

Impact case study (REF3)

Institution: University of Cambridge		
Unit of Assessment: 2 Public Health, Health Services and Primary Care		
Title of case study: Improving population health and reducing inequalities by empowering planning decisions to promote healthier food environments		
Period when the underpinning research was undertaken: 2014 – present		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s):	Period(s) employed by submitting HEI:
Thomas Burgoine	Senior Research Associate	Sep 2011 - present
Jean Adams	Senior University Lecturer	Oct 2014 - present
Martin White	Professor	Oct 2014 - present
Pablo Monsivais	Senior University Lecturer	Sep 2011 - Feb 2017
Nita Forouhi	Programme Lead	Sep 2005 - present
Simon Griffin	Professor	May 2005 - present
Nick Wareham	MRC Research Professor	Oct 2003 - present
Soren Brage	Programme Lead	Nov 2005 - present
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? No		
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>University of Cambridge research has established the role of takeaway fast food outlets in poor health and inequalities in health, particularly linked to obesity. Influencing the UK Government's Childhood Obesity Strategy, the Chief Medical Officer's special report, Public Health England policy and the World Health Organization, the research has identified the significance of local planning decisions in reducing exposure to takeaways. It has given local decision-makers a valuable tool—the <i>Food environment assessment tool (Feat)</i>—to use local data to make planning decisions that are attentive to health consequences, helping to promote healthier food environments, better health, and reduced inequalities.</p>		
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>Researchers at the Centre for Diet and Activity Research (CEDAR), part of the MRC Epidemiology Unit at the University of Cambridge, have identified the role of neighbourhood environments – and specifically availability of takeaway outlets – in contributing to unhealthy diets and obesity. They have addressed the problem by producing highly actionable evidence-based tools that can support local planning decisions to create healthier food environments by controlling exposure to takeaway outlets.</p> <p><u>Understanding the role of the food environment in poor health</u></p> <p>A Cambridge-led analysis of England's largest diet and nutrition survey showed that eating away from home is linked with less healthy diets and obesity. This work also crucially identified that the type of food establishment used matters. Specifically, compared with sit-down restaurants and cafes, use of fast food takeaway outlets is significantly and adversely associated with diet quality and with increased obesity [1], suggesting that reducing use of takeaway outlets could be highly impactful for health. Cambridge research has clarified the role of the food environment – including availability, accessibility and affordability of different food types – in what and where people eat.</p> <p>The role of takeaway exposure in childhood obesity was established by a Cambridge-led analysis of data from the National Child Measurement Programme, which showed that children aged 10-11 living in areas with the highest density of takeaway food outlets were likely to be heavier [2]. As regards adult obesity, a Cambridge-led study of over 5000 individuals found that living, working and commuting near takeaway outlets is implicated in eating unhealthy fast food, overweight, and obesity [3], and a further a study of over 50,000 Londoners showed a clear relationship between neighbourhood takeaway exposure, diet and body weight [4]. This research also identified the double burden of lowest socio-economic position (itself a risk factor for poor health) and highest takeaway exposure. This was also evident in a Cambridge study showing that fast-food consumption, body weight, and the likelihood of being obese are</p>		

associated with neighbourhood takeaway outlet exposure and lower educational attainment[5].

Given the role of takeaway outlets in health and in inequalities in health, understanding trends in density of takeaway outlets – particularly in areas of socio-economic disadvantage— is critical. The Cambridge team made innovative use of archive data from the Millennium Library in Norwich to show that the number of takeaway food outlets in Norfolk rose 45% over two decades, outpacing growth in other outlet types, with the largest increases in the most deprived areas. These patterns anticipate future trends, suggesting that control of takeaway exposure is an important objective in efforts to improve public health [6].

Evidence-based tool to support local authorities in promoting healthy food environments

Cambridge researchers have characterised the previously poorly understood role of the local authority planning system in improving the food environment through control of takeaways, and have identified the different actions taken by planners to identify areas for innovation [7]. A key output of the research is the **Food environment assessment tool** (*Feat*: www.feat-tool.org.uk), an interactive, online resource launched in July 2017 that maps, measures and monitors regional and neighbourhood food access. Aimed primarily at planning officers and public health leaders in local authorities, *Feat* was developed in collaboration with local government, Public Health England, and other stakeholders. This tool helps planning, public health and environmental health teams create healthier neighbourhoods by giving them the objective, evidence-based food environment data they need to identify priority areas for intervention in the food environment, and to track progress of interventions over time.

