Danny Lennon: Hello, and welcome to another episode of Sigma Nutrition Radio. My name is Danny Lennon. I'm here alongside Dr. Niamh Aspell and Alan Flanagan, soon to be Dr. Alan Flanagan.

And then I'll be the Mr. Danny Lennon still left over, but we today are going to be talking about everything to do with the food environment.

So, you guys looking forward to this particular conversation?

Niamh Aspell: Yeah, I think it's going to be a good one. I've just really gotten into the literature on it in the last couple of weeks as well. So yeah, it's really interesting and I'm excited to have a chat about it.

Alan Flanagan: Yeah. It's a topic I find particularly fascinating, in fact, in a way, for much of the debate shall we say around diet and nutrition and human health, is so focused on the food and macronutrients and that kind of level.

And often when you start looking into this literature, it's like all of that kind of dissolves, not that it's not relevant, but it seems to become quite secondary to the web of social, structural and commercial determinants of health that influence the composition of an individual's diet.

And yeah, it's a topic I've been accused of being a socialist before on the Barbell Medicine Podcast. And Danny, we did that previous episode, which attracted some interesting feedback where we were also accused of far left leanings.

But this is a subject that comes down to evidence and that's how we can separate it out from the ideological political thinking that often informs how people view the evidence, which is obviously something that we should be vigilant against kind of succumbing to. And there is a lot of evidence for the role of the food environment. Yeah.

Danny Lennon: Yeah. And I think understanding this topic is valuable for a few different reasons. One just because as you say, it's inherently kind of fascinating, and it allows us to understand why people end up making certain food choices that they do, how that impacts their health.

I think second, then we can think about interventions from a kind of top down policy level, which we'll discuss later. But I think this also has a lot of implications for everyone listening in terms of when people are giving advice or their opinion on around how people should eat or their food choices or what to do.

Sometimes without an understanding of this, you can get into a problem because you actually lose the understanding that food choices are made within a certain context. And if you divorce it from the context, it becomes kind of meaningless.

So to maybe illustrate this more clearly, I think if we talk about first, some definitions in around the food environment itself.

There's probably a few ways to categorize this and we can go through some of them. I think from an overarching level for people listening, it's probably worth bearing in mind that when we're talking about the food environment here, it's not exactly what I think.

Or at least I see some people term it as, whereas I think it's quite common for people to think of the food environment as, yeah, when someone's at home, what foods they have in their kitchen, what foods they have available, how can they change what their home and work environment looks like?

That indeed is part of the food environment and an important part, which we'll discuss later, but it's only one part of a much broader picture that includes their economic situation, political, sociocultural contexts, and how people have access to food and engage within the food system more broadly, which we're going to talk about.

And by understanding this, then we can realize that the choices people make with their food are dependent amongst all this context. And again, why we can't divorce it from that context.

So in terms of adding to that, what do both you feel is probably the best way we should define what we're going to, from here on term, the food environment? What's the best way for people to conceptualize that?

Maybe I'll start with you Niamh, if there's anything you would add to anything I've just put there?

Niamh Aspell: Yeah, no, and I agree, and I think that it is really important as well when we're thinking about healthy diets and healthy kind of behaviors that a lot of the research that we do does focus on what is the best diet and examples of good dietary patterns and good health outcomes.

But we know from the evidence that we struggle to eat healthily. And I looked up lots of different definitions and how it's defined by different groups, and people with obviously different motivations are coming from different angles.

But there's various definitions or ways in which we can describe the food environment, but they all seem to share these kind of central kind of pillars or central themes.

And there was one particular one that I came across published by the European or discussed by the European Commission last year, not last year, the year before, 2020. 2021 is just like the year that I don't recall in my head. It just disappeared.

But they defined the food environment as, so just verbatim, "The interface that mediates people's food acquisition and consumption within the wider food system."

I think it's important to also to define what the food system is. So essentially that just covers the pathways by which food travels, so farm to fork, that kind of concept. So where it's grown, processed, packaged, transported, marketed, sold, consumed, and how it's disposed of. So that full kind of system.

But the food environment then encompasses external dimensions as well. So things like availability, pricing, vendor, product properties, promotional information, and then personal dimensions, like you've kind of mentioned, those kind of economic factors as well.

So affordability, convenience is obviously a really big factor and desirability of food sources and products. And just to add to that then as well, The Lancet in 2015 when they were discussing the food environment in relation to obesity, they added that the current food environment, which I think this is the bit that really interests me, is how it exploits people's biological, psychological, social, and economic vulnerabilities, making it easier for them to eat unhealthy foods.

So again, it's kind of considering an individual but also the wider kind of construct around the food environment and how that impacts people very, very differently, depending on a number of different factors.

So I think both of those descriptions taken together kind of describe for me what the system and the impact of the current system looks like.

And I think both of those in infrastructures of the food environment, the more kind of human and behavioral side of things, and also the kind of the more infrastructural side of it, are how we should approach it in terms of research and also informing policy interventions as well. So I feel they should be explored together.

Danny Lennon: Anything you want to add, Alan, or you happy with that as our definition going forward?

Alan Flanagan: Yeah. Yeah. I think it's a really useful working definition. The Foresight Group included one in their report, their recent report, but again, it doesn't necessarily say anything different.

I think the important thing to highlight is that there's both a kind of an individual level consideration, like these influences on the individual and these influences across the population.

And that's relevant because when we come back to discussing policy implications later, both of those respectively then go to the consideration of targeted approaches, which would be more kind of individual subgroups or whole population approaches, which are designed to kind of shift the distribution of risk across a whole population.

And they tend to differ in their kind of policy application and implication. So there's both this individual and population wide consideration there.

And yeah, within it I think the three primary pillars are social and economic determinants, structural determinants, which we could refer to as the built environment.

And then obviously the commercial determinant, which certainly the Lancet series that Niamh highlighted, also kind of takes into account those.

Although not explicitly mentioning it, it is the kind of role of those commercial forces in shaping the environment towards an ease of consumption of unhealthy foods or foods that would ultimately increase risk.

Danny Lennon: Yeah. And just to pick up on that Lancet series obesity definition that Niamh you first mentioned, and I think there's a couple of key aspects to that.

One, even in the terminology of how the modern environment exploits these various vulnerabilities, I think is important because that will keep rearing its head and then how that makes it much more likely we're going to consume unhealthy food stuffs or an over consumption of them.

And what that kind of made me think of in another term that I think is worth defining at this point for people because they will have heard it, is the obesogenic environment.

And I think this is worth bringing up for a couple of reasons. Number one, it gets this idea of how that modern food environment can exploit these vulnerabilities to make us over consume.

But also out of a point of interest that term being originally coined by a researcher called Boyd Swinburn who originally did a lot of work at the NIH in the states, but has since been a big name in public health, in both Australia and New Zealand and some of his work we are going to come back and reference a bit later on so it's worth bearing in mind.

But essentially his original work where he was working on health outcomes in the Pima Indians, specifically those in a reservation outside of Phoenix, first coined that term obesogenic environment, which has now become kind of widely known.

