

FEATURE



SUGAR

Sugar: spinning a web of influence

Public health scientists are involved with the food companies being blamed for the obesity crisis, reports **Jonathan Gornall**

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An investigation by *The BMJ* has uncovered evidence of the extraordinary extent to which key public health experts are involved with the sugar industry and related companies responsible for many of the products blamed for the obesity crisis through research grants, consultancy fees, and other forms of funding.

Among the main targets in the United Kingdom for an industry facing increasing pressure from government to reduce the health harms caused by its products are researchers working on nutrition issues for two key government funded organisations—the Scientific Advisory Committee on Nutrition and the Medical Research Council’s Human Nutrition Research unit at Cambridge.

The BMJ has found that for more than a decade funding from industry has flowed to scientists involved with the research unit. Scientists working on Medical Research Council (MRC) projects have received research funding from organisations including Coca-Cola, PepsiCo, Nestlé, the Institute of Brewing and Distilling, Weight Watchers International, NutriLicious (a public relations firm specialising in conveying “nutrition and health messages” for the food industry), Sainsbury’s, W K Kellogg Institute, and GlaxoSmithKline.

Others received consultancy fees from Boots, Coca-Cola, Cereal Partners UK, Mars, and Unilever Foods. They have also sat on advisory boards for Coca-Cola, the Food and Drink Federation, and the Institute of Grocery Distributors.

Figures obtained through freedom of information requests suggest industry funding of the work of scientists in the Human Nutrition Research unit alone may have averaged close to £250 000 (£330 000; \$380 000) a year for the past decade. Industry funding for the three years from 2010 to 2012 totalled £697 469, peaking at £380 874 in 2010—5% of the unit’s total income for that year.

Industry money

The BMJ has obtained a summary of the unit’s research projects between 2004 and 2013. Scientists whose work was funded, or part funded, by industry include Susan Jebb, who in March 2011

was appointed chair of the food network for the government’s Public Health Responsibility Deal.

Jebb, professor of diet and population health at the University of Oxford, is listed as the sole or coprincipal investigator in 10 industry funded research projects between 2004 and 2015 with a total value of £1.37m, plus funding in kind. All projects linked to the food industry were completed before her government appointment, although a randomised controlled trial to test the effectiveness of primary care referral to a commercial weight loss provider, funded at a cost of £186 280 by Weight Watchers, is not due to end until this year.

The MRC stressed that the income does not benefit researchers personally but instead goes into the unit’s central budget to fund “project activities and may include staff/staff time, consumables and equipment, other project costs and contributions to infrastructure and support costs.”

Researchers within the MRC’s units and institutes were “encouraged to work closely with the private sector, including the pharmaceutical and food industries,” said a spokesperson. This enabled “the more rapid transfer of the best ideas into new interventions, the development of solutions that will benefit the public, and improvement on the return of the MRC’s investment in medical research.”

Funding or funding in kind for research projects in which Jebb is listed as principal or coprincipal investigator has come from Cereal Partners UK (which makes breakfast cereals under the Nestlé brand), the National Association of British and Irish Millers, Rank Hovis McDougal, Sainsbury’s, pharmaceutical company Sanofi, Tanita UK (a manufacturer of weighing scales), Coca-Cola’s Beverage Institute for Health and Wellbeing, and Unilever.

Of these, Nestlé, Sainsbury’s, Coca-Cola, and Unilever are partners in the responsibility deal chaired by Jebb.

Between 2008 and 2010 Coca-Cola’s beverage institute paid £194 652 for a clinical trial led by Jebb in the UK and US to test the effect on weight loss of a product being developed by the company. Other significant sums included £194 000 from Sanofi, for a 2004-05 trial investigating “the effect of Rimobabant (an anti-obesity drug now withdrawn from the

market) on energy intake in obese patients with or without intensive diet restrictions.” The sum included “funding relating to advisory board membership which cannot be differentiated.”

Between 2007 and 2010 Weight Watchers International gave £610 140 to a project led by Jebb to analyse data from the Weight Watchers NHS referral scheme.

Jebb told *The BMJ* she was committed to “using funding from industry to support important pieces of research and to make the information from these studies available for the public good.” She pointed out that the trials for Weight Watchers and Coca-Cola had investigator led protocols and were analysed and reported independently by the MRC.¹⁻³ One of the criteria for research collaborations between the MRC and companies, written into the contract, was “the independent right of the investigators to publish the data—whatever they may show.” Jebb pointed out that in the Coca-Cola research the product was found to be ineffective and did not lead to additional weight loss. “Personally, I am pleased that this was tested by independent scientists and not the company themselves and that the results of this research are now in the public domain.”