3. References to the research (indicative maximum of six references)

1. **Penney T**, Jones NRV, **Adams J**, Maguire ER, **Burgoine T**, **Monsivais P**. Utilization of away-from-home food establishments, dietary approaches to stop hypertension dietary pattern, and obesity. *American Journal of Preventive Medicine*. 2017;53(5):155-163.*
2. Williams J, Scarborough P, Townsend N, Matthews A, **Burgoine T**, Mumtaz L, Rayner M. Associations between food outlets around schools and BMI among primary students in England: a cross-classified multi-level analysis. *PLOS One*. 2015;10(7):1-7.*
3. **Burgoine T**, **Forouhi NG**, **Griffin SJ**, **Wareham NJ**, **Monsivais P**. Associations between exposure to takeaway food outlets, takeaway food consumption, and body weight in Cambridgeshire, UK: population based, cross sectional study. *BMJ*. 2014;348(7950):1-10.*
4. **Burgoine T**, Sarkar C, Webster CJ, **Monsivais P**. Examining the interaction of fast-food outlet exposure and income on diet and obesity: evidence from 51,361 UK Biobank participants. *Intl Journal of Behavioral Nutrition and Physical Activity*. 2018;15(71):1-12.*
5. **Burgoine T**, **Forouhi NG**, **Griffin SJ**, **Brage S**, **Wareham NJ**, **Monsivais P**. Does neighborhood fast-food outlet exposure amplify inequalities in diet and obesity? A cross sectional study. *American Journal of Clinical Nutrition*. 2016;103:1-8.*
6. Maguire ER, **Burgoine T**, **Monsivais P**. Area deprivation and the food environment over time: a repeated cross-sectional study on takeaway outlet density and supermarket presence in Norfolk, UK, 1980-2008. *Health & Place*. 2015;33:142-147.*
7. Keeble M, **Burgoine T**, **White M**, Summerbell C, Cummins S, **Adams J**. How does local government use the planning system to regulate new hot food takeaway outlets? A census of current practice in England using document review. *Health & Place*. 2019;57:171-178.*

*These publications have been peer-reviewed, providing evidence of research quality.

Competitive funding received

UK Clinical Research Collaboration (consortium of BHF, CRUK, ESCRC, MRC, NIHR, Wellcome Trust): Centre for Diet and Activity Research (CEDAR). GBP3,016,216, 2013–2018 (PI: **Wareham NJ**).

Medical Research Council: Aetiology of diabetes and related metabolic disorders Programme, GBP5,553,000, 2015-2020 (PI: **Wareham NJ**). Nutritional epidemiology Programme, GBP4,496,000, 2015-2020 (PI: **Forouhi NG**). Physical activity epidemiology Programme, GBP2,902,000, 2015-2020 (PI: **Brage S**). Prevention of diabetes and related metabolic disorders Programme, GBP3,014,000, 2015-2020 (PI: **Griffin SJ**).

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NIHR School for Public Health Research: “Online spatial data visualisation tools for local public health decision-support”, GBP149,344, 2018–2019 (PIs: **Burgoine T** and **White M**). “Local authority actions to restrict proliferation of hot food takeaways in England”, GBP115,207, 2017–2019 (PIs: **Burgoine T** and **Adams J**).

Economic and Social Research Council Impact Acceleration Account: “The Food environment assessment tool (Feat)”, GBP24,112, 2015–2016 (PIs: **Burgoine T** and **Monsivais P**).

4. Details of the impact (indicative maximum 750 words)

Improving population health and reducing inequalities by empowering planning decisions to promote healthier food environments

Globally, around two billion adults and 340 million children are overweight or obese (World Health Organization statistics). In the UK, 35 million adults and three million children are affected by obesity, and the prevalence of obesity is twice as high in the most deprived areas as in the least deprived areas (NHS Digital statistics). Obesity is implicated in the development of heart disease, stroke, diabetes, some cancers, and bone and joint ailments. Ill-health related to overweight and obesity is a significant individual and societal challenge, costing the NHS over GBP6 billion annually (Public Health England statistics).

Cambridge research has highlighted the significance of the food environment, in particular identifying the role of takeaway outlets in unhealthy diets, obesity and inequalities in health. This work has directly informed national public health and planning policy guidelines, and increased media and public understanding of the problem. National guidelines and policies and local planning practices based on Cambridge evidence and tools have been important to achieving improved control of exposure to takeaway outlets across England, promoting better health.

