HOUSE OF LORDS

Select Committee on Food, Poverty, Health and the Environment

Corrected oral evidence: Food, Poverty, Health and the Environment

Tuesday 3 September 2019

12.15 pm

Members present: Lord Krebs (The Chairman); Baroness Boycott; The Earl of Caithness; Lord Empey; Baroness Janke; Baroness Osamor; Baroness Parminter; Baroness Redfern; Lord Rooker; Baroness Sater; Lord Whitty.

Evidence Session No. 2 | Heard in Public | Questions 9 - 16

Witnesses

I: Professor Tim Key, Professor of Epidemiology and Deputy Director, Cancer Epidemiology Unit, Nuffield Department of Population Health; Dr Christina Vogel, Principal Research Fellow in Public Health Nutrition at the University of Southampton; and George Butterworth, Senior Policy Manager, Cancer Research UK.

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Examination of witnesses

Professor Tim Key, Dr Christina Vogel and George Butterworth.

Q9 **The Chairman:** We welcome our second witness panel. Please note that this session is being broadcast live on the parliamentary channel and, therefore, any sotto voce comments may be picked up and heard by the wider public who are riveted by this inquiry.

You have been presented with a list of Members' interests. Before they speak for the first time in this inquiry, they will declare any relevant interests. I would like to kick off by asking each of you briefly to introduce yourselves for the record so that we know who you are.

Professor Tim Key: I am professor of epidemiology at Oxford University. I have spent the last 18 years as a member of the Government's Scientific Advisory Committee on Nutrition.

Dr Christina Vogel: I am a principal research fellow at the Medical Research Council Lifecourse Epidemiology Unit at the University of Southampton. I trained as a dietician and I am a registered public health nutritionist. Over the last 10 years I have developed and led a programme of observational and intervention research that examines the socioeconomic and psychological pathways linking the food environment to dietary inequalities, and testing interventions that can improve or address dietary inequalities. The areas of the population on which I tend to focus are women of child-bearing age, adolescents and children, because we know that dietary inequalities start early in life. Thank you very much for the invitation to contribute.

George Butterworth: I am from Cancer Research UK. I am a senior policy manager. Cancer Research UK is the world's largest independent charity dedicated to life-saving research and is also a member of the Obesity Health Alliance, which is a coalition of 40 organisations and royal medical colleges that campaign on issues relating to obesity.

Q10 **The Chairman:** Thank you very much. As you know, this is an inquiry into food, poverty, health and the environment, trying to link those four elements.

I want to kick off with a very general question. We have been told that poor diet is one of the most significant causes of non-communicable diseases globally. We would like to know to what extent that is true for England. How prevalent is diet related to poor health in England, and how do our levels compare with those of other developed countries?

Professor Tim Key: There are different ways of assessing the question. An initiative called the global burden of disease has looked at risk factors, including diet, for all major diseases, attempting to do it in all countries in the world. If you look at what it has published for England specifically, it estimates that, of the top 20 causes of death, 10 are diet-related, so clearly diet is very important. Of those 10, in its assessment the first of the top four is obesity, which is clearly No. 1 by any metric. Currently in this country, 64% of adults are overweight or obese, and 30% of

children. Obesity is No. 1. The others in the top four are low intake of fibre and whole-grain cereals, low intake of fruit and vegetables, and high intake of sodium or salt. Those are the top four.

Another way of addressing the question is to look at what has been done in the UK. The Government have the National Diet and Nutrition Survey, which is a rolling programme assessing what people eat. You can compare that with the Government's recommendations on what people should be eating, which come from the Scientific Advisory Committee on Nutrition. They would agree with the four I have already mentioned, but, in addition, they conclude that saturated fat and sugar are also problems because intakes are too high, so that leaves you with six things.

As to how important they are, the global burden of disease estimate for England is that those dietary factors lead to nearly 20% of deaths in the country, which is slightly more than tobacco, and is the No. 1 thing. Clearly, it is very important. The deaths are due to a range of diseases. The biggest cause is cardiovascular disease—heart disease—and other vascular disorders, followed by cancer and diabetes. There are 13 types of cancer for which obesity alone increases the risk.

My colleagues might want to say more about comparisons with other countries, but there are no massive differences. Rich, westernised countries mostly have similar problems, but there are differences in some of the details. Fruit and vegetable intake is currently higher in the south of Europe than in the north of Europe, so there are differences, but, generally, obesity in particular is a problem throughout the world.

Dr Christina Vogel: Poor diet is a major public health concern in the UK. It has been estimated that poor diet alone costs the NHS £5.8 billion each year and that as many as 70,000 deaths could be averted each year if diet met recommendations.

I want to highlight briefly some of the statistics from the National Diet and Nutrition Survey that Tim spoke about. The most recent wave, which is a nationally representative survey of dietary intakes of households across England, highlighted that only 31% of adults and 8% of adolescents meet the recommendation to have five portions of fruit and veg a day. It also highlights that children and adolescents have almost three times the recommended intake of free sugars and that adults have more than double the recommended intake, and the primary sources of those are sugary drinks and sugary cereal products. The rates are much worse among the more socioeconomically disadvantaged. While these extremes are already bad in the population, they are even worse among low-income and more poorly educated individuals and families.

