RESEARCH PAPER

Tobacco manufacturers' defence against plaintiffs' claims of cancer causation: throwing mud at the wall and hoping some of it will stick

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Background: In the late 1990s and the early part of this decade, the major US cigarette manufacturers admitted, to varying degrees, that smoking causes cancer and other diseases.

Objective: To examine how tobacco manufacturers have defended themselves against charges that their products caused cancer in plaintiffs in 34 personal injury lawsuits, all but one of which were litigated between the years 1986 and 2003.

Methods: Defence opening and closing statements, trial testimony, and depositions for these cases were obtained from the Tobacco Deposition and Trial Testimony Archive (<http://tobaccodocuments.org/datta/>). All available defence-related transcripts from these cases were reviewed and a content analysis was conducted to identify common themes in the defendants' arguments.

Results: After review of the transcripts, defendants' arguments were grouped into seven categories: (1) there is no scientific proof that cigarette smoking causes lung cancer; (2) the plaintiff did not have lung cancer as claimed; (3) the plaintiff had a type of lung cancer not associated with cigarette smoking; (4) the plaintiff had cancer that may have been associated with cigarette smoking or smokeless tobacco use, but tobacco products were not to blame in this particular case; (5) the plaintiff had cancer that may have been associated with cigarette smoking, but the defendant's cigarette brands were not to blame; (6) the defendant's cigarettes (or smokeless tobacco) may have played a role in the plaintiff's illness/death, but other risk factors were present that negate or mitigate the defendant's responsibility; and (7) the defendant's cigarettes may have been a factor in the plaintiff's illness/death, but the plaintiff knew of the health risks and exercised free will in choosing to smoke and declining to quit. Use of the argument that smoking is not a proven cause of lung cancer declined in frequency during and after the period when tobacco companies began to publicly admit that smoking causes disease. Corresponding increases occurred over time in the use of other arguments (namely, presence of other risk factors and "free will").

Conclusions: Despite the vast body of literature showing that cigarette smoking causes cancer, and despite tobacco companies' recent admissions that smoking causes cancer, defendants used numerous arguments in these cases to deny that their products had caused cancer in plaintiffs. The cigarette companies, through their public admissions and courtroom arguments, seem to be saying, "Yes, smoking causes lung cancer, but not in people who sue us".

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An extensive body of research has existed for many years, showing that cigarette smoking causes lung cancer, other cancers, heart disease, stroke, chronic obstructive pulmonary disease, and many other illnesses.¹⁻³ Despite this large volume of evidence, it has only been in recent years that tobacco manufacturers have admitted, to varying degrees, that smoking causes lung cancer and other diseases.

In this paper, we examine tobacco company arguments about whether their products caused cancer in plaintiffs who filed lawsuits against the companies. In order to understand the context in which these arguments have been presented to judges and juries, it is important to review the public admissions that these companies have made in regards to the adverse health effects of tobacco use.

The Liggett Group, Inc was the first cigarette company to admit unconditionally that smoking is harmful to health.⁴ Liggett (now part of the Vector Group Ltd) currently sells Eve, Pyramid, and Liggett Select cigarettes, and several generic or private-label brands; in 1999 the company sold its well-known Chesterfield, L&M, and Lark brands to Philip Morris. In a March 1997 settlement of lawsuits filed against

the company by 22 state attorneys general, Bennett LeBow, the chief executive officer of Liggett, agreed to the following statement:⁵

"We at Liggett know and acknowledge that, as the Surgeon General and respected medical researchers have found, cigarette smoking causes health problems, including lung cancer, heart and vascular disease and emphysema. We at Liggett also know and acknowledge that, as the Surgeon General, the Food and Drug Administration and respected medical researchers have found, nicotine is addictive."

In October 1999, Philip Morris USA—the leading US cigarette manufacturer and the maker of Marlboro, Virginia

Abbreviations: B&W, Brown & Williamson Tobacco Corporation; BAC, bronchioloalveolar carcinoma; BAT, British American Tobacco; DATTA, Tobacco Deposition and Trial Testimony Archive; RJR, RJ Reynolds; USSTC, US Smokeless Tobacco Company

Slims, Benson & Hedges, Merit, and many other cigarette brands—made the following announcement on its website:

“There is an overwhelming medical and scientific consensus that cigarette smoking causes lung cancer, heart disease, emphysema and other serious diseases in smokers. Smokers are far more likely to develop serious diseases, like lung cancer, than non-smokers. There is no ‘safe’ cigarette. These are and have been the messages of public health authorities worldwide. Smokers and potential smokers should rely on these messages in making all smoking-related decisions.”⁶

That statement did not indicate clearly whether the company agreed with the medical and scientific consensus on causation. Indeed, in a response to a shareholder’s resolution on this subject, a letter sent to the Securities and Exchange Commission on behalf of Philip Morris (dated 10 February 2000) stated: “Mr. Neuhauser’s letter mischaracterizes the Company’s web site as constituting a public admission that cigarettes cause illness. It does not.”⁷

Eliminating the ambiguity in its earlier admission, Philip Morris placed informational inserts in 28 major newspapers in the United States (including the *New York Times* and *USA Today*) on 13–17 November 2002, stating: “We agree with the overwhelming medical and scientific consensus that cigarette smoking causes lung cancer, heart disease, emphysema, and other serious diseases in smokers.”⁸ A similar statement has appeared on the company’s website since then.^{9 10}

As early as August 2002, RJ Reynolds (RJR)—maker of Winston, Salem, Camel, and many other cigarette brands—stated on its website: “We produce a product that has significant and inherent health risks for a number of serious diseases, and may contribute to causing these diseases in some individuals.”¹¹ The words “may” and “in some individuals” weakened the RJR admission in comparison to Philip Morris’s most recent admission. Now RJR’s website states: “R.J. Reynolds Tobacco Company (R.J. Reynolds) believes that smoking, in combination with other factors, causes disease in some individuals.”¹² In this latest version of the company’s admission, “may contribute to causing” was changed to “causes,” but “in combination with other factors” was added.

