LIVERPOOL'S
GOOD
FOOD
PLAN

UNIVERSITY OF
LIVERPOOL

Catalogue of Evidence-Based interventions

Prepared by Grace Patterson, Research Associate, Centre of Excellence for Sustainable Food Systems, University of Liverpool

Summary

The purpose of this document is to summarize evidence for the efficacy and value of interventions to improve local food access, identify key actions that stakeholders in Liverpool can take, and identify metrics for accountability and benchmarking.

This document is meant to be updateable over time as new interventions and metrics arise. Herein we summarise some of the most commonly used interventions per risk group or organisation and provide a snapshot of upstream measures (such as economic interventions). We provide metrics to assess progress from these interventions, as well as an assessment of any action in this field in Liverpool as of 2020. This information is current to the best of our knowledge, but is not a definitive document. Feedback is welcome!

Interventions and intervention assessments were identified through semi-systematic literature review and review of grey literature and toolkits across sites such as Food Foundation, Sustain and Sustainable Food Places.

In sum, community-level interventions that target the basic drivers of FI (economic insufficiency and access) while limiting the number of steps or requirements for participation appear to have the strongest evidence base supporting their impact on FI. Other hallmarks of successful programmes include co-development alongside end-users and flexibility in how participants interact with the programme.

Interventions

Healthy Start Vouchers

Description

Healthy Start, in place since 2006, is a UK-wide scheme to provide a nutritional safety net to pregnant women and children under four in low-income families. All pregnant women under 18 qualify, regardless of income. The scheme provides vouchers to be used at local shops to buy milk, fresh or frozen fruit and vegetables, infant formula, pulses, and vitamins. Vouchers are worth £4.25 each week during pregnancy and per child between the ages of 1-4, and £8.50 per week for each child from birth to the age of one.

Participants sign up through a health professional and can access vouchers every four weeks. The Healthy Start website provides a store look-up and other information.

Evidence

Evidence for the effectiveness of the Healthy Start (HS) voucher programme has been mixed, but generally supports the efficacy of the programme. In 2020, a study using 2010-2017 Living Costs and Food Survey data found no difference in household fruit and vegetable purchasing between HS participants and eligible, but non-participating, households[1]. The authors suggest that increases in voucher value may be needed to counteract the increasing price of food. However, a 2018 study using more precise data found that HS vouchers significantly increased purchase of fruit and veg, which translated to overall increase in the amount of key nutrients in a household's shop[2]. The paper also highlighted the added benefits of the HS policy, such as signaling the importance of healthy eating at a population level. Studies of similar programs in the US support these conclusions. A 2008 study in Sheffield further supports the effectiveness of HS, and found that women enrolled in HS ate significantly more fruit and veg, and met more nutritional recommended vitamin intakes, than women enrolled in the previous government scheme (Welfare Food Scheme)[3]. Finally, a study in the NW of England found four ways women use HS: 1) to increase fruit and veg consumption, 2) to reduce food expenditure and save money elsewhere, 3) to improve the diets of others in the household, and 4) to stockpile formula. While none of these outcomes are harmful, they demonstrate the potential for unintended effects of the HS program, and uncover some of the more immediate concerns and decision-making processes of low-income women experiencing FI[4].

Many studies have examined barriers among retailers, users, and healthcare providers to increasing uptake of HS. Reported barriers[5] to registration include the complex eligibility criteria, inappropriate targeting of programme information by health practitioners, and low awareness among families. Challenges were also reported among women who do not speak English, had low literacy levels, were in low paid work or had fluctuating incomes. The impact of these vouchers is also subject to fluctuations in food prices and registration among small shops, or those in culturally diverse regions. Assessment of the vitamin provision component of the scheme revealed that many health care providers believe that universal provision of vitamins would be less logistically complex and ultimately more cost effective than the current method[6]. This view was shared by those in the voluntary sector, who support a move to universal provision of vitamins for mothers and children up to age five.

There are many resources and toolkits for boosting Healthy Start uptake[7,8]. A 2018 review and summary of HS highlighted that the program is most cost-effective when women enroll at the start of pregnancy and among women at highest risk of vitamin D deficiency[9]. To reach low uptake groups such as non-native English speakers, enrollment and information booklets should be provided in additional languages (currently only provided in English). More detailed recommendations for lowering barriers for HS use, increasing uptake, and improving effectiveness of the program are provided in the report. Another comprehensive report of HS implementation across England found that local management of HS works best when different groups of professionals were involved and there was a clear point person in charge of HS per Primary Care Trust[10]. In practice, GPs were rarely involved in signposting, sign-up, or distribution of vitamins. Other professionals, such as nursery nurses and children's centre staff, were more deeply involved in HS promotion and vitamin distribution but are ineligible to enroll women in the program. Midwives and health visitors were among the most active participants. Most frontline health professionals expressed a desire for regular training or updates on HS. Most families enrolled in the programme found it easy to use the vouchers and highly value the HS scheme, though it is unclear how non-enrolled families view the programme. Finally, small and independent retailers viewed HS as a way to serve their local community and largely report use of vouchers for fresh milk.

Liverpool Status and Related Data

There is currently no national yearly report on HS uptake[9], but regional and local authority statistics are provided every four weeks. In the North West, uptake is routinely comparable to the national average, at approximately 53-55%. Uptake is slightly higher in Liverpool, at 58% during the March 21 reporting cycle (7529 eligible households, 4376 enrolled).

Metric: HS uptake data is provided at a regional and local authority level every four weeks and consists of the percentage of uptake among eligible beneficiaries.

Alexandra Rose Vouchers/Fruit and Veg Vouchers

Description

The Rose Vouchers for Fruit and Veg Project helps families buy fresh fruit and vegetables and supports them to give their children the healthiest possible start. Families receive £3 of vouchers per child per week (£6 for children under one year old). Eligible families are recruited at local children's centres and other community organisations and must meet requirements for Healthy Start Vouchers or be a family in receipt of benefits. The Rose Voucher scheme takes a localized approach by working with community groups and local traders to encourage the local economy.

Evidence

The AR voucher approach is highly flexible and able to adapt to meet local needs. However, this approach requires continued funding and impact may be limited by awareness an uptake of the programme. Internal review of the programme found that the majority of participants from different sites report increased fruit and veg consumption among their children, less snacking, reduced food bills, and increased engagement with Community Centres[11]. Local retailers report increased income and footfall.

A formal trial of a 10-month modified Rose voucher scheme reported high buy in from participants, retailers, and other key community actors, and had an array have positive benefits in the community[12]. The trial was co-developed by community members, and five £1 were distributed per household per week among all 97 households of a deprived area in Barnesley that had access to a local produce market. Among eligible households, 83% enrolled in the programme and 89% of distributed vouchers were used. The voucher scheme was coupled with promotional signage in eligible shops. Participants reported greater consumption of fruit and reduced anxiety about providing fruit and veg for their family. Many households reported that the vouchers provided a mental cue to eat more F and V and were prompted to go shopping so as to not "waste" the voucher. The vouchers prompted some participants to try other healthy activities, expand their diets, or maintain increased fruit and veg consumption beyond the end of the programme. This model demonstrates the importance of community buy-in and the benefits of a community-wide (not needs-based) approach. A later iteration of the program, Fresh Street, involves delivery of veg bags and focuses on supporting independent local producers and suppliers.

