

Cyflwynwyd yr ymateb i ymgynghoriad y [Pwyllgor Iechyd a Gofal Cymdeithasol ar Atal Iechyd gwael - gordewdra](#)

This response was submitted to the [Health and Social Care Committee consultation on Prevention of ill health - obesity](#)

**OB34: Ymateb gan: Bwrdd Iechyd Prifysgol Caerdydd a'r Fro | Response from: Cardiff and Vale University Health Board**

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Health and Social Care Committee – Inquiry into the prevention of ill health-obesity

Cardiff and Vale University Health Board response (June 2024)

## Introduction

1. Cardiff and Vale University Health Board are pleased to provide their written submission to the Senedd Cymru, Health and Social Care Committee on Prevention of ill health: obesity.
2. After the COVID-19 pandemic, research showed that child obesity prevalence in reception year children during 2021/22 increased across Wales, particularly in areas of disadvantage<sup>1</sup>. Due to the many contributing factors, preventing obesity is a complex challenge. There is increasing recognition and evidence building around the need, and benefit of taking a whole system approach to improve population health and maximise impact. Fundamental to the approach are; recognising the role of different 'actors' across the system (including Welsh Government, public sector bodies, third sector, private businesses and individuals), identifying and using levers to influence change at multiple levels, and working collaboratively with a shared vision to improve population health. Whole systems working recognises that there is no one solution to tackle complex public health issues including obesity, and moves away from blaming the individual.
3. Our local whole system approach through the delivery of our Move More, Eat Well Framework (2024-2030) is aligned to the Public Service Boards (in Cardiff and the Vale of Glamorgan) Wellbeing Plans as well as more focused strategies, plans and programmes of work that are driving change across the breadth of the system (e.g. Food Partnerships, Cardiff Physical Activity and Sport Strategy and the Healthy Travel Charter). Through Move More Eat Well action and change across the system is being driven forward by many partners; enabling and embedding opportunities for movement and good food for our communities, in our settings and in the environment.

4. For sustained change, and as a shared priority, the system needs to be resourced adequately to enable the breadth of levers for change that are across the system at both a local and national level to be maximised.

## Gaps/areas for improvement in existing policy and the current regulatory framework (including in relation to food/nutrition and physical activity)

### Clearer leadership, ownership, implementation/delivery plans, and accountability

5. While the Healthy Weight: Healthy Wales (HW:HW) strategy does set out key areas for change, it is ambitious and would benefit from clarity through the delivery plans of how implementation will be taken forward; plus, where in the system leadership and accountability lies, recognising that the change required to address obesity requires leadership, responsibility and accountability across many organisations and sectors. A truly cross-Government approach would make join up across all areas of HW:HW more effective; for example, between transport and climate change policies and agendas. Delivery plans need to ensure that there is action across all layers of the system. Use of models such as the socio-ecological model, action scales model, and ice-berg model can help to ensure this. Use of tools such as the Intervention Level Framework (ILF) should be considered, to ensure that the actions in the delivery plan will lead to the change required to achieve the vision outlined in the strategy. Understanding what makes change happen in a complex system is as important as what the actions are, therefore, a focus on ways of working is also critical.

### Improved data, insight and learning

6. Children living with obesity are 5 times more likely to be adults living with obesity. The National Child Measurement Programme (NCMP) data outline the prevalence of overweight and obesity in children aged 4 to 5 years in Wales. However, we don't have a second data point. In England the data consistently show that the number of children living with obesity doubles between reception year and year 6 (from around 10% to around 20%). We would recommend a second NCMP data point in Wales to see how healthy our children are.
7. We have real challenges in understanding which communities or demographic groups are experiencing inactivity, poor diet, or obesity at hyper-local level. We have gaps in disaggregated data, insight and research at national, regional and local levels making it difficult to ensure resources are smartly targeted to where they are most needed to have greatest impact in terms of narrowing the inequality gaps. We need to pool data and insight between partners working across the system nationally and locally, and ensure that the correct questions are being asked in our national survey, and that sample sizes are increased across our nation.
8. Culture change, system change and behaviour change can be observed, 'measured' and captured in multiple ways, and it is critical to look at outcomes as well as

outputs. Evaluation and monitoring is key; but the emphasis needs to be placed on learning how to create change in the system (for food and movement), rather than just measuring the impact. Some things can't be easily counted but they are equally important to understand; such as the growth of shared purpose, commitment and collective action towards a common goal. Changes in the way the system is operating, the way that people are working, the level of connectivity and collaboration and a growing sense of common purpose and alignment, are key enablers of change. New ways of reporting progress and learning need to be developed and accepted. Use of models such as system maturity matrices are showing great promise across the UK as a way of both demonstrating change, but also driving further change.

