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Science for Sale

Ford spent \$40 million to reshape asbestos science

Stung by lawsuits, the automaker hired consultants to change the narrative on the risks of asbestos brakes

By Jim Morris [✉ email](#) 5:00 am, February 16, 2016 [📄](#) [🔍](#) [🔒](#) [🔗](#)



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In 2001, toxicologist Dennis Paustenbach got a phone call from a lawyer for Ford Motor Company.

The lawyer, Darrell Grams, explained that Ford had been losing lawsuits filed by former auto mechanics alleging asbestos in brakes had given them mesothelioma, an aggressive cancer virtually always tied to asbestos exposure. Grams asked Paustenbach, then a vice president with the consulting firm Exponent, if he had any interest in studying the disease's possible association with brake

About 'Science for Sale'

Science and opinion have become increasingly conflated, in large part because of corporate influence. As we explain in "Science for Sale," an investigative series by the Center for Public Integrity and co-published with Vice.com, industry-backed research has exploded -- often with the aim of

work. A meeting cemented the deal.

obscuring the truth — as government-funded science dwindles. [Read more](#)

Paustenbach, a prolific author of scientific papers who'd worked with Grams on Dow Corning's defense against silicone breast-implant illness claims, had barely looked at asbestos to that point. "I really started to get serious about studying asbestos after I met Mr. Grams, that's for sure," Paustenbach testified in a sworn deposition in June 2015. Before that, he said, the topic "wasn't that interesting to me."

Thus began a relationship that, according to recent depositions, has enriched Exponent by \$18.2 million and brought another \$21 million to Cardno ChemRisk, a similar firm Paustenbach founded in 1985, left and restarted in 2003. All told, testimony shows, Ford has spent nearly \$40 million funding journal articles and expert testimony concluding there is no evidence brake mechanics are at increased risk of developing mesothelioma. This finding, repeated countless times in courtrooms and law offices over the past 15 years, is an attempt at scientific misdirection aimed at extricating Ford from lawsuits, critics say.

"They've published a lot, but they've really produced no new science," said John Dement, a professor in Duke University's Division of Occupational and Environmental Medicine and an asbestos researcher for more than four decades. "Fifteen years ago, I thought the issue of asbestos risk assessment was pretty much defined. All they've accomplished is to try to generate doubt where, really, little doubt existed."

The glut of corporate-financed science has yielded mixed results. Exponent had a role in jury trials won by Ford in St. Louis and Pittsburgh last year, for example, and in a trial Ford lost in Tennessee. Judges have noted the infusion of controversy into a subject that for many years was not controversial in the least. A veteran asbestos judge in Wayne County, Michigan, wrote in an opinion that he'd never encountered the argument that "the science was not there" on mesothelioma and brakes until he heard a case involving an Exponent witness.

The discord over brakes bankrolled by Ford "has, in certain cases, tipped the scales for the defendants with juries," said plaintiffs' lawyer Jon Ruckdeschel. "More frequently, it has been used by industry lawyers to increase the costs and burdens on the courts and sick mechanics by creating a tidal wave of pre-trial litigation regarding the 'science.' "

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A troubling history

Over the past decade 109 physicians, scientists and academics from 17 countries have signed legal briefs affirming that asbestos in brakes can cause mesothelioma. The World Health Organization and other research and regulatory bodies maintain that there is no safe exposure level for asbestos and that all forms of the mineral — including the most common one, chrysotile, found in brakes — can produce mesothelioma.

Worries about brakes as a source of disease go back decades. A 1971 Ford memo shows that while the company didn't believe brake dust unleashed by mechanics contained significant amounts of asbestos, it already was exploring alternatives to asbestos brake linings. One of them, made of metal and carbon, performed well, the memo says, "but the cost penalty is severe (\$1.25/car just for front-end brakes)."

A Ford spokeswoman declined to comment for this article. In its 2014 annual report, the company said, "Most of the asbestos litigation we face involves individuals who claim to have worked on the brakes of our vehicles over the years. We are prepared to defend these cases, and believe that the scientific evidence confirms our long-standing position that there is no increased risk of asbestos-related disease as a result of exposure to the type of asbestos formerly used in the brakes on our vehicles." Ford announced recently that it earned a record pretax profit of \$10.5 billion in 2015.