Similar voucher or subsidy programs have been assessed in other countries, with many reducing household FI, improving infant health, and improving educational attainment among girls[13]. The flexibility associated with subsidy programmes allows households to alleviate economic burdens, and programmes co-designed with potential community participants were more likely to be effective. A study of a similar voucher program in the US highlighted the need for accessibility to local markets and clear explanations of the programme for the programme to be successful[14]. A study in Paris found that providing households experiencing FI with vouchers for fruit and veg over the course of one year significantly reduced the percentage of households experiencing FI[15]. A combined subsidy and education program in the US has also proven effective in reducing FI long-term among families with children[16]. Keeping the voucher use focused narrowly on fruit and veg at local markets also appears to be important for programme success.

Liverpool Status and Related Data

Alexandra Rose has recently expanded from its origin in London to Liverpool in 2017. They currently work out of three children's centres and work with a local company to provide fresh fruit and veg to participants via mobile produce vans (rather than a traditional street market). Alexandra Rose served 240 families in 2019/2020 in Liverpool, where 100% of participating families surveyed reported feeling healthier due to the programme.

Metric: There are currently no metrics to assess the efficacy of Alexandra Rose or other experimental voucher programmes, aside from what the administering bodies collect.

Breastfeeding Promotion

Description

FI during pregnancy and infancy has been associated with obesity-promoting maternal feeding styles and practices and reduced breastfeeding[17]. Breastfeeding promotion is especially critical among FI populations to support early child health, and adjusted approaches to breastfeeding support may be necessary to meet the specific needs of women experiencing FI.

Evidence

Many women experiencing FI struggle to breastfeed due to multiple barriers including time restrictions imposed by employment, worries about the impact of a poor maternal diet on child health[17]. There is little evidence examining the intersection of FI and breastfeeding in the UK[18]. In

Canada, where breastfeeding rates are also low, FI was associated with decreased levels of breastfeeding and, in some cases, early cessation[19]. While mothers experiencing FI initially attempted to follow breastfeeding guidelines, they were less able than food secure women to sustain exclusive breastfeeding[20].

In the UK, an economic intervention in wards with low levels of breastfeeding prevalence observed a modest increase (5.7%) in breastfeeding among women periodically offered shopping vouchers in exchange for their promise to breastfeed at some level[21]. While this study was not conducted exclusively among women experiencing FI, it demonstrates the benefit of a financial intervention offered at a community level.

Liverpool Status and Related Data

As of Quarter 3 2019/2020, the prevalence of breastfeeding among infants 6-8 weeks in Liverpool (partial or exclusive) was 37%, lower than the England average of 48%[22].

Metrics: Quarterly prevalence of breastfeeding (partial, exclusive, or either) at 6-8 weeks. Data published by Public Health England.

Holiday Hunger Clubs

Description

During holiday periods, children from food-insecure households may suffer from the absence of meals at school, pushing families further into poverty, hunger, and social isolation during holiday periods. Holiday hunger clubs fill that gap by offering free food alongside other enriching activities, such as exercise, stories, and crafts. Activities can also extend to nutrition education for children and parents. Hunger clubs can also help minimize food waste by partnering with food banks, local retailers, and restaurants.

Evidence

There have been only qualitative assessments of the impact of holiday hunger clubs on children in the UK[13]. Staff and attendees report nutritional benefits such as trying new foods and dampening hunger, reduced social isolation and provision of new interactions, and financial benefits to families. Parents at a US version of a hunger club also mentioned the added value of socialisation that their children received. However, no data is available on the long-term impact of holiday hunger clubs on household FI.

Anecdotally, there are minimal barriers to uptake of holiday hunger clubs, aside from occasional reports of feelings stigma associated with accepting free food. Community support for such schemes is also high and help support administrative and operational needs of these programmes. Monetary and human resource constraints were reported as a limitation of such programmes, and should be considered when planning staffing and meal preparation[23]. Staff also reported difficulty in engaging older children (11-14).

Liverpool Status and Related Data

UK Holiday Hunger clubs are supported by FareShare and Trussell Trust, Feeding Liverpool, and other charities and food provision organisations. During the COVID crisis, a large number of local restaurants and businesses pitched in to support programmes combatting child hunger. The council has supported summer clubs for the past 6 years and during the COVID crisis has been providing vouchers to students on free school meals during holiday periods.. [Other team member will have more readily available information on this section. Would be nice to know how many such clubs are in existence and where they are in Liverpool]

Metrics: There are currently no measures in place to describe the extent of holiday hunger in Liverpool (aside from proxies such as the number of pupils eligible for Free School Meals, or families on Universal Credit). Individual holiday hunger clubs and agencies may collect data on meals delivered or number of attendees, but this information is not readily available.

Free School Meals

Description

Government-funded provision of free school meals to children living in households on income-related benefits and with annual household incomes under £7,400 (after tax and excluding welfare payments). Parents can enroll by checking their eligibility online, then bring in a Certificate of Eligibility to their child's school.

Schools with children entitled to free school meals also receive additional funding and resources to improve the quality of education offered.

Evidence

Studies of free school meals in the UK report that the programme reduces hunger and improves health outcomes and has positive social, behavioural, and educational effects, though none explicitly mention reduction of FI[13]. Studies of school food assistance in the US have directly demonstrated the ability of school meals to alleviate childhood FI.

Free school meals have benefits beyond hunger reduction[13]. In the US, free school meals can improve attendance among low-income students[24], erase the educational difficulties correlated with FI, and reduce the risk of obesity among girls (but not boys) from households with FI. A school lunch programme was also found to reduce incidences of poor health and obesity (but not household FI) among students.

Other studies of novel food assistance programs may provide inspiration for innovative local school food assistance programmes. A study of high-risk high school students in the US found that a grab-and-go breakfast intervention increased student uptake of free school meals by overcoming barriers related to a lack of time to eat before class[25], and may represent a way to increase uptake among older UK students. An Australian study piloted the acceptability of using donated food to provide school meals, and the programme was widely supported by students, parents, and teachers and introduced students to concepts of sustainability[26]. A study in Palestine linked a women-led community kitchen to schools to provide healthy, traditional snacks. This approach provided support for the community kitchen while introducing kids to healthy snacks[27].

Liverpool Status and Related Data

In Liverpool, all children in Reception, year 1 and year 2 get free school meals. Nursery aged children may also be eligible. Eligibility for children in years 3-11 is determined along national guidelines. The city council will inform a child's school on behalf of the parents if their child is eligible.

Metrics: Nationally collected data on free school meals eligibility is published annually, with information on pupil age, gender, language, ethnicity, school characteristics, and class size. Data is available at school-level and can be sorted by postcode. In Liverpool in 2019/2020, 20,096 pupils of 75,656 (27%) were eligible for free school meals and 14,904 took a free school meal on census day (74% of eligible students). This percentage of eligible students exceeded the England average of 17.3% and is slightly less than the England average uptake among eligible students of 79%. Among special schools in Liverpool, the percentage of pupils eligible for free school meals rises to 39%.