Shaping how the mass media talks about takeaway outlets

Public awareness of Cambridge research on the food environment is high, helping to stimulate the case for change. Helped by proactive engagement, **media reporting is now promoting understanding of the negative consequences of takeaways for health and inequalities, thus encouraging stronger action on the part of local decision-makers.**

In 2017, for example, Cambridge researchers worked with *The Guardian* to mark the launch of *Feat* (www.feet-tool.org.uk), a tool now routinely used in rejections of planning applications for new takeaway food outlets across the country where likely adverse impact on health and equality are anticipated. This work resulted in a series of seven articles (#FastfoodUK) as well as features and interactive visualisations, for example highlighting associations between deprivation and fast-food retailing around schools. An episode of BBC’s *The Truth About... Obesity* (2018) that featured Dr Burgoine and the Cambridge research attracted 2.86 million viewers. *Feat* underpinned an episode of ITV’s flagship *Tonight* show (2017). Guided by Cambridge researchers, the *Tonight* journalists found, via a Freedom of Information request to local authorities, that nearly half (103/209) had tightened up policies on new takeaway outlets, or were in the process of doing so [A].

Research impacts on policy and planning guidance

Cambridge research on takeaways has influenced international policy. For example, it is cited in the World Health Organization’s *Healthy prosperous lives for all* (2019) report [B]. In Canada, a bespoke version of the *Feat* tool is under development [B].

Cambridge research has been repeatedly cited in **recommendations for planners in national public health and planning policy documents in England**, for example the Local Government Association’s *Tipping the scales* (2016), and Public Health England’s *Spatial planning for health* (2017) and *Obesity and the environment* (2016 & 17) [C]. *Using the planning system to promote healthy weight environments* (2020), a key Public Health England guidance document, not only cites a body of Cambridge research but also contains an evidence summary co-written by Dr Burgoine [C].

Dr Burgoine gave written and oral evidence as an invited witness to the House of Commons

Health Committee Inquiry into Childhood Obesity on 8 May 2018 [D]. The subsequent report featured a focus on planning-based takeaway regulation, and recognised the need for evidence to support council planning decisions in order to make them resilient to appeals. This report informed the UK Government's Childhood Obesity Strategy, published in June 2018 [D]. The Chief Medical Officer's special report *Time to solve childhood obesity* (2019) identified the importance of takeaway outlets, citing Cambridge research in support [E]. This report also emphasised the role of local authority planning in controlling takeaway exposure, and the consequent need for specialised evidence.

Empowering local authorities with an evidence base and practical tools

Cambridge evidence and engagement has been highly influential in **supporting planning decisions and other activities by local authorities to improve the food environment**. For example, Manchester City Council, to support its adoption of new takeaway regulations, cited Cambridge research findings, stating that they *"prove there is a link between the density of hot food takeaways per area [and] obesity"* [F]. Cambridge researchers have worked in a highly engaged, hands-on way with local planning teams and grassroots groups seeking to defend decisions designed to enhance public health. For example:

- In 2015, Cambridge researchers supported a Newcastle community group with a Proof of Evidence document that was considered in an appeal case against opening of a new McDonald's opposite a major secondary school. McDonald's subsequently withdrew its planning application [F].
- In 2015, Gateshead Council used a portfolio of evidence provided by Cambridge researchers to successfully defend a challenge to their takeaway planning regulations by a prospective takeaway owner. Supported by this evidence, Gateshead's takeaway restrictions were recognised with a national award. The Council has since been able to cap takeaway numbers at 2014 levels by refusing 100% of all takeaway planning applications and all subsequent appeals since this time – *"a real impact on the number of takeaway outlets that would have otherwise been allowed to open across [the] Borough"* [G].

