NIHR | Health Determinants Research Collaboration Cumberland

# Improving the Determinants of Health: Cumberland Council's Research Plan

Phase 1 Review of Interventions:

## Obesity

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Cumberland Council

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# Context

- The Health Determinant Research Collaboration is a five-year research project, funded by the National Institute for Health Research from January 2024 to December 2028. The project aims to increase the research capacity of staff within Cumberland Council and voluntary sector and to improve their use of evidence to improve health inequalities.
- In 2024 the HDRC team consulted with 107 people including Council staff, elected members, community-based organisations and academic partners in order to establish seven priority areas in need of firmer evidence.
- The seven areas are: poverty, pathways to employment, access to housing, mental health and neurodiversity, substance use, obesity and food insecurity and children cared for.
- In each of the seven themes the HDRC aims to uncover how serious the issues are and who experiences them, how they vary across our rural, coastal and urban areas, what barriers there are to improvements, and what might work to improve them.
- Each of the seven themes will have a scoping review to understand interesting recent interventions, secondary data analysis to understand what is already known, new data collection across the health and social care system, and deep divers into particular issues by community co-researchers.
- This scoping review is one of seven, in the first phase of research set out above.

# Data Context – The Picture In Cumberland

**Key: Cumberland - England**

**Adult Prevalence (18yrs+): Proportion %**
Prevalence of Overweight Adults (inc. Obesity): 67.5% (64%)
Prevalence of Obese Adults: 26.6% (26.2%)
Diabetes Diagnosis Prevalence: 8.9% (7.7%)
Source: NHS England, 2023-2024

**Adult Activity Levels: Proportion %**
Physically Active Adults: 68.7% (67.3%)
Adults Cycling For Travel (3x per week): 1% (2.3%)
Adults Walking For Travel (3x per week): 11.9% (15.1%)
Source: Office For Health Improvement and Disparities, 2020

**Accessibility: Per 10,000 / Per 100,000**
Access to Sports Facilities, per 10,000: 24.2 (18.6)
Access to Supermarkets, per 10,000: 3.7 (2.7)
Fast Food Outlet Availability, per 100,000: 109.4 (115.9)
Source: Office for National Statistics, 2023

**Child Prevalence: Proportion %**

Reception (4-5yrs):
Prevalence of Overweight: 13.3% (12.4%)
Prevalence of Obesity – inc. Severe Obesity: 10.5% (9.6%)
Prevalence of Severe Obesity: 2.3% (2.6%)
Source: NHS England, 2024

Year 6 (10-11yrs):
Prevalence of Overweight: 13.8% (14.1%)
Prevalence of Obesity - inc. Severe Obesity: 37.2% (35.8%)
Prevalence of Severe Obesity: 6.3% (5.5%)
Source: NHS England, 2024

**Child Activity Levels: Proportion %**
Physically Active Children & Young People: 49.1% (47.8%)
Physically Active For One Hour per day Everyday (At 15yrs): 12.1% (13.9%)
Source: NHS England, 2015 & Office For Health Improvement and Disparities, 2024

**What Does The Data Tell Us?**
Cumberland has a high percentage of obesity within the population. This appears to be a problem throughout the lifespan as demonstrated by higher percentages of overweight and obese children which then continues into adulthood with Cumberland having a higher proportion of adults categorised as overweight or obese, compared to national figures.

Cumberland has more physically active adults and children, more access to sport facilities and supermarkets and less access to fast food outlets, when compared to national figures

# National Policy Context

Council's have a legal responsibility to protect residents' health, to improve their population health and tackle health inequalities.