In other studies, and in the global burden of disease, as Tim says, there is not a huge amount of difference across high-income countries in comparison with western Europe, but an interesting study published in 2018[1] looked at the purchasing of ultra-processed foods. You heard in the

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[1] Monteiro, C. A., et al. (2018). "Household availability of ultra-processed foods and

previous session a little about ultra-processed foods. They are foods that are high processed, energy dense and nutrient poor. There was a comparison of 19 different European studies, and the UK had the highest purchasing of those products at household level; more than 50% of household purchases of products were ultra-processed foods. This compared with the lowest in Portugal, where it was only 10%.

The study also showed a strong relationship and association between purchasing of ultra-processed foods and prevalence of obesity in countries. It was estimated that, for each 1% increase in the purchasing of ultra-processed foods, obesity levels went up by a quarter of a per cent, which is pretty high.

George Butterworth: Some work conducted by Cancer Research UK, the Brown study, looked at attributable risk and showed that every year in England approximately 9,000 cancer cases are caused by overweight and obesity. A separate piece of research that looked at using health economics to predict future trends suggested that overweight and obesity could cause an additional 670,000 cases of cancer in the UK over the next 20 years.

The Chairman: Dr Vogel, you mentioned a recent study that looked at comparisons with different European countries. Could you send Beth the reference to that so we can check it ourselves?

Dr Christina Vogel: Of course.

Q11 **Baroness Redfern:** Christina, you have touched on the key trends in poor diet and health outcomes in England. What are your greatest areas for concern?

Dr Christina Vogel: I will give you a point of view from our research. The greatest areas of concern are around obesity levels. I would like to talk particularly about the population level groups that I think are very important: women of child-bearing age and, actually, men of child-bearing age. The nutritional status of women before, during and after pregnancy is very important, and women’s dietary patterns are shown to be suboptimal. More than 50% of women aged 25 to 34 at the moment are overweight or obese, indicating a suboptimal diet. There is data from the National Diet and Nutrition Survey to show that the micronutrient deficiencies of women in that age group are concerning as well, with 37% of women having inadequate levels of iron and 20% of women having inadequate levels of iodine.

Women’s diets are also important because they are primarily responsible for food choices in the household. Data from our own research, the Southampton Women’s Survey, which is a population sample of 12,000 women in Southampton, as well as data from the Health Survey for England, show that mothers’ diets are very closely related to children’s diets and that this, again, is not equally distributed across the population.

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obesity in nineteen European countries." Public Health Nutr 21(1): 18-26.

Mothers with poorer diets have lower levels of educational attainment and their children are much likelier to have poorer diets. Similarly, women in the lowest level of income have more than double the likelihood of their child being overweight or obese if they are overweight or obese.

In addition, adolescents have the poorest quality diets of any age group in the UK, and adolescents are our future parents. Adolescence is a period when individuals obtain greater independence over their food choices, but there is a real reliance on unhealthy food environments. There is a lot we could do to improve adolescent diet. I would argue that those are some key population groups to focus on.

Baroness Redfern: Focusing on adolescents, do you think schools must play a larger part in helping to reduce the problem?

Dr Christina Vogel: Schools are part of the story, absolutely. There is the same level of recommendations and requirements for healthy school provision in both secondary and primary schools.

Baroness Redfern: I am thinking of vending machines and that sort of thing.

Dr Christina Vogel: Yes, absolutely. We are doing an intervention study at the moment with adolescents, and a lot of the children tell us, as part of the qualitative work, that the school environment is not supporting them to eat healthy choices.

Baroness Redfern: There is also the bullying issue with being overweight, and mental health issues.

Dr Christina Vogel: Yes, there can be stigma attached to being overweight and obese. Also, adolescents have greater consumer power, so they are more inclined to use local supermarkets, takeaway outlets and convenience stores to make some of their own choices, and when they make those choices, they are more likely to be unhealthy choices.

The Chairman: Do the other witnesses wish to come in?

Professor Tim Key: I want to add one comment to what Christina said about micronutrient intakes, particularly in women of child-bearing age. The most recent report from the National Diet and Nutrition Survey measured blood levels of folate, which is essential for preventing neural tube defects. There has been a fall over recent years—an actual decrease - in the blood levels of folate in young women in this country. As you probably know, the Scientific Advisory Committee on Nutrition recommended several times that there should be mandatory fortification of the food supply with folic acid. It is very worrying to know that blood levels are going down at the moment.

George Butterworth: The rates of childhood obesity in the UK are among the highest in western Europe. In relation to health inequalities, obesity is more than twice as prevalent among the most deprived 10% of children in England compared with the most affluent 10%, with similar

patterns in Scotland and Wales. The obesity gap has, moreover, increased over the last decade, rather than decreased, so it is a trend going in the wrong direction.