And I'm sure everyone listening has probably heard it to some degree, but that name and that research will rear its head later on in this episode.

So maybe to get into the kind of real details of this particular topic, and we think about these various environmental conditions or factors that can play a role in our food choices, our food behavior, and other aspects of health.

There's a number of these that we could work through. I don't think there's any particular order that we have to jump into but one of the ones that we've noted that maybe of interest is people's food preferences and how food preferences gets shaped.

Because on previous episode of this podcast, regular listeners may remember Professor Marion Hetherington talking about aspects of food preference. Some of those being innate like the liking for sweetness in infants, but a lot of those preferences being very malleable in humans and can be shaped over time based on exposure to certain foods.

And one of those big factors being familiarity with certain foods, so what we're exposed to on a kind of consistent basis. And if that familiarity then it obviously leads that or what foods we're exposed to in the context of peer groups and growing up, et cetera, can have a large role on that.

And there's some indeed evidence to show that this home environment has a large role there, as well as other factors. Based on what we know about this kind of food preference and then the ability of the food environment more broadly that we've just discussed to influence that.

Are there any particular elements of that research area that you guys find interesting that are worth kind of highlighting at this point?

Niamh Aspell: Yeah, I can start anyway. Yeah, a lot of the studies that I've looked at obviously look at early life, are then true to adolescents.

And I think that became quite important when I kind of looked through them all to try and see what the kind of common thread really is around people's food preferences and how that changes and what their motivations are.

I think one of their earlier studies that I think you previously mentioned, you brought up, was the importance of the home environment and how that was shown to be important in terms of preference for certain types of foods.

So there was one particular study that was conducted in the UK. So data was taken. This is one of a number of twin studies that were done when we're looking at kind of food preferences to see if there's differences in the kind of environmental or genetic factors.

So the researchers in this study investigated food preferences through the parents. So essentially they got data from a UK cohort. Parents after three years from birth completed some questionnaires around the child's food preferences.

There was lots of different foods listed, grouped into main kind of food categories. So proteins, vegetables, fruit, dairy, starches and snacks. And they analyzed or assessed the genetic and environmental influences of each of these kind of food groups.

And the results were quite striking, but really, really interesting. So there was a really strong genetic influence for veg, fruit and protein, but that was much lower genetic kind of influence in terms of their preference towards starches, snacks and dairy.

Whereas the opposite, the twins kind of shared environment, so where they were brought up essentially and the home environment effects were much higher for snacks and starchy foods and they were lower for fruit and veg.

So this kind of was one of the first, well, it was in 2014, so it's not that old a study. But it showed good demonstration that those genetic effects were more predominant for nutrient dense foods.

Whereas your environment, so this shared environment in these twin studies, the effect was dominated more so for snacks and dairy and starches.

And I think that's quite important in terms of, if you think of interventions for health educators for parents at a early stage to try and encourage less exposure to these snack type foods or high starch foods and more kind of allowance towards the nutrient dense foods that are more genetically determined anyway.

So it's kind of instilling those behaviors quite early on. It seems to be quite important that we're kind of more predisposed to want healthier kind of foods if we're not as exposed to the more calorie dense, nutrient dense foods.

Danny Lennon: Mm. Yeah. For me, at least one of the fascinating things about the food preferences is at this point, many people are thinking, "Yeah, this makes a lot of sense that for food preferences, there's this aspect of familiarity."

And we have this certain exposure to different types of foods would lead someone to have different types of food preferences and that can therefore impact their food choices going forward.

And one of the fascinating things that you see in this area is it's not just exposure to foods that you typically consume, but the same degree of familiarity and liking and preference towards foods can be driven through advertising.

I think there was one paper, the Carins 2013 paper that we looked at, is particularly interesting because that maybe less obvious to people that you can get the same degree of building familiarity and preference and wanting and desire towards a food through advertising.

Alan Flanagan: Mm-hmm (affirmative).

Danny Lennon: And that has a number of knock on consequences that I think we'll probably mention a number of times throughout this particular episode.

And I know some of the stuff around advertising, public health policy, population-wide nutrition is something we discussed in that previous episode.

I think 363. And so it's fascinating to see that link in between this mechanism of familiarity and positive association.

Alan Flanagan: Yeah. Advertising works.

Danny Lennon: Despite what they would say.

Alan Flanagan: Yeah. There's so many kind of different potential layers when we're talking about the shaping of preference and choice. There are various different kind of

subheadings that we could go through in terms of, and obviously like the effect of different life stages.

What I find quite striking is both the effect of what we would call the structural and commercial determinants. So they align, right?

So that is the deliberate shaping of the food environment in terms of the local built environment and the influence that local built environment has on food availability and choice.

And that itself is inherently tied to socioeconomic factors. Because that influence will show discrepancy based on the socioeconomic status of the particular area that we're focused on.

And of course the built environment of a particular area will also vary relative to socioeconomic status. So those kind of tend to converge.

And again, they're not necessarily inseparable from the advertising factor. So when we talk about, because I've mentioned it a couple of times, just to put a definition on this concept of commercial determinants of health, what we're talking about is corporate influence exerted primarily through four channels.

So they're advertising, one. Lobbying. Corporate social responsibility, which is an absolute misnomer and improved supply chains.

And so they typically kind of coalesce. So the advertising typically focuses entirely on as you were pointing out, Danny, repetition and exposure and the breeding of familiarity and the breeding of the preference and desire and want.

And that is almost exclusively in relation to foods we would classify as not health promoting. Energy dense, high sugar, fat, often salt content as well, often concomitantly sugar sweetened beverages, fast food outlets, take away, et cetera.

And they then combine that with lobbying to get around any restrictions on their ability to broadly advertise however they like.

As an example, when there was a public health nutrition campaign in the UK to get transport for London, a TFL to basically bring in kind of bans on junk food advertising on the tube and in tube stations.

One way that industry got around some of the restrictions was by developing basically almost sketches, like an artistic image of a burger, and then saying, "Oh, but this isn't any particular burger. This is just a representation of a burger," right?

You can't make it up. Part of the problem here. And so the next minute you're down in a tube station, there's a big Just Eat sign with a drawing of a burger on it.

And so one of the problems within this is that industry has a seat at the table at every step of the way from policy inception to outcome.

In a healthy functioning society where the private sector does not dictate the public health, which is the exact scenario that we have, what you would have is public health officials and people with relevant expertise would decide the policy with government.

The policy would be enacted and then industry would be brought in to say, "Here's the policy. Now you have to work with us to actually achieve this."

That's not what happens. So industry are there at every step of the way to frustrate, obfuscate. And one way that they do a lot of this is the third kind of strategy that I mentioned, corporate social responsibility.

So this is where massive transnational food and beverage corporations basically, and this is right out of the tobacco industry playbook, take on the role that, "Look, look, we get it. There's some bad things out there, but on the whole we're really good and so we'll just help by promoting."