A written statement to the Center for Public Integrity delivered on behalf of Paustenbach by a public-relations firm says, "Dennis was viewed as one of the leading risk assessment experts in the country, and was contacted by Ford because of his experience and expertise in this field. ... As Dennis and others learned more about brake dust, it was clear that while there was considerable data on the subject, the scientific information had never been synthesized and analyzed."

His conclusion after reviewing the scientific literature, according to the statement: "There is no credible study that has shown an increased risk of disease in auto mechanics."

An Exponent vice president declined to comment. On its website, the 49-year-old firm, originally known as Failure Analysis Associates, says, "We evaluate complex human health and environmental issues to find cost-effective solutions. ... By introducing a new way of thinking about an existing



Dennis Paustenbach

situation, we assist clients to overcome seemingly insurmountable obstacles.”

A Center review of abstracts on the National Institutes of Health’s PubMed website turned up 10 articles on asbestos brakes co-authored by scientists affiliated with Exponent or Cardno ChemRisk since 2003. (The latter was known simply as ChemRisk until it was acquired by Brisbane, Australia-based Cardno in 2012). None of the articles reported an elevated risk of mesothelioma among vehicle mechanics.

Many physicians and scientists say, however, that these papers muddy the waters by drawing overly broad conclusions from earlier studies of workers who might have had no contact with asbestos brakes. “In the asbestos area the whole literature has been so warped by publications just supporting litigation,” said Dement, of Duke. “It has a real negative impact on pushing the science forward.” Dement said he has, on rare occasions, consulted for plaintiffs in the past 10 or 15 years, earmarking nearly all fees for the university.

In a 2007 article, two researchers at George Washington University — one of whom, David Michaels, now heads the U.S. Occupational Safety and Health Administration — reported finding six “litigation-generated” papers on asbestos and auto mechanics published from 1997 through 2001. In the ensuing five years, 20 such papers were published. All told, 18 of the 26 papers published from 1997 through 2006 were “written by experts primarily associated with defendants, while eight were written by experts who work primarily for plaintiffs ... Sponsorship by parties involved in litigation leads to an imbalance in the literature ... whoever is willing to fund more studies will have more studies published.”

Craig Biegel, a retired corporate defense lawyer in Oregon who represented plaintiffs later in his career, did an update of the Michaels paper as part of his doctoral dissertation. Biegel searched the National Library of Medicine’s PubMed website using the words “asbestos” and “brake.” He found 27 articles written from 1998 to 2015 by experts known to work for industry; all, he said, showed either no elevated risk of mesothelioma among mechanics or minimal asbestos exposures.

He found 10 articles written by plaintiffs’ experts; all showed an association between the disease and brake work. And he found 11 articles written by foreign scientists, who, as far as he knew, were not involved in litigation. All but one showed an association or documented high asbestos exposures.

“As far as I’m concerned, both sides in a lawsuit do the same thing: They both

fund research to obtain evidence for trial, not to advance science,” said Biegel, who once defended asbestos property-damage claims for a Fortune 500 company he declined to identify. “The only difference is that defense counsel have almost unlimited industry money and plaintiffs’ counsel do not want to spend their own money.”

Ford’s knowledge of asbestos

There are several ways microscopic asbestos fibers can be sent airborne and enter the human body during brake work. Over time, friction wears down brake linings and pads — many of which contained asbestos prior to the mid-1990s and some of which still do — and they need to be replaced. A mechanic who opened a brake drum would find it filled with fine dust from the decayed lining. The easiest and most common way to clean it out was to use compressed air, a technique that generates grayish, fiber-bearing clouds that can trigger disease years later if the worker is not properly protected. Many weren’t.

Other opportunities for exposure: filing, grinding or sanding brakes, or cleaning up work areas.

Ford wasn’t the only U.S. automaker to use asbestos brakes. General Motors and Chrysler did as well and found themselves in court as a result. Of the so-called Big Three, however, only Ford continues to get hit with mesothelioma lawsuits; GM and Chrysler are immune by virtue of their 2009 bankruptcies. “The extent of our financial exposure to asbestos litigation remains very difficult to estimate,” Ford said in its 2014 annual report. “Annual payout and defense costs may become significant in the future.”

Documents show Ford was mindful of concerns about asbestos brakes by the late 1960s. An unpublished report by an industrial hygienist with Ford of Britain in 1968 said that while brake linings at the time contained between 40 and 60 percent asbestos, field tests indicated dust that collected in brake drums had a low asbestos content because much of the material decomposed after repeated braking. Consequently, he wrote, there was no evidence that blowing out the drums presented a “significant hazard to health.”