She added: “Everything I do, whether in my research or as chair of the responsibility deal, is to try to improve public health. I do think that requires discussions with the food industry, and I think it is appropriate that we should be encouraging them to invest in research conducted by independent scientists.”

Other researchers carrying out work for the Human Nutrition Research unit with industry funding include senior investigator Ravin Jugdaohsingh (£58 248 from Coca-Cola Enterprises). Alison Lennox, professor of public health nutrition at the University of Surrey, collaborated with Jebb on a project funded by Cereal Partners and the National Association of British and Irish Millers and was also the principal investigator on Human Nutrition Research studies funded by Mars (£3000) and the World Sugar Research Organisation (£10 000).

Commercial factors

The news about researchers’ interests follows the revelation last year that experts on the Scientific Advisory Committee on Nutrition (SACN), which has just completed the first revision of government advice on carbohydrates in the diet since 1991,⁴ had received funding from industry organisations with vested interests in the outcome of their work.

The committee was formed in 2001 to offer independent scientific advice to the Department and Health and the Food Standards Agency. From the start, it has published annual declarations of members’ conflicts of interest.

Ann Prentice, a founding member of the committee, and its chair since 2010, is also director of MRC’s Human Nutrition Research unit. Her declarations of non-personal “institutional interests” include details of funding received by unnamed MRC researchers for whom she is responsible as director of the unit.

The most recent annual report, for 2013, published in August this year, shows continuing MRC research funding from Coca-Cola, the Institute of Brewing and Distilling, and Weight Watchers International.⁵

In January 2014 it emerged that five members of SACN’s carbohydrates working group had worked in various advisory or consultancy roles for the food and beverage industry, including Coca-Cola and Mars.

The medically led pressure group Action on Sugar told the *Daily Mail* newspaper that the group’s chair, Ian Macdonald, who had received funding from Coca-Cola and Mars, should step down.

If he did not, there would be “real concerns” that the group’s recommendations would be “prejudiced by commercial factors rather than scientific public health priorities.”^{6 7}

Macdonald, professor of metabolic physiology at the University of Nottingham and director of research in the faculty of medicine and health sciences, has not stepped down but told a SACN meeting last February that he would “not attend advisory board meetings at Coca-Cola and Mars Europe at least until the . . . review is completed.”

Public Health England moved swiftly to counter suggestions that SACN’s carbohydrates review had been compromised, pointing out safeguards to ensure that “the report . . . would reflect considerations of the whole of SACN and would not be influenced by an individual member of the committee.” These safeguards included “oversight by independent experts and government officials, the SACN main committee and the SACN chair.”

However, the chair, Prentice, is the head of an institution that itself receives research funding from industry.

Prentice confirmed that the declarations against her name in the SACN register of interests relate to institutional funding into MRC Human Nutrition Research and that she had “no personal involvement with, or research funding from, any of the funders you mention.”

But *The BMJ* has discovered that the extent of industry engagement with SACN experts is far greater than revealed earlier, and not limited to the members of the committee’s carbohydrates working group. An analysis of the annual declarations of interest by SACN members shows that in the 12 years from 2001 to 2012 there were 539 individual declarations of involvement with commercial organisations, including food firms, industry groups, and drug companies.

Of these, 179 were listed by Prentice and linked to the MRC. Since her membership of SACN began in 2001, she has declared “non-personal interests” in 34 separate food or drink companies or organisations.

Membership of SACN has altered and increased over the years. But of the 40 scientists listed as being members between 2001 and 2012, only 13 have never declared interests in the committee’s annual report.

From the perspective of global food and drink companies the SACN members—and, indeed, the MRC—are just one small group of public health specialists in one relatively small market. But multiply this purchased engagement with public health across all global territories and the scale of this tactic can begin to be appreciated.

This, perhaps, is the contemporary manifestation of the magnetic “field of influence” of the sugar industry to which John Yudkin, a professor in the department of nutrition at Queen Elizabeth College, London, referred in his 1972 bestselling book, *Pure, White and Deadly*.⁸

Funding pressures

For Alan Jackson, chair of SACN from 2001 to 2009, it is government funding policy that is to blame for driving scientists into the arms of industry. Members of SACN and its sub-groups, he told *The BMJ*, had “followed to the letter . . . with due probity” the guidance on transparency and declarations of interest that had been set out at the birth of the committee. The real problem, he said, lay with “a failure within government” that placed individual scientists “in the invidious position of particular vulnerability to being conflicted.”

A report last June by Universities UK, which represents almost all of the UK's universities, identified a "real terms decline in the overall level of core public funding for university research," with universities estimated to have lost more than £460m between 2009-10 and 2012-13 and expected to lose a further £150m by 2015-16.⁹ As a consequence, collaboration between higher education and business was becoming "more strategically important for universities," with income rising steadily over the past decade and surpassing £2bn in 2012-13.