- Under the Health Mission, the Government is committed to tackling obesity, creating a fairer, healthier food environment. This will contribute to the Mission goals of fewer lives lost to the biggest killers and a fairer Britain where everyone lives well for longer
- The Government has laid secondary legislation to restrict advertisements of less healthy food and drink to children on TV and online from 1 October 2025, announced changes to the planning framework for fast food outlets near schools and is committed to banning the sale of high-caffeine energy drinks to under-16s.
- DfE- Launch of the first tranche of school breakfast clubs to help break down barriers to opportunity and tackle child poverty. 13 schools across Cumberland will offer a club with the aim of providing healthy, varied and nutritious breakfasts
- NHSE- The NHS will start a phased approach to prescribing the weight loss drug Tirzepatide, in June this year, for the ICB's to roll out
- Sport England's £250m investment into communities following their Place Based model has a programme of work in Cumbria – specifically West Cumbria 'Lets Move'
- The PH Grant has prescribed functions for NHS Health Check, NCMP & children's 0-5 services that link to the obesity agenda. Non prescribed functions includes tackling obesity and physical inactivity.

# Method

- Core search terms developed by reviewer team; topic search terms decided by reviewer
- Numerous searches strategies tested: vast body of research literature on obesity (>10,000 articles), so approach followed for scoping review involved 3 targeted searches
- Results exported to RefWorks folders and Excel spreadsheets
- Titles and abstracts reviewed for relevance against inclusion criteria (categories: H/M/N = high/medium/not)
- Articles in 'H' category included in final scoping review: read in detail, common themes identified
- Subset of 9 most informative articles designed ‘HH' : these make up the Examples in this presentation
- Articles designated M as supplementary knowledge resource, searchable within Excel spreadsheets

# Search Terms

UoC OneSearch database collection, advanced search

- Limiters: Limiters: Published 2015-2025; English language; “Articles+” option
- In all searches, **obesity** in article title, combined in different ways with specific themes:

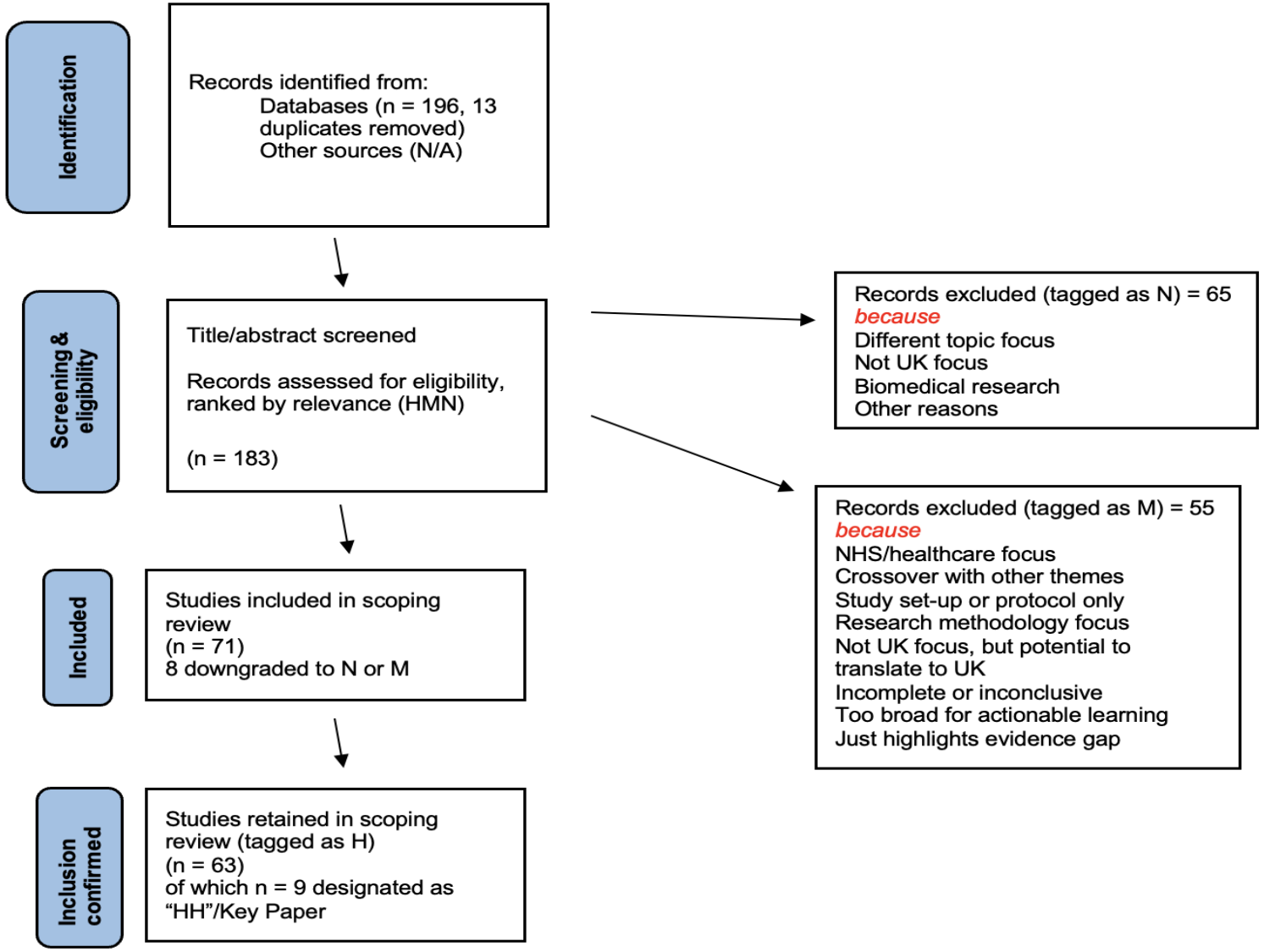
| | THEME | KEYWORD STRING |
|---|---|---|
| 1 | Interventions | intervention* OR prevent* OR reduc* OR manag* OR solution* OR solv* OR treat* OR therap* OR “best practice*” |
| 2 | Interventions with Evidence | (intervention* OR prevent* OR reduc* OR manag* OR solution* OR solv* OR treat* OR therap* OR “best practice*” ) AND evidence |
| 3 | Location | UK OR England OR “United Kingdom” OR “local authorit*” OR “local government*” OR council* OR borough* OR ward* |
| 4 | Deprivation | depriv* OR inequalities OR disparit* OR determinants OR poverty OR socioeconomic |
| 5 | Community involvement | communit* OR resident* OR participant* |

