publicly available (*Federal Register*, 1984).

[9] B&W argued that all cigarettes were subject to compensatory smoking behavior and thus all tar numbers were "soft." The Commission acknowledged that low-yield cigarettes were subject to substantial variations in actual smoker intake but contended that Barclay tested differently on the machine from other cigarettes. The Commission's position was that the tar ratings provided a rough comparative scale; that is, a 1-mg cigarette should be comparable to all other 1-mg cigarettes, if all are smoked in an identical manner.

> hazards of the many different varieties of cigarettes on the market is currently feasible [580 F. Supp. at 985].

The comments ultimately submitted in response to the Commission's questions about compensatory smoking reflected sharply disparate views. On the one hand, the American Heart Association (AHA), American Lung Association (ALA), and American Cancer Society (ACS) identified problems with the existing methodology, expressed concern over the impact of compensatory smoking behavior, and suggested extensive research to improve the current testing and reporting procedures.[10]

On the other hand, Philip Morris, R.J. Reynolds Tobacco Company, and American Brands asserted that compensatory smoking behavior was not relevant to the testing methodology and that devising a protocol that accounted for compensatory smoking would require establishing a profile of the average smoker, something the Commission had previously declined to do because of the impossibility of accounting for all the relevant variables. Lorillard stated that data on compensatory smoking were very limited and therefore recommended that the existing system be kept intact. Liggett & Myers suggested that perhaps all cigarette testing should be abolished because smoking behavior could seriously affect tar and nicotine yields and smokers could not be taught to change their behavior.

In response to the Commission's question about possible implementation of a "banding" system for its tar and nicotine ratings, B&W (which had just had Barclay's rating revoked) argued that the current system caused manufacturers to emphasize small differences that might not exist, given the realities of compensatory smoking, and that it should be replaced with a system that would group products into high-tar, medium-tar, low-tar, and ultralow-tar "bands." Philip Morris and American Brands argued that banding would lead to a concentration of brands at the upper limit of each category (in contrast to the existing system, which encouraged reductions across the board). American Brands also contended that banding would confuse consumers, whereas Philip Morris noted that it would substitute the Government's judgment about the significance of differences in tar ratings for that of the individual consumer.

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[10] The ALA stated that given the reality of compensatory smoking, low-tar cigarettes might not be as safe as some consumers were being led to believe and that the Commission's testing and reporting procedures were contributing to questionable advertisements for "safe" cigarettes. The ACS stated that the Commission's test method should be modified to reflect current understanding of compensatory smoking behavior. The AHA expressed its view that the Commission's testing and reporting procedures fostered the belief among consumers that low-tar cigarettes were safer than high-tar brands. However, epidemiological evidence showing a correlation between the risk of coronary heart disease and the number of cigarettes smoked per day, but not a reduced rate of such disease among low-tar smokers, suggested that smokers of those cigarettes might be engaging in compensatory smoking.

The ALA and ACS recommended that research be conducted to determine how actual intake of tar and other smoke constituents by smokers related to the FTC's ratings; following completion of this research, the Commission should test each cigarette under a range of conditions replicating actual smoking behavior and report those results with a warning that individual yield depends on individual smoking patterns.

In short, there was no clear consensus as to specific action the Commission could (or should) take to eliminate the limitations of the test method. At the same time, abandoning the testing system without instituting another method of tar testing would have been premature because then-current epidemiological evidence suggested that there had been a reduction in lung cancer deaths that might be attributable to declines in average tar levels that had occurred since the 1950's (U.S. Department of Health and Human Services, 1981).[11] Accordingly, at that time the Commission made no changes to its cigarette test method to address compensatory smoking.

In early 1987 the Commission decided to close its cigarette testing laboratory. The Commission found that closing the laboratory was necessary for several reasons, chiefly because the cost of the laboratory was significant and the Commission would have had to commit significant additional funds to continue its operation. The Commission also was persuaded that the same information could be obtained from other sources and that other means were available to verify the accuracy of industry testing results. In fact, the Commission's operation of a testing system for the industry at taxpayer expense was highly unusual. The common scenario is for the industry to conduct its own testing under Government-specified testing protocols.

Since 1987 the Tobacco Institute Testing Laboratory (TITL) has continued to test most cigarettes, using the Commission's approved methodology; the companies report the results to the Commission pursuant to a compulsory request, and the Commission publishes the results. TITL keeps the Commission informed of proposed changes in the testing procedure and solicits Commission approval for all significant changes. TITL's work is regularly monitored by the Commission's contractor, Harold Pillsbury, Jr. (this volume), who has virtually unrestricted access to the laboratory and makes unannounced visits to inspect it and check the testing process. Mr. Pillsbury also checks the data for consistency from run to run and from year to year. Most industry members also have testing facilities; however, the numbers published by the Commission are primarily TITL numbers. (Generic and private label brands, as well as new cigarettes and cigarettes that are not widely available, are not tested by TITL.)

Since the closing of its laboratory, the Commission has continued to review advertising for today's low- and ultralow-yield cigarettes for deceptive claims. In January 1995 the Commission approved a consent agreement with the American Tobacco Company, settling charges over advertisements that allegedly misused the Commission's tar and nicotine ratings by stating that consumers would get less tar by smoking 10 packs of Carlton brand cigarettes

[11] In 1954 the tar yield of the sales-weighted average cigarette was 37 mg (U.S. Department of Health and Human Services, 1981). By 1981 cigarettes yielding 15 mg of tar or less had 56 percent of the domestic market (Federal Trade Commission, 1984).

(which are rated as having 1 mg of tar per cigarette) than by smoking a single pack of certain other brands of cigarettes (rated as having more than 10 mg of tar per cigarette).

The Commission's desire to ensure that smokers have accurate and useful information about their cigarettes led to its request for the conference, whose reports are contained in this monograph.

QUESTION-AND-ANSWER SESSION

Mr. Peeler conducted a question-and-answer session simultaneously with Mr. Pillsbury; see page 12.

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