Baroness Boycott: Dr Vogel, you mentioned lower levels of attainment due to poor diet. Do you have facts and figures about that?

Dr Christina Vogel: We do, from the Southampton Women's Survey. It was the strongest predictor of poor dietary quality, and it was an overall assessment of dietary quality.

Baroness Boycott: And you looked at schoolchildren and what they were doing.

Dr Christina Vogel: For the Southampton's Women's Survey, 12,000 women were recruited to take part before they were pregnant; then those who fell pregnant in the following years were followed up. We had a cohort of mother-child pairs, with 3,000 babies.

Baroness Boycott: Would we be able to have that?

Dr Christina Vogel: We can certainly give you some of the publications that have come out of the study. It has shown not only that educational attainment is the strongest predictor of dietary quality, above all other socioeconomic markers and other factors such as age, but that there is a very strong correlation between a mother's diet and an infant's diet, which continues at three, six and nine years, as we have followed-up the children[2].

Baroness Boycott: Thank you very much.

Lord Rooker: I have a brief question, for which I know I shall get it in the neck. Has anyone done any work about the obesity levels of staff in primary schools?

George Butterworth: I do not know. I am only aware that levels of obesity in the NHS are talked about as a problem. The staff of the NHS mirror wider society, so it is linked. At job level, from nursing assistants through to consultants, there is a gap based on socioeconomic status. More than that, I am afraid, I do not know.

Lord Whitty: We keep saying that it is a bigger problem for lower

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[2] Robinson, S. M., et al. (2004). "Impact of educational attainment on the quality of young women's diets." European Journal of Clinical Nutrition 58(8): 1174-1180.

Robinson, S., et al. (2007). "Dietary patterns in infancy: the importance of maternal and family influences on feeding practice." Br J Nutr 98(5): 1029-1037.

Fisk, C. M., et al. (2011). "Influences on the quality of young children's diets: the importance of maternal food choices." British Journal of Nutrition 105(2): 287-296.

Okubo, H., et al. (2015). "Diet quality across early childhood and adiposity at 6 years: the Southampton Women's Survey." Int J Obes (Lond) 39(10): 1456-1462.

socioeconomic groups or those with lower educational attainment, but it is not universal. A proportion of the poor actually have quite a good diet, and a proportion of the rich have a terrible diet, some of them Members of the House of Lords.

Have there been studies of those who would fall within the worrying group, of low income and low educational attainment, but who behave in such a way that they do not have a poor diet and poor health outcomes? Is anyone looking at those in lower income groups who are actually doing the right thing?

Dr Christina Vogel: The honest answer is that I have not led that research myself, but some work has been done in Australia, and by some of my colleagues. Professor Mary Barker and Dr Wendy Lawrence conducted some research with women in Southampton, more qualitative research, to try to find opportunities for intervention and for exemplars in those environments. What they found was that it is more at individual level; those who tend to have some level of resilience have a stronger sense of control over their lives. They have a stronger sense of self-efficacy, which is a belief in their ability to adopt a healthy diet and overcome obstacles to a healthy diet. They also tend to have stronger elements of social support to eat more healthy foods, which is something that is generally lacking, as a general trend, across lower socioeconomic groups.

The other things we have found, when we asked women what the obstacles are to them adopting a healthy diet, they told us that it is really easy to access takeaway outlets. They told us that they feel as though they are getting good value for money, because there are greater promotions on unhealthy than on healthy foods. They also told us that healthy foods are perceived to cost more. Those are some of the environmental barriers that are spoken about.

The Chairman: George, do you wish to add anything?

George Butterworth: Yes. We have just touched on the idea of the obesogenic environment, which of course affects all groups but some more than others, and on our food environment, which is the challenge in this country. We have done a lot of work on the influence of marketing on dietary trends, particularly among young people. We did some analysis of the adverts shown on television in May 2018; in one month, around half of all food adverts were for junk food. We know that it has an impact on the preferences of children when they see those adverts. When they are surrounded by, and pressured to make, unhealthy choices, it puts pressure on parents and young people as well, combined with the impact of price promotions in shops and supermarkets, which tend to be on the unhealthiest products. That is one of the barriers that stops people making healthy choices across all groups.

The Earl of Caithness: Is there a reason why we are top of the league for child obesity in Europe?

George Butterworth: It goes back to the issues about the environment we have in this country. Part of it is the diet of Britain, which unfortunately tends to be poorer than—

The Earl of Caithness: But is it significantly different from that of northern European countries?

George Butterworth: It is. In this country, we have a unique issue with very unhealthy food, junk food: mass-produced, low-quality food that is heavily promoted. That is quite unique compared with the diet of other northern European countries, and it seems to have a greater impact here. Advertising exists everywhere, but in the UK, for whatever reason—we do not know why—it tends to have more impact on the purchase of unhealthier products.

