Scoping paper:
Local council approaches to limit the consumption of unhealthy takeaway foods

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1. Background to the topic

Fast-food is associated with high fat, sugar and salt foods (HFSS), consumption of which is associated with obesity (ref). In Australia, the average household spends 28% of its food budget on fast-food and eating out (Australian Bureau of Statistics, 2006) and over half of Australians have visited a quick service restaurant in the past month (ref EMMA 2014 report). There has been an increase in the density of fast-food outlets in Australia (Mills, 2014) and there is concern that the increase in exposure to fast-food outlets may be contributing to poor diet and obesity in Australia. There have been a number of studies done internationally, which assess the relationship between obesity/diet and fast-food outlets, however systematic reviews of the literature report no or weak associations (Feng et al., 2010, Williams et al., 2014). The large heterogeneity in study designs may be responsible for these findings, although the reasons behind choosing to eat fast-foods are complex. These reasons may include convenience, price, easy accessibility or personal preference (European Food Information Council, 2005).

This scoping paper reviews the evidence around fast-food outlets and whether local councils, using regulations and other approaches to limit fast-food consumption, could have an effect on obesity. A range of methods can be used to reduce consumption of fast-food (Hawkes et al., 2013). Local councils can:

- Incentivise fast-food outlets to sell more healthy options
- Incentivise fast-food outlets to make existing options lower in fat, salt and sugar
- Use planning restrictions to stop fast-food outlets from opening, or to adjust opening hours
- Incentivise shops selling healthy foods to locate in underserved neighbourhoods (these neighbourhoods are likely to have fast-food restaurants available)

Additionally, influencing the food supply system through agricultural policies and affecting the choice architecture within stores are also available methods to reduce fast-food consumption. However, it is less likely that local councils could take direct action on these areas.

When discussing fast-food outlets, this scoping paper uses the definitions used in a report by PANORG, which measured rural food environments in three rural towns in New South Wales, Australia (ref). Their operational definition of takeaway only outlets were franchise and independent takeaway shops that sell meals and light refreshments that are ready for immediate consumption. Table service is not provided and the meal can be eaten on site, taken away or delivered. Payment is required before the food is consumed.

This scoping paper will focus on incentivising fast-food outlets to sell more healthy options, to make existing options healthier, and on using planning restrictions to restrict fast-food outlets.

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2. Intended policy impact

It is expected that providing healthier takeaway food and targeting the locations of fast-food restaurants would reduce adults' and children's consumption of foods high in fat, sugar and salt. This would lead to healthier food purchasing behaviour and a reduction in calorie intake.

3. Current policy status

a. Australia

Incentivising fast-food outlets to sell more healthy options and make existing options healthier

Some local governments in Australia are already doing work to help local takeaway outlets sell healthier food through the Healthier Oils Initiative. To date, this work seems to have been with independent takeaway outlets, as it is difficult to alter the practices of franchises and chains at a local level. Although it is outside the scope of this paper, local governments are also working with other types of food outlets, such as restaurants, leisure centres kiosks and workplaces (see appendix for descriptions).

Planning restrictions

There are no examples in Australia of local councils successfully using planning restrictions on health grounds to stop fast-food outlets from opening in their area, or near to schools.

State-level planning acts take precedent over council level decisions, even when councils have public health plans. Currently, no States in Australia explicitly take the impact on diet or obesity into consideration within their planning acts, therefore local councils cannot object to new fast-food restaurants opening on these grounds. This means fast-food outlets can build new premises and, subject to satisfying other existing laws, can open in a new area if it is within a commercial zone.

Local councils do have control over what type of zone an area is (e.g commercial or residential), however, as they are bound by state laws, which do not consider health, they cannot prevent new fast-food restaurants opening in commercial zones. Therefore, if a fast-food restaurant takes over an existing premises within a commercial zone, local councils have no mechanism to stop it. (Mills, 2014)

An inquiry into environmental design and public health in Victoria provided recommendations that included developing a planning mechanism that can be used by local councils to limit the oversupply of fast food outlets, however recommendations from this report were not taken up by the current government.

Woodville in New South Wales successfully prevented a McDonalds from opening on the grounds of how it would affect local residents in terms of noise and litter, rather than health. Interestingly however, the court did collect evidence on the impact of fast-food outlets on health, although they were not able to use this evidence in their decision making. This demonstrates that although it is not legally allowed in Australia, there may be desire to restrict fast-food outlets on health grounds.

b. International

Incentivising fast-food outlets to sell more healthy options and make existing options healthier.

Gittelsohn, J., et al 2013 conducted a review of community-based interventions in prepared food sources. The majority of interventions in their review were from the USA and demonstrated that

local governments in the USA, Canada and Spain have developed interventions, of varying success, to tackle the unhealthiness of local takeaway outlets (Gittelsohn et al., 2013).