So a really probably classic example of this is they'll promote physical activity. We'll still advertise Coke, but we'll encourage people to exercise, right?

So the huge amount of their resources goes towards funding research that extols the benefits of physical activity and downplays the effect of, for example, sugar sweetened beverages. I.e the main argument being brought forward is that, "Well, it's not really the sugary drinks that we're selling. It's just people need to run it off."

And so a lot of this will tie into these and they'll kind of adopt these externally benevolent kind of policies or they'll do wellness weeks and all this kind of crap in the workplace. And all of this is, again, just to obfuscate from the reality of businesses continuing as normal.

And the improved supply chains I think we can kind of leave out because it's kind of getting into more food system stuff. It is relevant but hopefully people have gotten a good enough grasp on the whole commercial determinants of health.

Of how the corporate influence through advertising, lobbying and then this kind of veneer of corporate social responsibility, which in reality is obfuscation away from the evidence that we have for the adverse effects of these foods.

Particularly in vulnerable groups like adolescents and these all kind of coalesce then as commercial determinants of health to obviously influence food preference and availability and ultimately purchase and consumption in the population.

Danny Lennon: Mm. So we have another couple of elements there that we've talked about, kind of food preference and how that overlaps with a number of these other factors.

We've focused in so far on advertising as one example, by which we have this impact of industry on food choices by mediating food preferences and so on.

But then there's other aspects that you've also raised there, like availability of foods in terms of what people have access to, whether that's healthy foods or unhealthy foods, which ones are most convenient and then cost, and then things like purchasing power.

And these are a number of things that I know you've talked about before. So maybe they're worth working through each of those maybe in turn, because I think they're particularly important.

One, in terms of availability of food that's around and people's exposure to food, therefore the likelihood of what food choices may be made.

One of the particular areas of research that I always remember you first bringing up to me, Alan, was in relation to, I think worked done out of the UK looking at density of takeaways or fast food restaurants relative to different areas based on socioeconomic grounds.

Can you maybe just give a kind of a brief overview and a recap of that for people of maybe some of the most intriguing or important points that would illustrate this idea in terms of availability of food?

Alan Flanagan: So it's really important because we know that your exposure to, well, any kind of advertising or otherwise, does actually correlate with purchasing and intake.

The genesis for this was actually a Public Health England analysis, which modeled the number of fast food outlets within a local authority districts throughout the UK. And the correlation between the number of fast food outlets in a local authority area with levels of social deprivation.

And what they found was a strong correlation between the level of social deprivation, i.e the lower social economic status of the area, the greater number of fast food outlets were in that local authority area.

And this was followed up then with a 2014 analysis by Fraser and colleagues where they looked at the density specifically of four major chains. So McDonald's, Pizza Hut, Burger King and KFC.

And each one of them was linearly associated with increasing social deprivation. I.e the more socially deprived the area, the more of each of those four fast food outlets were located in that area.

And of course, again, this is not without consequence for diet because we know that exposure to fast food outlet correlates with intake and that's exacerbated by income status.

So there was an analysis, for example, looking at this particular relationship between likelihood of processed food intake, processed meat specifically, and exposure to fast food outlet density.

This was from the UK Biobank data. It's a 2018 study, Burgoine and colleagues. So a huge observational cohort. So what they were looking at was two primary exposures. Proportion of neighborhood fast food outlets and household income.

And actually thinking about it using the proportion of fast food outlets, because it's still an ongoing topic within the epidemiology in this area, is how you actually properly quantify this? Because classification of stores can be kind of arbitrary.

So a supermarket could be classified as healthy despite the fact that you could walk in and just get liters of Cokes and crisps and whatever.

So this was potentially a more refined study, a broad classification of neighborhood food vendors that may provide a kind of more representative measure of the density of fast food outlets and it was also considering household income.

And what they found was an interaction between these variables. So the combination of the highest fast food exposure, fast food outlet exposure, and the lowest household income was associated with higher odds or likelihood of processed meat consumption, and also higher odds of obesity compared to those with, for example, the lowest fast food exposure in their local environment and the highest incomes.

And so that was quite an interesting analysis because it did build on previous research, but it also related then to another UK study, which was Barton and colleagues, which is in the British Journal of Nutrition.

And this was looking at the relationship between, still looking at energy density actually, specifically as the outcome of interest in the diet and various indices of social deprivation.

And what was most interesting in this, for example, was they also looked at household composition as an exposure. And what they found was that amongst all exposures they were looking at, single parent households had the highest dietary energy density in the households, and that was independent of socioeconomic of status.

So after adjusting for social deprivation, single parent households remained in the highest energy density household diet group.

And so that's indicative that yes, socioeconomic factors really do have a really strong bearing on these outcomes, but actually so also do within home variables in terms of a single parent who may be working two jobs or maybe working one very busy job and doesn't have time and that kind of playing out.

So I think to sum this up, I think there's three take home points that are evident so far in this research. And this is coming back to what we termed earlier, the structural determinants of health, the local built environment.

So as far as those structural determinants, we know that there is a greater density of fast food outlets in areas of social deprivation. We know that that's linear. The poorer the area, the more that there is an availability of unhealthy food. We know that this ties into advertising and we know that this correlates with an increased likelihood of not only intake of energy dense foods and an unhealthy diet, and that's exacerbated by low income.

So these kind of factors all nit together, but there are also other variables, like for example, household composition in particular single parent households that may be vulnerable to relying on, for example, convenience foods that results in quite an energy dense diet.

Danny Lennon: Excellent. And within that I know on a number of those aspects relative to food environment, exposure to food, food access, there are a number of other studies that you'd highlighted Niamh that go beyond some of the UK populations that look at similar types of topics.

I'm wondering is there anything in this particular area that you would add on the back of what Alan has just put there?

Niamh Aspell: Yeah, no, I think there's so much varied results in this respect and I think there's lots of different things to take into account.

I think most of this research seems to have been conducted in Western populations or in urban type areas. So I think we need to try and understand how the food environment also impacts on people living in more rural communities. I think that is quite interesting.

There's a couple of examples of that I might suggest. And again, and Alan you mentioned it too, that limitation in terms of how we categorize these different food-

Alan Flanagan: Outlets.

Niamh Aspell: Access point. Outlets. If it's a supermarket or a fast food restaurant, doesn't necessarily mean that we're going to go in there and choose a certain type of food.

Obviously when you're talking about the four fast food outlets that were mentioned in that study, there's a really good indication that you're not going in there for apples. So I think that's pretty strong.

But there's a couple of other studies that added in other elements. And I think this kind of goes back to what we're talking about here is it being an environment and that we need to take more of a systems approach and it's not just based on single different factors, single different contributors, that there's lots of other factors in place there.

And there one particular study published in 2020, the SLOPE study, where they wanted to look at geographical inequalities. Essentially just wanting to understand the environmental impacts from birth related to childhood obesity.

And they took data, antenatal birth data, from a large number of kids in Southampton in the UK. And they looked at this based on two different categorizations of geographical definition for each of those children that was included in the study and they looked at lower and middle layer, super output areas.