### Sustained commitment and funding

9. Our current obesogenic environment has developed over many years and will take many years to address. Obesity prevention requires sustained commitment with funding over the long term. Currently funding for implementation is short term and does not reflect the need for prevention to be given equal status to treatment funding within the NHS. Short term funding interrupts delivery and creates uncertainty which leads to loss of staff and difficulty in sustaining action. This includes not only funding within the UHB, but also wider partnership funding. For example, support to Local Authorities to ensure play spaces, parks and open spaces are not cut further especially in deprived areas. International experience points to long term sustained action which adapts to learning, building up and scaling up successful action.

### Planning policy framework

#### Hot food take-aways

10. Research suggests that the concentration or clustering of takeaways in centres can dominate the retail environment, limiting the number of units available for healthier food choices and resulting in an over-exposure of takeaway uses which may influence behaviour. There is good evidence<sup>ii</sup> that there are higher numbers of hot food takeaways in more deprived areas, and children who spend time in deprived neighbourhoods tend to eat more fast food and are more likely to be overweight or obese<sup>iii</sup>. Over-exposure to take-aways can influence options around meals containing high levels of salt, fat and sugar, increasing the risk of obesity and ill health. Of note, research in Wales shows that between 2018 and 2023, fast food outlet density increased across all local authorities in Wales, see Figure 1 below.