Search A (reviews focus): themes 1 and 3 in description, plus **review** in title

Search F (location focus): theme 3 in title, themes 2 AND (4 OR 5) in description

Search G (evidence focus): theme 2 in title, themes 4 OR 5 in description

# PRISMA For Combined Search Results

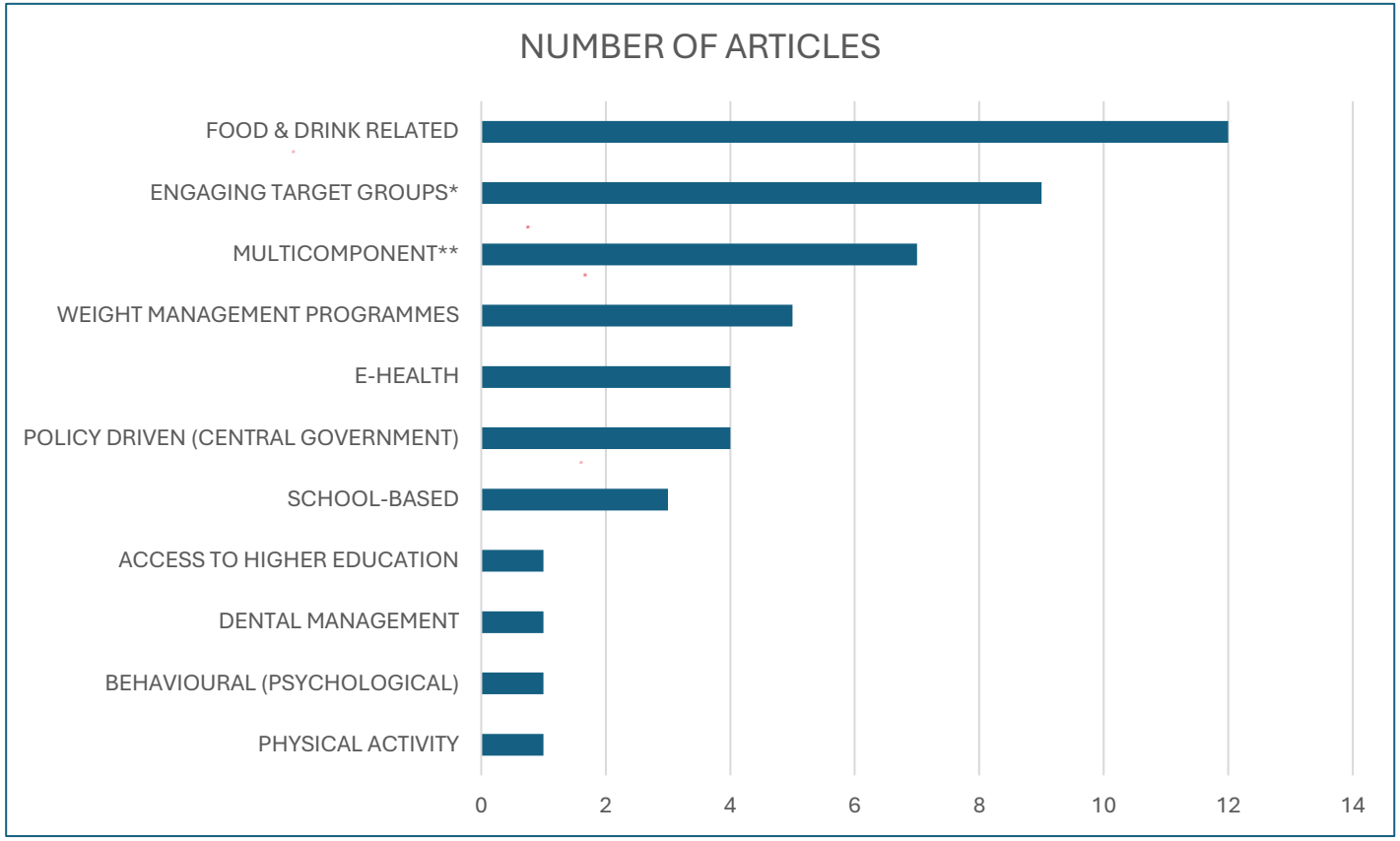



(Adapted from: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

# Key Findings

- Calls for more and/or better evidence is a common thread in articles reviewed
- Interventions for obesity broadly divide between PREVENTION and TREATMENT
- PREVENTION frequently targets early-years interventions since obesity tracks from childhood to adolescence and adulthood, with associated morbidities including type 2 diabetes and cardiovascular disease
- TREATMENT centres on weight management services (in UK escalating through tiers 1-4 with increasing BMI)
- Importance of supportive environments emphasised (schools, family homes)
- Evidence related to food-related interventions far outweighs that relating to physical activity
- Little found specifically about interventions in 'rural' settings.
- Some examples of effective practices by UK local authorities are useful models for other LAs

# Overview of Intervention Types




*ENGAGING TARGET GROUPS:
- mothers & families
- adolescents

**MULTICOMPONENT:
*including*
- local programmes in UK

Doesn't include interventions prominent in the wider literature, which are outside scope of the review:
- Game-changing drugs to treat obesity (GLP-1 agonists: Ozempic, Wegovy, Mounjaro)
- Bariatric surgery for weight loss

# Example – A whole system approach to childhood obesity in Brighton & Hove

- Unusual in experiencing a **downward trend** in child obesity rates compared to national figures, through a whole system approach in a unitary council over a 20-year period – districts span entire socioeconomic spectrum
- Multicomponent (Fig 1, Chronology of events, next slide) including:
  - Early years intervention a longstanding commitment 15+ years commitment to breastfeeding promotion
  - Food and Food Poverty strategies - SSBs, school meals, Brighton and Hove Food Partnership, collaboration with Lidl
  - 'Active travel' strongly promoted by a dedicated travel team within BHCC
  - In deprived areas - remove access barriers, providing informal, affordable places to socialise, "by people they trust"
- **Similarities with Cumbrian Coastal Communities?**
  - "Residents living in areas of deprivation were described as having very strong community identities rather than feeling part of Brighton more broadly - "feel they 'don't belong' in the city centre or the city's surrounding natural landscapes, and that this is further compounded by limited public transport routes connecting them to these areas."
- **Caveat** – study based on 12 stakeholder interviews only, unable to conclude a causal relationship between the approach and comparatively positive picture of child overweight and obesity
- Salm, L et al (2023) RefWorks REF ID 153