As I mentioned, we did a lot of work on junk food marketing, and systematic reviews consistently show that advertising influences how much people eat of a type of food—all people, but children in particular. This can lead to what we call pester power, with children pestering parents for unhealthy products in the supermarket. The negative impact of HFSS advertising on children's dietary behaviour has been recognised by the World Health Organization as a major issue worldwide, but in this country as well. Increasingly, we have shown in Public Health England that as little as 48 to 71 calories extra per day are enough to generate weight gain in children over time. Research shows that up to 5% of young people's calorie intake can be influenced by the advertising environment. One reason why we are prioritising action on advertising, which has been mentioned in the childhood obesity plan, is that we think it is a major driver in obesity rates in this country.

Lord Rooker: Given the internationalisation of food, with huge international food companies, is there any evidence that the formulation of similar products in France, Germany, Italy and Scandinavia is different from what they sell in the United Kingdom? They are the same companies, by and large, so why do we have this issue? Is there anything in the formulation of similar products that is different?

Professor Tim Key: I do not know. Do you know?

George Butterworth: I was going to say no, there is no difference. However, there are two things I would point to, which the Government have done recently. The reformulation programme of Public Health England has had mixed results so far, but it is trying to encourage companies, on a voluntary basis at the moment, to reduce levels of salt and sugar in their products. That is having some success.

The soft drinks industry levy, the sugar tax, had a very immediate impact in reducing sugar in our fizzy drinks in the UK, with 90 million kilograms of sugar taken out overnight by the tax coming in. Companies reformulated the amount of sugar in their products, and although we could not call those products healthy, they are certainly much less sugary than they were before, as a result of government intervention. Broadly

speaking, unless government introduces mandatory standards, companies will make and sell those products.

Dr Christina Vogel: I would like to come back to the original study that I talked about, on ultra-processed foods. The fact that more than 50% of households buy those types of foods suggests that they are readily available; that is what people see in the supermarkets and that is what they buy. I am not sure of the evidence for that, but it would suggest that if the environment is selling them, that is why we are buying them often.

Q12 **Baroness Sater:** I am a patron of StreetGames and was a previous chair. You have all touched on this. How significant a contribution does poor diet make to health inequalities in England?

Professor Tim Key: I will comment first on the relation of income to diet, which is the first part. The National Diet and Nutrition Survey looked at whether the income of the household is correlated with intake of the foods we are most concerned about. The differences are not huge. It found that, with increasing income, there is a decrease in consumption of sugar-sweetened beverages and free sugars in general. Those are things that would be good and should reduce health risks in more well-off people. There is also an increase in the consumption of fruit and vegetables and fibre—again, good things.

On the other hand, it found that a higher income was positively related to the intake of saturated fat and salt, which would be adverse effects. There is always the danger of oversimplifying things. Income is clearly related to diet, but that reminds us that the diseases we are talking about have many other causes. You can look at the diet of people on lower incomes and worry about that, but they probably have big problems with many other things, such as smoking and other general attitudes to health.

This is not my specialist area, because I work on causation of disease, but my impression is that dietary factors clearly contribute to health inequalities, and fruit and vegetables go in one direction and sugars go in another direction. You would expect that to have an important bad effect, because poorer people consume more sugar and less fruit and fewer vegetables. You could also take the other point of view. If you could get a more level and fairer society, and poorer people had fewer inequalities in their whole life—in education, housing and everything else—their health, and possibly their diet, would improve because of those things. You have to take a holistic view of what is going on.

Dr Christina Vogel: Non-communicable diseases are socioeconomically, not evenly, distributed across society, so they affect those who are most disadvantaged more. That is having a knock-on effect on life expectancy and healthy living years, whereby since 2010 we are seeing it stabilise and stall. Older adults living in more deprived areas have shorter life expectancy than adults living in more advantaged areas. There is a difference of 19 years of good health between adults living in the more

advantaged and the most disadvantaged areas. Something is really going on. The global burden of disease study results suggest that dietary components are the biggest cause of death, which is a reason for us to say that poor diet is having a major effect on life expectancy and on healthy years of life.

I want to talk about some of the research on the differences in the food environment, in different areas. There is some good evidence. When we conducted a systematic review of the literature, we found that, across high-income countries, fast-food and takeaway outlets are much more prevalent in low-income areas. That has been backed up by some work from the University of Cambridge, which showed a 45% increase in the numbers of fast-food outlets in the last two decades. That was across all areas[3], but the greatest increase was in those that were most deprived. This is coupled with some of the research we have done locally, in Hampshire, where we mapped retail food outlets such as supermarkets and convenience stores, as well as takeaway outlets. For more than 2,000 food outlets we mapped, we found that 43% were fast-food outlets and independent takeaways. Big and small supermarkets made up only 11.5% of the area, and healthy specialty stores such as greengrocers made up only 6.5%.