"Over the past 10-15 years government has increasingly encouraged and required individual academics, in common with other parts of society, to develop a mixed portfolio of support for their individual research," Jackson said. "This has explicitly included support from industry. So most, if not all, researchers will have some form of industry support and funding and hence have potential conflicts of interest. By the very nature of its complex roots and wide interdisciplinary engagement nutrition has particular vulnerabilities in this regard, but it is by no means unique to nutrition."

Illusion of self regulation

But behind all the apparent concern for our wellbeing, just how serious are these firms about their commitment to public health, through mechanisms such as the UK responsibility deal?

Not very, says David Stuckler, professor of political economy and sociology at Oxford University, who has written about the impact of the food and beverage industries on public health. Furthermore, he believes that public health experts who think they can effect change from the inside are fooling themselves.

"All this falls into the category of efforts to crowd out public regulation, to try to weaken public health by working with it," Stuckler told *The BMJ*.

"They much prefer voluntary self regulation to get government intervention off their backs and will tend to do the minimum required to prevent regulation from upping the ante, just enough to deflect public discontent or government intervention. That's why at least the real threat of government regulation is a necessary ingredient for self regulation to work.

"For us, the bottom line is the data, and we've yet to see clear convincing data that ceding ground to market forces to effectively do nothing will enable industry to self regulate itself in pursuit of public health goals."

There are, he says, "numerous examples of failure but few independently monitored examples that have worked outside at least the pressure of public regulation. I just came from the World Public Health Nutrition Association where a series of voluntary self regulation initiatives in Mexico, Peru, and Thailand had been evaluated and had not succeeded.

"As we do with any drug or clinical intervention, we need to have rigorous confirmation whether it's safe, and effective."

Claims by industry to be addressing the health harms of its products should be regarded with scepticism, he says. In a paper published in *PLoS Medicine* in 2012, Stuckler dismissed voluntary self regulation or partnerships with public health as worse than useless. "Public health advocates . . . may take jobs with industry in order to make positive changes from within, or actively seek partnerships and alliances with food companies. Food, they say, is not tobacco."¹⁰

But there were "inherent conflicts of interest between corporations that profit from unhealthy food and public health collaborations . . . We find no evidence for an alignment of public health interest in curbing obesity with that of the food

and beverage industry. Any partnership must create profit for the industry, which has a legal mandate to maximise wealth for shareholders."

Macdonald does not agree. "The issue of potential bias and conflicts of interest needs to be recognised," he told *The BMJ*. "But I think it's important to provide industry with balanced, accurate information and to do the same with government. I don't actually see why we should prevent industry having access to what is regarded as the best information." What industry did with that information was "up to them, and it's the same for the secretary of state."

While he accepted that some companies collaborated with the public health community in the hope of looking like good corporate neighbours, "the interactions I've had in an advisory sense with Mars and Coca-Cola and in a research collaboration sense with Mars and Unilever [tell me] that they really do take the problems of obesity, metabolic syndrome, and diabetes seriously and they are seeking advice to try to make a positive contribution towards it.

"The anti-camp would say, well, they should just stop making those things, but it's a bit more complicated than that," said Macdonald, who is the sole public health member of the responsibility deal food network's high level steering group. Other members come from PepsiCo, Tesco, the British Hospitality Association, the British Retail Consortium, the Food and Drink Federation, catering company Sodexo, and consumer organisation Which?

"It isn't just fatty foods, sugary drinks, confectionery that are contributing," he added. "It's a combination of lots and lots of things, and just taking one thing out of the market is not going to solve the problem. Making changes to the products they make, changing the way they communicate with people, and getting them to demonstrate role model examples to other components of the food industry is likely to be much more effective."

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Box 1: Global threats to the industry

A clue to why so many global companies with nutritionally contentious products feel the need to fund research and invite public health experts onto their advisory boards and into their boardrooms as consultants—and why they have been prepared to engage in the UK with the government's responsibility deal—can be found in two of the most recent annual submissions to the Securities and Exchange Commission in the US.

By law, for the benefit of investors, companies must submit a 10 K form to the commission listing all the risk factors a company faces. It is clear from the most recent submissions by Coca-Cola and PepsiCo that these sugary drink manufacturers live in fear of two things: ongoing research into the health effects of their products and the threat of health driven regulation and taxes.

"Maintaining a good reputation globally is critical to selling our branded products," reads PepsiCo's submission for the year ending December 2013. That reputation, it warns investors, could be adversely affected by "health concerns (whether or not valid) about our products or particular ingredients in our products, including whether certain of our products contribute to obesity."¹¹

The company's submission also shows its alarm at the increase in research into the health effects of sugary drinks and the possible consequences for its business.