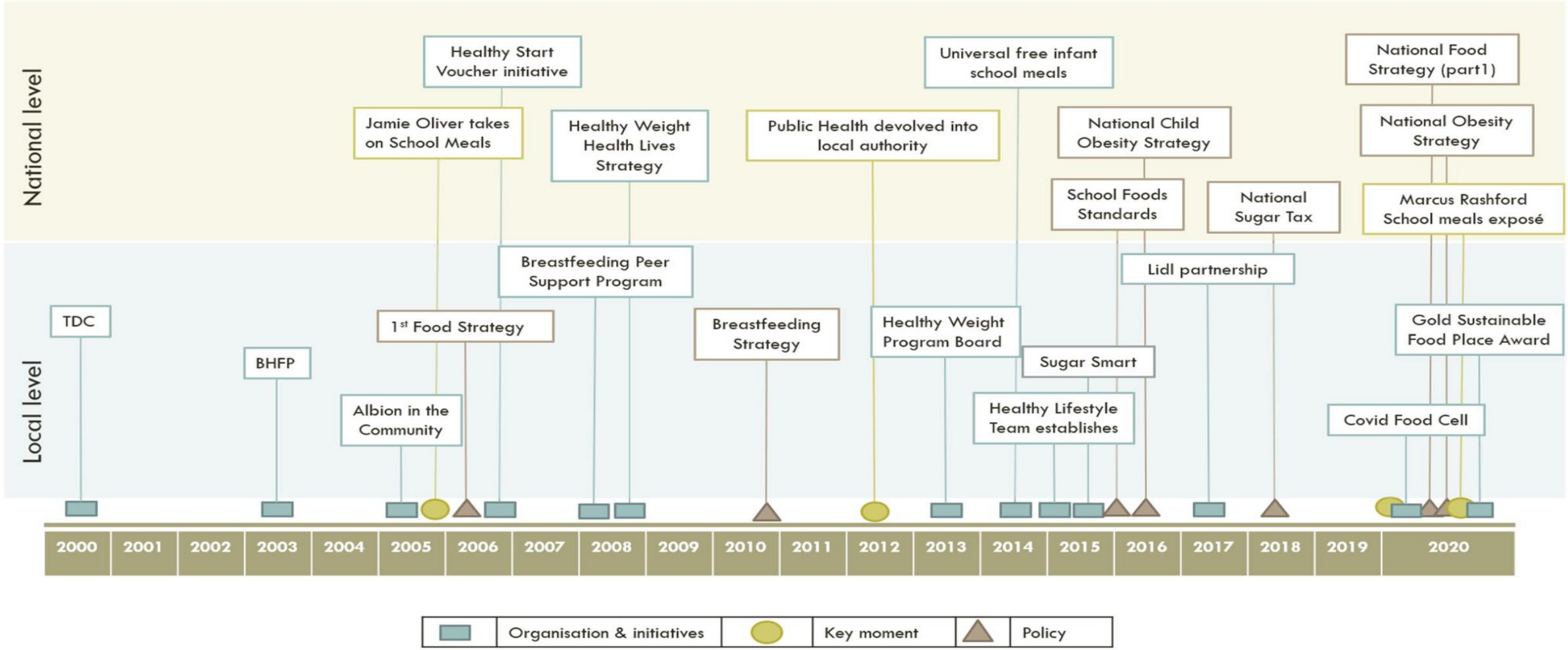



**Fig. 1** Chronology of events

# Example – Go-Golborne Intervention

- 3-year programme in second most deprived inner-London ward, with 1650 participants in (children age 6-11)
- Multicomponent, with six co-created themes to (1) make changes to local environments (2) reduce sugary snacks and beverage consumption, (3) increase fruit and vegetable intake, (4) promote healthy snacks, (5) increase active play and travel, and (6) reduce screen time (Fig 1, Specific interventions, next slide)
- With accompanying social marketing campaigns and community capacity-building initiatives
- Generated both positive and negative evidence after 3 years:
  - +ve: decrease in sugar-sweetened beverage consumption, decrease in car travel to and from school
  - -ve: decrease in fruit and vegetable consumption, increase in screen time
  - some nuances in results: children receptive to active play in Year 1, but falls off in Years 2 & 3 when screen time increases
- May provide relevant learning for design and maintenance of multicomponent CC programme
- Bijlani, C. et al. (2024), RefWorks ID 156

**Go Golborne Interventions**

Six social marketing campaigns over 3 years with community capacity building activities throughout.

*Nutrition:*

'Sugar swaps' to reduce consumption of sugary snacks, cereals, and beverages

'5-a-day' to increase intake of fruit and vegetables

'Snack checks' to increase consumption of high-fibre, low-fat and low sugar snacks

*Physical activity:*

'Active play' to encourage skills, motivation and opportunities for active play

'Screen time' to reduce time spent watching TV and other screens

'Active travel' to encourage integrating active modes of transport, such as walking, cycling, and scooting, into daily life

*Community capacity building included:*

Fruit and vegetable voucher scheme

Small grant scheme to support local events and changes to the physical infrastructure of the ward (such as the installation of water fountains)

Family challenges to eat more fruit and vegetables or reduce screen time

Healthy lifestyle training workshops for partner organisations

**Fig. 1** Specific Go-Golborne Interventions Implemented Between 2016–2019

# Example – Healthy Habits, Happy Homes (4HS)

- Pre-school, home-based child obesity prevention intervention from USA successfully transferred to an economically deprived area of Scotland (North-East Dundee; 40% of households within the 15% most deprived data zones)
- Article gives guidance for successful participatory methods: community engagement through co-production workshops and a co-created study website with a focus on local imagery and simple language