There are some concerns to highlight in relation to the healthfulness of the food environment. happening in the food environment. Using Southampton Women’s Survey data, our work showed that more than half of children aged six years had 10 or more fast-food outlets in only an 800-metre radius around their home and primary school, and a couple had more than 50, which is a huge number. Some research from deprived London boroughs, on 11 to 14 year-olds, found that more than 50% reported eating foods from takeaway outlets more than twice a week, and 10% of them reported consuming foods from those outlets every single day. That is of grave concern for the healthfulness of their diets.

I want to add something about how the food environment is used. We did some work assessing the supermarket environment where women shop. We looked at a whole range of products and where the healthy foods were placed, and we came up with an overall score to measure the healthfulness of the supermarket environment where women shopped[4]. We found that discount supermarkets and small supermarkets had poorer environments, with fewer choices of healthy foods, cheaper pricing of

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[3] Maguire, E. R., et al. (2015). "Area deprivation and the food environment over time: A repeated cross-sectional study on takeaway outlet density and supermarket presence in Norfolk, UK, 1990-2008." Health Place 33: 142-147.

[4] The survey measured nine variables (variety, price, quality, promotions, shelf placement, store placement, nutrition information, healthier alternatives and single fruit sale) to assess the healthfulness of retail food stores on seven healthy and five less healthy foods that are markers of diet quality. Full reference:
Black, C., et al. (2014). "Measuring the healthfulness of food retail stores: variations by store type and neighbourhood deprivation." Int J Behav Nutr Phys Act 11(1): 69.

unhealthy foods and more prominent product placement of unhealthy foods.

There was a relationship[5] among women with low levels of educational attainment; women who shopped in poorer environments had poorer dietary quality, whereas women who shopped in healthier environments had better dietary quality. We saw a reverse relationship for women with degrees. What that suggests is that women with higher levels of educational attainment and income, as well as a higher psychological capacity, or perhaps knowledge of health, are able to buffer unhealthy environments in a way that women with lower levels of educational attainment are unable to do.

Work from the University of Cambridge has shown a very similar relationship, but that was with fast-food outlet access[6]. It looked at fast-food outlet access around home and work, and the commuter route between them. It found that there was a relationship for the whole population; with more fast-food outlets, there was greater consumption of foods from those outlets and a higher BMI. What it found, again, was that the relationship was more extreme and pronounced among those with lower levels of educational attainment, which suggests that there may be something about unhealthy food environments that exacerbates dietary inequalities.

George Butterworth: On junk food marketing and the side of it I talked about before, last year we produced at the Cancer Policy Research Centre, an in-house research centre at Cancer Research UK, a series of reports based on YouGov surveys of young people, the adverts they see and the amount of junk food they consume. They showed further evidence of the impact on their weight of what food and drink children and young people consume. That is seen across all ages of young people and in advertising on both television and on demand. On the inequalities angle, teams from the most deprived families were 40% more likely to remember junk food adverts every day, compared with teams from better-off families. Food advertising in the UK disproportionately featuring unhealthy food items could, therefore, play a role in increasing health inequalities.

Q13 **Baroness Osamor:** What public health interventions have been most successful in improving dietary behaviours and reducing health inequalities?

George Butterworth: You will hear two types of approach talked about: population-level measures, as in regulatory action from the Government, and a whole-systems approach, engaging across the health system with

[5] There was a relationship between healthier supermarket environment and better diet among women with lower levels of educational attainment. Full reference: Vogel, C., et al. (2016). "Education and the Relationship Between Supermarket Environment and Diet." Am J Prev Med 51(2): e27-e34.

[6] Burgoine, T., et al. (2016). "Does neighborhood fast-food outlet exposure amplify inequalities in diet and obesity? A cross-sectional study." Am J Clin Nutr 103(6): 1540-1547.

local authorities and public health teams, trying to help individuals to lose weight and improve their diet. I shall talk about the population-level measure because evidence about the impact is easier to follow.

I talked briefly about the soft drinks industry levy, otherwise known as the sugar tax. That is an example of government intervention that was relatively simple to implement and had quite a wide-ranging impact, albeit on one product. We should not overstate it and say that it will have a huge impact on obesity rates in and of itself, because you need a series of measures, but it had a dramatic impact on the amount of sugar in fizzy drinks.

We know that fizzy drinks are the largest source of sugar for young people, compared with any other unhealthy product. Essentially overnight, 50% of manufacturers reduced the sugar content of their drinks, before the levy was introduced, and 90 million kilograms of sugar were removed from the UK diet. That also created a price differential; the additional levy, dependent on the amount of sugar in those products, makes unhealthy fizzy drinks with more sugar more expensive than diet drinks, for example. There is a price incentive, which drives people, particularly those with smaller incomes, towards the less harmful product, so it has that effect as well. It also sends out a public health message. People are aware that consuming too much sugar is bad, and the sugar tax is closely associated with that.