Data on free school meals in Liverpool are also collected by Liverpool City Council but are not publicly available.

Meals on Wheels/ Meal Delivery

Description

Meals-on-Wheels programs were originally developed to provide meals and social contact to older people. These programs are in place across the UK, Canada, US, Australia, and other high-income countries. This program has expanded into wider programs of meal delivery for senior citizens, the disabled, and/or others who may otherwise struggle to obtain food. In the UK, local councils may contract out meal delivery services, or may just signpost to local meal delivery companies and groups. The number of councils providing this service has drastically declined in recent years[28]. There is therefore minimal oversight on the nutritional value of meal delivery programmes, unlike more centrally governed programmes in other countries. However, this also leads to scope for organisations to tailor their meals offerings to diet medical or dietary needs, or to suit cultural preferences or dietary restrictions. Some meal delivery programmes operate at a discounted rate for low-income or disadvantaged customers, while others are marketed to high-income consumers as a means of convenience. In recent months, produce and/or meat delivery boxes direct from farms have increased in popularity.

Evidence

There is minimal evidence on the impact of meal delivery services among older adults in the UK. One UK pilot study in older adults found that three weeks of meal delivery reduced risk of malnutrition and reduced self-reported depression[28]. In other countries, evidence supports the positive impact of meal delivery services on nutritional status, dietary intake, wellbeing, loneliness, and food security[29]. Value could be added to many meal delivery programs by intentionally working to improve the social aspects of meal delivery, or by linking with other social services to provide increased support to vulnerable seniors[30,31].

Meal delivery can improve both FI status and health status among individuals experiencing FI alongside a health condition. Medically tailored free meal delivery of 10 meals per week for 12 weeks for people with FI and diabetes decreased FI and hypoglycemia and increased healthy eating scores and mental wellbeing[32]. Further cost-effectiveness studies are needed, but additional studies suggest it is plausible that the costs of such programs would outweigh the cost of healthcare spending on improperly managed chronic disease[33].

Liverpool Status and Related Data

Liverpool City Council provides details on the four current meal delivery options in the city, all of which require payment. These include Wiltshire Farm Foods, Can Cook: Cooked, ICare Cuisine, and Oakhouse Foods. Individual greengrocers or butchers also provide fruit and veg box delivery across the city.

Metrics: There are no data on the number of people reliant on meal delivery in Liverpool, as there is no central body organising meal delivery. Individual meal delivery programmes will have data on volume of meal delivery and details on demographics of clients, but this data is unlikely to become available. It is therefore difficult to assess the dependence on and effect of meal delivery services in Liverpool.

Primary School/Child Nutrition Education

Description

Education on nutrition and healthy eating can easily be delivered to children via schools, where they are already gathered in a learning environment. Early development of healthy eating knowledge and skills is important to set life-long patterns of behaviour, as it is difficult to overcome unhealthy patterns of behaviour once set. Nutrition education in schools is typically coupled with food provision, gardening, or some other aspect to encourage experimentation with new foods and exercise the lessons given in the education component.

Evidence

Different forms of nutrition education, delivered at schools, homeless shelters, and community organisations, are generally successful in improving fruit and vegetable consumption among children[13]. Children in these programs are also more likely to try new foods. However, these successful programs were coupled with food provision, so it is unclear what impact education alone would have. None of the studies reviewed reported a reduction in FI as a result of the programme, likely because children have little agency in affecting the causes of FI on their own.

Nutrition education can also expose children to potential careers along the food chain. A US program of farm-to-school grants for low-income schools involved visits to farms, development of school gardens, and nutrition education[34]. Students reported trying new foods and learning how to grow produce

Liverpool Status and Related Data

Many groups provide quality nutrition education to children in Liverpool. The National Farmers' Union provides a plethora of online learning tools, competitions, campaigns, and access to speakers to connect children with farming and food production. FarmUrban has aquaponics kits and lessons to teach children about sustainable farming, encourage healthy eating, and inspire innovation and creativity. Can Cook, a commercial enterprise, offers a comprehensive school food package that couples education with staff training and community engagement. Other programmes in the UK could be adopted in Liverpool. ReThink Food, active in Leeds and Bradford, provides nutrition education, peer-to-peer learning, school gardens, and diversion of food waste via a cafeteria food stall to teach classes about sustainable diets and healthy eating. Campaigns such as Veg Power creatively encourage fruit and vegetable consumption among children by gamifying healthy eating. While some of these programmes are free, others may not be accessible to schools in deprived regions. Care should be taken to ensure all schools have access to such programmes, if desired.

Metrics: There are currently no publicly available metrics in place to directly assess the impact of nutrition education among children experiencing FI. Measures of FI, fruit and vegetable consumption, and other dietary indicators could be and likely are collected as part of individual nutrition education programmes.

Adult Nutrition Education

Description

There are a plethora of nutrition, cookery, and grocery shopping education programmes aimed at a variety of different groups and delivered in a multitude of ways, including online. Programmes can be stand-alone or coupled with other interventions, such as produce subsidies or food banks. All transmit knowledge and/or skills in the hopes of improving dietary behaviours, though the ability of stand-alone education programs in reducing FI is limited.

Evidence

Few studies have examined the impact of standalone nutrition education programmes on FI, though many examine the impact of combined interventions with an education component. In the US, a subsidy plus a nutrition and financial management education programme was more effective than the subsidy alone in reducing FI among participants[16]. However, low awareness of supplemental education components of existing interventions may limit uptake among potential

participants[14]. Overall, bundling nutrition education with other support actions is promising to reduce FI[35].

Tailoring nutrition education programmes to specific groups is effective in producing the desired health outcomes, even among priority ethnicity and low-income populations[36]. For example, FoodMate, an Australian nutrition education programme targeted specifically to those at risk of FI, produced long-term improvement in cooking skills, confidence, desire to try new foods, and even overall life satisfaction 2 years post-intervention[37]. Not surprisingly, duration of the programme was associated with effectiveness, with longer programmes more frequently producing desired dietary impact[38]. Studies that were tailored and specific in their objectives were also more frequently successful than broadly defined programmes.

In sum, successful nutrition education programmes are tailored to the needs of a specific group, with a limited, clearly defined objective, carried out over several months.

Liverpool Status and Related Data

It is difficult to definitively assess the state of adult nutrition education in Liverpool, partly because it is such a diverse intervention often provided casually or in one-off events. Can Cook, a commercial enterprise, offers adult cookery classes in Liverpool. Further information is needed concerning the organisations providing cookery classes in the region.

Metrics: As content and delivery of nutrition education programmes is highly dependent on the group delivering the programme, there is little comprehensive available data on the impact of nutrition education programmes among adults in Liverpool. Any such interventions should attempt to capture data on FI among participants as well as achievement of desired outcomes at long-term time points.

Gleaning/Foraging/Urban Harvesting

Description

Gleaning is the process of collecting leftover food from farmer's fields that hasn't been harvested for commercial use. Foraging and urban harvesting consists of collecting food from public or wild trees and plants. Gleaned food can then be distributed by food banks or other redistribution groups. Gleaning reduces food waste while simultaneously increasing the nutritional status of people experiencing FI by increasing access to fresh fruit and vegetables. UK farmers report an average 10-16% food wastage per year.