The Brown & Williamson Tobacco Corporation (B&W), a long-time subsidiary of British American Tobacco (BAT), has manufactured several well-known cigarette brands, including Kool, Lucky Strike, Pall Mall, Tareyton, and Viceroy. The US operations of B&W merged with RJR in July 2004, under a new parent company, Reynolds American Inc. Pre-merger URLs for the B&W website (<http://bw.com> and <http://brownandwilliamson.com>) are now directed to the RJR website.

B&W’s pre-merger website, as far back as April 2001,¹³ included a lengthy and rather tortured statement explaining the “Evolution of Brown & Williamson’s Position on Smoking & Disease”. According to this history: (1) the company had accepted for many years that “smoking is a major risk factor for many diseases”; (2) B&W revised its position in 1997, stating that, “far from denying that smoking causes disease, there are serious risks associated with smoking and that smoking may cause certain diseases”; (3) the company revised its website during 1999 and 2000 because B&W “still had not achieved its goal of clear communication” and “its position was still misunderstood”; and (4) “As reflected in Brown & Williamson’s web site today, its scientists have concluded that, assessing all of the scientific evidence together, the best judgment is that smoking is a cause of disease.” Elsewhere on its website,

under the heading “Smoking and Disease,”¹³ B&W stated: “in the most simple and commonly understood sense, smoking is a cause of certain diseases.” In other words, during this evolutionary process, the company moved from “risk factor” to “may cause certain diseases” to “is a cause of certain diseases”.

Lorillard Tobacco Company manufactures Newport, Kent, True, Old Gold, and other cigarette brands. As early as August 2003, Lorillard’s chairman and chief executive officer Martin Orlowsky offered the following on its website:

“Several years ago, Lorillard publicly promised the Congress of the United States that it would not engage in any public debate over statements of the United States Surgeon General or any other public health authorities regarding smoking and health. Consistent with that promise, Lorillard has not publicly stated its position on smoking and health except when called upon to do so in litigation.... [I]n the course of such litigation in the past few years, I have been asked what advice I would give to a smoker or potential smoker who might ask me about the health consequences they faced if they chose to smoke. Were that to happen, this is what I would say:

‘All cigarettes are dangerous and smoking can cause serious diseases, including lung cancer. Cigarette smoking can also be addictive. Lorillard supports the continuing efforts of public health authorities to inform the public about the dangers of smoking. Lorillard believes that the public should pay attention to and rely upon the Surgeon General’s warning printed on every cigarette package and in every cigarette advertisement, as well as the wealth of other information provided by public health authorities in making informed decisions about smoking.’”^{14 15}

The conditional language in some of the admissions by these cigarette companies mirrors their answers to questions posed in the pre-trial process in the US Department of Justice’s civil lawsuit against the companies. A report prepared for Congressman Henry Waxman found that four of the five major cigarette companies “failed to admit without qualification that smoking causes disease”.¹⁶

US Smokeless Tobacco Company (USSTC) is the world’s leading producer and marketer of moist snuff products, including Skoal and Copenhagen. The company does not include on its website (<http://www.ussmokeless.com/>) an admission about the adverse health effects of smokeless tobacco use, like the admissions described above on cigarette company websites. Instead, it includes several statements made to legislative and regulatory bodies asserting that smokeless tobacco use should be embraced as a “harm reduction” strategy for reducing cigarette smoking. Their website includes a USSTC petition to the Federal Trade Commission that states: “it is USSTC’s position that smokeless tobacco has not been shown to be a cause of any human disease.”¹⁷

This review of tobacco company admissions indicates that the major US-based cigarette manufacturers now admit, to varying degrees along the continuum from risk factor to cause, that cigarette smoking is related to lung cancer and other diseases. These admissions raise the question as to whether the companies have conceded that their products have caused (or have contributed to the causation of) cancer or other diseases in specific individuals. This paper examines the following research question: how have tobacco manufacturers defended themselves in personal injury lawsuits against charges that their products caused cancer in individual plaintiffs?

METHODS

Our study occurred as part of the Tobacco Deposition and Trial Testimony Archive (DATTA) project. The overall methods used in the DATTA project are described elsewhere in this journal supplement.¹⁸ In our investigation, we sought to include personal injury lawsuits in which an individual plaintiff claimed that tobacco use was responsible for the plaintiff's cancer. We focused primarily on lung cancer cases because the causal connection between smoking and lung cancer has been known for many decades, because the attributable risk for smoking as a cause of lung cancer is high (that is, the vast majority of cases of lung cancer are attributable to cigarette smoking), and because most of the personal injury lawsuits filed by individual plaintiffs involve a diagnosis of lung cancer.

We searched the DATTA collection (<http://tobaccodocuments.org/datta>) for personal injury lawsuits filed by individual tobacco users with a diagnosis of cancer. We identified 41 such lawsuits in the archive. After excluding seven cases for which few or no transcripts were available in DATTA, 34 cases were available for inclusion in our study. Of the 32 cases involving cigarette smokers, all plaintiffs claimed lung cancer as their diagnosis with the exception of one (*Allgood v. RJ Reynolds*) who reported having laryngeal cancer. In the two cases involving smokeless tobacco users, the plaintiffs asserted a diagnosis of oral cancer.

