

# Chasing Ernst L Wynder: 40 years of Philip Morris' efforts to influence a leading scientist

N Fields, S Chapman

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See end of article for authors' affiliations

Correspondence to: Nicole Fields, School of Public Health, Room 129A, Edward Ford Building (A27), University of Sydney, NSW 2006, Australia; fieldsn@health.usyd.edu.au

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**Study objective:** To highlight strategies used by the Philip Morris tobacco company to try to manipulate the eminent scientist, Dr Ernst Wynder between 1955 and 1995.

**Methods:** Systematic keyword and opportunistic searching of www.pmdocs.com for formerly internal tobacco industry documents concerning Philip Morris executives and Wynder. Available materials included reports, budget reviews, and correspondence.

**Main results:** The emergence of smoking as a priority issue on the American public health agenda can be largely attributed to Wynder's research and publicity efforts. Philip Morris viewed Wynder as a prestigious scientist whose commitment to the pursuit of reduced harm cigarettes could lend legitimacy to its desire to position itself as a responsible company intent on addressing consumer concerns. Philip Morris courted Wynder with large equipment loans and grants for more than 30 years, and used its public relations agency to sanitise press releases to remove material unacceptable to the company. Wynder consistently failed to acknowledge industry support while routinely acknowledging other funding from the National Cancer Institute and the American Cancer Society. In retrospect, Wynder realised the insidious effect of tobacco industry research support but failed to acknowledge this may have applied to his own association with the industry.

**Conclusions:** Industry documents reveal a deliberate attempt by Philip Morris to pursue and manipulate Dr Wynder to legitimise their company positions.

The tobacco industry has a long history of seeking to appropriate independent scientists into its global efforts at reassuring smokers about smoking and health.<sup>1</sup> Because the industry suffers from credibility problems,<sup>2</sup> it has given high priority to projects engaging third parties to promulgate its messages. The estimated 40 million pages of private internal tobacco industry documents made available through the Master Settlement Agreement<sup>3</sup> reveal the industry had special code names for many of these projects<sup>4</sup> and was prepared to spend "vast sums of money"<sup>5</sup> to keep controversies alive. While the industry deliberately sought scientists with no track record on relevant issues,<sup>5</sup> it also sought prominent scientists who might be induced to make statements that assisted its policies. In this paper, we trace the history of the Philip Morris (PM) company's courtship of the late US scientist Ernst Wynder (1922–1999), founder of the American Health Foundation and described in an obituary as "the health conscience of the [US] nation."<sup>6</sup>

The industry documents provide fragmented insights into tobacco industry thought, intentions, and conduct. Many documents and recent court revelations<sup>7</sup> attest to wholesale

document destruction within the industry<sup>8–10</sup> and so those still available provide only glimpses into this conduct.

## METHODS

Having fortuitously located several documents about Wynder's dealings with PM, we conducted advanced searches on www.pmdocs.com using search terms such as AHF (American Health Foundation), SKI (Sloan Kettering Cancer Institute), wynder, and winder. Further searches were conducted using names, events, or publications named in documents thus located, to construct a chronology of Wynder's dealings with PM. Names and positions of key Philip Morris operatives mentioned in key documents cited in the paper are shown in table 1. Philip Morris Inc and its subsidiaries worked closely together, with key individuals often moving positions within the company's holdings.

## RESULTS

### Early interest in Wynder

In 1950, Wynder and Evarts Graham published "Tobacco smoking as a possible etiologic factor in bronchiogenic

**Table 1** Names and positions of key Philip Morris operatives

Name	Position
Bowling, James C	Senior Vice President; Assistant to Chairman of the Board, PM Inc
Cullman, Hugh	Chairman PM USA; Vice Chairman PM Companies Inc
Fagan, Ray	Principal Scientist, PM USA
Gaisch, Helmut	Vice-Director, Research, PM International (Europe)
Goldsmith, Clifford	President, PM USA
Lincoln, Jetson E	Vice President, Research and Development, PM Inc
O'Keefe, Andrew E	Acting Manager, Research and Development, PM Inc
Osdene, Thomas S	Director, Research, PM USA; Director, Science and Technology, PM Companies Inc
Saleeby Jr, Roger N	Manager, Technical Planning and Information Division, PM Inc
Seligman, Robert B	Vice President, Tobacco Technology Group, PM USA
Wakeham, Helmut	Vice President, Research and Development, PM USA