Evidence

Minimal formal assessment has been done regarding the impact of gleaning programs on FI, and it is unclear what short or long-term impact gleaning has on FI. This may be due to the fact that gleaning is typically only one source of food that is later distributed through food banks or pantries. Available research on gleaning focuses on operational aspects[39]. A model of these operational considerations identified potential ways to maximize gleaning efficiency and use of food bank resources, such as expanding gleaner pool while limiting size of individual gleaning trips.

Reports from local gleaning groups demonstrates that gleaning can support feeding of many people and has other positive benefits in engaging community members and linking farms, food banks, and gleaners.

Liverpool Status and Related Data

Feedback runs a gleaning network across the UK, with hubs in Liverpool and Bootle. To date, gleaners in the Feedback network have diverted over 600 tonnes of food from waste to the community. Toolkits and support are available for interested community members to expand this program.

Metrics: Precise data on the volume of food collected and distributed via gleaning, as well as the impact on FI in the community, are unavailable.

Your Local Pantry/ Food Clubs

Description

Community shops in which people pay a weekly fee (£3.15-£5.00) and can shop for a set amount of food (£20). Pantries are open to anyone, with no time limits on membership. Pantries are seen as a long-term support option, in comparison to food banks that provide short term emergency support. Pantries are structured similarly to a small food shop, and members have the opportunity to volunteer to support the shop. Pantries are supplied in part by surplus foods, helping to divert food waste from large retailers. However, pantries insist on high quality food, which is valued by members.

Evidence

Local food collectives provide dignity, food choice, a sense of community, and diversion of food waste while alleviating economic stress. The Your Local Pantry impact report[40] states that weekly users save £780 per year on their grocery bills. A large majority of pantry users report valuing their membership for saving money on the weekly shop increasing their fruit and veg consumption, increasing the overall amount of food in their house, increasing variety of foods eaten, tackling food waste, and making friends in their community (among other benefits). Pantry members report that the flexibility the monetary savings accrued as pantry members have helped them pay their bills, afford culturally preferred foods sold elsewhere, save money for special events, or enrich their children's lives. The pantry model provides economic relief and reduces stress without dictating food choice or how members use their resources. This approach may therefore help reduce FI long-term by reducing economic pressures and providing a constant source of quality, affordable food.

Some pantries also connect members with social support services. Other community-building and skill-building aspects of the pantry programme are valued by members, including the ability to influence decisions about how the pantry is run, as well as having the opportunity to volunteer at the pantry.

There has not been a formal quantitative assessment of the impact of Your Local Food Pantry on FI reduction, but the reported results strongly support the potential of the programme to reduce FI. The cost-effectiveness of the programme has also not been formally assessed, but the running costs are largely covered by membership fees. Costs are minimized by using volunteers, free venues, and donated foods. Your Local Pantry provides support for those interested in beginning a local pantry.

Liverpool Status and Related Data

There are currently 29 community shops, pantries, and community markets in Liverpool. Reports on the impact and use of the 7 Your Local Pantries in North Liverpool are released periodically. Access to data concerning membership details is restricted, but can be used to assess geographies of pantry members.

Metrics: Key metrics to collect would include number of pantry members, frequency of use, demographics of members, rate of FI among members over time.

Food Banks

Description

Food banks provide free food parcels to qualifying households based on economic need. Food provision amounts and timelines and the option for client food choice vary by food bank. Food banks are designed to provide emergency support to people experiencing immediate need, and as such are not designed to reduce FI long-term. Food at food banks comes from a variety of sources, but is largely surplus from large retailers. In the UK, the Trussell Trust runs the majority of food banks, with remaining food banks independently operated.

Evidence

A systematic review of the impact of food banks found that few studies reported on food bank impact on FI[41]. Those that did reported decreases in FI with food bank use, though this occurred alongside other programs such as case management and cooking classes.

Client feedback from studies of food bank use suggested that most clients wanted a wider range of foods, especially produce, dairy, and meat. Culturally appropriate foods, special needs foods, and staple foods were also widely requested. Clients also reported a desire for greater flexibility in food bank hours and increased accessibility. A UK-specific study also identified accessibility issues as a major frustration for food bank users, and demonstrated that demographics of a particular food bank's use might be skewed by the level of accessibility of the food bank and therefore misrepresent the state of local FI[42]. Other concerns cited in the systematic review[41] were that add-on programs such as cooking classes or shopping services were difficult for linguistically diverse populations and recent migrants to access. Staff report frustrations in lack of resourcing and inability to offer more healthy food choices. Other studies have also noted the nutritional insufficiency of typical food bank parcels[43]. However, nutrition education and displays signposting to healthy choices can help food bank clients make healthier choice in client choice food banks[44].

Liverpool Status and Related Data

Trussell Trust releases yearly data on food parcels distributed to adults and children at the local authority level. In Liverpool, 29,178 food parcels were distributed across 21 distribution centres from April 2019-March 2020, 38% of which went to children. From April 2020-March 2021, 26,049 parcels were distributed across 23 centres, 37% of which went to children. While England overall experienced a 41% increase in food bank use between 2019 and 2021 (23% in the North West), levels of use in Liverpool remained largely static. Publicly available versions of these data do not include the number of distinct food bank users, or any further detail on the characteristics of food bank users.

Feeding Liverpool maps food bank distribution in Liverpool and organises the network of food provision groups in the region. The Independent Food Aid Network maps independent food banks across the UK but does not capture all food provision groups. IFAN released a detailed survey[45] of 114 independent food bank characteristics and client characteristics, but this information was only provided at the UK level.

Metrics: Data on total food bank use at the local authority (or finer) level is not widely accessible, as such data is collected by individual food banks. [Naomi may know more in the data she has collected.] Ideally, data on food bank users per month, demographics of food bank users, and FI levels of food bank users over time would support Good Food plan development. However, organisational and privacy issues with data sharing will likely inhibit city-wide monitoring of food bank use.

Community Gardens/Urban Growing

Description

Community gardening and urban growing can be organised by many different organisations, including hospitals, schools, faith groups, and community groups. Gardens can transform vacant lots or rooftops to make use of previously underutilized spaces. Community gardens encourage healthy eating, and gardening has positive benefits on mental wellbeing and community-building[46]. Costs associated with starting and maintaining a garden (monetary and time) may be barriers for groups experiencing FI if not absorbed by organising groups.

Evidence

A study of community gardening among children experiencing FI found that the number of children consuming vegetables increased as a result of the programme, but there was no effect on the number of children experiencing FI[13]. Gardens at schools, early care settings, and households were all associated with improved nutrient intake among children[47]. Reported barriers to starting gardens in early years settings in the UK include time, space, and expertise. Those in areas of high deprivation were more likely to report space as a barrier, indicating a need for creative solutions for growing[48]. A Canadian study found similar barriers of time, accessibility, and lack of interest among individuals[49]. While prevalence of skipping meals did not change among households with FI who completed a community garden programme, stress related to worrying about having enough to eat significantly decreased[46]. A survey of UK adults reported that engagement with urban agriculture was associated with greater perceived access to fruit and veg, and more health-related and ethical-related food choice motivations[50]. This is true as well for low-

income gardeners, who are able to exercise more autonomy over food choice via gardening[51]. Finally, a study of a gardening program for refugees in the US found increased consumption of vegetables, and participants reported that gardening reduced their depression and anxiety and increased their sense of identity with their former selves[52].