- Randomised controlled feasibility trial over 6 months involved 4 monthly home visits and 4 monthly SMS texts vs 4 emails or mailshots in control group
- Findings:
  - Evidence that 4HS was feasible to deliver, pragmatic in nature and intervention demonstrated good fidelity to Motivational Interviewing (MI) technique used in original 4H in USA and Canadian pilot study
  - Investment of time required to make connections within the community was key to establish links with the parent group that became a vital element of the study's progression
- Gillespie, J. et al. (2024,) RefWorks ID 190

# Example – Early-years interventions in UK & Ireland to reduce socioeconomic differences in obesity (systematic review)

- Examines and ranks a wide range of SEP (**s**socio**e**conomic **p**osition) mediators of differentials in adiposity outcomes:
  - **Parental health/health habits and maternal BMI** found to be largest contributor
- Makes the case for interventions to be made as early as possible in an at-risk child's life, with the “prenatal and preschool periods considered the most efficacious”
- What happens within the family home is most impactful, whereas factors outside the home have more effect for older children.
- Extracts positive evidence for interventions designed to help mothers* engage in beneficial health behaviours
  - maintaining a healthy weight
  - reducing smoking and/or drinking during pregnancy
  - increase rates and duration of breastfeeding) to improve outcomes for the child, mother and family

    **other papers highlight role of partners in supporting good health habits within the home*
- Cronin, F.M. et al. (2022), RefWorks ID 42

# Example – Limiting food consumption to Estimated Average Requirement or below

- Modelled interventions using data from the Avon Longitudinal Study of Parents and Children (ALSPAC)
- Evidence for marginal improvements only, but quantifies the reduction in daily calorie intake needed to reduce obesity in a targeted intervention for low-income families, for pre-school children:
  - Reduce DCI by 21.3% in children (cf. reduce DCI by 6.1% in universal group), at 75% uptake
  - Derived from 500 calories daily reduction for adults
  - According to model, obesity prevalence was reduced from 18.3% to 18.0%; i.e. a 3.7% change compared to the Controlled Direct Effect (CDE)
- While not considering calorie sources, provides a benchmark for design of food-related components of system-wide approach
- Russell, S.J. et al. (2022), RefWorks ID 202