And I've worked on data sets that have used these kind of categorizations for determining a person's location. And they're quite crude in the sense that they're on average between 1500 and 7,000 population areas.

So, you could be, depending on the area that you're living in, you could still be a lot further away from a McDonald's or whatever it might be than the person who's next door to it and you're all being defined as living within the same proximity to that area.

And that's just one small thing. And obviously that's important in terms of these open access data bases and data protection, data privacy. So that's just a small limitation on that.

But they had also included other area level indices that are quite important. So, walk ability to food outlets, so is there actual paths and lit areas so you could actually get to these areas that you're considering?

And then the relative density of unhealthy food outlets compared to healthy food outlets as well. And then spaces for social interaction.

There's obviously a big drive, particularly in policy now, for green spaces and actual functional green spaces as well, supermarket density, and then measures of air pollution as other factors.

And they've used quite a novel way of evaluating all of these different factors, which a lot of these studies have included called the ArcGIS Network Analyst, which essentially allows you to build a data set network to perform a more in-depth analysis of all of these different factors within a geographical kind of sense.

So you can define kind of connectivity rules and different network attributes or weights for all of these different, important factors. So it was designed quite well.

But the population averages were also then applied to that as well. So whatever the likelihood of the child was to go on to become overweight or obese was based on the same demographic information that was available in those local or the lower middle super output layers as well.

They didn't have many things to confound for because what was available with the samples. So there's a lot of things that weren't considered in terms of the paternal and maternal behaviors, but overall, they did find that at this middle layer, so the layer which has a higher population coverage, the density of unhealthy food outlets and pollution were associated with overweight and obesity, but not among children who'd moved.

So children who'd left that area since they were born. It wasn't as important a determinant, but green space coverage was one of the most strong determinants for the risk of obesity and overweight or obese children.

So it kind of goes back to, well, the food outlet is within vicinity as well but then what other resources are around and available to promote healthy behaviors as well? So that seemed to have confounded, confused, not confused the results, but kind of expanded our understanding of what other things need to be in place.

So even though there's bad foods available to you, there's lots of other factors that need to be encouraged at a policy level to encourage healthier behaviors or allow people to engage in healthier behaviors as well.

And yeah, when you think of that association with green space coverage being associated with obesity and that lack of green space coverage, that also links straight back into the other factors that you're talking about.

The sociodemographic things that you're more likely to have parks and open kind of spaces in areas where you have higher house prices.

Alan Flanagan: Yeah.

Niamh Aspell: And then higher house prices more likely are related then to the family income. So it's very hard to, I think, look at one specific predictor within that food environment and think, well, this is the most important, not the most important but one thing to address. And it goes back to the systems approach of, well, you can address that, but then there's another 20 other factors here within this environment that aren't kind of being considered or being covered.

And just to go to the kind of opposite of it, there was a study, particularly now and if we're talking about other drivers of food preference and we'd mention kind of advertising and how many times we're exposed to certain things like traditional marketing or advertising and media campaigns have changed quite a lot in the last 10 or 20 years, because we no longer just see billboards.

We have constant exposure to advertising on our phones and through social media all of the time. And that's no longer just in our immediate, if you're thinking geographical environment, I can see a million different images of foods that are available across the world.

So it's changing my perception or preferences for food beyond just that environment where I currently live. There is a interesting study in a Dutch population, it's called the GLOBE study. I think it was published last year.

And they, again, very similar thing, wanted to look at the density of food outlets around a resident, and then the odds of that resident then becoming obese and they wanted to investigate as well some individual factors.

So the relationship between a person's degree of self control and financial strain as well, and they showed that somebody who was obviously more financially strained, so if there's kind of high indicators of stress, then that might link back as well into single parent households.

Not that it's necessarily driven by stress, but more time constraints in a requirement for kind of more convenience maybe. But they also reported that high financial stress and low levels of self control were more so a determinant of obesity, as opposed to just the greater density of fast food restaurants.

It was quite funny because they actually, in this particular study, showed that there was no association between the number of food outlets or fast food outlets and weight status of the participants in the study.

So it was the only one that I came across that showed the opposite. But I think it just kind of brings in, again, the idea that it's very dependent on cultural.

Basically like we need to consider it in terms of subpopulations but the entire population. And then a lot of the policies that are currently there are European policies that aren't really tailored specifically for national groups or for different cultural groups as well.

Alan Flanagan: I think that is really important because one of the pushbacks in any kind of dialogue that I've ever really had on this issue specifically and particularly as it relates to say poverty, is a tendency to focus in on one factor. Usually by people to kind of object to any such kind of association.

So it tends to reduce it to say, "Oh, cost or availability or choice," and all as kind of single consideration factors. And so they'll say, "Well, if it's all about cost then, well, these foods are cheap," or, "If it's all about availability, sure. There's fruits and vegetables in this store."

And so it kind of almost straw mans the complexity of the whole thing by reducing it to that one variable. And I think that the population specificity is really important because there's very clear lack of almost cross-cultural applicability with a lot of these exposures.

You see more consistency with certain things if it's in the UK population. That doesn't necessarily translate to research in a European population or even sometimes in the states or Australia. So I think that national level consideration is really important and the cultural factors within a population.

Danny Lennon: I think one of the aspects that we plan to talk about that I think gets this idea of people focusing maybe in on one area and not looking at the implications for people to try and eat in a healthier manner and pointing out, like you said, a couple of foods that are affordable or that people should have access to or whatever the argument ends up being.

I think one of the analyses that you'd highlighted, Alan, in relation to disposable income and how much of that would have to be used up if someone were to eat in accordance with the Eatwell guidelines in the UK. And that kind of gets to this kind of broader picture about why some of these food choices are made.

And as we, I think have discussed before, as has Professor Martin Caraher, that oftentimes food choices are actually consciously made and are actually very rational despite not being in line with what people say is a eat healthy type of way of being.

I'm wondering, can you maybe just touch on the purchasing power argument? And then also I think that links in with the Foresight report that you mentioned a bit earlier as well.

Alan Flanagan: Yeah. And that this has to do with the declining power of real wages or the declining value of real wages, particularly in low socioeconomic strata of society, and this has been over the past 40 years.

But essentially the cost of living has just been going up and that includes food purchase. It includes people's rent. It includes people's gas bills.

And there's a massive squeeze about to come on to households in the UK, for example, an average household increase of 1,200 this year, which is going to absolutely plunge a huge proportion of the population that are struggling right now into poverty.

And so this has to do with you've got this rising cost of living, but a declining value of people's real income, real wage decline as a result of austerity cuts and otherwise.

And what Martin Caraher's research has been really useful for is kind of dismissing a lot of the politically motivated ideological rhetoric that families on low incomes, for example, make poor choices.

And Michael Gove in 2013 said, and I quote, "They've only got themselves to blame for making bad decisions." And so this is at the level of government that we see these statements being made or there's a former Conservative party minister who basically said that, "Well, as soon as people get their paycheck, they're off to get another tattoo."