The hygienist added, “It would be helpful, however, for clinical examinations to be made of some repair mechanics with long experience of brake cleaning to confirm this view. It would also be desirable to include in Service manuals a general instruction that inhalation of dust during brake cleaning should be minimised.”

A 1970 Ford memo titled “Asbestos Emissions from Brake Lining Wear” included a bibliography of 40 articles on the cancer-causing effects of asbestos, dating to 1954. And the same 1971 memo bemoaning the \$1.25 cost of asbestos-free brakes noted that the state of Illinois was considering banning the use of asbestos in brake linings, beginning with the 1975 model year.

In 1973, Ford began telling its own employees to use “an industrial type vacuum cleaner” to remove dust from brake drums. “Under no circumstances shall compressed air blowoff be used to clean brakes and brake drums,” the company said. It first told its dealers about what it called “a potential health hazard” in 1975.

In a court filing, Ford said it began putting “caution” labels on packages of asbestos-containing brakes and clutches in 1980; many mesothelioma victims who have sued the company say they never saw such labels. In the same document Ford said it began a “complete phase-out of asbestos-containing brake products” in the 1983 model year, starting with its Ranger pickup truck. A decade later, only Ford Mustangs and certain limousines were equipped with asbestos brakes; some asbestos-containing parts for older model-year vehicles were available until 2001 through dealerships and authorized distributors.

That was the year lawyer Grams reached out to toxicologist Paustenbach to gauge his interest in studying mesothelioma in ex-mechanics. “I contacted Dr. Paustenbach because he is one of the leading professional experts in the world,” Grams, who no longer represents Ford, said in a brief phone interview. Grams said he had read none of the recent deposition testimony about the relationship between Ford and its two brake consultants, Cardno ChemRisk and Exponent.

In his curriculum vitae, Paustenbach, president of Cardno ChemRisk, says he is “a board-certified toxicologist and industrial hygienist with nearly 30 years of experience in risk assessment, environmental engineering, ecotoxicology and occupational health.” The 181-page CV shows he has worked on topics ranging from arsenic in wine to heavy metals in hip implants; authored or co-



authored a book, “The Death of the Dole,” and a product of the news conference in Washington, he said, on Oct. 27, 2001, was a legal case, “Asbestos in the Ford Mustang,” which was published in the New Jersey Free Press. The book, “Safety and Health Administration,” proposed that the brake system of the Ford Mustang, a \$20,000 car, be replaced with a “grease and brake” system, which would be “a much safer” system.

authored 271 peer-reviewed articles; and given 440 presentations at conferences. He is regularly retained as a defense expert in asbestos litigation and other toxic-tort cases.

Paustenbach offered a window into his thinking in a 2009 article written by a University of Virginia business professor.

“Without a doubt, a large percentage of environmental and occupational claims are simply bogus, intended only to extract money from those who society believes can afford to ‘share the wealth,’” Paustenbach told his interviewer. He said, “The vast majority of cases that I’ve seen were fraudulent with respect to the scientific merit and billions upon billions of dollars are redistributed annually inappropriately — at least from a scientific standpoint.

“... Nonetheless,” Paustenbach said, “I am a firm believer in the wisdom of juries and support giving generous awards to those that have been truly harmed by bad corporate behavior.”

In a 2010 letter to Dolores Nuñez Studier, a lawyer in the Ford general counsel’s office, Paustenbach claimed his firm’s papers had “changed the scientific playing field in the courtroom. You know this better than anyone as you have seen the number of plaintiff verdicts [in asbestos cases] decrease and the cost of settlement go down over time.”

In the letter, which surfaced in the discovery phase of a lawsuit, Paustenbach complained that the fee structure in place between Ford and Chemrisk was “out of date” and too low.

“Dolores, currently, you are among our largest clients,” he wrote. “And, Ford has certainly been a loyal supporter. The Big 3 [automakers] were the foundation of the firm during our formative years, and for this reason, I have tried to go the extra mile to satisfy your needs.”

Asked to explain the letter during a 2014 deposition, Paustenbach said he was merely emphasizing to Studier that “we invested in scientific research to answer questions that remained unanswered in the courtroom for many, many years And I was pretty proud of that.” He said he didn’t feel it was fair for his firm to lose money “when, in fact, I was so committed to getting the science straight.”