# Example – Systemic review of dietetic childhood obesity management by Obesity Specialist Group of the British Dietetic Association

- Written as "starting point to guide discussions with commissioners, senior managers and dietitians on weight management services for CYP and their families."
- Recommends the UK BMI cut off points in setting service referral and triaging criteria:
  - For **tier 2** services (community based and often in groups), BMI at least 91st centile
  - For **tier 3** services (specialist, multidisciplinary), BMI higher than for tier 2 and/or additional risk factors (medical, psychosocial, safeguarding, child under 2)
- Conclusion from review of "…no clear evidence on what makes the most effective programme for managing childhood obesity", but extracts positive evidence for specific programme components:
  - Dietary components (Eatwell Guide, reduce snacking)
  - Physical activity (group settings for tier 2, 1:1 bespoke for tier 3)
  - Behavioural change techniques (supportive parenting is key)
  - Language to mitigate stigma (e.g. "unhealthy weight" better than "obese")
- Stewart, L. et al (2021), RefWorks ID 38

# Example – School-based longitudinal study

- Examines association between area-based deprivation [according to IMD] and BMI over a 6-year period, in Hampshire
- Data from National Child Measurement Programme (NCMP), which measures the height and weight of children in Reception (aged 4/5 years) and Year 6 (aged 10/11 years) in English primary schools
- Large study - 18,733 children for who whom home deprivation quintiles remained constant, 6153 who moved home deprivation quintiles between the two time points
- Presents evidence for effectiveness of school-based interventions, including schools sited in deprived areas:
  - Home-based deprivation level found to be more strongly associated with adverse change in childhood weight than school-based deprivation
  - No significant differences in the relative risk or change in BMI status between children going to school in the least deprived quintile compared to the most deprived quintile
  - Moving home to a more deprived quintile was associated with developing obesity
- Twaits, A. and Alwan, N.A. (2020) RefWorks ID 198