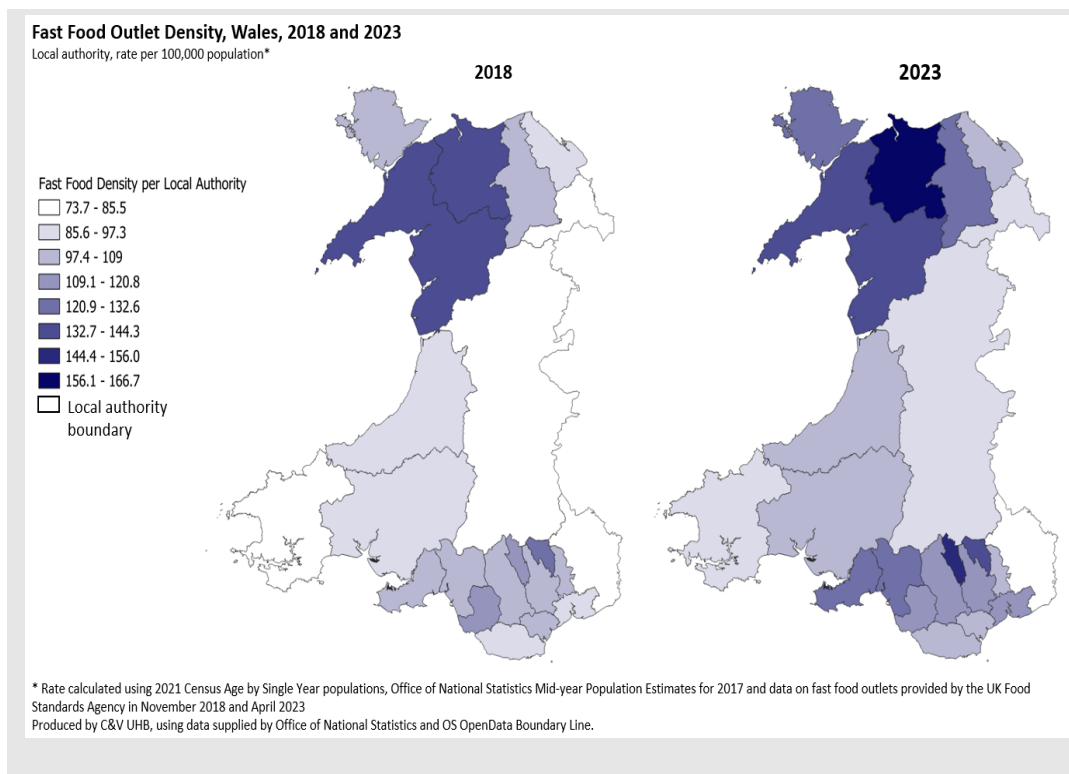


Figure 1: Fast food outlet density in Wales: 2018 and 2023

11. The current 'Use Classes' for planning permission are set out by the Town and Country Planning (Use Classes) Order 1987. In Wales, there is one Use Class for all food and drink establishments including restaurants, cafes and drinking establishments. Take-aways are included in this class.
12. Having take-aways included in the same class as other kinds of food and drink establishments makes it harder to control the numbers of planning applications for take-aways in an area, potentially leading to a proliferation. There is also currently the option for a café or a restaurant to turn into a take-away without needing to get new planning permission because they come under the same class.
13. Separating take-aways into a different use class from restaurants and cafes will strengthen planning powers and enable better controls over the numbers and location of take-aways, ensuring that permission would be needed for a change of use, and local retail policies around limiting the density of take-aways could include specifications about the number of them in a vicinity for example. In England take-aways are included in the 'Sui Generis' use class, along with pubs and other drinking establishments, separate from the use class which includes cafes and restaurants.

#### Healthy planning policies

14. The built and natural environment play a crucial role in how communities maintain a healthy weight through good food and movement. Spatial planning provides opportunities to promote active travel between the workplace, home and social

spaces; create green and blue infrastructure in urban environments; assess the local food environment; support individual mental well-being; and consider how these factors interact to create healthy communities and social cohesion. Although Planning Policy Wales does make it clear that we should be creating accessible and healthy environments through adopting placemaking principles and planning plays a key role in this, this principle does not always translate to local planning policies. Many car-focused developments are still being approved, without good connections to services and access to green space. Planning policy needs to be more focused and specific towards improving health, and Local Development Plan (LDP) policies need to reflect placemaking principles.

15. Child-friendly planning advocates a systematic approach that improves children's development, health, and access to opportunities. It's more than just providing play areas; it considers the entire built environment. Adopting child-friendly policies creates playable communities and creates cities that work better for everyone.

#### Health Impact Assessments (HIAs)

16. One way of ensuring that health is more of a focus would be to include the mandatory use of HIA in planning. The HIA regulations consultation did not specify the circumstances in which a HIA would be required to be completed by a public body so it is unclear where the regulations will apply to planning. Local development plans will presumably be subject to mandatory HIAs, and they are already being undertaken as part of integrated assessments, but currently it is up to local authorities whether they include the production of HIAs as part of planning applications, alongside Environmental Impact Assessments (EIAs). This would need careful consideration so as not to place an additional burden on local authorities, but it could provide a useful tool to ensure that health is a key consideration in development proposals.

#### The importance of physical activity

17. The evidence is clear that physical activity can both prevent and treat more long-term conditions than any other single intervention, helping to prevent and manage over 20 chronic conditions and diseases, including obesity. Maintaining high levels of physical activity can significantly prevent initial weight gain, help maintain a healthy weight, support weight loss, and play a major role in the maintenance of weight after initial weight loss or mitigating weight gain.
18. Moving matters now more than ever, as advances in technology, travel, gadgets, and remote working have resulted in reduced activity levels in the population and an increase in sedentary behaviour in our children, young people and adults. We need a cross-governmental approach that ensures that education policy, transport policy, housing policy, planning, urban design, and our organisational practices, systems and workforces all support and enable active lives.
19. The benefits of physical activity reach far beyond physical health and wellbeing, and also include: mental wellbeing; individual development; social and community

development; economic development; and environmental sustainability. The social return on investment for physical activity is £4 for every £1 spent.

20. When developing physical activity policy and areas of focus, use of evidence to inform the work is vital. The World Health Organisation's Global Action Plan for Physical Activity (GAPPA)<sup>iv</sup> and the International Society for Physical Activity and Health (ISPAH)'s Eight Investments that work for physical activity<sup>v</sup> which was refreshed in 2020 are a useful starting point to explore this. This is drawn from international evidence and takes a holistic approach, including active travel and design to create active environments. These 'investments' of time, resources, capacity and attention, are a useful starting point for a whole system approach to active lives.