carcinoma."<sup>11</sup> While the paper would be subsequently venerated as a landmark in cancer epidemiology, near the end of his life in 1997, Wynder lamented "... it appeared to make no lasting impact, even though the importance of our observation was underscored by a similar large case-control study [*BMJ* article by Doll and Bradford Hill] ..."<sup>12</sup> In 1953, Wynder—then at SKI—published the results of another seminal study where he produced tumours by painting the backs of mice with cigarette smoke condensate, providing experimental evidence that cigarette smoke caused cancer. Again late in life, Wynder was perplexed by the lack of reaction in the scientific community: "... this research again received some attention, but nothing commensurate with our own perception of the importance of our work."<sup>12</sup>

As Wynder became the preeminent US researcher in smoking and disease research, a concerned PM developed an interest in his activities. The first apparent contact came from Andrew O'Keeffe in 1955. O'Keeffe contacted Wynder, informing him PM planned to reproduce the work described in the mouse painting experiments, and asking if PM scientists could "call upon you as an authority in the field for some assistance in the proper planning of our experiments."<sup>13</sup> Subsequently, O'Keeffe met Wynder and reported to PM:

"Dr. Wynder took pains to emphasize several times during my visit that many (perhaps most) of his staff are smokers. He continually tried to foster the impression that he is not 'anti-tobacco' but rather 'pro-improved tobacco.'"<sup>14</sup>

Wynder continued to publish during the late 1950s and in 1957 Dietrich Hoffmann joined his group. Throughout this period, PM internal correspondence reveals continuing surveillance of Wynder's appearances and publications. Within the company one observer portrayed him as a loose cannon and publicity hound:

"Dr. Wynder seems to be jumping about quite a bit these days. One day he advocates the use of lower combustion temperature in the cigarette . . . and the next day he concludes that phenols in cigarette smoke are bad and suggests the use of additives to 'speed up combustion,' . . . This kind of contradictory talk indicates more than ever that Dr. Wynder's cake is not the solution of the cigarette and health problem, but the achievement of maximum daily publicity for Dr. Wynder."<sup>15</sup>

Wynder continued to build his career and public profile, being quoted regularly in newspapers.<sup>16 17</sup> With Wynder's growing public profile, he was becoming a major problem for the tobacco industry.

### PM contributions to SKI

In November 1961, the PM Contributions Committee made a three year, \$25 000 annual contribution to SKI. By the end of 1964, PM's beneficence seemed to be reaping rewards, with Wynder being subjected to more rigorous procedures before speaking on behalf of SKI:

"Dr. Frank Horsfall, Jr., [SKI Director] . . . has publicly expressed his doubt that smoking is implicated in carcinoma causation. Dr. Horsfall's opinion (coupled with his demonstrated liking for our Marlboro cigarettes) has been beneficial. As head of the nation's principle [sic] cancer research organisation, he has tremendous influence. . . . The industry earlier was made keenly aware of Sloan-Kettering's influence when . . . Ernst Wynder (Ph.D.) led the anti-cigarette attacks. He

exploited his Sloan-Kettering association to the industry's distinct disadvantage. . . . In the fall of 1962, Dr. Horsfall and other Sloan-Kettering officials . . . began subjecting Wynder to more rigorous screening procedure before letting him speak in the name of the Institute. This has had a proper and pleasing effect. . . . I would strongly recommend that we continue our support of Sloan-Kettering. It is consistent with our publicly stated desire to support efforts to find the answers to the vexing cancer problem."<sup>18</sup>

### The pursuit of the "safer cigarette"

Wynder was the founding father of the harm reduction debate in tobacco control, which continues today.<sup>19</sup> While suffering the SKI vetting order, he published a paper<sup>20</sup> vigorously encouraging continued research efforts towards "reducing the experimentally established tumorigenicity of smoking products."<sup>20</sup> At a 1964 research meeting, Wynder argued, "The question has often been asked, 'Can cigarette smoking ever be safe?' At present, an affirmative answer to this question would appear to be quite unrealistic. . . . In view of the fact, however, that man may not always be willing or able to accomplish this objective [stop smoking], research efforts towards producing 'less hazardous smoking products' must be continued."<sup>21</sup> A PM delegate at the meeting reported to his executive: "In our opinion, Dr. Wynder has demonstrated a broad and profound knowledge of the problems facing the cigarette companies in producing a product which might be demanded by public and/or certain governmental agencies."<sup>22</sup>

