

Blueprint for halving obesity: rapid review

The effect of restricting access to fast food outlets on obesity-related outcomes



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Summary table

Title	Changes in the number of new takeaway food outlets associated with adoption of management zones around schools: A natural experimental evaluation in England
Author and year	Rahilly et al. (2024)
Type of study	A natural experimental evaluation in England
Outcome variable	Changes in the number of new takeaway food outlets being opened in fast food exclusion zones established near schools
Treatment	Introduction of takeaway 'management zones' within 400m of schools
Control	No control group
Effect	Six years post-intervention, there was an 81.0% (95% CI -29.1, -100) reduction in new outlets per local authority (LA) than would have been expected in absence of the intervention Difference at 12 months was 30.3% (95% CI -4.0, -56.6)
Magnitude of effect (Adults)	n/a
Magnitude of effect (Children)	n/a

Rapid umbrella review

Background

Obesity is a public health crisis and rates have nearly doubled in recent decades; it is estimated nearly [2 billion people are living with obesity worldwide](#). Excess weight is a significant risk factor for premature [death from non-communicable diseases](#). Despite these figures, policies exist that could prevent a further rise in obesity prevalence.

The Obesity Blueprint

The Obesity Blueprint is a programme of work funded and conducted by Nesta, which aims to synthesise evidence about the effectiveness of interventions for obesity into an accessible format. The output will make it easier for those in power to make informed decisions about policies for obesity prevention. In the first stage of the project we reviewed four reports that made specific recommendations for future obesity policies ([McKinsey Global Institute](#), [Obesity Health Alliance](#), [Dimpleby Report](#) and [World Health Organization](#)). Collation of these recommendations resulted in a list of over 150 different (but related) interventions. With input from expert advisors, we organised this long list into a 'skeleton', with five high level categories (information provision; the food system; the health system; behavioural programmes, and physical activity) and 25-30 subcategories (NB the skeleton is still under review at time of writing). The next step was to conduct a series of rapid systematic searches to identify the best evidence summarising the effectiveness and cost-effectiveness of these categories of interventions.

The ubiquity and accessibility of fast food, alongside the widespread expansion of fast food establishments, have been recognised as influential factors in the escalation of obesity rates globally. This phenomenon may be attributed to the predominantly energy-dense and nutrient-poor nature of fast food offerings and their facilitation of excessive calorie intake ([Robinson, 2018](#)). This is supported by evidence that higher neighbourhood fast food exposure is significantly associated with increased risk of obesity ([Burgoiné et al., 2018](#)).

Between 2009 and 2017, 35 LAs in England adopted takeaway management/exclusion zones around schools as a mechanism to prevent the opening of new takeaways. It is a viable policy option that such exclusion zones be made mandatory. The objective of this current review was to systematically search available evidence on the effectiveness of restricting the availability of unhealthy foods in the environment by restricting the access to new fast food outlets. The current review focuses on evidence for the effectiveness of restricting the opening of new fast food outlets on obesity-related outcomes.

Objective

To summarise the best available evidence on the impact of takeaway management/exclusion zones around schools on outcomes relevant to calorie consumption, weight loss, obesity and general health.

Methods

We applied search methods proposed in [Godin et al. \(2015\)](#), a peer reviewed publication that describes methods for conducting rigorous and systematic grey literature searches. We engaged in the following steps in the first instance: (1) grey literature database searches (2) Google and Google Scholar search, (3) targeted website search (see [Appendix 1](#) for all search strategies). Following screening and the identification of a single paper, we (4) consulted with members of the Expert Advisory Group (EAG) who have particular expertise in this area. We asked experts for their feedback on the article selection and requested that they suggest alternative articles if they believed there is higher quality evidence beyond the article selected. We discussed internally and externally the suitability of the articles and made a selection based on (a) suitability to the research question and (b) support from the EAG.

Eligibility criteria

Types of study. Eligible evidence will be reported on studies that compare behavioural economic incentive programmes on changes in obesity-related outcomes. Specifically, eligible studies will include:

1. Systematic reviews of experimental or quasi-experimental studies.

2. Primary experimental or quasi-experimental studies.
3. Reports published by government and non-government organisations that evaluate the effect of financial incentives on obesity-related outcomes.

Intervention. We defined the intervention as a change in the availability of new fast food outlets in a given area (in any developed country). Eligible studies should measure obesity-related outcomes including clinical (eg, weight loss, BMI change) or behavioural (eg, dietary change, calories consumed, products purchased).

Comparator. The comparator would be no intervention or minimal intervention (eg, active or passive control group).

Information sources and article selection

Screening

Due to the rapid nature of the reviews, a single reviewer screened titles and abstracts and discussed any uncertainty with a second reviewer. For relevant titles/abstracts, the full text was retrieved for full text review. One reviewer reviewed full texts and discussed uncertainties with the Blueprint EAG.

