



Opportunities for intervention and innovation in school food within UK schools

The Generating Excellent Nutrition In UK Schools (GENIUS) School Food Research Network

Network Research Manifesto (produced using the UKPRP Community of Practice template)

Contents

1. BACKGROUND	2
2. FUTURE RESEARCH.....	3
3. STAKEHOLDERS	5
Current stakeholders	5
Potential stakeholders	5
4. NEXT STEPS	5
5. CONCLUSIONS	7
6. REFERENCES	7

1. BACKGROUND

The overarching **aim** of the UK Prevention Research Partnership (UKPRP) GENIUS school food network, within the current funding period is to build a community working towards a more health-promoting food and nutrition system in UK schools. The ultimate **vision** of the GENIUS network is to harness the expertise and experience of a wide range of stakeholders to drive excellence in all parts of the UK school food system to benefit the health of all pupils.

The UKPRP-funded GENIUS network (1,2) **defines** and considers the food system across preschool, primary and secondary settings, and includes all school food provision, within canteens, vending machines, shops and home-prepared packed lunches, and also the school fringe environment. The network brings together an interdisciplinary team including nutrition, epidemiology, public health, systems science, sensory science, health economics, health informatics, health psychology, education, planning and policy, and includes non-academic project partners from across the UK to prioritise stakeholder/user engagement.

Diet is a key, modifiable health determinant. UK children's diets are high in saturated fat and sugar, and low in fibre and fruit and vegetables. For example, only 8% of UK 11-18 year olds meet the "5-a-day" guideline, with socioeconomic differentials (3). The quality of diet in childhood has been shown to impact on future development, educational achievement, health and well-being outcomes, and also influences adult diet and non-communicable diseases (NCD) risk (e.g. diabetes, cardiovascular disease) in later life (4). We need effective and sustainable ways of helping young people, particularly in areas of socioeconomic disadvantage, access a better diet, as early modification in eating habits and behaviours will decrease risk of developing such conditions (5).

Schools play a crucial role in improving children's health, and are an obvious setting for population-level public health interventions (6). They provide easy, and almost universal, access to pupils of various ages from across the social spectrum, with children spending approximately 40% of their time awake every week day at school. Food provided in schools could have a major influence on children's diet quality and has the potential to reduce inequalities in dietary intake (7,8). Promoting the health and nutrition of the school food system can be seen as an essential activity that supports the goals of education.

Indeed, recognising that education and health are intrinsically linked, the World Health Organisation (WHO) advocates the Health Promoting Schools (HPS) approach internationally to support and foster positive health behaviours (9,10). A HPS is defined as 'a school that is constantly strengthening its capacity as a healthy setting for living, learning and working'. The HPS Framework (11) advocates a 'whole-school approach' to promoting health via: provisions and activities relating to health promoting school policies; the school's physical and social environment; the curriculum; family and community links; and health services at the school (12). Recent reviews of the HPS approach have indicated some successes, but also gaps in the evidence base (13-16). The HPS approach may well be relevant to the UK setting, however, an understanding of context is essential to inform implementation and testing of approaches that have been developed in other countries. Factors that influence implementation of HPS interventions are numerous, variable and contextually influenced (12).

UK school food was deregulated in 1980, and, between 2000 and 2013, each nation re-introduced school food standards across primary and secondary schools. These standards varied in content and timetable for implementation, but are now compulsory (in all nations since 2013), except for English academies founded between 2010 and 2014. Evaluation and monitoring of standards, and the requirements for reporting of these, across the UK has varied in scope, detail and timing (17). When standards have been implemented, evaluations conducted in England suggest that the quality and nutritional value of food provided has improved, both within and beyond the school setting, and children from all socio-economic groups have benefitted (18-20).

There are also differences in how schools arrange their food provision and what they serve, between schools and UK regions, and this is not well understood. A systematic review of interventions to prevent childhood obesity highlighted, however, that establishing school environments and cultural practices that support children eating healthier foods throughout the day could be an effective intervention strategy (21).