### The American Health Foundation

During this period, Wynder began to cut his ties with SKI and formed the AHF, with a primary goal of developing a safer cigarette. In a 1969 internal PM memo, Ray Fagan reported to Helmut Wakeham:

"Wynder would like to continue [his work on the epidemiology of lung cancer] . . . [and] would like some unrestricted financial support from the tobacco industry in general . . . Wynder characterizes himself as one of the 'best friends the cigaret [sic] industry has.'"<sup>23</sup>

Knowing the importance of having a high profile scientist like Wynder supporting their efforts, PM agreed to make available a "smoking machine . . . [and to] pursue within our corporation the consideration of additional support for the laboratory work."<sup>24</sup> PM's Roger Saleeby encouraged the company to be generous:

"The Foundation [AHF] needs financial support but does no contract research, and we have promised them the loan of a smoking machine (\$12M), and other help is under consideration. Wynder will run our new product candidate, as one of the objectives of the Foundation is to develop a 'safer' cigarette. We should be willing to commit ourselves additional support very soon. The loan of laboratory equipment worth \$50M is recommended."<sup>25</sup>

PM then set its corporate mind to possibilities of reaping the rewards of its massive support:

"Dr. Wynder has always been a low-tar man but to my recollection he never had much to say about nicotine. The March 1971 Current Digest reports . . . an article by two apparent associates of Dr. Wynder which appears to be favorable to high nicotine cigarettes, tar having been held constant in this experiment. . . . I wonder if Dr. Wynder could be induced to speak out on this report . . ."<sup>26</sup>

As Wynder continued to expand the AHF, PM provided financial grants<sup>27</sup> including one discussed in a letter from Helmut Wakeham to Wynder, that sought *carte blanche* access by PM scientists to AHF staff.

"It appears to us that the opportunity to consult from time to time with certain of your scientists and to receive from them suggestions and advice relating to our work would be of advantage to the Philip Morris Research Center. Rather than attempting to negotiate a fee for each separate consultation held, we would like to agree on a figure of \$30,000 as a blanket consultation fee . . . This would permit our scientists to confer with yours as frequently as they wish and would cover all services rendered in an advisory capacity by you."<sup>28 29</sup>

### Ruder & Finn

In June 1973, Wynder lunched with Saul Warshaw of the public relations firm Ruder & Finn (PM were also a client).<sup>30 31</sup> Warshaw reported back to Bill Ruder, a report that found its way to PM:

"Dr. Wynder is looking to reconstitute, upgrade and strengthen his board of directors . . . it is obvious that Dr. Wynder recognizes the need for a strong board because he is really having a difficult time raising even a couple of million dollars to complete the new Naylor Dana Institute . . . and I may be dead wrong about this one — I think that Dr. Wynder is an extremely practical man at this point in his life. For example, it seems to me that if there were some way that he and the cigarette industry, or he and the food industry could work together and seek out common interests that go toward satisfying the desires of all sides, then I believe this would be an amenable approach for him and that he would not be totally stubborn on that point. As I say, I might be completely wrong about this, but it seemed to me that Dr. Wynder is very much a pragmatist. . . . It is also seems to me that your [Bill Ruder] getting involved would be a good way to keep our pipelines open for the benefit of such clients of ours as Philip Morris."<sup>31</sup>

Ruder later informed Wynder that PM "were very enthusiastic about our doing everything we can to be helpful to you."<sup>32</sup> Ruder & Finn began assisting the AHF with publicity, updating PM on its efforts to sanitise the AHF's reports: "I thought you might want to see the press kit that we have prepared for the opening of the new facility for Ernie Wynder's American Health Foundation. We prepared it completely at Ruder & Finn — and please note that we have handled it so there is not one single mention of the problem of smoking and health."<sup>33</sup>