In one measure, you have three different sorts of impacts, which is why fiscal measures in general are worth considering. It has been quite topical recently, around the Prime Minister's campaign pledges. The sugar tax is one of the most successful interventions on obesity in the last decade, and fiscal and other regulatory measures should be considered, particularly those on restricting junk food advertising, with a 9 pm watershed on junk food adverts to reduce the number of junk food ads that young people are seeing, as well as action on regulating price promotions of the most unhealthy products in stores, such as "buy one, get one free" offers on junk food. That type of thing, which is relatively straightforward for a Government to introduce, can have a wide-ranging impact, combined with a whole-systems approach of helping local authorities, for example, and public health teams to have the resources they need to help on the ground, and work with schools and educate young people. We need that combination to make progress on reducing obesity rates.

Dr Christina Vogel: A number of systematic reviews have looked at which interventions are most effective in addressing dietary inequalities. The evidence has shown that information campaigns such as "5-a-day" and educational campaigns alone have a limited effect on population-level change in addressing dietary inequalities. The evidence is more limited as to what is effective, but the suggestion is that it includes strategies that address environmental and social determinants of health. In supporting that, allowing people to have a healthier environment enables them to alter their behaviours and then to sustain those behaviour changes.

We have done some pathway research. We did some pathway modelling looking at psychological, financial and environmental relationships, and how they influence diet. We found that there was simultaneous action whereby if we were to change[7] the environment it could likely facilitate some of the individual level factors. That is backed up by work from Australia. They looked at changing price in supermarkets by subsidising fruit and vegetables by 20%, and it had a positive impact on behaviour, so people purchased more fruit and vegetables. There is a good level of evidence across high-income countries, in New Zealand, Australia and the Netherlands, to suggest that. More than that, women talked about it being easier for them; it was easier for them to make healthier choices. It gave them a greater level of confidence to be able to do that.

Professor Tim Key: I have a short point on salt. It is difficult for people to keep attention on all the priorities. We hear about obesity and sugar, but salt is very important. There was a UK salt reduction programme in the last 10 to 15 years, but it is something you probably cannot tax like sugary drinks. It is unlikely that you are going to tax salted peanuts and not unsalted peanuts. The strategy was two-pronged: reformulation, working with the food industry; and public awareness.

The result so far has been that intake when it started was at 8.8 grams a day, and after the programme the latest data is that it is down from 8.8 to 8 grams exactly. The target is 6 grams. You can judge for yourself whether that is successful. It has gone in the right direction, but it is still way above the target. My feeling is that you need a lot more effort, and more work on reformulation and public awareness. You have to keep pushing these things to people, otherwise people will forget about salt and think that it is not important.

Baroness Sater: Christina, do you have more information on the campaign on subsidising fruit and veg in Australia? It would be useful to see it.

Dr Christina Vogel: Yes. A systematic review has assessed it, plus I can send you the independent studies[8].

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[7] Full reference: Vogel, C., et al. (2019). "Examination of how food environment and psychological factors interact in their relationship with dietary behaviours: test of a cross-sectional model." Int J Behav Nutr Phys Act 16(1): 12.

[8]

Waterlander, W. E., et al. (2013). "Price discounts significantly enhance fruit and vegetable purchases when combined with nutrition education: a randomized controlled supermarket trial." American Journal of Clinical Nutrition 97(4): 886-895.

Ball, K., et al. (2015). "Influence of price discounts and skill-building strategies on purchase and consumption of healthy food and beverages: outcomes of the Supermarket Healthy Eating for Life randomized controlled trial." Am J Clin Nutr 101(5): 1055-1064.

Brimblecombe, J., et al. (2017). "Effect of a price discount and consumer education strategy on food and beverage purchases in remote Indigenous Australia: a stepped-wedge randomised controlled trial." Lancet Public Health 2(2): e82-e95.

Baroness Sater: Thank you very much.

Lord Rooker: I shall ask this as a question, so that it is on the record, after what you said about the salt reduction programme. It was a voluntary programme; it did not require legislation. It was successful, but it was abandoned in 2010 when the Secretary of State removed diet and nutrition from the Food Standards Agency and put it behind closed doors in the Department of Health. It is as simple as that. The World Health Organization held its salt summit in London in 2012 and applauded what the UK had done. I do not claim any credit for that, by the way, because it was done by my predecessor and my predecessor but one at the FSA. The salt reduction programme was done with industry on a voluntary basis, and it worked, and then it was abandoned for some reason in 2010.

The Chairman: Thank you for that clarification.

Lord Empey: You mentioned the concentration of fast-food outlets. If you had a constituency, I would confirm that we all know that. But the irony is that to feed a family at fast-food outlets is exceptionally expensive. If you go for fish and chips it costs a lot of money, and if you are feeding three or four kids and so on there is a fundamental contradiction. It must be eating up a much higher percentage of people's income, even though their income level is lower. Is there some psychological reason for that?