To date, there has been no formalised research, practice or policy network bringing UK school food stakeholders together. It is essential to understand the complexity of the school food system in the UK in order to tailor and embed interventions appropriately in different contexts according to local needs (15). There is also value in taking stock of current evidence and practice in order to develop a future research agenda that meets the needs of schools, pupils, parents and the wider community. Such an exercise has not been undertaken to date in the UK, and there is much to learn regarding the landscape and initiatives regionally, that could be applied UK-wide. This required learning has been brought into sharp focus recently with the closure of schools during the Covid-19 pandemic, when the government response in terms of replacement support for those eligible for free school meals, and the heterogeneity with which alternatives were implemented, received much attention (22).

It is critical to policy development that the value of investment, innovation, and change in the school food system is measured and protected using planned, appropriate, robust and timely evaluations, working across government departments and between countries. Broader insight is needed to provide a foundation for future actions, in terms of activities ripe for innovation, intervention development/testing, and effective routes to influence policy.

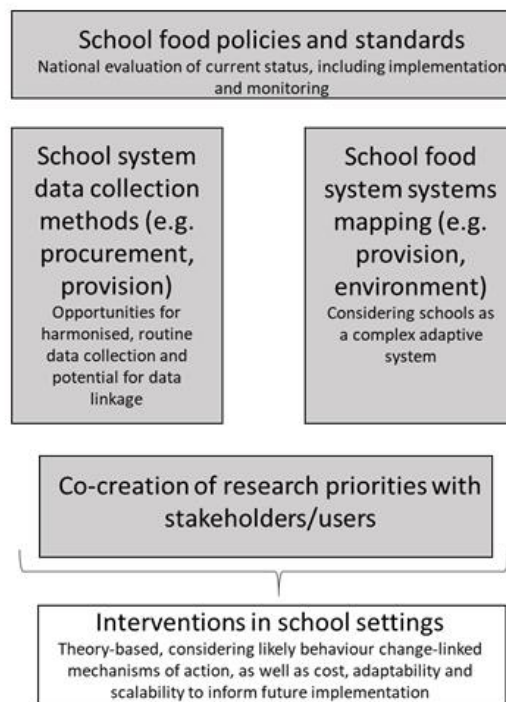
The network is funded for a period of 34 months, until June 2022. Despite the effects of COVID-19, which meant the face-to-face launch event in April 2019 had to be cancelled, and which has made it more challenging to facilitate meaningful interactions between stakeholders because of the need to prioritise other aspects of their roles, the work of the network has proceeded largely according to plan.

This research manifesto describes the work streams and objectives of the network, its stakeholders and next steps.

2. FUTURE RESEARCH

GENIUS is taking an overall systems thinking approach to the UK school food system, as UKPRP aims to foster whole systems approaches to prevention. A systems approach to school food, and considering schools as a complex adaptive system, has never previously been utilised.

GENIUS's research themes are outlined below:



■ Prioritised research themes and activities within the GENIUS network

The GENIUS network work streams, with accompanying objectives, are as follows:

Work Stream 1: Building the network

Objectives

1. To build a network of researchers and non-academic stakeholders working within the UK food and school systems
2. To facilitate interactions that do not currently exist between policymakers, practitioners and academics
3. To build research capacity regionally and UK-wide, both within the academic and non-academic setting, including schools, school catering services, policymakers and academics

Work Stream 2: Understanding the current school food system

Objectives

4. To use the network to gather data regarding the school food system in the four different UK nations
5. To use innovative research methodologies, such as systems mapping approaches and network analyses, to understand how the school food system operates as a complex adaptive system, and how the network develops and functions

Work Stream 3: Sustaining the network and driving impact

Objectives

6. To identify areas of best practice that may lead to more evidence-based practice and policies in relation to school food; to co-produce with project partners and stakeholders key priorities in terms of changes to practice to be recommended to schools

7. To co-produce with project partners and stakeholders key priorities in terms of research questions, use pump-priming funding to support data collection, and develop larger scale funding applications which will, in turn, sustain the network

3. STAKEHOLDERS

Current stakeholders

Current stakeholders include canteen managers, canteen staff, parents, teachers, principals, pupils, local government practitioners, policymakers and academics with an interest in school food.

Potential stakeholders

GENIUS operates across the four countries of the UK, which differ in terms of their school food systems. Whilst stakeholders described above have been identified and embedded in GENIUS activities, full coverage for all stakeholders across all regions does not yet exist, and therefore increasing and expanding membership remains an ambition.

4. NEXT STEPS

The Table below describes, in the form of a roadmap, how we will achieve our network objectives over the remainder of the funding period.