### Project ELBA (Lower Biological Activity)

In 1974 Wynder proposed to evaluate a "safer" cigarette, and requested substantial PM funding.<sup>34 35</sup> Project ELBA's primary goal was developing an acceptable cigarette of lower biological activity,<sup>36</sup> assessed by tests such as mouse skin painting, and inhalation studies. Wynder wrote to PM's US President Clifford Goldsmith about the project and with apparent sensitivity to likely anxieties in the company, reassured them animal studies were not always relevant to humans and the true test of the 'less harmful cigarette' could "only be answered by epidemiological studies on man himself."<sup>37</sup>

As negotiations continued<sup>38</sup> PM donated \$20 000 for the Naylor Dana Institute building fund<sup>39</sup> and finally accepted the AHF budget proposal for ELBA<sup>40</sup> (expected expenses for 1974–76: \$430 000).<sup>41 42</sup> As PM continued its support, Wynder was

being assessed for his potential to work on PM designated projects leading to results that "interested" PM:

"Whether an advantage could result for our Company in working closer together with Dr. Wynder is another question. He would certainly be willing to accept research money. It would be our task to direct this money on projects leading to results on the publication of which we are interested."<sup>43</sup>

While the predominant risk factor for developing lung cancer is tobacco use, the potentially protective role of dietary factors has long been a focus in cancer epidemiology.<sup>44</sup> Wynder was among the first to show interest in such data, a research direction encouraged by PM for its potential to obfuscate public perceptions of tobacco being "the major evil" in the causation of lung cancer:

"In the early days of this controversy, the implication always was that tobacco was the major evil. Now both [Gio] Gori and Wynder have moved away from the sole cause to include diet. . . . Wynder has moved in this direction because he is now involved in preventive medicine and also recognizes that not all cancer diseases can be accounted for by smoking. Both of these people in their testimony are taking off some of the heat."<sup>45</sup>

However, while PM continued to fund Wynder, they began to feel uneasy about being seen to be behind his research and proposed his grants be laundered through third parties. Discussions held in November 1976 surrounding PM funding of an epidemiological survey comparing carbon and normal filter cigarettes in Switzerland<sup>46</sup> highlighted this attitude: ". . . I would propose to him [Wynder] that we stay in the background whereas he and his institution approach Professor Schaer as the interested party who is willing to finance the project."<sup>47</sup>

In March 1978, Dietrich Hoffmann wrote to PM requesting input on a draft paper and making plain the AHF's position on product modification—that government should not force the issue:

"Dr. Wynder and I are most grateful for your willingness to help us on the chapter 'The Less Harmful Cigarette' . . . We would like to assure you that Dr. Wynder and I both feel that the less harmful cigarette can originate only from the freely enterprising tobacco industry and that it should not be a product imposed by government regulation."<sup>48</sup>

PM provided over \$1 000 000 for AHF research between 1973–78<sup>29 49–51</sup> and PM officials may have believed this largesse entitled them to utilise Wynder's skills in other capacities.

"Hugh Cullman called today concerning a conversation he had with Dr. Bruckner, the Counsel for the German Verband. Dr. Bruckner was quite concerned about the 'index concept.' . . . Dr. Bruckner is exploring Ernst Wynder as a means of discouraging and destroying this 'index concept.' . . . If we could persuade a world renowned authority to speak out against this 'index concept,' it might go a long way to achieving the desired end."<sup>52</sup>

By the "index concept", Cullman was referring to the indexing of smoke components. The index system was created by Dr Herzfeld in Basel Switzerland, and used to express the results of comparative smoking tests for ranking cigarette

brands. The index took into account the weighting of smoke, tar, nicotine, CO, and NO. The concern of the tobacco industry centred around the potential of such results to be used by consumer groups and governments as a criterion for determining taxes and for advertising and/or product limitations.<sup>53</sup>

### The passive smoking debate

During the 1980s, the threat posed to the industry by passive smoking became its major preoccupation and tobacco company's targeted scientists they hoped to utilise in the fight to discredit the science surrounding environmental tobacco smoke (ETS). Here Wynder proved valuable for he was then unconvinced the available evidence supported a causal link between ETS exposure and lung cancer, a view then shared by Sir Richard Doll who in 1986 concluded the risk of passive smoking for an individual non-smoker "is generally too small to have any measurable effect nationally in comparison with that produced by smoking voluntarily."<sup>54</sup>