The World Cancer Research Fund provides some examples of policy actions that have been taken across the world. http://www.wcrf.org/int/policy/nourishing-framework/set-retail-environment-incentives

The 'Takeaway Toolkit' from the UK also provides examples of local governments in the UK who have either used zoning laws or incentives such as reward schemes in order to encourage takeaway outlets to sell healthier food.

Planning restrictions
Both the USA and the UK have used planning restrictions to control hot-food vendors. In 2005, the UK reorganised planning codes to introduce a specific code for hot-food takeaway outlets, which means measures can be drawn up around hot-food takeaway outlets specifically. In the USA, the Supreme Court established precedent in 1926 that that a local government is acting constitutionally when it establishes a zoning ordinance so long as the rationale for zoning has a rational public purpose related to public safety, health, or welfare. The creation of a zoning ordinance is not an arbitrary act and local governments have the authority to zone and enforce zoning ordinances as an extension of their police power.

4. Evidence of efficacy/effectiveness

a. Overview of evidence

There is some evidence of an association between fast-food *consumption* and weight gain (Nago et al., 2013), but observational data on fast-food *outlets* and weight gain/diet is mixed and generally shows no or weak associations (Feng et al., 2010). It is likely that the lack of strong association between food outlets and obesity or diet is due to the heterogeneity of measures for exposure area, outlet type exposure and dietary outcome. It may also be due to the fact that consumption of fast-food is a complex behaviour driven by more than the presence of a local outlet.

The measures of where people are exposed to fast-food outlets regularly centres on the home address of participants, however people are also likely to be exposed to fast-food outlets at work, school and on their commute.

While there are measurement issues for the locations in which people may be exposed to fast-food outlets, there are different ways of assessing exposure to fast-food outlets within a given area, some of which are likely to have more relevance to obesity. Density per unit area is a common exposure measure, however density of fast-food outlets relative to healthier food-outlets (such as supermarkets) may be a more relevant measure. A relative measure captures the range of choice available to a person - a high density of fast-food outlets may also be accompanied by a high density of supermarkets, which means that a simple fast-food density measure may be missing the fact that people can buy healthy food instead of the fast-food if they choose to.

Proximity to a particular location, such as a school, may also be a relevant way of measuring exposure to fast-food outlets. Proximity measures need to take into account other factors, such as

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school policies around food and leaving the premises at lunchtime, however there is evidence that school-children buy fast-food travelling to and from school.

Despite weak evidence (likely due to inadequate research) around the impact of fast-food outlets on obesity and diet, countries around the world have taken actions to restrict the growth of fast-food outlets in local areas and alter the kinds of foods they sell (for example, UK and USA).

The majority of interventions are not properly evaluated, or evaluated at all. For interventions that were evaluated, the majority of those reported on here were present in the grey literature only.

Impact of takeaway meals on obesity
Nago et al 2014 reviewed longitudinal studies looking at increasing fast-food consumption and weight gain. They analysed data from seven studies that had 10 or more years of follow-up data, but did not conduct a meta-analysis. Overall they concluded from the individual studies that broadly, eating out of home is positively associated with weight gain or risk of overweight or obesity.

Impact of takeaway outlet presence on obesity
Feng et al 2010 reviewed literature on the built environment and obesity. They found that there was a large amount of heterogeneity in study designs, making it difficult to draw firm conclusions around the association between the two. They report that "For fast food density, two studies reported a significant association with obesity outcomes in the expected direction and four did not observe any association. The two studies that reported significant associations were very different from each other; one used the smallest spatial scale (census block group) and the second smallest number of places (N=120) and the other used a much larger spatial scale (county) and the second largest number of places (N=544)." (Feng et al., 2010)

Impact of takeaway outlets on diet outcomes
Ni Murchu et al 2013 reviewed community food environments and diet outcomes. They found some evidence suggestive of an association, but there was too much heterogeneity in the methods and measurement tools used by the papers for firm conclusions to be made.

Impact of interventions on fast-food outlets to sell more healthy options and make existing food healthier
Internationally, there is some evidence that community-based interventions to promote healthier takeaway foods work (Gittelsohn et al., 2013). There is a lot of heterogeneity in the intervention designs. The majority of interventions have not been evaluated sufficiently, or usually at all.

Baltimore Healthy carryouts, USA is the best evaluated intervention of this nature. They used formative research to develop the intervention, which was based in low-income neighbourhoods. They then carried out a seven month trial in eight carry-out restaurants (4 comparison and 4 intervention).The intervention consisted of three phases. In phase 1, they redesigned menu boards to promote the healthier items, in phase 2 they promoted healthy sides and beverages and introduced new items, and in phase 3 they introduced healthier combination meals and changed food preparation methods. Evaluation of sales receipts showed that in the intervention group, the odds of total healthy item sales significantly increased by 26% after phase 1, by 44% after phase 2 and 53% after phase 3; no changes were found in the comparison group.

b. Parallel evidence within Australia

Within Australia, I found no interventions with fast-food outlets, but there were numerous examples of working with local pubs, cafes and restaurants to make their food healthier, which could be used as parallel evidence. For example, the kiosk at Lara Pool changed their menu so that there were no longer 'red' items and all food items were 'amber' or 'green'. Sales per attendee did not decline between before and after the intervention.