Expansion of community allotments and home gardens is encouraged by food security action groups and policy experts as an effective means of improving local food systems[53]. Policy experts suggest the use of vacant and brownfield land for this purpose and provides inputs to support people in sustaining their gardens long-term. Councils are advised to set targets to increase local food growing through planting initiatives.

Liverpool Status and Related Data

There are currently 25 allotments listed on the Liverpool City Council website across the city, all of which require a fee. There are 7 community gardens in Liverpool listed in the Livewell Directory and Mersey Green Map, such as Hope Community Garden, Croxteth Community Garden and Growing Sudley CIC, but there is no centralized list of community gardens.

Metrics: There is currently no available data on the impact of community gardens on local FI and wellbeing in Liverpool. Data on vacant land and distribution of community gardens in the city would be helpful in planning targeted development of further community gardens.

Nutrition Screening and Referral/Healthcare Based Interventions

Description

There is growing interest in better implementing FI screening and support into primary healthcare as a relatively low effort but high-impact action. Screening for FI during healthcare visits can overcome the commonly cited barrier of lack of awareness that prevents households experiencing FI from linking up with available resources. This improved uptake of social services and support should also improve the health status of referred patients and help them prevent or manage poor health conditions.

Evidence

A systematic review of screening and referral programs for FI in healthcare settings found improvements in FI status and produce access after connection of patients with local resources,

including food vouchers and local farmers' markets[33]. Other studies generally observed positive improvements in the health metrics measured and in the number of people connected to local food programs.

Screening and referral services work best when they are directly connected to other services, such as on-site food pantries or market stalls, and help patients connect with resources while they are still on-site. Patients cite increased accessibility as a major benefit of these programs. Actions such as prescribing fruit and veg and providing food vouchers (or food) have proven effective in alleviating FI and improving diet[54,55].

Barriers to proper implementation of screening include discomfort from healthcare providers on asking FI-related questions, lack of training on screening for FI, lack of time to implement FI screening, and uncertainty on what to do or how to support patients after screening. Hallmarks of successful programs include clarity surrounding key programme components, clear referral protocols, defining the scope of the work, designating provider champions and multidisciplinary teams, engaging administrative resources, and responding to provider feedback[56,57].

In the UK, the NHS supports the use of the Malnutrition Universal Screening Tool (MUST), but some healthcare providers report difficulty in understanding how to administer the tool[58]. MUST does not assess FI status, but only looks at physical indicators of malnutrition.

Liverpool Status and Related Data

There are no nationally implemented screenings for FI among CCGs in the UK (to our knowledge). MUST screening is recommended, but it is unclear to what extent the screening is administered in the Liverpool region. The Liverpool CCG in 2017 listed five social prescribing initiatives in action at the time, but none targeted healthy diets or FI. In 2021, a social prescribing programme (Wellbeing Liverpool) was launched in Liverpool that connects GPs and "link workers" to help patients access needed community resources. The remit of this programme is broad but would include help with issues related to FI. This programme is supported by other social advocacy groups, including Citizen's Advice and Healthwatch Liverpool.

Metrics: There are currently no data publicly available on the implementation of nutrition screening and referral programmes among healthcare providers in Liverpool, or the percentage of patients screened and/or referred. Periodic reports of malnutrition and vitamin deficiencies may function as proxies for extreme hunger but may also arise secondary to other illnesses. Citizen's Advice or other groups affiliated with Wellbeing Liverpool may be collecting data on FI as part of the programme, but that data would not be widely accessible.

Procurement Policies

Description

Rules on food procurement among public institutions such as primary schools, universities, hospitals, and care homes have the potential to increase healthy food access, reduce salt, sugar, and fat intake, support environmentally sustainable and ethical producers, and increase consumption of locally produced foods. Procurement policies can generate large-scale demand for healthier or more sustainable foods and signal the importance of responsible food supplies chains and healthy eating.

Evidence

Policies regulating food procurement for public bodies are effective in improving diets and changing mindsets towards healthy eating, though there is no evidence to date on the impact of procurement policies on FI. A 2008 UK policy in schools improved dietary intake and healthy purchases among students, and 74% of students indicated a desire for healthier foods[59]. Worksite initiatives have been similarly successful in increasing healthy food consumption while decreasing less healthy food consumption. Again, similar improvements in healthy eating have been noted across all studied institutions implementing such policies.

The UK has a significant evidence base on public procurement policy[60]. In 2011, DEFRA updated the Public Sector Food Procurement Initiative to encourage public institutions to work with farmers, complete with toolkits and other resources. Accreditation schemes, such as Food for Life Served Here, provides standards meeting these DEFRA guidelines and have support from the NHS and Department for Education[61]. Accreditations like Food for Life Served Here can ensure public bodies meet published national standards in food provision. Accreditations exist specifically for healthier catering, sustainable fish and palm oil sourcing, Fairtrade sourcing, and more.

Changing procurement schemes on a local or national level, while proven to improve diets, can be challenging and require sustained, multi-sector effort[60]. At the organisation level, strong managerial leadership, a multidisciplinary team, a holistic approach, and long-term commitment are required to support policy change success. Food service should occur as a progressive process, incorporating evaluation and feedback to ensure menu satisfaction, efficient ordering, and minimal food waste. On the supply side, successful local procurement entails trusting relationships with local producers, inclusion of small farmers, peer to peer knowledge exchange, and a database of local producers. A collaborative, committed approach is required to help consumers and organisations navigate barriers to implementing new procurement policies.

Liverpool Status and Related Data

It is unclear to what extent sustainable procurement policies are in place in Liverpool [to me, others may know]. Four schools in Liverpool are members of Food for Life Served Here. No businesses in Liverpool are affiliated with Eat Out Eat Well.

Local food actors are willing to provide locally sourced food for public bodies and are convinced it would be economically feasible for all parties but cite prohibitive regulations that leave public procurement exclusive to large firms. Councils should explore avenues for easing these regulations to improve public procurement.

Metrics: Information on accreditation programs followed and percentage of public bodies enrolled, information on nutrition of menus at public institutions, and information on sustainability and local sourcing among public bodies would be beneficial in benchmarking the current state of procurement in Liverpool. This information could also be critical for establishing a baseline from which improvements in individual dietary health could be measured post-implementation of any new procurement policies.

Increase Food Access at Small Providers/ Independent Retailers

Description

Poor access is a major driver of FI, and carefully designed actions to increase access to healthier foods in spaces already visited by those experiencing FI can positively impact dietary behaviours. There are many innovative examples of community members taking action to increase local food access at existing retail location, particularly corner stores. Success of these interventions relies on making a strong business case for their implementation to store owners and providing long-term training and support to see the programme past any early difficulties or slow uptake by consumers.