All but one of these 34 cases were litigated between the years 1986 and 2003. One case, *Green v. American Tobacco Co.*, went to trial on two separate occasions, ending in verdicts for the defence in August 1960 and November 1964. Copies of available transcripts for each case—including defence opening and closing statements, trial testimony, and depositions—were obtained from the DATTA collection. All available statements from defence witnesses (676 transcripts) for the 34 cases were reviewed by one of the authors (SM), who conducted a content analysis to identify common themes across the arguments. A matrix was constructed indicating the use of these themes across the 34 cases (table 1). If an argument appeared only once it was not considered to be a theme. In addition, a few key themes that are being covered in detail in other articles in this supplement were not included in the matrix (that is, marketing of tobacco products to children, youth smoking prevention efforts, and designing a less hazardous or safe cigarette). The seven themes included in the matrix were most clearly evident in 162 transcripts, which are listed in an appendix on the journal's website (to view the appendix visit the *Tobacco Control* website—<http://www.tobaccocontrol.com/supplemental>). The majority of the remaining 514 transcripts consist of additional testimony in which the same themes are repeated by the same witnesses. The matrix and supporting data were shared with the other five authors of this paper for their review, comments, and eventual concurrence.

RESULTS

Table 1 displays an overview of the types and frequency of arguments made by the defendants in the 34 cases. Seven themes emerged from the review of the available defence-related transcripts:

- (1) There is no scientific proof that cigarette smoking causes lung cancer
- (2) The plaintiff did not have lung cancer as claimed
- (3) The plaintiff had a type of lung cancer not associated with cigarette smoking
- (4) The plaintiff had cancer that may have been associated with cigarette smoking or smokeless tobacco use, but tobacco products were not to blame in this particular case

- (5) The plaintiff had cancer that may have been associated with cigarette smoking, but the defendant's cigarette brands were not to blame
- (6) The defendant's cigarettes (or smokeless tobacco) may have played a role in the plaintiff's illness/death, but other risk factors were present that negate or mitigate the defendant's responsibility
- (7) The defendant's cigarettes may have been a factor, but the plaintiff knew of the health risks and exercised free will in choosing to smoke and declining to quit.

Cigarette smoking does not cause lung cancer

In the preponderance of cases, the defence argued that there is no proof that cigarette smoking *causes* lung cancer. While defendants did acknowledge that cigarette smoking is statistically associated with lung cancer, they contended that this evidence does not establish causality. Witnesses for the defence further claimed that documentation of carcinogenicity in a laboratory does not prove carcinogenicity in humans, and that animal models that generalise to humans are still needed. Arthur Furst, a toxicologist, argued this point in 1988 in his testimony in *Cipollone v. Liggett*:¹⁹

"Proof in a scientific way requires a number of disciplines getting together. You have to have good epidemiology which comes to the conclusion that we have an association.... [T]hen you have to have animal experiments and as I point out, you have to have valid animal experiments to be sure that the substance under consideration by the epidemiologist is the same substance that will produce a kind of cancer that the human has and when the two come together, then we have proof."

In *Henley v. Philip Morris*, the attorney for defendant Philip Morris, William Ohlemeyer, questioned at length the causal connection between smoking and cancer in his closing statement²⁰ on 3 February 1999 (eight months before the company's October 1999 admission that "there is an overwhelming medical and scientific consensus that cigarette smoking causes lung cancer"):

"Plaintiff's exhibit 21-10 is another article by [Sir Richard] Doll and [A. Bradford] Hill where they talk about the association, the statistical relationship between smoking and cancer. And they say:

'Authors have shown that there is an association but they've differed in their interpretation. Some have considered that the only reasonable explanation is that smoking is a factor in producing disease. Others have not been prepared to deduce causation and have left the association unexplained.'

"So even in 1954, Doll and Hill are pointing out that reasonable people, distinguished authorities haven't jumped to the conclusion or formed a judgment yet that just because these statistics associate smoking and cancer, that it must be a cause of cancer....

"Plaintiff's exhibit 21-14, the Surgeon General of the United States in 1959 points out that: 'Many people are investigating the relationship between smoking and health.' And he points out some of the evidence that contradicts the idea that smoking causes cancer. And he points out the fact that [Joseph] Berkson, who was at the Mayo Clinic, 'doesn't agree with the statistics.' He points out that:

'There is a theory or a hypothesis that deals with people's personalities. The same thing that causes people to smoke may predispose them to lung cancer.'

Table 1 Arguments used by defendants in individual personal injury cases*

Case name	Argument								
	Outcome†	Year‡	No causality§	Not lung cancer¶	Type of lung cancer**	Not tobacco products††	Not defendant's brand‡‡	Other risk factors§§	Free will¶¶
Green v. American Tobacco Co	Loss	1964***	X	X					
Morse v. US Tobacco (smokeless tobacco)	Loss	1986	X		X	X			
Cipollone v. Liggett Group Inc	Withdrawn†††	1988	X		X				X
Horton v. American Tobacco Co	Loss	1990	X		X				
Ierardi v. Lorillard Tobacco Co	Loss	1991					X		
Kueper v. RJ Reynolds Tobacco	Loss	1993	X		X				X
Allgood v. RJ Reynolds Tobacco	Loss	1996	X					X	X
Carter v. Brown & Williamson (American Tobacco Co)	Win	1996	X		X				X
Wilks v. American Tobacco Co	Loss	1996		X					X
Karbiwnyk v. RJ Reynolds Tobacco	Loss	1997	X						X
Raulerson (Connor) v. RJ Reynolds	Loss	1997	X	X					X
Widdick (Maddox) v. Brown & Williamson	Dismissed‡‡‡	1998							X
Gilboy v. American Tobacco Co	Loss	1999	X		X				X
Henley v. Philip Morris Inc	Win	1999	X	X					X
Lacy v. Lorillard Inc	Loss	1999			X		X	X	
Newcomb v. RJ Reynolds Tobacco§§§	Loss	1999	X	X				X	
Steele v. Brown & Williamson	Loss	1999	X					X	X
Williams v. Philip Morris Inc	Win (on appeal)	1999			X				X
Whiteley v. Raybestos-Manhattan Inc	Remanded¶¶¶	2000	X					X	X
Boeken v. Philip Morris Inc	Win	2001			X				X
Grinnell v. American Tobacco Co	Loss	2001	X						
Kenyon v. RJ Reynolds Tobacco Co	Win (on appeal)	2001	X						X
LaBelle v. Philip Morris Inc	Dismissed	2001	X						X
Little v. Brown & Williamson	Loss	2001	X						
Mehlman v. Philip Morris Inc	Loss	2001	X		X	X		X	
Tompkin v. American Brands Inc	Loss	2001				X		X	X
Bullock v. Philip Morris Inc	Win (on appeal)	2002							X
McMullin v. US Tobacco (smokeless tobacco)	Settled	2002	X						X
Schwarz v. Philip Morris Inc	Win (on appeal)	2002			X				X
Tune v. Philip Morris Inc	Loss	2002			X			X	
Allen v. RJ Reynolds Tobacco Co.	Loss	2003		X				X	X
Boerner v. Brown & Williamson	Win (on appeal)	2003			X				X
Lucier v. Philip Morris Inc, et al	Loss	2003	X	X					X
Reller v. Philip Morris Inc	Loss	2003			X			X	X