# Example – Top 5 intervention points when targeting Adolescent overweight and obesity (AdOWOB)

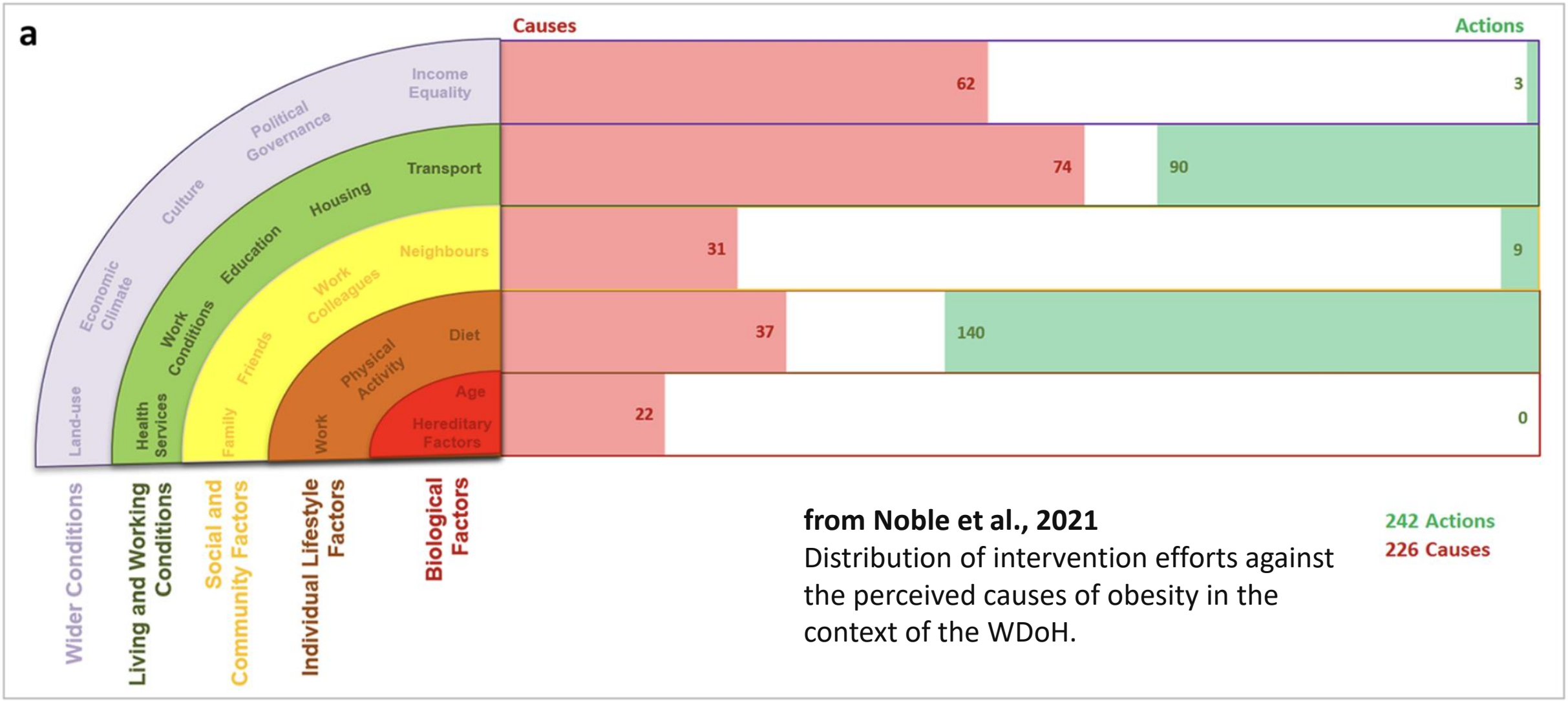
- From research forming part of EU-funded CO-CREATE project, using system dynamics model to analyse data from 5 countries (Netherlands, Norway, Poland, Portugal, UK)
- Differentiates less/more well-off boys (LWOB/MWOB), less/more well-off girls (LWOG/MWOG)
- Out of 10 possible intervention points tested:
  - 5 most influential: inadequate exercise, inadequate fruit, life dissatisfaction, school pressure, skipping breakfast
  - 5 less influential: computer overuse, inadequate vegetables, dieting, feeling low, feeling nervous
- Combined effect modelled on LWOB in Norway produces 21% reduction in AdOWOB
- **Promoting breakfast** was a particularly significant intervention point for Europe overall and in all CO-CREATE countries except the Netherlands
- Romanenko, E. et al. (2023). RefWorks ID 91

# Example – Analysis of the childhood obesity prevention through a wider determinants of health lens

- Review led by NIHR ARC West makes a critical appraisal of 143 randomised controlled trials included in the childhood obesity prevention 2019 Cochrane Review.
- Highlights that interventions predominantly rely on individual agency (downstream, behavioural determinants), to which people in affluent areas are better able to respond, which risks widening inequalities.

*"Seldom did local authorities [in England] aim to address the upstream determinants of obesity, despite [evidence that] 60% of the causes reside upstream."* (see Figure, next slide)

- One of several articles that argue the case for research efforts taking more account of upstream determinants (i.e. government policies and wider economic factors).
- Prompts questions about how CC can commission research on mid-stream determinants within its remit (public health employment, housing & education) while influencing national policy.
- Nobles, J.D. et al. (2021), RefWorks ID 82




**from Noble et al., 2021**

Distribution of intervention efforts against the perceived causes of obesity in the context of the WDoH.

# Key Messages

- No single intervention to prevent obesity is effective, but some interventions stand out within multicomponent approaches:
  - Promotion of breastfeeding
  - School children start the day with breakfast
  - Safe and active alternatives to car travel to and from school
  - Physical activity in informal, affordable group settings

- Customise delivery of interventions to suit the target groups – e.g. adolescents are a special case

- Patterns of stigmatising behaviour are quite well understood and can inform Cumberland Council approach to community engagement - 'people with obesity tend to support each other' - Flint et al. (2015)

- A whole-system, local authority-led approach is the gold standard but needs to be sustained over a long period
  - Consider synergies with interventions that address other drivers of health equity in the region.

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