Evidence

Studies on programmes to increase healthy food access at corner stores has largely been conducted in the US. Training, marketing, and promotional support for local retailers can improve effectiveness of other FI-targeted interventions, as demonstrated with Healthy Start and a similar US programme (WIC)[62]. Programmes providing training, store improvements, and market research

were also successful in improving food access in low-income areas, but cite the importance of cultivating both consumer and store-owner buy-in[63]. A study of Korean-owned corner stores in the US found that cultural sensitivity was important for achieving buy-in for nutritional interventions, as store owners reported being more willing to work with researchers of a similar cultural and ethnic background[64]. Cultural preferences and merchant knowledge of client base should also be utilized in co-developing these interventions. While such programmes can be resource intensive at the start, if successfully implemented the impacts on stocking and consumer purchase can persist long-term[65,66]. Finally, it should be noted that we have not identified any studies directly connecting access initiatives to reduced FI, as most studies focus on store-owner related outcomes or consumer purchase outcomes.

Underlying needs of community members must be identified before development and implementation of a programme to increase access. For example, a programme that reduce price of specific healthy foods may fail if it does not consider the cultural preferences surrounding food choice, or the quality of food on offer. Store-side barriers may exist in stocking limitations or restrictions or perceived lack of customer demand[67].

Liverpool Status and Related Data

It is unclear how Liverpool currently supports small food businesses and retail based FI initiatives. Going forward, it can do so by campaigning for rent and rate relief for local businesses and investing funds and technical support for start-ups and SMEs targeting nutritious foods to low-income consumers, among other actions [potentially available through city region funds or the LEP][53].

Metrics: There is currently no existing data on the impact of any ongoing retail based FI interventions in Liverpool. Data on quantity of monetary support provided in rate relief, investment, or other funds would be useful to quantify support over time. Collection of LSOA or postcode level FI and healthy eating metrics would allow for correlation of such interventions with impacts in community health. Store-level data on sales and product turnover would help refine schemes as well.

Upstream Actions to Campaign for/Support

The following is a list of actions that may be outside the scope of local control, may not be defined as actions primarily meant to reduce FI, or have extremely limited formal evidence, but are still clearly influential in Good Food policy.

"Cash First" Approach

"Cash first" approaches work by targeting the main driver of FI. These include subsidies for fruit and veg, welfare assistance funds, low Council tax payments (minimum payment of below 8.5%, preferably set at 0%, for low-income residents), Real Living Wage, cash transfer, and food delivery focused on healthy foods[53]. As discussed elsewhere, flexibly delivered and consistent cash first approaches can support long-term reduction of FI by reducing economic and mental stress associated with living on the margins. A combination of such approaches, particularly those with minimal barriers to entry and community-wide impact, are recommended for long-term reduction of FI in Liverpool. However, cash first approaches cost *someone*, and difficulties may be encountered in obtaining funding for such programmes. Councils should campaign for support to undertake these actions as simple interventions with the potential for large impact and savings via community-level health improvement.

Mobile Produce Vans/Markets

There is no evidence to date on the role of mobile produce vans or markets in reducing FI[35]. However, interventions that increase access to fruit and veg are generally positively impactful on local FI (see Alexandra Rose section). Policy experts recommend empowering smallholders and small farm businesses to access local markets, and maintaining and upgrading markets selling nutritious food to low-income communities[53].

Support Retention of Family Centres

Family and children's centres are hubs for delivery of programmes targeting FI, from education to gardening to social service referral. Centres provide key access to otherwise overlooked communities and can be a great place to hear the needs of a specific neighborhood.

Price Policies/ Sugar Taxes

National level price policies are beyond the scope of regional control, but local bodies can campaign for careful design and implementation of such policies. Targeted national-level taxes and subsidies to encourage consumption of healthier foods or discourage consumption of high sugar, salt, and/or fat foods are generally effective at individual and population level[68]. However, care should be taken that these approaches do not excessively burden low-income consumers,

and that unintended consequences (such as increased alcohol consumption) are avoided or mitigated.

Reformulation Mandates

The UK has a track record of successful reformulation mandates. Reformulation mandates are largely successful in improving nutritional intakes and reducing cardiovascular disease risk[69]. Mounting campaigns to reduce sugar intake should likewise be supported.

Population-Level Awareness Campaigns

While it is difficult to definitively attribute population-level dietary changes to population-level informational campaigns, research shows that in the years following initiation of a national salt reduction campaign in the UK, people were less likely to add salt at the table[70]. Population-level awareness campaigns, when well-designed and implemented to solve a narrowly defined problem, have the potential to positively impact population dietary behaviours.

Advertising/Marketing Regulations

Restrictions on food advertising to children are beneficial to improve child dietary behavior. The UK has recently banned online advertising of high fat, salt, and/or sugar foods, and similar initiatives to reduce child (and adult) exposure to less healthy food advertising should be supported.

Local Marketing Campaigns/Accreditation

While local councils have little impact on commercial supply chains, they can use their influence to highlight and support business following sustainability standards in food sourcing, marketing, and provision. Campaigns that use decals, online directories, or other signals for businesses sourcing local foods or paying employees a Real Living Wage (among other actions) can help consumers achieve ethical and healthy eating goals and make sustainable food systems more normative.

Council Planning Powers

There are myriad complexities with using council planning powers to influence local food systems, but some UK councils have been successful in reducing the density of fast-food outlets, protecting food retail in key economic centres, allocating vacant lots for urban growing initiatives, providing incentives to local small food businesses, and increasing access to water fountains. More detailed lists of policy actions are available elsewhere[53].

Online Food Retail Platforms/ Digital Inclusion and Literacy

With the increase in online shopping during the pandemic, the internet is increasingly becoming a major market for routine food purchasing. Actions should be taken to improve digital literacy, increase internet accessibility, and assist small retailers in accessing online selling platforms. Consideration must also be given to logistical difficulties on online shopping and home food delivery, such as the cost of delivery, time required to shop, and time window available to wait for a delivery. These actions will help ensure equity in food access in the online domain. The E-Food Desert Index (EFDI) combines key indicators to help identify potential regions of poor access to home food delivery at a small spatial level.

Several online sales platforms exist for local food providers. Chelmsford provides an example with Click it Local, providing a one-stop website for consumers to access local retailers and filter by category. The Open Food Network combines a platform with technical support and community resources to help local retailers get online.

References

1 Parnham J, Millett C, Chang K, Hinke S von, Pearson-Stuttard J, Vamos EP. The Healthy Start scheme and its association with food expenditure in low-income families in the UK. *Eur J Public Health* 2020; 30.

2 Griffith R, von Hinke S, Smith S. Getting a healthy start: The effectiveness of targeted benefits for improving dietary choices. *J Health Econ* 2018; 58: 176–87.

3 Ford FA, Mouratidou T, Wademan SE, Fraser RB. Effect of the introduction of Healthy Start on dietary behaviour during and after pregnancy: Early results from the before and after Sheffield study. *Br J Nutr* 2009; 101: 1828–36.

4 Ohly H, Crossland N, Dykes F, Lowe N, Moran VH. A realist qualitative study to explore how low-income pregnant women use Healthy Start food vouchers. *Matern Child Nutr* 2019; 15: 1–11.

5 McFadden A, Green JM, Williams V, *et al.* Can food vouchers improve nutrition and reduce health inequalities in low-income mothers and young children: A multi-method evaluation of the experiences of beneficiaries and practitioners of the Healthy Start programme in England. *BMC Public Health* 2014; 14: 1–13.