*In some cases, categories may be unchecked not necessarily because the argument wasn't used, but because not all transcripts were available in DATTA.

†From the standpoint of the plaintiff.

‡Year of initial verdict, settlement, or dismissal.

§There is no scientific proof that cigarette smoking causes lung cancer.

¶The plaintiff did not have lung cancer or the cancer in the lung was a metastasis (spread) from a cancer originating in another site in the body.

**The plaintiff had lung cancer but not a type associated with cigarette smoking.

††The plaintiff had cancer that may have been associated with tobacco use, but tobacco products not responsible in this particular case (for example, short duration of use).

‡‡The plaintiff had cancer that may have been associated with cigarette smoking, but the defendant's brands were not responsible.

§§The plaintiff had other risk factors (for example, asbestos exposure, marijuana smoking).

¶¶¶The plaintiff was aware of health risks associated with smoking, and exercised free will in choosing to smoke and declining to quit.

***This case went to trial on two separate occasions, ending in verdicts for the defence in August 1960 and November 1964.

†††Initial verdict for plaintiff overturned by the Third Circuit Appeals court; appealed to the US Supreme Court, which ordered a new trial; plaintiffs dropped case.

‡‡‡While ultimately dismissed, the initial verdict was for the plaintiff (awarding \$552 249 in compensatory damages and \$450 000 in punitive damages).

§§§Newcomb case was consolidated with the Karney, Settle, and McDaniel case.

¶¶¶Initial verdict for the plaintiff (awarding \$1.72 million in compensatory damages and \$20 million in punitive damages) overturned in March 2000; reversed and remanded to the trial court for a new trial, by a California appellate court in April 2004, based on improper jury instructions.

"He says that: 'Animal experiments on inhalation of cigarette smoke have failed to produce a single cancer similar to the most prevalent type of lung cancer in humans.'

"He talks about genetic factors, talks about the fact that air pollution is suspected of being a cause of cancer, and the fact that cancer occurs in nonsmokers and the absence of experimental data....

"In fact, the issue of statistics is something that the Surgeon General has dealt with repeatedly. In 1964, in 1975 and in 1985—and those are all Defense exhibits 2828-A, B and G—the Surgeon General points out that 'statistics can't prove that something causes something else'....

"What the Surgeon General said in 1959 in Plaintiff's exhibit 21-14 is—what the Surgeon General has said is still the evidence even today."

Consistent with RJ Reynolds' less-than-complete admission, as early as August 2002, that cigarette smoking "has significant and inherent health risks for a number of serious diseases, and *may* contribute to causing these diseases in some individuals" (emphasis added; see above), David Townsend, an RJR chemist, testified in January 2003²¹ that:

"My testimony and opinion is very clear. Cigarette smoking is a strong inherent risk. There's no question about that. And it may cause it. All I am saying is from a rigorous scientific point of view we have strong epidemiology; we have some laboratory studies that are consistent with that epidemiology, in vitro, or in test tube studies, we have one animal study that is consistent; we don't have an inhalation model, so that's missing; we don't have a

mechanism, so that's missing; so the rigorous scientific proof of causation is not complete."

The plaintiff did not have lung cancer

As shown in table 2, defendants have frequently denied that the plaintiffs actually had lung cancer. Several alternative types of cancer have been put forth. In *Allen v. RJ Reynolds*, Michael Manyak, a radiologist, testified in 2003²² that:

"It is my opinion that Mr. Allen died of metastatic renal cell cancer, so it was a cancer that arose in the kidney primarily and he did not die of a lung cancer. Secondly, I believe on the basis of the information [I reviewed] that smoking did not cause this cancer."

Thymus cancer was argued in the *Henley* case (see below) and pretracheal cancer was claimed in *Lucier v. Philip Morris et al.* In several other cases (*Green v. American Tobacco Co*, *Newcomb v. RJ Reynolds Tobacco Co*, *Raulerson [Connor] v. RJ Reynolds Tobacco Co*), doubt was cast on whether lung cancer was the plaintiff's primary cancer by pointing out that autopsies or other definitive tests were not conducted. For example, Richard Thomas, a toxicologist and epidemiologist, testified in *Newcomb v. RJ Reynolds*²³ that:

"Without the autopsy, we often don't know what the actual cause of the disease is. And, in fact, we may not even have the correct diagnosis of the disease.... Part of the reason for an autopsy, especially in a person who's had cancer, is it tells us where the primary site of the cancer was, whether it was in the lung or some other organ."

The plaintiff had "weird cell carcinoma" of the lung

In those cases where the defendants acknowledged (or did not dispute) that the plaintiff had lung cancer, they frequently argued that the plaintiff had a type of lung cancer that was alleged not to be associated with cigarette smoking—which some plaintiff's attorneys refer to as the "weird cell carcinoma" defence.²⁴⁻²⁵ As shown in table 3, several defendants contended that the plaintiff had bronchioloalveolar carcinoma (BAC) (*Boeken v. Philip Morris*, *Boerner v. Brown & Williamson*, *Tune v. Philip Morris*). Although evidence exists relating BAC to cigarette smoking,²⁶⁻²⁸ the percentage of patients with BAC who are ever-smokers is somewhat lower than for other histologic types of lung cancer, and cigarette company defendants often argue that it is wholly unrelated to cigarette smoking.