### The transport system in Wales and obesity

21. There is a clear link between physical activity and obesity, with daily walking and cycling as part of everyday life, rather than remaining sedentary in a car, offering a potential opportunity for many children and adults to increase their regular physical activity; the use of public transport also often involves walking or cycling at one or both ends of the journey. Alongside the direct impact of physical activity on obesity, there is strengthening evidence of a link between air pollution and obesity<sup>vi</sup>. While the Wales national transport strategy, Llywbr Newydd, sets out a clear approach to increasing people's opportunities to walk, cycle and take public transport, there is currently a lack of join-up between the HW:HW approach, Llywbr Newydd, and public sector decarbonisation plans. For example, clear expectations could be set of Corporate Joint Committees in how their regional transport plans will contribute to a reduction in obesity; and clearer links could be made between delivering on the transport elements of public sector decarbonisation plans, local authority active travel initiatives, and the impact on obesity.

### All Wales Weight Management Pathway

22. Whilst guidance for the All Wales Weight Management Pathway is welcomed, data collection for the minimum data set at Levels 2 and 3 of this Pathway can be onerous and needs to be fully resourced. Adverse childhood experiences (ACEs) and addressing childhood trauma need to be acknowledged as an important contributing factor towards overweight and obesity. Future data collection of ACEs and a focus on trauma-informed services would be advantageous in policy and practice.

### The impact of social and commercial determinants on obesity

23. Commercial determinants refer to the conditions, actions or omissions by commercial 'actors' that affect health. The effects can be both positive and negative and affect everyone, although young people and those experiencing inequities being especially at risk. Commercial determinants operate in the wider obesity system, and facing this complexity is imperative to addressing obesity. The HW:HW strategy

goes some way to addressing some of the commercial determinants but there is scope for the scale and pace to be accelerated and for national level policies to maximise the opportunities locally to leverage change e.g. around the food environment and in relation to advertising.

24. One of many ways to improve children's health is by decreasing the flow of unhealthy food adverts, often referred to as adverts that feature foods and drinks that are high in fat sugar and/or salt (HFSS). We know that HFSS advertisements can influence purchasing and dietary habits, with evidence suggesting that those who are more aware of HFSS advertising consume a greater level of HFSS food and drink products. Exposure to HFSS advertising is unequal across society, with those in lower socioeconomic groups more likely to report having seen HFSS advertising through a variety of mediums which can contribute to higher rates of obesity and worsening health inequalities. Reducing HFSS advertising and allowing more space for healthier food and drink advertising, is one step in the right direction to improving children's health.
25. Recent evaluation<sup>vii</sup> measuring the impact of the introduction of a Healthier Advertising Policy across the Transport for London (TfL) network showed an association between the implementation of restrictions, and the reductions in average household weekly purchases of energy, sugar, and fat from HFSS food and drink products. This is estimated to be around 1,000 fewer calories in average weekly household purchases of energy from HFSS food and drink products. Findings from a health economic modelling study<sup>viii</sup> focused on the health, cost and equity impacts of restrictions on the advertisement of HFSS products across the TfL Network found that there are likely health and economic gains (though reductions in obesity, cardiovascular disease and diabetes over time) resulting from Healthier Food Advertising Policies, with greater benefit being seen in lower socioeconomic groups.
26. Following the experiences of TfL, Local Authorities from across the UK, including in Cardiff and the Vale of Glamorgan are progressing the development of healthier advertising policies around the assets that Local Authorities own and control (mainly out of home advertising spaces such as bus stops, roundabout signs and billboards). Commercial opposition to such policies is however very strong and in order to affect change, national level policy in the outdoor advertising space would be extremely beneficial.

#### Policies to address obesity and commercial influences

27. Policies can affect the impact of commercial determinants on health. Recent strategies in England have included some fiscal and regulatory policies as part of the approach to addressing obesity. Examples include banning price promotions of

unhealthy products, banning food advertisements for less healthy food and the Soft Drinks Industry Levy. While these policy measures faced some opposition when they were introduced, there is now increasing evidence of success.

28. To enable change for healthier environments the following areas for national policy development are needed:

- Use fiscal levers to ensure that those profiting from the manufacture and sale of high fat, salt and sugar products contribute to addressing the cost to the system of obesity
- Utilise planning processes to shift the balance of food outlets towards healthier options and a more mixed economy, particularly in more disadvantaged communities
- Influence the promotion of HFSS foods through restrictions on advertising and marketing of these foods
- Remove the incentives to purchase HFSS foods through restricting price reductions, in store promotions and product placement
- Incentivise the purchase of healthier food options through the use of price, promotion and placement
- Disincentivise the production or purchase on HFSS products and promote reformulation through the use of fiscal levers such as sugar levy.
- Ensure the consumer has information that is accessible and supports informed choice; for example, clear portion size on front of package nutrition labelling
- Reformulation of food products to reduce energy, fat, salt and sugar and increase vegetable, fibre content