Table Roadmap for delivery of network objectives

Milestones	Progress on deliverables
Work Stream 1: Building the network	
OBJ 1 To build a network of researchers and non-academic stakeholders working within the UK food and school systems.	
Milestone 1.1 Establish network membership	Membership established and will continue to grow with the network
OBJ 2 Facilitate interactions that do not currently exist between policymakers, practitioners and academics	
Milestone 2.1 Network website established as a repository for information and effective tool to encourage communication between network members.	Website established and will evolve with the network
Milestone 2.2 Social media presence established	Social media presence established and will expand with the network

OBJ 3 Build research capacity regionally and UK-wide, both within the academic and non-academic setting, including schools, school catering services, policymakers and academics	
Milestone 3.1 Regular dissemination events held with both academic and non-academic audiences; including via the UKSBM Special Interest Group	Programme of dissemination events ongoing
Milestone 3.2 Undertake systems training of network members	Training event postponed; online training event Nov 2021
Work Stream 2: Understanding the current school food system	
OBJ 4 Use the network to gather data regarding the school food system in the four different UK nations	
Milestone 4.1 Updated review of UK-wide school food policies and standards (update of (17))	Updates being completed by PhD students and ongoing
OBJ 5 Use innovative research methodologies, such as systems mapping approaches and network analyses, to understand how the school food system operates as a complex adaptive system, and how the network develops and functions	
Milestone 5.1 Undertake systems mapping of the UK school food system	Underway – to complete June 2022
Milestone 5.2 Undertake stakeholder network analysis of the GENIUS network	Will commence April 2022
Work Stream 3: Sustaining the network and driving impact	
OBJ 6 To identify areas of best practice that may lead to more evidence-based practice and policies in relation to school food; to co-produce with project partners and stakeholders key priorities in terms of changes to practice to be recommended to schools	
Milestone 6.1 Identification of best practice examples in school food; co-production of key priorities in terms of changes to practice in relation to school food to be recommended, including around data collection methods	Underway – to complete June 2022
OBJ 7 Co-produce with project partners and stakeholders key priorities in terms of research questions, use pump-priming funding to support data collection, and develop larger scale funding applications which will, in turn, sustain the network	
Milestone 7.1 Co-production of key priorities in terms of research questions	Underway – to complete June 2022

Milestone 7.2 Pump priming funds awarded and distributed	Awards advertised Oct 2020 Selection complete Mar 2021 Award update reports due Oct 2021 Awards to complete Mar-May 2022
Milestone 7.3 Network sustaining grant applications made	2 x PhD Studentship and MRC PHIND funding secured Ongoing NIHR funding application

Medium-long-term objectives of the network are as follows (beyond the current funding period):

Medium-term:

- collate and evaluate tools currently used by practitioners, develop a theory-based toolkit to support intervention development in the school system, and a framework for evaluation of those interventions, including a core set of outcomes for school food interventions
- build a sustainable community of practice focused on the school food system

Longer-term:

- normalise evidence-based healthy food practices within school settings
- change school food culture and practice, ultimately creating healthier school food environments which are accessible to all

5. CONCLUSION

The GENIUS network is bringing together a wide range of UK school food stakeholders and undertaking a situational analysis of the current school food system, using both established and novel methodologies, to build a better understanding of the school food system, and to innovate, co-create and share best practice. Understanding the current food system and building network expertise will advance research to better inform policy and practice around food in schools. The co-production of priorities for research and changes in practice will ensure the activities of the network are relevant for beneficiaries (families with school-aged children) and stakeholders (teachers, principals, catering staff, policymakers) and are, thus, more likely to result in meaningful and sustained changes in policy and practice. The network ultimately aims to improve quality of school food, normalise evidence-based healthy food practices within school settings and change school food culture and practice, creating healthier school food environments which are accessible to all, reducing diet-related inequalities, and, consequently, NCD risk.