So this is political, right? It's unbelievable. Anyway, this is politically motivated rhetoric, but actually as Caraher's research has pointed out, it doesn't bear out in the facts.

So there's the relative purchasing power means. And this was Food Foundation report that showed that basically if you were in the bottom 10% of income in the UK, you would have to spend 73% of your disposable income, right, just to comply with the recommendations of the Eatwell guide.

Now that's all of your disposable income. So that's three quarters of that being spent on your food budget, not necessarily any other outgoings that a family might have or a household might have.

Households in the top 10% would have to spend only 6% of their disposable income. And if you average that just into the top half and bottom, the poorest 50 of the UK population would still have to spend 30% of their disposable income while the top 50% would only have to spend 12%.

And so it's not the case that you can simply say, "Well, vegetables and fruit or tinned beans are cheap." It's relative to purchasing power.

So it's the proportion of income, disposable income available in a household, that can be allotted to the food budget after other costs have been accounted for. And so that's really important.

So this is based on say the Households Below Average Income survey, which is the publication by the Department of Work and Pensions in the UK.

Disposable income is after spending on say income tax or insurance or council taxes and housing costs, so like electricity or gas, et cetera, water have been deducted. And so you've got all of these costs that go in then to determine what's left over for a food budget.

And yet, despite these strains on family households, the research actually shows that within the UK, during the austerity periods, families on low incomes actually adapted and they traded down to purchase cheaper products and had an average household saving of 4% in terms of their food budget.

So in fact, as Caraher has outlined, for people that bang on about personal responsibility and fiscal responsibility, this is families doing exactly that.

It's doing the best they can to exercise that responsibility, both fiscal and personal, in order to try and have some additional household availability of disposable income to purchase food with.

So, it's the opportunity cost as well of having support in society removed from them. And so yes, there is so much evidence that counters this kind of stereotype of, shall we say, to quote, "The feckless poor," as they've been portrayed, certainly by right wing parties.

And on average we see families really doing their best to struggle to use food budget in a way that is responsible, but their constrained choice.

And this is really important because when people talk about choice in the food environment, this is not an equivalent choice, because it's a situation of constrained choice. And if it's that constrained choice, then it's not really free choice at all.

Danny Lennon: Yeah. And I certainly want to circle back to that in a moment. I'm quite keen to get us towards, okay, now that we've looked at some of these barriers and these obstacles and factors that can impact health, what can we do at the level of modifying the food environment in some way for a healthier population overall?

And I think maybe the best way to maybe start framing this is to address that kind of dichotomy that we've brought up a few times of around from a policy level.

And then at the other end, maybe like a personal responsibility or individual level aspects that people can change or even within that tends to be the argument around let's just educate people about what healthy eating is, how to make these choices and then let them do as they wish, make this kind of free choice and go from there.

And so really we're looking at this as, do we look at top down interventions? Do we look at bottom up interventions? And both could probably be used in the context of addressing the food environment.

And in this sense, just to clarify for people, top down being this level of public health policy and food street regulation. And bottom up being more actions the individual can take to modify their own food environment or to make certain choices.

But I just wanted to read out a couple of lines that I've taken directly from a 2015 paper from the aforementioned Boyd Swinburn, who I mentioned at the top of the episode.

This paper appeared in the Lancet in 2015. And there's a couple lines here that I think just set the stage better than I could around this.

So it says, quote, "Dramatic actions are needed to improve the healthiness of food environments. Substantial debates surrounds who is responsible for delivering effective actions and what specifically these actions should entail."

"Arguments are often reduced to a debate between individual and collective responsibilities and between hard regulatory or fiscal interventions and soft, voluntary education based approaches."

"Genuine progress lies beyond the impasse of these entrenched dichotomies. We argue for a strengthening of accountability systems across all actors to substantially improve performance on obesity reduction," close quote.

And so I think this, again, making the point that trying to just look at this as let's just educate people and they'll be fine to what they want.

And that if you dare mention policy at all, it suddenly becomes a political thing as opposed to something to do with public health. It is probably misguided at best, or it should be looked at.

And I think from here, we can maybe start looking at some of tho those interventions. One thing that I think is interesting as I was kind of reading through some of this work and particularly another paper from Professor Corinna Hawkes, who was also on this podcast previously.

In one of her papers she had a line that said, "Food policy should aim not just to make the healthy choice, the easy choice, but the healthy choice, the preferred choice," close quote.

So what I think I particularly like about is it shows that there's this overlap between the individual level choice and policy, right? It's not one or the other.

That the reason that we are doing policy is not just to have an impact on food industry. There are policies you can put in place that actually make it not only more likely people will pick a food choice, but they actually want to do that, right?That there's the actual incentive there.

So again, it gets away from this idea that by somehow enacting a policy, you are forcing people to eat a certain way or you're mandating them to eat healthily. That's just not the reality.

That given the correct policies, people would actually prefer to make these healthier decisions or at least that's one way you could set up policy.

So with all that, and that's kind of quite grandiose, we could have a lot to dive into. Is there any points of departure that you guys want to jump into? Niamh, maybe? Is there anything there that you think is a good place to start with some of these interventions?

Niamh Aspell: Yeah, no, I don't want to mention it because everyone talks about it too much, but I think if there's anything that we look at in terms of changing policy and examples on how we can make recommendations and implement recommendations and how countries do it well and how countries don't do it well, is when we look at pandemics.

And a lot of the research that's been done previously has looked at pandemics that weren't related to COVID, but now we've had so many lessons around how countries, at these top down approaches, what works, what doesn't work in terms of supporting society. I think we can take a lot from that.

And I think in most countries, and I'm particularly just thinking of Europe, we have these global recommendations or we've had these global recommendations for the last two years.

But we see that this initial emergency response, because we also would define obesity as being an epidemic or a mass concern that requires involvement from lots of different actors, so that we can take a similar approach and not do what we did at the start of the Coronavirus pandemic in terms of having these very global policies that were just directed at certain groups essentially, the population, and excluded vulnerabilities or excluded intricacies of local level factors as well and how they need to be tailored.

So it is the same we have these policies around obesity that are all well and good, but they're global policies and they don't take into consideration really specific societal factors as well. And I think that we need to integrate that a little bit more.

So top down approaches are really important, but I think they should be really so much taken as a blueprint by each country and tailored very specifically at a regional and then at a local level as well.

Because I don't think these universal approaches are going to work anymore. And it's something that we have seen quite, I suppose, too recently in terms of how countries work and how things are communicated and how people are supported.

I think in terms of that decision making, if we want more long term sustainable solutions, then we need to have a better understanding of the underlying causes within different areas and due to different reasons.

So these temporary initiatives or singular initiatives, there's lots of singular kind of mandates for different things, are really good and some have been demonstrated. Things like the sugar taxi that we'll probably get into in a bit more detail, but they're kind of patch fixes.

They're just like, "Oh, we'll stick a bandaid on that. That will slow that one down." And it's not really solving the problem. We're kind of softening it a small bit, but I think definitely more needs to be done and considered kind of more widely.