Assessment of methodological quality

Based on our existing knowledge of this area, we did not expect that the search would result in multiple high quality studies that would require comparison. We were led first by the suitability of the study to our research question. Where there were multiple relevant studies/reviews identified, we selected the best available evidence according to our expert consultation with members of the EAG.

Data extraction

The JBI Data Extraction Form for Review for Systematic Reviews and Research Syntheses was used for data extraction for the final included review. Extracted characteristics included:

- Review characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest, date range of

included studies, detailed description of the included studies (number/type/country of origin), appraisal instrument and rating, type of review/method of analyses and outcomes.

- Results: findings of the review and comments.

Results

We identified two evaluations of the introduction of new local planning policies restricting the opening of new fast food outlets in England. These suggest that such a policy can significantly reduce density and numbers of fast food outlets ([Rahilly et al., 2024](#); [Brown et al., 2022](#)).

[Rahilly et al. \(2024\)](#) evaluated the impact of restricting the opening of new fast food outlets within 400m of schools in 35 LAs across England. The policy evaluated by [Brown et al.](#) included additional restrictions which in addition to banning new outlets close to schools, prohibited them in wards in Gateshead where childhood obesity was above 10% or where the existing fast food density was higher than the national average. We selected [Rahilly et al. \(2024\)](#) because they focused on the single policy of fast food restrictions near schools and examined data for multiple LAs across England.

What did Rahilly et al. do?

The policy introduction date varied for each LA, but was adopted in all participating authorities by the end of 2017. The study was an uncontrolled interrupted time series analysis, aiming to gauge changes over six years before and after the adoption of takeaway management zones around schools in participating LAs. They were only able to use data for 26 LAs. They tracked the yearly opening of new takeaways, alongside monitoring changes in new outlet openings in areas surrounding the management zones. Additionally, they observed the emergence of new full-service chain restaurants, which, although categorised as sit-down establishments, might also offer takeaway junk food, exploiting a loophole.

The interrupted times series analysis was performed through segmented regression modelling to estimate the effect of the intervention. The effect represented the difference between the trend observed in the post intervention data compared to

the pre-intervention trend which was the counterfactual – what would have happened without the policy introduction.

Suitable checks and sensitivity analyses were made and data met assumptions for time series analysis (no autocorrelation, and temporal falsification showed changes were linked to the adoption date).

What did they find?

See the [original article](#) for more detailed results not reported here.

There was an increasing trend during the pre-intervention period whereby the number of new outlets was on trajectory of increasing by 0.01 new outlets per quarter, per LA. However, this reversed after the adoption of management zone restrictions; the new rate was a 0.02 decrease per quarter representing a significant post-intervention trend change of -0.03 (95% CI -0.01, -0.05).

Twelve months after the introduction of management zones there were 30.3% (95% CI -4.0, -56.6) fewer new outlets compared with no intervention. By six years post-intervention, there were 81.0% (95% CI -29.1, -100) fewer new takeaway outlets per LA than would have been expected in absence of the intervention.

The analysis showed no significant changes in trends for secondary outcomes, such as increases in new takeaways near the zone boundaries or large fast food chains opening sit-in restaurants that also serve takeaway. This suggests that the protections implemented within the management zones did not shift harms elsewhere in the food environment.

The findings indicate a deceleration in the rate of new takeaway openings, but this does not necessarily mean there was a decrease in the total number of fast food outlets in each LA. It's likely that the overall number of fast food takeaways in the area remained relatively stable. Without this intervention, we can assume that the trend of increasing new openings within 400m of schools would have persisted.

Appendices

Appendix 1: Search strategies

Grey literature database	Search term	Notes
King's Fund Library	'Fast food outlet' OR 'takeaway' AND 'weight loss OR diet OR obesity'	Sort by 'Relevance' and screen the first 10 pages
World Cancer Research Fund International (NOURISHING database)	Search all policies	n/a
Gov.UK website	'Fast food outlet' OR 'takeaway' AND 'weight loss OR diet OR obesity'	Sort by 'Relevance' and screen the first 3 pages
Google and Google Scholar	Fast food outlet restriction	Sort by 'Relevance' and screen the first 3 pages
Google and Google Scholar	Fast food outlet restricting access	Sort by 'Relevance' and screen first 3 pages
Google and Google Scholar	Fast food takeaway restriction	Sort by 'Relevance' and screen the first 3 pages
Google and Google Scholar	Fast food takeaway restricting access	Sort by 'Relevance' and screen first 3 pages
Google and Google Scholar	Unhealthy outlet restricting access	Sort by 'Relevance' and screen first 3 pages
Google and Google Scholar	Unhealthy takeaway restricting access	Sort by 'Relevance' and screen first 3 pages

Targeted website(s)

[National Food Strategy Website \(and report\)](#)
Obesity Health Alliance: [Turning the Tide Ten Year Strategy Report](#)