6 McFadden A, Green J, McLeish J, McCormick F, Williams V, Renfrew MJ. Healthy start vitamins -a missed opportunity: Findings of a multimethod study. *BMJ Open* 2015; 5: 6917.

7 Making the most of Healthy Start: A toolkit for local action | Sustain. https://www.sustainweb.org/publications/making_the_most_of_healthy_start/ (accessed May 3, 2021).

8 Improving the uptake of Healthy Start vouchers | Sustain. https://www.sustainweb.org/foodpoverty/healthy_start/ (accessed May 3, 2021).

9 Crawley H, Dodds R. The UK Healthy Start scheme The UK Healthy Start scheme. What happened? What next? www.firststepsnutrition.org (accessed May 3, 2021).

10 Lucas PJ, Jessiman T, Cameron A, Wiggins M, Hollingworth K, Austerberry C. Healthy Start Vouchers Study: The Views and Experiences of Parents, Professionals and Small Retailers in England Healthy Start Vouchers Study: The Views and Experiences of Parents, Professionals and Small Retailers in England Full Report. 2013.

11 Alexandra Rose Foundation. Our Five Year Strategy. London, 2020. https://www.alexandrarose.org.uk/about-us/our-5-year-strategy/

12 Relton, Crowder, Blake, Strong. Fresh street: the development and feasibility of a place-based, subsidy for fresh fruit and vegetables. DOI:10.1093/pubmed/fdaa190.

13 Holley CE, Mason C. A Systematic Review of the Evaluation of Interventions to Tackle Children's Food Insecurity. *Curr Nutr Rep* 2019; 8: 11–27.

14 Cohen AJ, Oatmen KE, Heisler M, *et al.* Facilitators and Barriers to Supplemental Nutrition Assistance Program Incentive Use: Findings From a Clinic Intervention for Low-Income Patients. *Am J Prev Med* 2019; 56: 571–9.

15 Buscail C, Gendreau J, Daval P, *et al.* Impact of fruits and vegetables vouchers on food insecurity in disadvantaged families from a Paris suburb. *BMC Nutr* 2019; 5. DOI:10.1186/s40795-019-0289-4.

16 Rivera RL, Maulding MK, Abbott AR, Craig BA, Eicher-Miller HA. SNAP-Ed (supplemental nutrition assistance program-education) increases long-term food security among Indiana households with children in a randomized controlled study. *J Nutr* 2016; 146: 2375–82.

17 Gross RS, Mendelsohn AL, Arana MM, Messito MJ. Food insecurity during pregnancy and breastfeeding by low-income Hispanic mothers. *Pediatrics* 2019; 143. DOI:10.1542/peds.2018-4113.

18 Sim SM, Rothfus M, Aston M, *et al.* Breastfeeding experiences among mothers living with food insecurity in high resource, Western countries: a qualitative systematic review protocol. *JBI Evid Synth* 2020; 19: 675–81.

19 Van Den Heuvel M, Birken C. Food insecurity and breastfeeding. CMAJ. 2018; 190: E310–1.

20 Orr SK, Dachner N, Frank L, Tarasuk V. Relation between household food insecurity and breastfeeding in Canada. *CMAJ* 2018; 190: E312–9.

21 Relton C, Strong M, Thomas KJ, *et al.* Effect of Financial Incentives on Breastfeeding. *JAMA Pediatr* 2018; 172: e174523.

22 Breastfeeding at 6 to 8 weeks after birth: 2019 to 2020 quarterly data - GOV.UK. https://www.gov.uk/government/statistics/breastfeeding-at-6-to-8-weeks-after-birth-2019-to-2020-quarterly-data (accessed May 3, 2021).

23 Holley CE, Mason C, Haycraft E. Opportunities and Challenges Arising from Holiday Clubs Tackling Children's Hunger in the UK: Pilot Club Leader Perspectives. *Nutrients* 2019; 11: 1237.

24 Bartfeld JS, Berger L, Men F. Universal Access to Free School Meals through the Community Eligibility Provision Is Associated with Better Attendance for Low-Income Elementary School Students in Wisconsin. *J Acad Nutr Diet* 2020; 120: 210–8.

25 Larson N, Wang Q, Grannon K, Wei S, Nanney MS, Caspi C. A Low-Cost, Grab-and-Go Breakfast Intervention for Rural High School Students: Changes in School Breakfast Program Participation Among At-Risk Students in Minnesota. *J Nutr Educ Behav* 2018; 50: 125-132.e1.

26 Deavin N, McMahon A-T, Walton K, Charlton K. 'Breaking Barriers, Breaking Bread': Pilot study to evaluate acceptability of a school breakfast program utilising donated food. *Nutr Diet* 2018; 75: 500–8.

27 Ghattas H, Choufani J, Jamaluddine Z, Masterson AR, Sahyoun NR. Linking women-led community kitchens to school food programmes: Lessons learned from the Healthy Kitchens, Healthy Children intervention in Palestinian refugees in Lebanon. *Public Health Nutr* 2020; 23: 914–23.

28 O'Leary MF, Barreto M, Bowtell JL. Evaluating the Effect of a Home-Delivered Meals Service on the Physical and Psychological Wellbeing of a UK Population of Older Adults–A Pilot and Feasibility Study. *J Nutr Gerontol Geriatr* 2020; 39: 1–15.

29 Campbell AD, Godfryd A, Buys DR, Locher JL. Does Participation in Home-Delivered Meals Programs Improve Outcomes for Older Adults? Results of a Systematic Review. *J Nutr Gerontol Geriatr* 2015; 34: 124–67.

30 Timonen V, O'Dwyer C. 'It is nice to see someone coming in': Exploring the Social Objectives of Meals-on-Wheels. *Can J Aging* 2010; 29: 399–410.

31 Winterton R, Warburton J, Oppenheimer M. The future for Meals on Wheels? Reviewing innovative approaches to meal provision for ageing populations. *Int J Soc Welf* 2013; 22: 141–51.

32 Berkowitz SA, Delahanty LM, Terranova J, *et al.* Medically Tailored Meal Delivery for Diabetes Patients with Food Insecurity: a Randomized Cross-over Trial. *J Gen Intern Med* 2019; 34: 396–404.

33 De Marchis EH, Torres JM, Benesch T, *et al.* Interventions addressing food insecurity in health care settings: A systematic review. *Ann Fam Med* 2019; 17: 436–47.

34 Rains CB, Giombi KC, Joshi A. Farm-to-school education grants reach low-income children and encourage them to learn about fruits and vegetables. *Transl Behav Med* 2019; 9: 910–21.

35 Feeding America. Food Security Evidence Review. 2020.

36 Eyles HC, Mhurchu CN. Does tailoring make a difference? A systematic review of the long-term effectiveness of tailored nutrition education for adults. Nutr. Rev. 2009; 67: 464–80.

37 Stephens LD, Smith G, Olstad DL, Ball K. An evaluation of SecondBite®'s FoodMate®, a nutrition education and skill-building program aimed at reducing food insecurity. *Heal Promot J Aust* 2020; 31: 468–81.