## Interventions in pregnancy and early childhood to promote good nutrition and prevent obesity

### Overview

29. Overall, we would welcome a focus on the population aged 0-5 years. Women of a childbearing age are subject to the same unhealthy food environments and lack of physical activity opportunities and resulting health inequalities as everyone else. Tackling these environments so that healthy food is the most affordable, available, and appealing will help women preparing for and entering pregnancy. Interventions in pregnancy and early childhood must be implemented in the context of the need for a system-wide approach to obesity, physical activity and food, not in isolation. Whilst we have Healthy and Sustainable Pre-School Schemes in both Cardiff and the Vale of Glamorgan Local Authority areas they need to be sufficiently funded to be delivered at pace and scale.

### Maternity weight management services

30. Cardiff and Vale UHB delivers Foodwise in Pregnancy. This service supports everyone during their pregnancy to eat well, be active and achieve a healthy weight gain in pregnancy.

31. A Healthy pregnancy clinic has been developed following recommendations in response to HW: HW. This clinic offers support for women with raised Body Mass Index (BMI) to deliver key public health messages in pregnancy to maintain a healthy diet and lifestyle. It is a midwife run clinic which offers support from a maternal health dietitian, consultant midwife and midwife sonography. Women with a BMI of 35-39.9 in pregnancy with no further co morbidities follow healthy pregnancy pathway with the aim of birth in the Midwife led unit. They are supported with healthy eating planning in pregnancy and can attend the Foodwise in Pregnancy course. The Maternal obesity dietitian is based at healthy pregnancy clinic and provides support for all women with a BMI over 40, this includes around three 1:1 sessions in the antenatal period and follow up postnatally.

32. Promotion of breastfeeding continues across the UHB as well as working within Baby friendly competencies to maintain baby friendly accreditation. A Breastfeeding Guardian has been identified within the UHB.

### Early Years Interventions

33. Children starting school ready to learn is fundamental to supporting good outcomes later in life. There is compelling evidence which shows us that physical literacy is an important feature of giving young people the best start in life. We know that sedentary behaviour during early years moderately to largely predicts sedentary

behaviour during middle childhood. We also know that physical activity levels also track into adulthood, highlighting the importance of creating positive activity habits from an early age.

34. The Healthy Start Scheme provides a vital nutritional safety net to eligible pregnant people and parents of young children on low incomes. These payments can buy fruit, vegetables, pulses, milk, first infant formula and vitamins. Infants under the age of one are entitled to a weekly payment of £8.50, while pregnant people and children under four are entitled to £4.25. Despite digitisation of the Healthy Start Scheme that saw uptake rates increase from 50%, the number of individuals across the country remains persistently low at 62.4%. Changes to the scheme such as auto-enrolment, increased value in line with inflation, and expanded eligibility would increase uptake. In Scotland these changes to the scheme have enabled a 92% uptake rate.
35. Nutrition for Your Little One (NYLO) is an early years' obesity prevention programme developed by Cardiff and Vale UHB Public Health Dietitians for families with children aged 5 and under living in Cardiff and the Vale of Glamorgan. The aim of NYLO is to support families to build confidence in providing a healthy balanced diet that will encourage lifelong eating habits for their children alongside the promotion of active play. Cardiff Pipyn programme supports families with children aged 3 to 7 years old from a minority ethnic community living in South Cardiff. It works through a whole system approach and targeted interventions to prevent childhood obesity. Our Get Cooking accredited practical cooking course supports knowledge and skills around healthy cooking as part of the Nutrition Skills for Life programme. Finally, the Gold Standard Healthy Snack Award recognises childcare settings providing healthy snacks and drinks in a safe and happy eating environment. Further investment in these programmes would amplify the spread and scale of obesity prevention.

#### Primary school interventions

36. Children spend more time in schools than any other venue away from home. Schools also provide access to a wide range of children from across the population, regardless of social background and over a continuous period of time. A whole-of-school approach to physical activity involves: prioritising regular, high quality, physical education classes; providing suitable physical environments and resources to support structured and unstructured physical activity throughout the day (e.g. play and recreation before, during and after school); supporting active travel to school programmes; and enabling these actions through supportive school policies and by engaging staff, students, parents and the wider community. A whole-of-school approach can provide maximal opportunities for school-based physical activity participation. Development and implementation of the Daily Active Whole School Approach to Physical Activity is welcomed. To achieve similar successes to countries such as Finland, adequate resource needs to be secured.