The **Feat tool has been highly successful in securing impact at local planning level**, supported by its high-quality evidence base and its facility to inform actionable decisions. It has nearly 13,000 users, including those from 573 cities and towns across England [H], attracting an average of 75 new users per week since July 2017. It was highlighted as "a comprehensive online resource" for local authorities in PHE's 2017 *Strategies for Encouraging Healthier 'Out of Home' Food Provision* [I]. High levels of engagement from local authorities in response are evident. For example, it has been used by local authorities to identify high levels of takeaway exposure and make the case for regulatory intervention, as illustrated by the work of Wolverhampton Council, which has used data from Feat to demonstrate the spread of fast food outlets and make the case for regulatory intervention [J]. It has also been used to foster collaboration between planning and public health teams and to develop planning controls related to hot food takeaways, as illustrated by Hampshire District Council [J], where it is *"part of our day-to-day business."*

Since its release, Feat data have been influential in planning decisions across England, including, for example:

- Use by Coventry City Council: *"if an application for a new takeaway falls in an area that has a higher than national average level of hot food takeaways per thousand population, according to Feat, the application is unlikely to be approved."* In practice, the council successfully implemented this policy for the first time in 2019 to deny planning permission to a prospective takeaway owner. Feat opened up this new regulatory possibility: *"Without Feat there wouldn't have been the evidence...and without the evidence...this policy...would likely not have come into effect"* [J].
- Use by Middlesbrough planning committee, who refused planning permission to a Chicken Villas takeaway outlet, because *"[Feat] show[ed] that there is a saturation of fast food outlets in the area with 52 takeaways within one mile"* [J].

- [Text removed for publication]

5. Sources to corroborate the impact (indicative maximum of ten references)

- A. Evidence of informing media discourse: **(i)** Silly Burgers. The Sun, 14 March 2014; **(ii)** Record surge in takeaways on almost every high street is feeding Britain's crippling obesity crisis. Daily Mail. 23 October 2018; **(iii)** Fast food UK. The Guardian. **(iv)** Fast food: the big fat truth. ITV, 2 November 2017; **(v)** The truth about...Obesity. BBC, 26 April 2018.
- B. International policy influences: **(i)** World Health Organization. Healthy, prosperous lives for all: the European Health Equity Status Report. 2019. pp. 39, 115; **(ii)** Professor, School of Planning, University of Waterloo, Canada. Stakeholder testimony. 29 May 2020.
- C. Policy citations of underpinning research: **(i)** Tipping the scales: Case studies on the use of planning powers to limit hot food takeaways. Local Government Association. 26 February 2016 p. 13; **(ii)** Spatial planning for health: evidence review. Public Health England. 6 July 2017 pp. 30–35; **(iii)** Obesity and the environment: Density of fast food outlets. Public Health England. December 2016 p. 2; **(iv)** Obesity and the environment: Density of fast food outlets at 31/12/2017. Public Health England. December 2017 p. 2; **(v)** Using the planning system to promote healthy weight environments: briefing for local authority public health and planning teams. Public Health England. February 2020 pp. 13–14; **(vi)** Testimonial from Programme Manager – Planning and Health, Public Health England 7 May 2020.
- D. Evidence submission and government strategy: **(i)** Childhood obesity: time for action. House of Commons Health Committee. 30 May 2018 p. 26; **(ii)** Childhood obesity: a plan for action, chapter 2. Department for Health and Social Care. 25 June 2018 pp. 8–9, 10.
- E. Chief Medical Officer. Time to Solve Childhood Obesity. 2019. Annex D pp.10, 14, 19.
- F. Hot food take away planning decisions: **(i)** Hot food takeaway supplementary planning document. Manchester City Council. March 2017 p. 6; **(ii)** Delight as McDonald's pulls out of Kenton drive-thru after 'David and Goliath' battle with residents. Chronicle Live. 23 June 2016.
- G. Evidence of support and impact, Gateshead council: **(i)** Environmental Health Manager, Gateshead Council. Stakeholder testimony. 7 May 2020; **(ii)** Winners for Public Health: Gateshead Council. LGC Awards 2017; **(iii)** Planning inspector rejects KFC planning appeal. Gateshead Council.
- H. Google Analytics report for www.feat-tool.org.uk. 24 July 2017 – 14 September 2020
- I. Encouraging healthier 'out of home' food provision. Public Health England. 31 March 2017 p. 14.
- J. Local authority case studies: **(i)** Hot food takeaway supplementary planning document. City of Wolverhampton Council. May 2018 p. 11; **(ii)** Senior Public Health Practitioner, Hampshire County Council. Feat Case Study: Hampshire County Council. September 2020; **(iii)** Programme Manager – Inequalities, Coventry City Council. Feat Case Study: Coventry City Council. August 2020; **(iv)** Middlesbrough Planning Committee Report. 23 May 2018 p. 5.
- K. [Text removed for publication]