The defendants have argued in two cases that the plaintiff had a peripheral adenocarcinoma (*Carter v. Brown &*

Table 2 Cases where the defendant claimed that the plaintiff did not have lung cancer

Case name	Not lung cancer	Outcome (plaintiff)
<i>Allen v. RJ Reynolds Tobacco Co</i>	Renal cancer	Loss
<i>Green v. American Tobacco Co</i>	Not clear that lung was primary site	Loss
<i>Henley v. Philip Morris Inc</i>	Thymus cancer	Win
<i>Lucier v. Philip Morris Inc</i>	Pretracheal tumour	Loss
<i>Newcomb v. RJ Reynolds Tobacco Co</i>	Not clear that lung was primary site (no autopsy)	Loss
<i>Raulerson (Connor) v. RJ Reynolds Tobacco Co</i>	Not clear that lung was primary site	Loss

Table 3 Cases where the defendant argued that the plaintiff had a type of cancer that is not associated with cigarette smoking (or smokeless tobacco)

Case name	Type of cancer	Outcome (plaintiff)
<i>Boeken v. Philip Morris Inc</i>	BAC	Win
<i>Boerner v. Brown & Williamson</i>	BAC	Win (on appeal)
<i>Carter v. Brown & Williamson [American Tobacco Co]</i>	Peripheral adenocarcinoma	Win
<i>Cipollone v. Liggett Group Inc</i>	Atypical carcinoid (neuroendocrine carcinoma)	Withdrawn
<i>Horton v. American Tobacco Co</i>	Undifferentiated carcinoma of bizarre, giant multinucleated cell variation	Loss
<i>Kueper v. RJ Reynolds Tobacco Co</i>	Peripheral adenocarcinoma	Loss
<i>Marsee v. US Tobacco</i>	Poorly differentiated and invasive tongue cancer	Loss
<i>Reller v. Philip Morris Inc</i>	Pseudomesotheliomatous adenocarcinoma	Loss
<i>Tune v. Philip Morris Inc</i>	BAC (and also had throat cancer)	Loss
<i>Williams v. Philip Morris Inc</i>	Mucoepidermoid carcinoma	Win (on appeal)

BAC, bronchioloalveolar carcinoma.

Williamson [American Tobacco Co], *Kueper v. RJ Reynolds Tobacco*). In *Horton v. American Tobacco Co*, the defence argued that the plaintiff had undifferentiated carcinoma of the bizarre, giant multinucleated cell variation, a type not associated with cigarette smoking.²⁹ In another case (*Reller v. Philip Morris*), the defence claimed that the plaintiff's cancer was pseudomesotheliomatous adenocarcinoma, which they attributed to asbestos exposure. This cancer is characterised by diffuse metastases invading the pleura, which usually originate in a peripheral lung adenocarcinoma. Dessy and Pietra reported that pseudomesotheliomatous adenocarcinoma is morphologically similar to peripheral lung adenocarcinoma, and should thus be considered "a distinct variant of peripheral lung carcinoma".³⁰ Koss *et al* conclude that pseudomesotheliomatous adenocarcinomas "mimic pleural mesothelioma" in their clinical, gross, and microscopic appearance and in their prognosis.³¹ However this cancer is classified, experts agree that it is a rare condition and indeed pseudomesotheliomatous carcinoma is featured on the raretumours.org website.³²

Tobacco products were not responsible in this case

As indicated in table 4, in a few cases tobacco manufacturers called into question whether tobacco products were responsible for the plaintiff's condition, even if general causation was accepted. They argued this in multiple ways including assertions that the plaintiff did not use cigarettes for a sufficient length of time to cause harm (*Tompkin v. American Brands Inc*), and that the plaintiff had quit smoking at least 20 years ago, so that the plaintiff's risk for lung cancer would have returned to that of a never-smoker (*Mehlman v. Philip Morris*, *Tompkin v. American Brands Inc*). *United States Tobacco Co* (now the *US Smokeless Tobacco Company*) argued that the plaintiff's use of snuff did not coincide with the location of his tongue cancer (*Marsee v. United States Tobacco*).

Our brand was not responsible

As indicated in table 5, tobacco manufacturers have disputed whether their particular brand of cigarettes was responsible for the plaintiff's condition. Two of these cases involved the

Table 4 Cases where the defendant argued cigarettes (or smokeless tobacco) were not responsible for plaintiff's cancer

Case Name	Not defendant's product	Outcome (plaintiff)
Marsee v. US Tobacco	Young age, short duration of use, snuff use did not coincide with location of oral cancer	Loss
Mehlman v. Philip Morris Inc	Had stopped smoking at least 20 years ago	Loss
Tompkin v. American Brands Inc	Did not smoke heavily or for extended time. Had stopped smoking 27 years ago	Loss

Kent Micronite filter (Ierardi v. Lorillard, Lacy v. Lorillard). The initial version of the Micronite filter in Kent cigarettes used crocidolite asbestos as the filtering agent from 1952 until at least mid-1956.³³ An estimated 585 million packs were sold in the United States using this design, with advertising that emphasised the “health protection” allegedly provided by the filter. In these cases the defence argued that the use of asbestos in Kent cigarette filters occurred only for a four-year period and this was nearly 40 years ago.

The plaintiff had other risk factors

As shown in table 6, tobacco manufacturers have pointed out that the plaintiffs had other risk factors. Occupational exposures to asbestos, solvents, silica, hay, and radiation were cited in several cases (Allgood v. RJ Reynolds Tobacco, Lacy v. Lorillard, Newcomb v. RJ Reynolds Tobacco, Reller v. Philip Morris, Steele v. Brown & Williamson, Tompkin v. American Brands Inc). Other purported risk factors raised by the defendants in these cases include diabetes, hypertension, diet, radon, tuberculosis, heredity, and alcohol. Many of the defendants criticised the epidemiologic formula used to calculate the number of deaths attributable to cigarette smoking because it does not, they claimed, take into consideration other risk factors.