Dr Christina Vogel: I do not know about psychological reasons, but, again, falling back on the literature and what the evidence says, there have now been a number of modelling and review studies showing that healthier diets cost more. Work from the Food Foundation showed that the poorest percentage of people have to spend a huge amount, some 25%—

Baroness Boycott: I am sorry to interrupt, but it is much more. It is 74% for the lowest 10% of people, and over 50% for the next 10%. One in five people have to spend over 50% of their disposable income to eat the Government's eatwell plate. On the fast-food thing, certainly in our studies in London, you could get portions of chips for 50p, and many fast foods drop their prices by 50% when schoolchildren come in between 4 and 5, and there is nothing you can do about that. There is no law to stop it.

Dr Christina Vogel: Often in areas where there is high competition between fast-food outlets, they are highly competitive with each other. You might get free portions of chips. They do a lot of tactical pricing to make sure that they are bringing in the business. In areas of the high street where there are tens of fast-food outlets and takeaway shops, there is lots of competition. A healthier diet costs more.

Hartmann-Boyce, J., et al. (2018). "Grocery store interventions to change food purchasing behaviors: a systematic review of randomized controlled trials." Am J Clin Nutr 107(6): 1004-1016.

In some of our qualitative work in Southampton, women who have poorer diets told us that they are less willing to spend money on fruit and vegetables if their children are not going to eat them. They often have to go through a whole lot of wastage before they even get to the point where their children will eat it, so they much prefer to buy things that they know their children will eat. There is a range of barriers to people adopting a healthy diet, and cost is a big one.

The Chairman: Thank you for that. I would like to press on, as we have a couple more areas to cover. Lord Whitty, I invite you to come in. We have already touched on this matter, but you might like to re-emphasise it.

Q14 **Lord Whitty:** We have talked about intervention in terms of regulation and pricing, but what is your assessment of the effect of basic guidance and the availability and knowledge of guidance? What could be done to strengthen the impact of guidance to consumers, schools and families? I throw in one thing that relates to that. We have not mentioned the word "exercise". Part of the Government's attempted intervention has been on exercise as well as on food intake.

The Chairman: Is this one for you, Dr Vogel?

Dr Christina Vogel: Yes, certainly. I do not know the numbers on awareness of the *Eatwell Guide*. I know that people are very well aware of '5-a-day', but we know that 31% of adults are eating five a day, and 8% of adolescents. It is not translating into action at the population level. As Tim mentioned, it is even worse among those with lower levels of educational attainment and a more disadvantaged background.

The *Eatwell Guide* has a role. It is not as prescriptive as some of the dietary guidelines in other high-income countries. Perhaps I should consider my choice of words. In Australia and Canada, the guidelines are much more detailed; they give more prescription around how many portions of which types of foods to have, from bread and cereals to fruit and vegetables through a whole range of different products. That varies across age brackets as well. Having said that, obesity rates and levels of poor diet in those countries are not much better than in the UK, and in some of them might be worse, so I do not necessarily advocate that that is a good way to go.

On good international examples of dietary guidelines, the Brazilian dietary guidelines were updated in 2014, and they have been much commended by the UN and prominent people in public health nutrition as a very good way forward. That is because they completely changed the classification of the dietary guidelines, moving away from food groups and classifying them in terms of processing. This comes back to the ultra-processing of foods. There are four levels of classification. There are unprocessed foods, so there is a real push on having wholefoods and whole products. The guidelines very much advocate a plant-based and grain-based diet, with wholegrain products and pulses, moving away from very highly processed foods. Again, I do not know whether there has

been a massive shift, but there is some indication that industry has responded in a positive way. Rather than formulating more highly processed foods, there is now a push for people to purchase more wholefoods.

Coupled with that particular guideline were links to having a climate-friendly diet. It is about doing your bit for yourself but also for the environment. There is a big push around cooking and eating together—the social aspects of food. In the UK, we are one of the most reliant countries on convenience foods across the world, so we tend to consume foods on our own and more in isolation than together.

Lord Whitty: Did you say Brazil for that last one? If you could send us the details, that would be very useful, as long as it has not been abolished now.

The Chairman: George and Tim, would you like to come in at all, very briefly?

George Butterworth: There is only one thing I would add, which is on the difficulty of the situation and getting awareness about guidance. One way would have been through local councils getting that messaging out, either through schools or directly, but their funding for public health has dramatically reduced over the last five years. The same would apply to Public Health England, which could run campaigns to promote eatwell guidance. Its marketing budget has, again, been drastically reduced, which hampers its ability to put the message out. The guidance might be there, but the question is whether there are the resources to promote it effectively to people who need to see it.

Lord Whitty: Could I press the point on exercise? The theory, or allegation, is that the working class always had a terrible diet, but they used to work it off with heavy manual work, both in the home and at the factory. The Government have made tentative efforts in their guidance to try to raise the level of exercise. Do you have any comments on that?

George Butterworth: Physical activity is a good thing, but, as you say, against a backdrop of lower activity in the workplace generally—although there have been more initiatives in schools recently to do more—and the amount of high-calorie and heavily processed foods that people consume, it is very difficult for physical exercise to override that impact. Initiatives on physical exercise unfortunately tend to help only people who are already engaging in physical activity; they do not tend to get to the people they need to. That is broadly the situation; that is why we focus on the dietary elements.