37. Evidence from Wales demonstrates an association between shorter lunch breaks and higher levels of sedentary time among both boys and girls<sup>ix</sup>. A longer lunchtime duration ( $\geq 50$  minutes) was associated with less sedentary behaviour among both genders. The authors concluded that if schools maintain or extend the duration of school lunch breaks, this may have a positive impact on sedentary behaviour through the provision of more time for physical activity. National legislation to ensure a minimum lunchbreak duration is required.
38. The importance of the gut microbiome is emerging as a key public health intervention to prevent obesity across the life course. It is therefore important that school aged children and beyond are aware of this in order to make healthy food choices. 'Belly Bugs'<sup>x</sup>, developed by Prof Tim Spector, King's College London includes fun resources to be taught across Primary School. This could be implemented across Wales if the resources are translated into Welsh.

## The stigma and discrimination experienced by people who are overweight/obese

39. Stigma and discrimination experienced by people who are overweight or obese is a significant factor and barrier to those people who would want to attend health services. Historical childhood trauma / ACEs remain a contributing factor. Further work is needed to combat this form of stigma, such as thinking about framing, language and images used.
40. Research from Frameworks UK<sup>xi</sup> shows that when people think about health and obesity, they tend to focus on individual responsibility and solutions, or see obesity as an inevitable part of modern life. This means that solutions focus narrowly on individuals, or that people don't believe change is possible. Communication about health and obesity can inadvertently reinforce these beliefs. Building understanding by reducing stigma and driving action to improve health, and telling a new story that what surrounds us shapes us, therefore focuses on the wider context.

## People's ability to access appropriate support and treatment services for obesity

41. There is a relationship between people living with obesity being more likely in areas of social deprivation. To combat this, there is opportunity through Nutrition Skills for Life training to support partners from other organisations to deliver successful programmes across Wales. Locally, we currently have Foodwise for Life, a healthy lifestyle and weight management programme, delivered both virtually and face to

face. The programme is accessible via self-referral, for adults over 18 years. Further investment in successful programmes such as these would maximise the reach using proportionate universalism.

## The relationship between obesity and mental health

42. Clinical services in Cardiff and Vale UHB are seeing an increase in psychological issues related to childhood trauma. In our local service, 44% of patients in our adult Level 2 service and 54% of patients in our adult Level 3 service are reporting 4 or more ACEs. More importance needs to be afforded to the relationship between mental health and obesity to be able to truly impact on obesity prevention and treatment in our population.
43. People who are regularly active have better mental health and emotional wellbeing, and lower rates of mental illness. Being active is important for people with mental illness – it not only boosts mood, concentration and alertness, but improves cardiovascular and overall physical health. Recent research shows that a small amount of activity can reduce depression scores in young people. A 15-minute increase in moderate to vigorous physical activity at age 12 led to depression scores 9% lower at age 18<sup>xii</sup>.

## International examples of success (including potential applicability to the Welsh context)

44. As mentioned in the introduction, systems thinking and working through a whole systems approach is an important premise by which to operationalise obesity prevention both locally and nationally. The Amsterdam Healthy Weight Approach targeted children aged 2 to 18 years working through a whole systems approach across a city. Of note, the prevalence of overweight or obesity in children aged 2 to 18 in 2012 was 21%; following on from their whole systems approach obesity declined to 18.7% in 2017. During programme implementation the approach reached more than 15,000 children. Of particular note, a sustained, appropriately resourced, long-term budget earmarked for this remit was agreed to support this development, supported by political will. More information can be found in a paper by Sawyer et al<sup>xiii</sup>.
45. Schools on the Move<sup>xiv</sup> has been a success story for schools in Finland. More than 90% of Finnish schools participate in the programme. Research on the programme has demonstrated increased physical activity during breaktimes and throughout the

school day, more breaktimes and lunchtimes time spent outdoors, more active commuting to school during winter and greater student involvement in the planning of school activities. Benefits to learning and school atmosphere have been reported by school staff.

46. Greater Manchester Moving<sup>xv</sup> have reduced inactivity levels at 2.5 times the national rate in England and have reduced inequalities within that. They embedded a systems approach to design moving into everyday life, help people move a little more, making it easier to be active and a natural part of how everyone lives, travels, works and plays in Greater Manchester. Many of Sport England's Local Delivery Pilots have also demonstrated similar successes taking a whole system approach.