In Whiteley v. Raybestos-Manhattan Inc., the plaintiff's occasional marijuana smoking many years before her lung cancer diagnosis was cited as a major confounding variable. A physician testifying for the defence in this case pointed out that marijuana smoke contains a 50% higher concentration of benzopyrene than unfiltered cigarettes, and that it is smoked in larger and deeper puffs than cigarettes.³⁴ Counterbalancing that testimony, one of us (RD) told the jury, as an expert witness for the plaintiff, that Leslie Whiteley's lifetime smoking history included an estimated 2.43 million puffs of tobacco smoke over about 26 years, versus an estimated 250 puffs of marijuana smoke over about 13 years.³⁵

Table 5 Cases where the defendant argued that their brand of cigarettes was not responsible for plaintiff's cancer

Case name	Not defendant's product	Outcome (plaintiff)
Ierardi v. Lorillard Tobacco Co	Use of asbestos in Kent Micronite filter only took place over a four-year period and that was over 40 years ago	Loss
Lacy v. Lorillard Tobacco Co	Use of asbestos in Kent Micronite filter only took place over a four-year period and that was over 40 years ago	Loss

Table 6 Cases where the defendant argued that the plaintiff had other risk factors

Case name	Other risk factors	Outcome (plaintiff)
Allen v. RJ Reynolds Tobacco Co	Obesity, diabetes, vascular disease	Loss
Allgood v. RJ Reynolds Tobacco Co	Tex-Mex food, alcohol, work exposures (hydrocarbons, benzene, xylene, toluene, strong acids and bases)	Loss
Lacy v. Lorillard Inc	Occupational exposure to asbestos	Loss
Kenyon v. RJ Reynolds Tobacco	Multifactorial	Win (on appeal)
Mehlman v. Philip Morris Inc	Heredity, depression	Loss
Newcomb v. RJ Reynolds Tobacco	Diesel exhaust fumes	Loss
Reller v. Philip Morris Inc	Asbestos	Loss
Schwarz v. Philip Morris Inc	Over half of women who get sick with adenocarcinoma do not smoke	Win (on appeal)
Steele v. Brown & Williamson	Chromium compounds, silica, hay dust, coal tar products	Loss
Tompkin v. American Brands Inc	Asbestos	Loss
Tune v. Philip Morris Inc	Oesophageal reflux and drinking (caused the throat cancer)	Loss
Whiteley v. Raybestos-Manhattan	Marijuana, family history, alcohol	Remanded

Common knowledge, free will, peer pressure, etc

The six themes presented so far in this paper include arguments that challenge the diagnosis of the plaintiff's disease or the link between that disease and the defendant's tobacco products. In addition to this approach—which is based on the biology of disease causation—tobacco company defendants have marshalled many other arguments in tobacco litigation to exonerate themselves and to blame the plaintiffs for the fate that had befallen them. Many tobacco manufacturers argued that the plaintiffs had free will as to whether they started smoking and whether they quit smoking. In nearly all cases, the defendants argued that the plaintiffs (along with the general public) had long been fully aware of the health risks of cigarettes. In many cases, the defence witnesses and attorneys referred to common slang expressions—such as “coffin nails” and “cancer sticks”—that have been used to describe cigarettes. They argued that smoking is an adult choice and cigarettes are a legal product. One defence attorney stated in his opening remarks: “cigarettes, like motorcycles, microwave ovens and other products in our free society have risks associated with them. These risks are well known and they've been common knowledge for many years.”³⁶ (This argument regarding common knowledge is dealt with in more detail in another article in this supplement.³⁷)

As can be seen in the appendix, and as discussed in detail in another paper,³⁸ numerous defence experts testified that most people start smoking because of peer pressure or because their family members smoke, not because they were influenced by the tobacco companies' advertising. Many defence witnesses stated that the tobacco companies do not market or advertise their products to anyone under the age of 21. Several expert witnesses testified for the defence that nicotine is not addictive and that most people can quit smoking if they are motivated to do so. They reported that cigarettes, unlike hard drugs, are not intoxicating and withdrawal symptoms are mild. They claimed further that

nicotine does not impair human judgment or decision-making, and that people smoke for relaxation, taste, and enjoyment, not because they are addicted.

Multiplicity of arguments

As can be seen in tables 1–6, in nearly every one of the 34 personal injury cases presented, the tobacco manufacturers used at least two arguments, and in many instances, several arguments, to defend their products. An example of a defendant's successful use of multiple arguments can be seen in the opening statement from *Reller v. Philip Morris*.³⁹ In that instance, the defence attorney advised the jury that the case should be decided based on the evidence and not because of any sympathy felt for Mr Reller and his family. He asserted that the plaintiff was diagnosed with a type of cancer caused only by asbestos. Moreover, even if the plaintiffs proved that Mr Reller's cancer was caused by smoking, the question became whether Philip Morris had done anything to cause Mr Reller to smoke. The Philip Morris attorney noted that Mr Reller had testified in his deposition that he could not recall specific statements made by Philip Morris. The plaintiff also had stated that he started smoking because his friends smoked. In addition, the plaintiff had testified that he became addicted when smoking Pall Mall, which is not a Philip Morris brand. The attorney further argued that the plaintiff's own experts had acknowledged that the plaintiff could have quit smoking, which he in fact did after becoming sick.

Trends in arguments over time

Once the transcripts were reviewed and the themes were assigned, the cases in table 1 were sorted by the year of initial verdict, settlement, or dismissal, in order to assess whether there were any trends in the arguments made by the tobacco manufacturers over time. In order to evaluate this question, the cases were examined over three time periods: (1) 1996 and earlier (before tobacco company admissions that smoking is causally related to disease); (2) 1997–2002 (the period during which most of the tobacco company admissions on causality began and evolved); and (3) 2003 (by which time most of the tobacco manufacturers had already made public admissions of causality).