And again, just kind of going back to what Alan was saying as well, there's definitely a lack of action, I suppose, to address a lot of these drivers and pretty inadequate political leadership and governance at the moment.

And there needs to be more of a strong opposition in terms of commercial interests in all of the policies that we have as well. And that needs to be a little bit more transparent.

But I don't know if you want to have a chat about any of the particular policies? There's a really good example, a case study of how we can kind of overcome some of this, but using a systems approach in a US population.

It was published about 10 years ago but they essentially used a pandemic type framework to overcome, I suppose, some of the issues that they were finding in an area in the US that had particularly high prevalence of obesity.

So essentially instead of just addressing one or two issues, this kind of approach more so focuses on understanding the underlying cause of the problem that's not being addressed.

And I think one thing that we'd mentioned before is that it's not a single problem. So this solution isn't going to be a single solution as well, otherwise we'd have it wrapped up and covered.

But if you think of the reasons why there's kind of a, I suppose, a slow or a lag in why we have taken this wider approach to looking at obesity is that, and we've mentioned it already in conversation, but there's this recognition that obesity is not just an individual responsibility or an individual few, it's a global epidemic.

And that's kind of changing. We're starting to changing our viewpoint on that because we're seeing the impacts of it more frequently.

But one part of the systems approach that's been implemented, I'll go through the example if you like that's been done in the US, but essentially it just focuses on how all of these different factors are interconnected and how they can change and how they're different depending on the location or the place in which a person lives essentially.

So there's one, it's in Baltimore in the US, there's a large kind of socioeconomically diverse population, but there's very high obesity rates there.

And a project was conducted, I think in 2014, where they'd taken this systems approach to try and reduce the rising rates of obesity in early life. So in adolescents and in children and they again engaged multiple stakeholders.

So the first step in this is what we know we should do is not just have one kind of governance actor, but have everyone who's involved. So they had multiple community representatives.

So when we say top down, I think a lot of people think the top heads in government, but it's as well going to these community representatives as well. So they'd included lots of people from local councils, their local food policy initiatives, their Departments of Health, public health, their schools, recreation parks, non-for-profit organizations, anybody who was linked in with adolescents and children and who was involved in some capacity to how they live.

They also had academic partners and live in lab situations as well, but they amalgamated all of this expertise from all of these disciplines.

And it's been done in lots of other areas beyond nutrition before, where they'd bring in things like engineering health policy, the structure of cities and towns and map all of that and map the major causes of obesity and the relationships between them.

And it's quite a complex system to analyze in terms of this system's approach, but essentially they created a computer model that represented the child or the adolescent interaction, which caused, or was most likely to cause obesity.

So this was very detailed modeling around their movement over the course of a day. Again, it was broken down by personal characteristics in terms of background, culture, gender, age, and their preferences for food as well.

And then they could use this model to then design and test interventions on a wider scale and come up with some really kind of practical solutions or translational solutions that could be implemented within that region.

So things just like when to give nutrition education, when to give practical cooking education, peer mentoring, peer support, how to manage advertising to promote healthy eating incentives as well.

And then bringing that into all of the different... People who stock healthy foods or store owners as well to totally change the environment in which children interact or engage with in terms of buying food or interacting with physical activity and different groups and their own peers as well.

So I think that's a really good example and something like that should be replicated and tailored based on what national recommendations or responses are to try and overcome or tackle obesity.

Danny Lennon: Yeah. I like the point that we need to kind of conceptualize appropriately what we mean here by top down or even by what we mean by policy intervention.

Because I think sometimes people can presume that means one thing of that the most high up in government are going to be telling you exactly what to do. Whereas there's many aspects that we could include as a public health policy.

And so maybe at this point, it might actually be really useful to distinguish between different types of public policy interventions under different kind of general umbrellas and realizing that any individual policy or individual intervention in one particular location may be different to others. But we can generally put them under various different brackets of different types of interventions.

Alan, do you maybe want to outline how you think people should think of public health policy, public health interventions when it comes to addressing the types of issues we're discussing of what we actually mean? What types of interventions even are there in a general sense? And then we'll maybe get into specifics of certain studies after that.

Alan Flanagan: Yeah. So there's kind of two general broad ways of thinking about the nature of what the policy may be. And so that's either a whole population approach or a targeted approach, and both of them can be effective, it depends on the context.

But as Niamh outlined with the example of COVID, we've seen that actually sometimes whole population approaches can lack effectiveness.

And that's because often with two factors, people that are most likely to respond to whole population approaches are often those with a low risk factor profile. I.e they're in the kind of healthier bracket or the higher socioeconomic status.

So again, for an example, like with COVID, it was very easy for people who were middle class to start working online, get all their groceries delivered, et cetera, et cetera.

And so they're able to respond to the public health messages in a way that almost fully complies with them, but their risk profile is low in the first place. And there's still people out there having to drive trains and deliver their their groceries.

So that highlights the kind of weakness of whole population approaches, which is that whole population approaches can often have the potential to have minimal influence on those who actually need the policy the most.

And then the merits of a whole population approach then depend on the influence of that approach on specific risk factors and that differs by disease.

So, with obesity, there's obviously so many different factors that go into it. And so there can be helpful whole population approaches, but they can lack specificity and they can miss the most vulnerable groups in society.

Targeted approaches would look to actually identify specific vulnerable subgroups and have interventions that can really hone in and target on specific groups.

And then we have the potential for downstream or upstream or top down or bottom up interventions. So top down interventions would be one where we're really looking at government to affect policy and to perhaps bring in regulation.

And then bottom up approaches would be ones that focus at the grassroots level, perhaps local initiatives within a community or at the individual level. And both of these can be beneficial.

And for obesity, it has become abundantly clear that really most of the emphasis, and this suits the food industry, they want everyone to focus on bottom up approaches and that's because they want more than anything to make sure that no regulations are brought in.

So most of the evidence now really points strongly toward a top down or upstream intervention on policy and environmental change driven by responsible and effective government to be the most effective.

And there are various examples of voluntary public partnership schemes, and there's really scant evidence that voluntary opt-in public private partnership schemes, like the Responsibility Deal in the UK, have any impact because industry gives the thumbs up like, "Oh yeah, we'll do all this stuff." And then the ink is dry on the agreement and they basically don't voluntarily opt in.

So within the options that would be available for policy interventions then, so we've defined that there's both whole population and targeted approaches. And then there can be top down kind of upstream policy regulation, and there can be bottom up kind of downstream community based individual level interventions.

There's a number of different then kind of categories that could we think about interventions. One, is with the use of mandates and mandates are used all the time in public health. There's obviously a huge amount of current debate and angst about potential for vaccine mandates in relation to COVID.

But a mandate is where we basically require policies for industries or individuals. And as it relates, forgetting the COVID analogy before it gets really heated, but mandate or mandatory regulation, like I said, is considered to be at this point necessary if really meaningful impacts are going to be made on the food industry's ability to dictate the food environment that we have spent the afternoon talking about.