38 Murimi MW, Kanyi M, Mupfudze T, Amin MR, Mbogori T, Aldubayan K. Factors Influencing Efficacy of Nutrition Education Interventions: A Systematic Review. *J Nutr Educ Behav* 2017; 49: 142-165.e1.

39 Lee D, Sönmez E, Gómez MI, Fan X. Combining two wrongs to make two rights: Mitigating food insecurity and food waste through gleaning operations. *Food Policy* 2017; 68: 40–52.

40 Maynard N, Tweedie F. Your Local Pantry: Dignity, Choice, Hope. Social impact report 2021. 2021 www.church-poverty.org.uk/pantry (accessed May 5, 2021).

41 Bazerghi C, McKay FH, Dunn M. The Role of Food Banks in Addressing Food Insecurity: A Systematic Review. J. Community Health. 2016; 41: 732–40.

42 Loopstra R, Lambie-Mumford H, Fledderjohann J. Food bank operational characteristics and rates of food bank use across Britain. *BMC Public Health* 2019; 19. DOI:10.1186/s12889-019-6951-6.

43 Simmet A, Depa J, Tinnemann P, Stroebele-Benschop N. The Nutritional Quality of Food Provided from Food Pantries: A Systematic Review of Existing Literature. *J Acad Nutr Diet* 2017; 117: 577–88.

44 An R, Wang J, Liu J, Shen J, Loehmer E, McCaffrey J. A systematic review of food pantry-based interventions in the USA. Public Health Nutr. 2019; 22: 1704–16.

45 Loopstra R, Goodwin S, Goldberg B, Lambie-Mumford H, May J, Williams A. A survey of food banks operating independently of The Trussell Trust food bank network. 2019 https://foodpovertyinquiry.files.wordpress.com/2014/12/food-poverty-appg-evidence-review-final.pdf (accessed May 5, 2021).

46 Carney PA, Hamada JL, Rdesinski R, *et al.* Impact of a community gardening project on vegetable intake, food security and family relationships: A community-based participatory research study. *J Community Health* 2012; 37: 874–81.

47 Skelton KR, Lowe C, Zaltz DA, Benjamin-Neelon SE. Garden-based interventions and early childhood health: An umbrella review. Int. J. Behav. Nutr. Phys. Act. 2020; 17: 121.

48 Benjamin-Neelon SE, Hecht AA, Burgoine T, Adams J. Perceived barriers to fruit and vegetable gardens in early years settings in England: Results from a cross-sectional survey of nurseries. *Nutrients* 2019; 11. DOI:10.3390/nu11122925.

49 Loopstra R, Tarasuk V. Perspectives on Community Gardens, Community Kitchens and the Good Food Box Program in a Community-based Sample of Low-income Families. *Can J Public Heal* 2013; 104: e55–9.

50 Mead BR, Christiansen P, Davies JAC, *et al.* Is urban growing of fruit and vegetables associated with better diet quality and what mediates this relationship? Evidence from a cross-sectional survey. *Appetite* 2021; 163: 105218.

51 Diekmann LO, Gray LC, Baker GA. Growing 'good food': Urban gardens, culturally acceptable produce and food security. *Renew Agric Food Syst* 2020; 35: 169–81.

52 Hartwig KA, Mason M. Community Gardens for Refugee and Immigrant Communities as a Means of Health Promotion. *J Community Health* 2016; 41: 1153–9.

53 Hawkes C, Walton S, Haddad L, Fanzo J. 42 Policies and Actions To Orient Food Systems Towards Healthier Diets for All. 2020; : 1–10.

54 Aiyer JN, Raber M, Bello RS, *et al.* A pilot food prescription program promotes produce intake and decreases food insecurity. *Transl Behav Med* 2019; 9: 922–30.

55 Saxe-Custack A, Lofton HC, Hanna-Attisha M, *et al.* Caregiver perceptions of a fruit and vegetable prescription programme for low-income paediatric patients. *Public Health Nutr* 2018; 21: 2497–506.

56 Fiori K, Patel M, Sanderson D, *et al.* From Policy Statement to Practice: Integrating Social Needs Screening and Referral Assistance With Community Health Workers in an Urban Academic Health Center. *J Prim Care Community Heal* 2019; 10. DOI:10.1177/2150132719899207.

57 Samaan ZM, Brown CM, Morehous J, Perkins AA, Kahn RS, Mansour ME. Implementation of a preventive services bundle in academic pediatric primary care centers. *Pediatrics* 2016; 137. DOI:10.1542/peds.2014-3136.

58 Smith A. Potential barriers to effective MUST implementation. *Br J Community Nurs* 2014; 19: S28–31.

59 Niebylski ML, Lu T, Campbell NRC, *et al.* Healthy food procurement policies and their impact. *Int J Environ Res Public Health* 2014; 11: 2608–27.

60 Alberdi G, Begiristain-Zubillaga M. Identifying a sustainable food procurement strategy in healthcare systems: A scoping review. Sustain. 2021; 13: 1–18.

61 Fenton H. Time for a Buckinghamshire Food Partnership? .

62 Wensel CR, Trude ACB, Poirier L, *et al.* B'more healthy corner stores for moms and kids: Identifying optimal behavioral economic strategies to increase WIC redemptions in small Urban corner stores. *Int J Environ Res Public Health* 2019; 16: 64.

63 Paluta L, Kaiser ML, Huber-Krum S, Wheeler J. Evaluating the impact of a healthy corner store initiative on food access domains. *Eval Program Plann* 2019; 73: 24–32.

64 Song H-J, Gittelsohn J, Kim M, Suratkar S, Sharma S, Anliker J. Korean American Storeowners' Perceived Barriers and Motivators for Implementing a Corner Store-Based Program. 2011; 12: 472–82.

65 Gittelsohn J, Rowan M, Gadhoke P. Interventions in small food stores to change the food environment, improve diet, and reduce risk of chronic disease. *Prev Chronic Dis* 2012; 9. DOI:10.5888/pcd9.110015.

66 Futrell Dunaway L, Mundorf AR, Rose D. Fresh Fruit and Vegetable Profitability: Insights From a Corner Store Intervention in New Orleans, Louisiana. *J Hunger Environ Nutr* 2017; 12: 352–61.

67 Piltch EM, Shin SS, Houser RF, Griffin T. The complexities of selling fruits and vegetables in remote Navajo Nation retail outlets: Perspectives from owners and managers of small stores. Public Health Nutr. 2020; 23: 1638–46.

68 World Health Organization Regional Office for Europe. Using price policies to promote healthier diets. 2015 DOI:10.13140/RG.2.1.4853.3923.

69 Gressier M, Swinburn B, Frost G, Segal AB, Sassi F. What is the impact of food reformulation on individuals' behaviour, nutrient intakes and health status? A systematic review of empirical evidence. *Obes Rev* 2021; 22: e13139.

70 Sutherland J, Edwards P, Shankar B, Dangour AD. Fewer adults add salt at the table after initiation of a national salt campaign in the UK: A repeated cross-sectional analysis. *Br J Nutr* 2013; 110: 552–8.

LIVERPOOL'S

GOOD FOOD PLAN

/goodfoodliverpool

@goodfoodlpool

@goodfoodliverpool

Visit
www.feedingliverpool.org/goodfoodplan
to find out more about