We found a decrease in the use of the “no causality” argument over time. As can be seen in table 7, this argument was used in 89% of the cases before 1997, 65% of cases during the period 1997–2002, and 25% in 2003. Correspondingly, there was an increase over time in the use of the “other risk factors” argument (from 11% during the first period, to 33% and 50% in the next two periods, respectively) and the “free will” argument (56%, 71%, and 100% in the first, second, and third periods, respectively).

DISCUSSION

The evidence that cigarette smoking causes lung cancer and other diseases is indisputable.³ Moreover, in the late 1990s and the early part of this decade, the major cigarette manufacturers admitted, to varying degrees, that smoking

is harmful to health, and they advised that people should rely on messages from public health authorities in making decisions on smoking and health. Despite these admissions, tobacco manufacturers have consistently argued in tobacco litigation that they are not responsible for any individual plaintiff's illness or death. The cigarette companies, through their admissions and arguments, seem to be saying, “Yes, smoking causes lung cancer, but not in people who sue us”.

In fact, some of the manufacturers' admissions seem to have been written so as to rationalise this dichotomy. For example, on RJR's website in 2002,⁴⁰ the company stated:

“Epidemiological studies (population studies comparing the incidence of disease between groups of smokers and groups of nonsmokers) have led the U.S. Surgeon General to conclude:

- Smokers have almost twice the risk of having coronary heart disease as non-smokers.
- Smokers' risk of getting lung cancer is approximately 14 times that of non-smokers.
- Smokers' risk for chronic obstructive pulmonary disease is approximately 10 times that of non-smokers.”

However, consistent with the company's litigation defence strategy, that RJR text continued with a significant caveat: “While these studies do indicate that smokers as a group are at higher risk, they do not predict the likelihood of any individual smoker getting lung cancer, heart disease or any other condition that has been linked to smoking. An individual's risk for contracting a smoking-related disease is based on many factors in addition to smoking.”⁴⁰ (Interestingly, that caveat no longer appears on a similar page on RJR's current website.⁴¹)

Similarly, a statement on B&W's website, under the heading “Smoking and Disease”,¹³ found a way to accept general causality while rejecting individual causality:

“In our view, it is appropriate to make judgments about the health effects of smoking primarily upon statistical evidence when the objective of the assessment is to shape public policy concerning tobacco use. Epidemiological (statistical) studies of cigarette smoking and various diseases show that groups of smokers have a significantly increased incidence of those diseases compared to nonsmokers.... [F]or certain diseases, including lung cancer, studies in the U.S. and elsewhere indicate that the risks are strong and consistent. This suggests that smoking is a cause of (or a contributor to) disease in humans. However, we know of no way to verify that *smoking is a cause of any particular person's adverse health* or why smoking may have adverse health effects on some people and not others.” [emphasis added]

The findings from this study reveal seven main arguments that tobacco companies have used to defend their products in personal injury lawsuits. Within each case, several different arguments were applied again and again by a variety of expert witnesses, including physicians, epidemiologists, statisticians, professors, and historians. This “throwing mud at the wall and hoping some of it will stick” approach—a defence tactic not necessarily unique to tobacco companies—appears to have been intended to cast doubt among the jurors. These arguments were often organised in a cascading fashion—for example, the plaintiff did not have lung cancer; but if he did, it was not caused by our cigarettes; but if it was, he knew smoking was hazardous and made no serious effort to quit. This defence strategy, as employed in

Table 7 Trends in defence arguments over time

Defence argument	Time period*		
	1996 and earlier (9 cases)	1997–2002 (21 cases)	2003 (4 cases)
No causality	89% (8)	65% (13)	25% (1)
Other risk factors	11% (1)	33% (9)	50% (2)
Free will	56% (5)	71% (15)	100% (4)

*Number of cases shown in parentheses.

the Ierardi (Kent Micronite filter) case, was described succinctly in an internal B&W memorandum:

“David Hardy of Shook, Hardy & Bacon presented Lorillard’s opening. He put the use of asbestos in the context of the early 1950’s and outlined Lorillard’s defense. Plaintiff did not smoke KENT when the filter contained asbestos; even if he did, the asbestos did not escape from the filter; and even if it did, the quantity was not sufficient to account for Mr. Ierardi’s cancer.”⁴²

Has this defence strategy been successful? Results have been mixed. In 11 (32%) of the 34 cases we studied, plaintiffs won an initial verdict at the trial-court level (table 1). Elsewhere in this supplement, Douglas *et al* report that plaintiffs won 41% of the cases that were tried to verdict during the years 1995–2005.⁴³ In other words, when tobacco lawsuits go to trial, tobacco company defendants lose about a third of the cases. Many juries presumably see through the mud. The tobacco companies’ greater success seems to be in discouraging plaintiffs and plaintiffs’ attorneys from filing cases, in keeping most cases from getting to trial,⁴³ and in fighting its initial losses with endless appeals.