Creating doubt

The World Health Organization estimates that 107,000 people die each year

from asbestos-related diseases. “Exposure to asbestos, including chrysotile, causes cancer of the lung, larynx and ovaries, and also mesothelioma (a cancer of the pleural and peritoneal linings) [and] asbestosis (fibrosis of the lungs),” the WHO says. “No threshold has been identified for the carcinogenic risk of asbestos, including chrysotile.”

OSHA says, “There is no ‘safe’ level of asbestos exposure for any type of asbestos fiber. Asbestos exposures as short in duration as a few days have caused mesothelioma in humans.”

Taking the WHO and OSHA statements at face value, the case against asbestos would seem to be closed: Even someone with very low exposure to the mineral should worry.

In papers published over the past 15 years, however, scientists with Exponent, Cardno ChemRisk and other consulting firms have questioned whether brake mechanics truly are at heightened risk of developing mesothelioma, the disease that has fueled litigation against Ford and others.

A 2004 Exponent paper funded by Ford, GM and Chrysler, for example, concluded that “employment as a motor vehicle mechanic does not increase the risk of developing mesothelioma.” An update of that paper in 2015 found the same result. Each paper was a meta-analysis — an agglomeration of the results of multiple studies that, taken individually, may be too weak to indicate an effect.

In a deposition last October, Exponent’s Mary Jane Teta, a co-author of both meta-analyses, defended her firm’s findings. “I disagree when they say there is no safe level [of asbestos],” she testified. “I know the level of chrysotile ... experienced by vehicle mechanics is safe.”

In his statement to the Center, Paustenbach wrote, “It is implausible that nearly 20 epidemiology studies” – on which he bases his legal opinions – “would conclude that there is no increased risk of mesothelioma for the time period during which brakes contained chrysotile asbestos if that were not the appropriate conclusion.”

The studies Paustenbach cites, however, are fraught with limitations, such as small sample sizes, vague job classifications and lack of exposure data. And not all of them found, as he put it, “no increased risk of mesothelioma” among mechanics. In a 1989 paper, for example, a Danish researcher who studied causes of death among auto mechanics reported finding a single case of mesothelioma among her subjects, where none would have been expected in

the general population. As with other cancers, she wrote, this number was "too small to state or rule out a potentially increased risk."

A co-author of another paper, Kay Teschke of the University of British Columbia, testified in a 2012 deposition that her research was being mischaracterized.

"Vehicle mechanics do many different things in their day; some might work on engines, some might only work on wheel alignment," Teschke testified. "And when you dilute the [asbestos] exposure in that way, you can't find the relationship with the job ... It doesn't mean that people in that job are somehow immune to the effects of the exposure ... "

Christian Hartley, a lawyer in Mount Pleasant, South Carolina, who has represented about 100 mesothelioma victims in brake cases, said the papers used in the defense of such lawsuits "push all this data together that's totally incomparable. That's what gets reported in the literature and is used to persuade judges and some experts. It's very misleading to think we have any kind of real handle on what a typical mechanic has for exposure."

Dr. David Egilman, a clinical professor of family medicine at Brown University and editor of the *International Journal of Occupational and Environmental Health*, argues that the papers are deceptive by design. Many reanalyze previously published studies of workers described as mechanics who may have had no contact with asbestos brakes, he said. The effect, Egilman said, is to dilute the cancer data so the overall risk appears low.

Egilman, who consults for asbestos plaintiffs, spends much of his time rebutting Paustenbach and other industry-funded researchers. "They can throw a lot of things at the wall and hope something sticks with the jury," he said. "It forces people like me or other scientists to try to clean up each thing that was thrown at the wall, one at a time. And by the end of the day, that could be confusing to a jury or judge."

Egilman said the body of work underwritten by Ford and other asbestos defendants is being used to try to deprive sick workers, or their families, of compensation. "Some courts have adopted it as a standard," he said.

More broadly, the industry-funded papers can confuse the public – and even government experts.

In 2009, the National Cancer Institute published a fact sheet on its website stating there was no evidence brake work was associated with an increased

risk of mesothelioma or lung cancer. The 2004 meta-analysis funded by the automakers was cited as a reference.

Dr. Arthur Frank, chair of the Department of Environmental and Occupational Health at Drexel University, was incredulous.