Between 1979–87, the AHF received at least another \$2 100 000 in PM funding for their ongoing projects.<sup>55</sup> While PM might have hoped this level of funding would guarantee Wynder's cooperation there is no evidence for this. Importantly, Wynder's position was consistent with his own data.<sup>56</sup> Nevertheless, Wynder's lack of support for the passive smoking/lung cancer link plainly delighted PM, Robert Seligman perceiving Wynder's status as pivotal to legitimising their case:

"Adlkofer [Franz Adlkofer, Technical Director of the VDC, Germany] commented that if it weren't for Dr. Wynder, no one would have taken the position that passive smoking really was not a problem."<sup>57</sup>

During the industry convened and heavily publicised 1984 "Physicians' view on passive smoking" symposium held in Vienna, Wynder and Dr H Valentin issued a press release titled "Health danger through passive smoking not proven" and marked by PM for "WIDEST POSSIBLE DIST., HERE AND INTERNATIONALLY." [emphasis in original]: "As far as the effect of passive smoking on lung function is concerned, the results presented in the literature are contradictory. . . Should the law-makers wish to take legislative measures in connection with passive smoking, they cannot at present justify this on the basis of health dangers through passive smoking."<sup>58</sup>

### The association of dietary fat and lung cancer

As discussed, Wynder had long had interest in diet and cancer and in 1985, submitted a proposal to PM to examine the role of diet in cancers of the lung, oral cavity, and bladder.<sup>59</sup> Over the next two years, AHF and PM scientists collaborated on the study. During June 1987, PM's Jet Lincoln initiated a chain of internal correspondence suggesting PM had ghost authored a paper Wynder and colleagues subsequently published in revised form. Lincoln forwarded a paper, "Association of dietary fat and lung cancer" (authored by Wynder, Hebert, and Kabat), to Alex Holtzman (PM Associate General Council) noting: "Pencil marks are ... indications of changes from earlier version. Hugh [Cullman] has promised not to let this out of the office."<sup>60</sup> On 30 October 1987, Cullman wrote to Hamish Maxwell (PM Chief Executive):

"HM original work developed by Jet. As we have no credibility, given to Ernst Wynder who subsequently confirmed rewrite and published. AH and I are pleased. Hugh."<sup>61</sup>

The paper appeared in the *Journal of the National Cancer Institute* in 1987<sup>62</sup> carrying no acknowledgement of any support

from PM or that Lincoln had "developed" the original paper. Internal correspondence on the matter indicated PM were not particularly happy with the manuscript changes made by Wynder. They had hoped to attract additional attention to the topic and advance their interests, but at the same time were hesitant to publicly criticise Wynder.<sup>63–65</sup> However, despite their misgivings, exchanges between PM and Wynder were numerous throughout this period, PM frequently seeking his advice, particularly with regard to publications.

"Talked with E.W, re Jet's draft earlier. Ernst's opinion, time to talk and time to be silent. The latter time now. Also felt the paper was rather sophomoric and poor and was opposed to publication. I [Thomas Osdene] agreed."<sup>66</sup>

As late as 1988, Wynder continued to promote the goal of the reduced harm cigarette, and the tobacco industry maintained its interest in producing such cigarettes.

"As a matter of practicality, then, we must recognise that tobacco use will continue to some extent. Thus, continued reduction of the tar yield of cigarettes is a goal that should be pursued."<sup>67</sup>

PM continued to provide support, with their 1989 and 1990 R&D budgets earmarking the AHF to receive in excess of \$700 000.<sup>68</sup> With plans to renovate and expand their existing facilities,<sup>70</sup> Wynder also received a large grant from PM's Kraft division in May 1991: "I am pleased to enclose a check from Kraft General Foods for \$657,500 which is our 1991 payment toward a 5 year commitment of \$1,925,000 ... This should be the start of a great relationship."<sup>71</sup> <sup>72</sup>

The beginning of the 1990s found the tobacco industry desperately trying to contain the storm erupting around passive smoking. PM continued to perceive Wynder as someone who if used judiciously, could support their efforts to discredit ETS science and policy:

"Get scientists who are against us on the primary issue to speak up in our favor on the ETS issue. There are probably quite a number of scientists who would be ready to do this - Wynder is an example. These people should address scientific meetings, conduct interviews with the media, appear on talk shows etc. We should attempt to arrange debates between these scientists and the more rabid or silly antis."<sup>73</sup>

Wynder wrote a critical assessment of the ETS/lung cancer issue with Kabat<sup>74</sup> stating "additional efforts" were necessary to "firmly establish the nature and significance of the reported associations between passive smoking and lung cancer."<sup>74</sup> He also weighed into the argument for PM, by expressing his views on the draft US Environmental Protection Agency (EPA) document *Health effects of passive smoking* in a letter to the EPA's ETS Project Officer in September 1990 (PM were appreciative of the "helpful comments").<sup>75</sup>

". . . this report accorded insufficient attention to inconsistencies among various studies or to various epidemiological problems that need to be considered in order to put the matter of the ETS-lung cancer issue into the proper perspective."<sup>76</sup>

PM were buoyed by his stance as it aided their efforts to discredit ETS science. PM's Jet Lincoln decided to try to persuade him to promote criticism of prospective studies of active smoking:

"Much to our disadvantage, international variation analysis tends to receive less credence in the scientific community than prospective comparisons of users vs. non-users ... I now propose to try to interest Dr. Wynder in advocating, as a general proposition, a greater respect for international comparisons and a greater awareness of the fallibility of prospective studies of exposed vs. unexposed subjects within a population. It may not suit him but I see nothing to lose by trying."<sup>77</sup>

A week later Lincoln continued,

"Further to my memorandum . . . Dr. Wynder enthusiastically agreed that international variational analysis was a better methodology for epidemiological investigations than case control or cohort studies. He promises to do more to promote that view."<sup>78</sup>

In 1993, an AHF group published an important paper concluding: "Nonsmokers exposed to sidestream cigarette smoke take up and metabolize a lung carcinogen, which provided experimental support for the proposal that environmental tobacco smoke can cause lung cancer."<sup>79</sup> The evidence was persuasive to Wynder, and he no longer disagreed with scientists on this issue. PM support for AHF programs began to diminish around this period. With Wynder's acceptance of the passive smoking evidence it seemed he had finally outstayed his welcome, and the association with PM that had spanned nearly four decades began to wane.

## DISCUSSION

The documents reviewed highlight the efforts used by PM to try to influence Ernst Wynder to conduct research and make public statements that served various company agendas. The company's initial assessment of him as a publicity seeking menace whose convictions about smoking being harmful together with his scientific credibility meant he was a major threat to the industry. However, Wynder's pioneering interest in harm reduction and his belief the industry would be keen to produce less dangerous products threw them a decades long public relations lifeline. PM used this pretext to instigate collaborations. Although during the 1960s and early 1970s, tobacco industry scientists believed a less harmful product could be developed,<sup>80</sup> their primary motivation was profit, not health: "I'll bet the first company to produce a cigarette claiming a substantial reduction in tars . . . and nicotine . . . and with good smoking flavor, will take the market."<sup>81</sup> The industry's vision of a reduced harm cigarette was always going to be a double edged sword. As a British American Tobacco official put it: ". . . in attempting to develop a 'safe' cigarette you are, by implication in danger of being interpreted as accepting that the current product is 'unsafe' and this is not a position that I think we should take."<sup>82</sup> As a result, industry interest in a "safe" cigarette began to wane in the late 1970s.

While the addictive properties of tobacco are cardinal to its continuing profitability, the idea the tobacco industry could have ever been pleased many of its best customers died early is unsustainable. However, because less dangerous cigarettes could only be assessed for their harm reduction potential in longitudinal studies lasting decades, the industry would have been well pleased to have had a "big fish" like Wynder actively promoting their hopes over such a period. At best, harm reduction promised to reduce death and disease from smoking; at worst, the industry knew it would buy them decades even if—as has now been demonstrated—the promise was a chimera. The hindsight we now possess about the failure of so called less dangerous combustible cigarettes to reduce tobacco caused disease<sup>83</sup> show that Wynder's optimism

has so far failed to translate into harm reduction. However, only the most doctrinaire could argue it was a path that should have never been countenanced.