"Studies are underway by third parties," it says, "to assess the health implications of consumption of certain ingredients or substances present in certain of our products, including ... sugar."

One example is the 2010 meta-analysis of 11 cohort studies published in *Diabetes Care*.¹² The authors concluded that, in addition to weight gain, higher consumption of sugar sweetened beverages was associated with the development of metabolic syndrome and type 2 diabetes. Intake "should be limited to reduce obesity related risk of chronic metabolic diseases."¹²

Inspired by such research, regulators in some countries have been edging towards tougher regulation of sweetened drinks. Last May the California State Senate passed and referred to the state assembly a bill that seeks to see all drinks with more than 75 calories carry the warning, "Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay."¹³

Coca-Cola's submission noted that bad publicity resulting from such research or new warnings on labels or at point of sale could raise "consumer concerns, whether or not valid," about the health implications of consuming ingredients such as sugar. As a consequence, "demand for our products could decline and we could be subject to lawsuits or new regulations that could affect sales of our products."¹⁴

Coca-Cola is equally aware of the threat to its bottom line, listing on its form "Obesity, poor diets and inactive lifestyles" among six key challenges and risks to its business.

"There is growing concern among consumers, public health professionals and government agencies about the health problems associated with obesity, which results from poor diets that are too high in calories combined with inactive lifestyles. This concern represents a significant challenge to our industry."

Coca-Cola, it says, "understand and recognise that obesity is a complex public health challenge and are committed to being a part of the solution," yet it insists that "all of our products can be part of an active, healthy lifestyle that includes a sensible and balanced diet, proper hydration and regular physical activity."¹⁴

Box 2: Scientists funded by industry

Among the "institutional interests" declared in 2009 by SACN chair Ann Prentice were consultancies with both Coca-Cola and PepsiCo. The following year her former husband, Andrew Prentice, head of the MRC International Nutrition Group and professor of international nutrition at the London School of Hygiene and Tropical Medicine, declared a consultancy with PepsiCo, in addition to a one-off consultancy with Danone and work as a lecturer for the Nestlé Nutrition Institute. He joined SACN in 2004 as an external expert on a working group reviewing dietary reference values.

Coca-Cola's support was mentioned in each of SACN's annual declarations of interests from 2001 to 2010, associated with three of the committee's scientists, including Ian Macdonald, chair of the carbohydrates working group, and anything from one to 14 unnamed MRC researchers.

The following MRC related declarations of interest in the Coca-Cola company are made under Ann Prentice's name in the SACN annual reports:

- 2001: Nutritional consultancy
- 2002 and 2003: Coca-Cola's membership of the MRC Human Nutrition Research forum
- 2004 and 2005: Provision of lecture expenses
- 2006: Consultancy with the Beverage Institute for Health and Wellness and Coca-Cola
- 2007: Posts on the advisory boards of the beverage institute and Coca-Cola
- 2008: Research funding from the beverage institute and post on Coca-Cola advisory board
- 2009: Consultancy with Coca-Cola and research funding from the beverage institute
- 2010: Research funding, consultancy, and membership of the company's main advisory board

Of the SACN scientists, Macdonald, who joined the committee in 2005, made six separate declarations of involvement with Coca-Cola: as a member of the company's European advisory committee from 2007 to 2010 and for attending a meeting of the company's European Scientific Council in 2012. In 2009 Macdonald also declared an honorarium ("paid into university research funds") as a member of Coca-Cola's international public policy advisory board.

Two other SACN members have been associated with Coca-Cola. Sue Fairweather-Tait, head of the nutrition and consumer science division at the Institute of Food Research, received research funding from Coca-Cola for six years, from 2005 to 2010, and in 2010 Chris Riddoch, head of the London Sport Institute at Middlesex University, also received research funding from the company.

Mars has also funded at least one MRC and two SACN scientists in the UK. Macdonald served on the company's advisory board and received funding for a research project for six years, from 2005 to 2010, and research and PhD funding in 2011 and 2012. In 2012 Macdonald also attended a meeting of the Mars Scientific Advisory Council. In 2002 Fairweather-Tait received research funding from the company, while according to Prentice's declarations anonymous MRC researchers were awarded Mars consultancies in 2007 and 2008 and research funding in 2009.

14 Coca-Cola Company Form 10-K for the fiscal year ended December 31, 2013. <http://assets.coca-colacompany.com/d0/c1/7afc6e6949c8adf1168a3328b2ad/2013-annual-report-on-form-10-k.pdf>.

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