And then there's restrictions. So you can restrict the sale for example, of sugar sweetened beverages to minors. You could also have restrictions in relation to marketing. And so you regulate food advertising and try to limit the promotion of unhealthy foods and beverages.

And again, these relate because, for example, recently there was a desire in the UK to bring in marketing limits, both like the TFL example we used earlier but also in relation to social media and in the absence of the ability to mandate the policy to industry, it just gets watered down to the point of nothingness coming out the back end.

You could have economic incentives. So the sugar tax has been incredibly successful here. There's been a 30% reduction in content of sugar sweetened beverages, despite a 14% increase on average in sales since the tax came in.

So it's been a very effective policy at forcing industry to reduce the sugar content of drinks and therefore the exposure to sugar in the food supply.

And then information provision. This can be really useful at times if it's used in a kind of bottom up approach that we were talking about. Community driven programs for enhancing cooking skills, and these kind of policies can be very useful at a local level.

And then we've got environmental defaults or what people might call soft paternalism or nudging policies. And there where you're looking to shift an individual's behavior toward a more default healthy choice without fettering their right to choose.

As an example of that, there was a study in the UK Thorndike and colleagues in 2012, it was really interesting because what they did was they took the drinks display of a shop and they altered what they called the choice architecture.

So that the area within people's eye level and arms reach were either water or non caloric sweetened beverages, so diet Coke. And then the full sugar sweetened beverages were either down the bottom or up the top.

And humans being humans, people actually just defaulted to the Coke Zero, because that's what was at eye level and what was within reach rather than bending down and picking up the can of Coke even if they wanted it.

So these can be useful, but they're the ones that the food industry likes to actually say, "Oh yeah, well, we'll go along with this stuff," because nudging and these suggestions tend to be supported by people, certainly on the right of center, because they like the idea that you could just maybe still preserve choice without actually doing anything at the level of industry or intervening at the level of industry with mandatory regulation.

But there's a real, in the evidence that we have for diet, there's a limit to how far they can go. They tend to be very effective within even more local context, like a workplace canteen or this kind of thing.

So they're not really that suitable for our kind of scaling up any higher than that, so to speak. And as you can see from the way we've talked through these, these all relate to each other and are not necessarily distinct or separate.

Danny Lennon: Yeah, I think that gives us a really good overview of different potential interventions and you mentioned some of the research on those.

I think going back to the idea of earlier that I mentioned around Professor Corinna Hawkes, saying that we should look at food policies that aim to make that healthier choice, the preferred choice.

That kind of fits in with this idea of stealth interventions, I think was coined by Professor Tom Robinson at Stanford, essentially how can we put policies in place where we get people to follow the healthy behavior without it simply

being on the basis of, "Do this because it's the healthy behavior," right? What is the other incentive behind that?

And then depending on what we're particularly looking at, would probably depend on which one of those interventions you mentioned.

So for example, if it's that people would want to eat in a certain way, but there are certain barriers to getting access to certain types of foods or the convenience of getting healthier foods, or it's a cost issue.

Then it might be interventions are around a subsidy, but if then the barrier is something else then a different intervention would be needed.

So in terms of thinking what interventions we have the clearest evidence on, I know you've mentioned a number of those with things around mandatory regulation and food industry, taxation.

Then on the softer side around nudging, or maybe even reformulation, there's a lot to address. And I think we discussed some of that in the public health policy episode. So we don't have to go over all of that.

But where are we with the kind of strongest evidence to date about if we are looking at creating healthier food environments? What do we know right now in terms of what is an evidence based conclusion for people to come away with of how this can be modified? And is there any hope of doing that in the current environment?

Because as you know and I think actually another one of the lines from one of Boyd Swinburn's papers was he said, quote, "In our research and the research of others, we've been able to specify and model several policy interventions, which are highly cost effective and feasible, but they are not being implemented due to the counter lobby power of the food industry and other private sector interests," which is essentially speaking to what you've just outlined.

So I'll ask you maybe both in turn and maybe I'll start with you Niamh. Number one, if there's anything in addition to what we've just been discussing or any particular points that you want to touch back on?

And then in addition to that, where do you think we're currently at in terms of where is the evidence strongest of how and if we can kind of modify the food environment in a way that is going to be beneficial to population health, generally again, given the context and nuance of depending on geographic location, culture, et cetera?

Niamh Aspell: Yeah. One thing that I think is quite important and something that I hope we've learned a lot about over the last couple of years is that policies are important, but they're also important that we get public engagement with them as well.

So from very early on and from kind of the outset that they're no longer just created by who are deemed the most important influential stakeholders, whether it be government or public health, but also that they're informed by the people in the population who are encouraged to live by them as well.

I think there's a really good qualitative study done in Australia where they'd interviewed university students and they wanted to know their preferences for food choices or behaviors.

And one really important thing that come out of that is that none of them followed the Australian dietary guidelines, mainly because they were directed towards people who were likely to get diabetes or obesity related diseases, which kind of to them occur when you're about 50 so why would I care about those?

And I think that's extremely important that they're tailored based on different groups. That's just one example of one group they should be tailored to, but they need to be tailored to lots of different groups. A.

Nd we need to have more co-creative kind of methods around how we prepare and present policies to people. Again, there's lots of studies like cultural studies done.

There's one done in Spain, in Madrid, where they'd interviewed people in local neighborhoods and tried to find what drove them towards eatings in certain ways.

And it was all around trust and their relationship with the food retailer or the person who was providing the food. And I think that's becoming more and more central to people's decision making, particularly over the last couple of years where we have focused a lot more on connectivity with our local areas and support of our local areas and that level of connectedness there.

And again, we've probably wobbled in our trust for government initiatives or government responses as well. So I hope that this will change how decisions are made or how maybe policies are created and encouraged and driven across.

Because so far we know we've got all of these healthy eating kind of guidelines and policies, but they're obviously not working.

So we need to maybe restructure that a little bit. And I think that we can take a lot of lessons from how we've implemented certain top end policies over the last couple years. And hopefully that can maybe change things slightly or change our approach a little bit.

And the other thing I think that leads into that, and I know it's an important initiative at a European level, is building these new food environments that focus more on sustainable farming within local areas.

So the Farm to Fork strategy being one, and these are quite new initiatives that are only currently kind of being funded and being tested.

And they still need to evaluate whether these new sustainable food environments, which very much kind of focus on the agricultural system within countries and within certain regions, it's kind of more of a going back to kind of grassroots kind of approach, but not very much at a local level but within a national kind of level on how we can feed and support ourselves without requiring food from transnational large food companies as such, I suppose.

So I think once some of those studies start to take place and start to validate how we can meet dietary requirements and also satisfy those different industries within our local access as well. I think that's a really important way forward for us to kind of change our food environment.

I think it will take a while, a long time for it to change, but I think it took a long time for it to get the stages it is in now.

And that's another thing around these interventions, whether it be like let's change something like a sugar tax or reformulation of certain products.