Some of the mud is relatively easy to clean away. For example, in the Henley case (as noted above), the defendant (Philip Morris) and several of its expert witnesses claimed that the plaintiff had cancer of the thymus, rather than lung cancer.^{20 44–46} Counterbalancing that argument, one of us (RD) provided expert-witness testimony for the plaintiff, indicating that thymic cancer accounted for no more than a few hundred of the 272 000 cancer deaths projected to occur among women in the United States in 1999 (versus 68 000 for lung cancer). A similar disparity occurred in the incidence (number of new cases) of lung and thymic cancers.⁴⁷ Another expert witness testifying for the plaintiff, Allan Feingold, informed the jury:

“Thymic cancers are extremely rare. There have been several attempts in the medical literature to consider this topic as a curiosity. In a period of 75 years at one famous medical institution, 20 cases were seen in the whole 75 years, of which in that particular group of 20 patients, four of those in 75 years were thought to be small cell thymic cancer. So what we’re talking about is one of the rarest of all described cancers ever in the history of mankind.”⁴⁸

On 9–10 February 1999, the jury awarded \$1.5 million in compensatory damages and \$50 million in punitive damages to the plaintiff, Patricia Henley⁴⁹—an award later reduced to \$10.5 million (including \$9 million in punitive damages) but upheld on appeal.⁴³

Even though many of the defendants’ arguments may seem easy to rebut, they may still succeed in convincing juries to render a verdict for the defence. Firstly, when the defendants proffer a half dozen or so arguments, they may only need to convince the jury of the validity of one of the arguments in order to achieve a verdict for the defence. Secondly, the proportion of jurors needed to reach a verdict in civil lawsuits is three-fourths, five-sixths, or 100% in most jurisdictions,⁵⁰ so only a small number of jurors need to hold out for the defence in order for it to win the case (the size of juries in civil lawsuits ranges from 6 to 12). Thirdly, defendants are usually able to find expert witnesses with seemingly impressive credentials to articulate their claims. Jurors rarely have expertise in the technical aspects of these cases, and thus they can be swayed by dubious “expert” testimony. The presentation of conflicting testimony on

What this paper adds

A substantial body of literature has shown that cigarette smoking causes lung cancer, other cancers, heart disease, stroke, chronic obstructive pulmonary disease, and many other illnesses. Despite this large volume of evidence, it has only been in recent years that tobacco manufacturers have admitted, to varying degrees, that smoking causes lung cancer and other diseases.

This study constitutes the first analysis published in the scientific literature of personal injury cases brought against the major US tobacco manufacturers. It provides an overview of the history of public admissions made by tobacco companies in regards to the adverse health effects of tobacco use. Using data drawn from the Tobacco Deposition and Trial Testimony Archive (DATTA), the study analyses the arguments presented by tobacco company defendants about whether their products caused cancer in plaintiffs who filed lawsuits against their companies. The types and frequency of arguments are presented along with an examination of trends in the use of these arguments over time.

technical matters from competing expert witnesses can create confusion among jurors, thereby increasing the likelihood of a verdict for the defence. As noted in a 1969 B&W document, “Doubt is our product, since it is the best means of competing with the ‘body of fact’ [linking smoking with disease] that exists in the mind of the general public.”^{51 52}

The findings from this study must be interpreted in the context of its methodological limitations. While a considerable volume of documents were available from the 34 personal injury cases included in our study, it is likely that other cases exist that have not yet been added to DATTA, and were therefore not included in this analysis. Furthermore, for many of the cases in DATTA, it is unlikely that a complete collection of transcripts was available. Moreover, it is possible that some of the defence arguments gleaned from depositions were never actually employed in trial testimony or in the defendants’ opening and closing statements. In addition, the analysis of trends in arguments used by the defence was limited by the relatively small number of cases in two of the three time periods.

Despite these limitations, the data presented in this manuscript are derived from copious verbatim testimony that was delivered under oath. A clear defence strategy emerged across the 34 cases included in our study—namely, the use of multiple witnesses to present myriad arguments to absolve the defendant of guilt. Given this consistent pattern of argument by the defence, we believe a more complete examination of transcripts and other legal documents from the 34 cases included in our study—and those from similar cases not included in our study—would likely strengthen our findings.

A large number of documents have been added to the DATTA collection during the past five years, and additional transcripts are being collected and entered into the database to keep it up-to-date. As this archive grows, researchers should continue to assess whether the tobacco companies maintain their inviolate record of denying culpability for causing premature death and disease in smokers who sue them.

Now that tobacco companies have admitted that smoking is harmful to health, will they ever admit responsibility for causing death or disease in a specific plaintiff? Given the huge pool of potential plaintiffs who might sue cigarette manufacturers, it seems unlikely that they would do so under current circumstances.

How might circumstances change? In a 2002 ruling, Federal District Court Judge Jack Weinstein of the Eastern District of New York ordered the consolidation of all potential punitive damages claims of smokers into a single, nationwide class action (referred to as the "Simon II" plan). However, that order was overturned in May 2005 by the US Court of Appeals for the Second Circuit—a decision supported by both the tobacco industry and tobacco control advocates.^{53 54}

The federal government could create a new national system to compensate injured smokers, as it has done for persons with black lung disease (pneumoconiosis)⁵⁵ and vaccine-related injuries.⁵⁶ In those two programmes, compensation to injured parties is financed by taxes paid by coal operators and vaccine excise taxes, respectively. A "tobacco injury compensation programme" would presumably substitute for traditional tort approaches that seek compensation and damages. Currently there is no serious consideration of this idea in Washington, DC, but the US Department of Justice's civil lawsuit against the tobacco industry creates the possibility of sweeping change in tobacco control policy through court order or settlement.⁴³ In February 2006 the US Senate narrowly rejected legislation that would create an asbestos injury compensation programme, which would be financed from payments by asbestos companies and their insurers, who in turn would receive protection from future liability.⁵⁷

A more radical development that would invariably affect litigation claims would be a restructuring of the tobacco industry. Callard and colleagues, for example, have proposed that the tobacco market be transformed by shifting the sale of tobacco products from for-profit corporations to non-profit enterprises with a public health mandate.⁵⁸

Major change in the legal or legislative climate affecting tobacco companies is unlikely to occur in the foreseeable future unless they suffer a significant adverse ruling in a high-stakes lawsuit such as the Engle case or the Department of Justice's lawsuit.⁴³ In the absence of such change, personal injury lawsuits will probably continue to follow the muddled pattern described in this paper.

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More detailed information on the 162 transcripts that most clearly illuminated the themes listed in table 1 can be found in the appendix, which is available on the Tobacco Control website—<http://www.tobaccocontrol.com/supplemental>

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