“What is truly ironic about such a statement is that it is incontrovertible that asbestos, including chrysotile, the type of asbestos found in brakes, does, in fact, cause lung cancer and mesothelioma,” Frank wrote in a letter to the institute’s director obtained by the Center for Public Integrity through a Freedom of Information Act request. “Since we have not banned asbestos in this country, those who might read this statement could well think asbestos brakes are safe, putting at risk both professional and ‘shade tree’ mechanics, and their family members.”

Frank said the meta-analysis cited by the institute was “unreliable and should not serve as the basis for any statement by the NCI.”

Then-NCI Director Dr. John Neiderhuber replied that he had discussed Frank’s critique with an in-house expert who agreed that the language on the website should be amended. The new statement, posted less than two weeks after Frank sent his letter, read that while studies of cancer risks among auto mechanics were limited, “the overall evidence suggests that there is no safe level for asbestos exposure.” The citation of the 2004 paper was deleted.

The brake studies have had global reach. The “chrysotile-is-safe” argument has been used to stave off asbestos bans and preserve markets in developing nations such as India and China, where building materials and other products containing asbestos are widely used.

“The real nefarious part of this research ... is that a lot of people who live in those countries are continuing to be exposed under uncontrolled conditions to asbestos,” Egilman said. “That’s the real horror story here.”

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A Ford loss in Tennessee

While the brake papers and the experts who write them have contributed to defense verdicts in mesothelioma cases, things occasionally go the other way.

Ronnie Stockton operated an auto repair shop 100 feet from his home in Jackson, Tennessee, for 30 years and specialized in brake jobs, often on Ford vehicles. He'd attended training classes in which instructors recommended that paper masks be worn around brake dust but never heard a "full description of what asbestos did," he said in a recent interview. "We wasn't warned it could kill you when you swept it up and didn't wear the mask."



Ronnie Stockton's auto repair shop in Jackson, Tenn.

As it turned out, Stockton's wife, Joyce, was the one who got sick. She used to help her husband sweep out the shop. She kept the books and washed Ronnie's dusty clothes. One night in December 2010 she lay down in bed and felt her chest tighten. "I thought I was having a heart attack," she said. A biopsy confirmed that she had mesothelioma, to that point merely a strange word she'd heard in lawyers' TV commercials. "I would sit in front of the television trying to learn how to pronounce it, not ever knowing I had the disease," she said.

The Stocktons sued Ford and went to trial in August. Two Exponent scientists were among the defense experts.

In his closing argument after nearly two weeks of testimony, Ruckdeschel, the Stocktons' lawyer, said Ford's experts had "spun the literature" on asbestos. "They're not taking what the studies say; they're putting a spin on it."

If independent research had shown no connection between brake work and mesothelioma, Ruckdeschel said, "they wouldn't have had to go and pay Exponent to write all the papers to say, 'Well, we've reanalyzed the data, and there really isn't any evidence.' "



Ronnie and Joyce Stockton

Defense lawyer Samuel Tarry urged jurors not to be swayed by the millions of dollars Ford had invested in the papers. It "shouldn't come as any surprise that over time it costs a lot of money to defend these cases and to publish research where it can be critiqued and criticized and start discussions," he said. Tarry recounted the

Science for Sale



Corporations are steering millions of dollars to scientific consulting firms

testimony of Exponent's Mark Roberts, who "told you that the majority of mesotheliomas in women are unrelated to asbestos. ... He explained that all of us have a background risk, not just for mesothelioma but for any type of cancer They can happen naturally. They can happen with an environmental insult."

After deliberating about two days, the jury returned a \$465 million verdict in the Stocktons' favor. It assigned 71 percent of the liability to Ford and 29 percent to brake manufacturer Honeywell, which had been brought into the case on Ford's motion. Ford has asked for a new trial.

Latisha Strickland was the jury foreman. She'd wanted to assign 100 percent of the blame to Ford but agreed to the 71-29 split to avoid a hung jury.

"I felt ashamed — I had compromised what I thought it should be," Strickland, a home-school teacher, said in a telephone interview. "You couldn't give me the Powerball lottery to go through the amount of surgeries this woman [Joyce Stockton] has gone through."

Strickland said she was especially put off by the 1971 memo showing Ford decided not to spend \$1.25 per vehicle to replace front-end asbestos brakes.

"It proved Ford knew," she said.

Jie Jenny Zou contributed to this story

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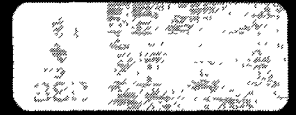
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