Should Wynder's embrace of industry funding be therefore condemned? There is no doubt PM and the tobacco industry saw his scepticism about ETS being harmful as greatly advantageous to its global agenda. As PM developed their "whitecoat" programme<sup>84</sup> to combat this issue, there seems little doubt they anticipated their bountiful research support might induce Wynder to become a de facto consultant. Although there is no evidence Wynder ever "went over" in the manner of some of the more flagrant examples of hired gun industry consultants,<sup>85</sup> Wynder proved an important asset to PM by dismissing ETS science in industry sponsored forums like the Vienna conference. Again, how should we now judge this conduct in light of the subsequent greatly increased accumulation of evidence about ETS and disease,<sup>86</sup> and his own later conversion in the early 1990s to the view ETS was hazardous? As his own data supported his views, it is reasonable to conclude Wynder was a scrupulous and independent scientist who was genuinely unpersuaded ETS posed a meaningful health risk and did not resile from saying this, regardless of whether the industry may have been pleased or not.

In 1997, Wynder wrote a personal reflection on his lengthy career.<sup>12</sup> In that paper he discussed "the outright resistance and active counter-propaganda of the tobacco interests, the basis of which would seem to be self-evident" and of how "the industry could attract individuals with an apparently impeccable scientific background" to serve on its research councils, parenthetically noting "I will also not dwell on the fact that scientists who received support from tobacco interests were muted."

At the end of the paper he acknowledged support "provided throughout the decades" by the American Cancer Society (ACS) and the National Cancer Institute (NCI), yet said nothing about the support, massive by any standard, he received throughout the same period from PM. This is a conspicuous and important omission. Similarly, Wynder was in the habit of acknowledging ACS and NCI support for his work from at least 1969.<sup>87-96</sup> However, we found no instance of any of his published papers acknowledging PM's support. The reasons for his deliberate efforts to hide his longstanding association with the tobacco industry must remain the subject of speculation.

By any standard Wynder made a colossal contribution to the science underpinning tobacco control. He was entirely aware much of his work was fundamentally damaging to the tobacco industry, and aggressively promoted his findings in both scientific and popular media. By the end of his career, he had become outspoken about the potential of the tobacco industry to corrupt scientists.

The documents we have located suggest he took a pragmatic view about tobacco industry funding: he believed he could—and did—use it to good ends to improve public health. It is undeniable that Wynder was largely responsible for placing smoking on the American public health agenda in the 1950s and 1960s. Julian Peto and Richard Doll once wrote "Any scientist who may be tempted to accept support in any form from the tobacco industry should therefore recognise that the results may be used for the purposes of the industry."<sup>97</sup> In withholding any acknowledgement of his relationship with the industry, Wynder entered a morally grey zone suggesting he must have understood the implications of such support. The most disturbing incidents we uncovered involved his publishing work initiated by the industry on how diet might confound the relation between smoking and lung cancer. While scientific evidence has shown diet can be a factor in the development of lung cancer, it cannot be denied this was developed by the industry as a core platform of its international programme of obfuscation, and while the industry was displeased with the final manuscript authored by Wynder,

its genesis, intent, and the significant omission of industry authorship are indefensible.

The fact a public affairs agency that also worked for PM sanitised AHF press releases to remove mention of tobacco is also remarkable. It is possible, although unlikely, that Wynder did not know about this. Such incidents may have been atypical of Wynder's relationship with PM, or they may be indicative of wider conduct lost in the epidemic destruction of documents within the industry. From PM's perspective, it is hard to imagine, after having provided a minimum of US\$5 700 000 in grants to the AHF from 1973–95, they did not get significant quid pro quo.

In austere funding environments, today's scientists face ongoing funding challenges. The tobacco industry can provide comparatively easy access to allegedly no strings research funds, but there is growing momentum among universities to refuse to permit such funding<sup>38</sup> because of its track record in corrupting the integrity of science.<sup>39</sup> Our case study provides insights into the sorts of strategies that have been used to try to influence a dedicated scientist to assist the industry's major agenda.

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## Authors' affiliations

**N Fields, S Chapman**, School of Public Health, University of Sydney, Australia

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