6. REFERENCES

- (1) <https://ukprp.org/what-we-fund/genius/> last accessed 10th July 2020
- (2) <https://geniusschoolfoodnetwork.com/> last accessed 10th July 2020
- (3) <https://www.gov.uk/government/collections/national-diet-and-nutrition-survey> (last accessed 10th July 2020)

- (4) Craigie AM, Lake AA, Kelly SA, *et al.* (2011) Tracking of obesity-related behaviours from childhood to adulthood: A systematic review. *Maturitas* 70, 266-284.
- (5) Bennett BJ, Hall KD, Hu FB, *et al.* (2015) Nutrition and the science of disease prevention: A systems approach to support metabolic health. *Ann NY Acad Sci* 1352, 1–12.
- (6) Marmot, M. (2010) Fair society, healthy lives : the Marmot Review : strategic review of health inequalities in England post-2010. ISBN 9780956487001
- (7) Moore GF, Murphy S, Chaplin K, *et al* (2014) Impacts of the Primary School Free Breakfast Initiative on socio-economic inequalities in breakfast consumption among 9-11-year-old schoolchildren in Wales. *Public Health Nutr* 17, 1280-9.
- (8) Spence S, Matthews JN, White M, *et al.* (2014) A repeat cross-sectional study examining the equitable impact of nutritional standards for school lunches in England in 2008 on the diets of 4-7y olds across the socio-economic spectrum. *Int J Behav Nutr Phys Act* 11, 128.
- (9) Langford R, Bonell C, Jones H, *et al.* (2015) The World Health Organisation’s Health Promoting Schools framework: a Cochrane Systematic review and meta-analysis. *BMC Public Health* 15, 130.
- (10) Wang D, Stewart D. (2012) The implementation and effectiveness of school-based nutrition promotion programmes using a health-promoting schools approach: a systematic review. *Public Health Nutr* 16, 1082-1100.
- (11) World Health Organisation. (1997) Promoting health through schools. Report of a WHO expert committee on comprehensive school health education and promotion. WHO Technical Report Series 890. Geneva, Switzerland.
- (12) Turunen H, Sormunen M, Jourdan D, *et al.* (2017) Health promoting schools – a complex approach and a major means to health improvement. Development of health promoting schools in the European region. *Health Promotion Int* 32, 177-184.
- (13) Langford R, Bonell C, Komro K, *et al.* (2017) The health promoting schools framework: Known unknowns and an agenda for future research. *Health Education & Behavior* 44, 463-475.
- (14) McIsaac JL, Hernandez KJ, Kirk SF, *et al.* (2016) Interventions to Support System-level Implementation of Health Promoting Schools: A Scoping Review. *Int J Environ Res Public Health* 13, 200.
- (15) Hung TTM, Chiang VC, Dawson A, *et al.* (2014) Understanding of factors that enable health promoters in implementing health-promoting schools. *PLoS One* 9, e108284.
- (16) Keshavarz N, Nutbeam D, Rowling L, *et al.* (2010) Schools as social complex adaptive systems: A new way to understand the challenges of introducing the health promoting schools concept. *Soc Sci Med* 70, 1467-1474.
- (17) Adamson A, Spence S, Reed L, *et al.* (2013) School food standards in the United Kingdom: implementation and evaluation. *Public Health Nutr* 16, 968-981.
- (18) Spence S, Delve J, Stamp E, *et al.* (2014) Did school food and nutrient-based standards in England impact on 11-12Y olds nutrient intake at lunchtime and in total diet? Repeat cross-sectional study. *PLoS One* 9, e112648.
- (19) Spence S, Delve J, Stamp E, *et al.* (2013) The impact of food and nutrient-based standards on primary school children's lunch and total dietary intake: a natural experimental evaluation of government policy in England. *PLoS One* 8, e78298.
- (20) Evans CEL, Melia KE, Rippin HL, *et al.* (2020) A repeated cross-sectional survey assessing changes in diet and nutrient quality of English primary school children's packed lunches between 2006 and 2016. *BMJ Open* 10, e029688.
- (21) Bleich SN, Vercammen KA, Zatz LY, *et al.* (2018) Interventions to prevent global childhood overweight and obesity: a systematic review. *Lancet Diabetes Endocrinol* 6, 332-346.
- (22) <https://policystudies.blogs.bristol.ac.uk/2020/06/01/lockdown-lunches/>
- (23) Nathan N, Janssen L, Sutherland R, *et al.* (2019) The effectiveness of lunchbox interventions on improving the foods and beverages packed and consumed by children at centre-based care or school: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act* 16, 38.
- (24) Langford R, Jago R, White J, *et al.* (2019) A physical activity, nutrition and oral health intervention in nursery settings: process evaluation of the NAP SACC UK feasibility cluster RCT. *BMC Public Health* 19, 865.