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<sup>i</sup> Beynon, C and Davies, L., The impact of the COVID-19 pandemic on childhood obesity rates, by Health Board area, in Wales, UK, *Journal of Public Health*, Volume 46, Issue 2, June 2024, Pages 223–229

<sup>ii</sup> Turbutt, C et al, The impact of hot food takeaways near schools in the UK on childhood obesity: a systematic review of the evidence, *Journal of Public Health*, Volume 41, Issue 2, June 2019, Pages 231–239

<sup>iii</sup> Public Health England (2014), Healthy People, Healthy Places Briefing: Obesity and the Environment: regulating the growth of fast food outlets, [Obesity and the environment: regulating the growth of fast food outlets \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/271212/obesity-and-the-environment-regulating-the-growth-of-fast-food-outlets.pdf) [accessed 6 June 2024].

<sup>iv</sup> World Health Organization, The Global Action Plan on Physical Activity 2018 to 2030, [Action plan \(who.int\)](https://www.who.int/action-plan), [accessed 7 June 2024].

<sup>v</sup> ISPAH, Eight investments that work for physical activity, [English-Eight-Investments-That-Work-FINAL.pdf \(ispah.org\)](https://www.ispah.org/en/8-investments-that-work-for-physical-activity), [accessed 7 June 2024].

<sup>vi</sup> Parasin N, Amnuaylojaroen T, Saokaew S. Effect of Air Pollution on Obesity in Children: A Systematic Review and Meta-Analysis. *Children (Basel)*. 2021 Apr 23;8(5):327. doi: 10.3390/children8050327. PMID: 33922616; PMCID: PMC8146513.

<sup>vii</sup> Yau et al (2022), Changes in household food and drink purchases following restrictions on the advertisement of high fat, salt, and sugar products across the Transport for London network: A controlled interrupted time series analysis, *Plos Medicine*, [Changes in household food and drink purchases following restrictions on the advertisement of high fat, salt, and sugar products across the Transport for London network: A controlled interrupted time series analysis | PLOS Medicine](https://doi.org/10.1371/journal.pmed.1004000) [accessed 6 June 2024].

<sup>viii</sup> Thomas, C et al, The health, cost and equity impacts of restrictions on the advertisement of high fat, salt and sugar products across the transport for London network: a health economic modelling study, *International Journal of Behavioral Nutrition and Physical Activity*, **19**, 93 (2022). <https://doi.org/10.1186/s12966-022-01331-y>

<sup>ix</sup> Morgan, K. et al, Predictors of physical activity and sedentary behaviours among 11-16 year olds: Multilevel analysis of the 2013 Health Behaviour in School-aged Children (HBSC) study in Wales, *BMC Public Health* **16**, 569 (2016). <https://doi.org/10.1186/s12889-016-3213-8>.

<sup>x</sup> Belly Bugs, [Schools - Belly Bugs](https://www.bellybugs.org/) [accessed 6 June 2024].

<sup>xi</sup> FrameWorks UK, 2023, Health first: communicating about health and obesity in Scotland, [Health first: communicating about health and obesity in Scotland - FrameWorks UK](https://www.frameworks.org.uk/health-first-communicating-about-health-and-obesity-in-scotland/), [accessed 7 June 2024].

<sup>xii</sup> Kandola, A et al, Depressive symptoms and objectively measured physical activity and sedentary behaviour throughout adolescence: a prospective cohort study, *Lancet Psychiatry*, 2020 Mar; 7 (3): 262-271.

<sup>xiii</sup> Sawyer, A et al, Developing the logic framework underpinning a whole- systems approach to childhood overweight and obesity prevention: Amsterdam Healthy Weight Approach, *Obes Sci Pract*. 2021;7:591–605.

<sup>xiv</sup> Schools on the move, 2024. Concept, [Concept | Schools on the Move](https://www.schoolsonthemove.org/), [accessed 7 June 2024].

<sup>xv</sup> Greater Manchester Moving, 2021, Greater Manchester Moving in action 2021 to 2031. [gm-moving-in-action-gm-moving-strategy-2021-31.pdf \(gmmoving.co.uk\)](https://www.gmmoving.co.uk/gm-moving-in-action-gm-moving-strategy-2021-31.pdf) [accessed 7 June 2024].