It's going to take a while before we see the impact of that and it should be encouraged or supermarkets or food producers should be supported to be able to implement these changes over long periods of time. Because it'll take long periods of time for us to see the impacts of them, so I think that would be my take on it.

Danny Lennon: Alan, anything you'd add to that?

Alan Flanagan: Yeah. There was one point in particular, Niamh, you mentioned that this idea that we have if we're borrowing from, again, the kind of recent COVID example, there was a study that came out looking at responsiveness to the pandemic and finding that trust in a population, trust in public institutions within that population, was a really strong kind of predictive factor in A, the actual national response, but both at the level of government and then in the population.

And I think that bodes really ominously for some countries then in terms of addressing chronic disease for which diet and the environment are primary drivers, particularly countries like the US and the UK.

One thing we can say so far because to date the entire focus of policy has been defined by A, as we alluded to at the outset, the presence of industry at every

step of policy formation to the lack of any political appetite, no pun intended, maybe, for regulation or intervening at the level of industry.

Because, again, our prevailing market ideologies that is relatively [inaudible] to the economic models that operate in countries like this.

So the idea that you might fetter with their ability to generate profits is considered sacrilege. I think those political realities bode very poorly for countries like the US and the UK to the point where I don't see any meaningful policies, strategies.

How many obesity strategies have there been? I can't remember, the number is absolutely absurd. Maybe 13 or something, they keep getting published and nothing happens.

I think other countries are potentially in a better position to combine upstream approaches with targeted kind of population specific interventions with community bottoms up approaches to make a meaningful impact and again some European countries where there's examples of successful grassroots policies having an effect.

But also a willingness. For example, to tax even beyond sugar. Denmark is an example of that. So I think it's coming back to the granularity that Niamh mentioned, that there is going to be no global policy in relation to this that affects this on a global level.

It's going to differ from a nation to nation basis based on the kind of national characteristics on the ground that we're talking about.

And I think it's going to differ based on the prevailing kind of socioeconomic and political ideology that prevails in that particular country.

When I look at the evidence for this, it seems pretty strong to me that policies like levies, I.e economic incentives can be really effective, mandatory regulation of certain aspects of the food environment. Again, appears to be a must at this point.

Putting the [inaudible] of the coin forward, we've absolutely no evidence that leaving the industry to self-regulate will do anything beneficial for the food environment or for people's diet on their plate.

And they are resistant to any policy that will influence any aspect of their current commercial determinant plan via lobbying, advertising, and these fake kind of social programs that they purport to operate.

So I think it's pretty obvious that mandatory regulation is likely to be required. That's going to require political capital and an appetite politically to do.

And because that very concept of regulation is diametrically opposed to the political ideology of, for example, the Conservative Party in the UK or the Republicans in the US, I can't see countries like this enacting any meaningful policy that will make any sort of difference.

So I think the public health, certainly in the UK and the US, is likely to just continue to deteriorate. And I think that there's potentially hope for kind of European countries and other countries that don't view poor people as some sort of burden on society. There's my nihilistic take.

Niamh Aspell: We're doomed.

Danny Lennon: Everyone move to Scandinavia.

Alan Flanagan: Basically. Move to Norway.

Danny Lennon: Yeah. Because if we're accepting what should be a relatively obvious premise that there are many things that impact food choice and dietary behavior and many of those are structural factors.

Then if one does not want any kind of regulation in any of the ways that you've just been discussing, then what the argument being put forward is is that by going other way and just relying on education and getting people to make the right choices freely, that will be enough to turn the tide of the current prevalence of obesity and an obesity related disease without any change at a structural level.

And if that's the argument being put forward, as you said, it seems a strange one to make or at least it seems one that is not very well supported.

But then that leaves us in the kind of difficult position of, okay, trying to make conclusions here is number one, there is no one intervention to recommend.

And as you've both outlined what particular interventions and at what level they should be used and how they should be enacted will be very much dependent on the population we're talking about the time, the targeted group that we're looking at, et cetera, and a multitude of other things.

So then we can't give like a clear thing, "Oh, here's the best way to go." And then even beyond that, the ability for that to happen is quite in doubt.

So then I think the only other thing that I think is worth saying for people listening is that, of course, in individual level, because many people listening are maybe nutrition or health professionals or individuals trying to make choices for their own food environment, that's very much a almost separate question to what we've discussed today in that there are a number of things that can be done to modify that food environment at an individual level.

There are a number of things that a practitioner can, for example, to allow that change to occur. There's a number of things we know about behavior change that could be useful.

All of that will maybe be discussed on a separate episode, but when we're talking about nudging the whole population in the right level or at least the majority of it to actually move the needle on chronic disease prevalence that is related to diet and lifestyle, it seems that some degree of structural change would be needed.

But I suppose that's as much as we can get specific on conclusions, unless there's any other kind of conclusions based on what we discussed today, that either of you would like to add at this point before we start wrapping up?

Niamh Aspell: No, I don't think so. The last point, because we focused entirely on obviously obesity and the food environment, but there's just a lot of data as well coming from the US around that we're all just overfed.

And some people are not as predisposed to be overweight, but we're over consuming and overfed and that similarly has impacts on our health outcomes as well.

So whilst it is an obesity problem, I think in terms of the food environment, we're all being impacted and influenced by it in some way. And I think that's pretty important to note as well.

Danny Lennon: Yeah. And I think we've got examples in relation to things around reformulation for sodium as an example, or changes at the level of food industry of getting them to change the amount of saturated fat in foods, et cetera.

And many of these are going to be tied to things like atherosclerosis, hypertension, which can of course occur very much independently of adiposity or categories of obesity. So yeah, that's a point well made.

Alan Flanagan: And again, we've seen this with COVID, I think again we have been focused on obesity and its relationship obviously with kind of chronic diseases like diabetes or cardiovascular disease in the population.

But as we're talking about this issue itself, it doesn't exist in a vacuum of public health. And we've again seen that societies with particular approaches, shall we say again, politically ideologically motivated approaches to the public health have dealt with COVID particularly disastrously as far as the mortality toll in the population.

And so there's a constellation of factors. We know that socioeconomic status is a big variable that we've been discussing here. We know that we can almost stratify the things like outcomes like obesity along socioeconomic lines.

Within that then the risk an individual has, this goes to what Niamh was talking about earlier, about the multifactorial nature of this outcome essentially is it's inseparable from poor housing quality, lack of disposable income.

It's inseparable from, like in America, obviously the opioid epidemic in rural communities, it's inseparable from precarious employment status and lack of employment security and job security.

Again, in the states, that's exacerbated by the fact that people's access to healthcare is tied to the employment market, which every other country in the world mostly would consider an absurd proposition and quite barbaric.

And yet they consider it completely par for the course and world ones that are mad. And so there's a range of factors that are all playing out to be part of this ultimate outcome.

And this particular question we've been focused on is not the only example of an area in which a number of countries around the world are failing their duty, as in government, to the public and its health.

And so I think that that's an important consideration as well, because all of these things are actually intertwined and related and unfortunately not separable.

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