Professor Tim Key: To go back to the *Eatwell Guide*, most people agree that it is pretty sensible advice, but very few people are familiar with it. We heard in the previous session about huge amounts of money being spent on advertising foods. It is hopeless unless the Government have more money to spend on things like that, so that people actually know about the work they have done.

Dr Christina Vogel: Could I add something on physical activity?

The Chairman: Very briefly.

Dr Christina Vogel: I would like to advocate active transport, having more cycle paths and more pedestrianised access. That, to me, is the best way of improving the population level physical activity. It is important to have lower reliance on cars and greater reliance on public transport, enabling more active transport, which is a win for the climate as well.

The Chairman: Lord Rooker has a question that is, I think, specifically for Dr Vogel.

Q15 **Lord Rooker:** Yes, it is for you, Dr Vogel. We understand that you are working with a supermarket chain to evaluate the effect of supermarket-based interventions on diet, particularly product placement strategies. I am aware from my roles as an ex-Minister and at the FSA of the absolute science of supermarkets. Most supermarkets are the same when you walk in, but I live in Ludlow, a town of independent shops, and I use the Aldi for the food bank. I have to say that the first time I went in I was gobsmacked because everything was topsy-turvy. I understand that there is some science behind the way products are placed, but I never thought about it from a dietary point of view. Could you share any of your work on that with us?

Dr Christina Vogel: Yes, absolutely.

The Chairman: And could you keep it really brief, because we have about three minutes to go?

Dr Christina Vogel: Yes, sure. Supermarkets are a major source of food for many families. When we go into a store, we are not so aware of a lot of the subtle marketing techniques, such as product placement. Our observational research indicated that improving the environments of the least healthy supermarkets was very important, and product placement played a role. When we did our research, in 2011 and 2012, we identified that fruit and vegetables were not placed at the front of the store in the discount and smaller supermarkets, and that is still the case in many locations. In the big chains and healthier supermarkets, they are always placed at the front of the store, and they have quite a big range.

We approached and built a relationship with Iceland supermarket. We have conducted a pilot study, which involved six stores across the country. As part of that pilot study, we expanded the range of fresh fruit and vegetables and placed them right at the front of the store. We removed confectionery from checkouts and from the end of aisles opposite checkouts, and replaced it with non-food products and water, purposely trying to make sure that there were no calorie opportunities there. It was only a pilot study, but the results were very promising, showing improvements on the diets of women and the purchasing patterns of women customers. Of course, we focused on women of child-bearing age.

That has led us very much to welcome the Government's announcement that they intend to limit and regulate the prominent placement of less healthy foods in places such as supermarkets and other food outlets. For our full-scale study, we are not focusing on confectionery and unhealthy foods; we are focusing on the placement of healthy foods. We are now conducting a large study that will be the first adequately powered international study[9], so it will give us very robust results. We are looking at whether placing fruit and veg at the front of the store affects diets and purchasing patterns. We are asking not only about mothers and women customers but about the diets of the youngest children, so we will have a greater understanding, which is new, because there is a real gap in the literature, about who those interventions work for.

We will wait and see what the study results show; we are half way through the study at the moment. If the study results show that it is effective, increasing fruit and vegetable sales and improving diets, the Government might consider adopting it across supermarkets. If all supermarkets were to have a minimum range of fruit and vegetables, according to the size of the store, placed at the front of the store, we would be strong advocates of that, should the results of our study indicate that it would be effective.

Q16 **The Chairman:** Thank you very much. Before we close the session, I ask each of you in turn, if you were making a recommendation to us as to what we should include in our final report and had to name one intervention that you think would be the most effective in reducing diet-related ill health, in one sentence what would it be?

George Butterworth: I would build on what I said about ensuring that the childhood obesity plan chapter 2 happens. That is a comprehensive watershed on junk food advertising at 9 pm, both on TV and online. That would have a big impact on reducing exposure to young people.

Dr Christina Vogel: I would have to say that there is not going to be one thing that fixes the situation. There needs to be a comprehensive strategy and whole-of-government approach that tackles the environmental determinants—the cost, promotion and in-store placement of food—as well as providing additional supports for those who need it a bit more, providing an ability critically to analyse their environment and to increase their confidence that they are able to select and follow a healthy diet.

Professor Tim Key: I pretty much agree with Christina. There needs to be a comprehensive programme tackling all the problems, and it should be integrated with other government policies, on agriculture particularly, and environment.

The Chairman: Thank you very much indeed, witness panel, for your evidence, which we found extremely helpful. You will receive a draft transcript of this session and you will have an opportunity to make minor

[9] To assess the effect of product placement on the dietary quality and purchasing.

editorial corrections, if you wish to. You have at different points in the session kindly agreed to send us some further back-up information. We very much appreciate that, and Beth and Sam will follow up with you. I draw this public session to a close.