Incentivising fast-food outlets to sell more healthy options

I have not found any evaluated interventions in this area.

Impact of incentivising fast-food outlets to make existing options healthier

The Heart Foundation in Australia has a Healthy Oils initiative to encourage food outlets to use healthier oils in their cooking practices. There are local governments working with fast-food restaurants and fish and chip shops, for example Whittlsea City Council in Northern Melbourne.

A previous scoping paper on using healthier cooking oils (did not proceed to modelling), reported examples of interventions where healthy cooking oils replaced cooking oils with higher saturated fat contents.

For the Wigan Healthy Business Award, UK in 2007, they worked intensively with local businesses and settings that serve or provide food. A multidisciplinary-team engaged with businesses by making changes cost-neutral and affordable for both the business and the consumer. Fat and saturated fat content was reduced by 27%, and salt was reduced by 47%. (Greater London Authority, 2012)

Impact of using planning restrictions to regulate fast-food outlets

Only one zoning intervention on fast food restaurants has been evaluated, although there are numerous unevaluated examples of zoning laws being used to restrict hot-food takeaways, both in the UK and the USA. The use of planning regulations to restrict new drive-through windows, new standalone fast-food restaurants or expanding floor space in South Los Angeles (LA), USA has recently been evaluated (ref Sturm and Hattori 2015). The authors found that there was no difference in the share of fast-food outlets, other chain restaurants or large food markets between areas of LA without the intervention and South LA. Over time, BMI increased in all areas, including South LA with the gap between South LA and the other areas widening rather than narrowing.

The authors state that the lack of effect from the zoning intervention may be because there was a disconnection between the health issues identified and the policy that was implemented. Before the regulation, South LA had smaller retail stores rather than standalone fast-food restaurants, and consequently residents in South LA had a higher consumption of discretionary calories from candy, cookies and soda; these items are more likely to be bought from small retail stores (ref 2015 paper). Essentially, there were fewer fast-food restaurants in South LA of the type affected by the regulation, as compared to other areas in LA. The authors also state that the zoning regulation may not have had an effect on LA residents because those eating at fast-food restaurants may not even be resident in the neighbourhood, as fast-food restaurants are often catering to drivers, who may come from further afield.

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Table 1 *Evaluated local government level interventions*

Author	Year	Study design	Location	Outlet type	Intervention description	Outcomes measured	Results
Lee	2011	Experimental (pre-post)	Baltimore, USA	Independent takeaways	Formative research used to develop the intervention, which was based in low-income neighbourhoods. Seven month trial in eight carry-out restaurants (4 comparison and 4 intervention). Intervention consisted of three phases. In phase 1, they redesigned menu boards to promote the healthier items, in phase 2 they promoted healthy sides and beverages and introduced new items, and in phase 3 they introduced healthier combination meals and changed food preparation methods.	Sales receipts, consumer awareness, self-reported BMI	The odds of total healthy item sales significantly increased by 26% after phase 1, by 44% after phase 2 and 53% after phase 3; no changes were found in the comparison group.

Takeaways Toolkit/ Dag et al 2011	2007	Experimental (pre-post)	Wigan, UK	Small sandwich shops, pubs, staff canteens, nurseries and elderly care homes.	The HBA team works with businesses across the food supply chain, providing practical recommendations that enable businesses to improve the nutritional profiles of foods without compromising economic sustainability. The focus is on reducing energy density, and reducing the content of fat, saturated fat, sugar and salt. Recommendations are based on a sound knowledge of food science and nutrition to include the use of healthier ingredients, modification to cooking methods and adjustment of portion sizes. The award is given to businesses which can show that at least 25% of food items available are classed as 'healthy' according to the FSA's Traffic Light Labelling Guidelines	Energy and nutrient content of food items sold, consumer purchase data for 3 days before and after intervention	For fish and chip shops: Fat and Saturated fat content reduced by 27%. Salt reduced by 47%.

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	2014	Pre-post	Lara Pool, Australia	Leisure centre kiosk	Healthy Together Geelong reviewed the existing menu against Healthy Choices Guidelines and found that most food and drink sold was in the 'red' category. Aimed to remove all 'red' items and switch to 'amber' or 'green'. Worked with Victorian School Canteen Association, the Healthy Together Healthy Eating Advisory Service and local food and drink suppliers to develop new menu and source healthier items. Bought a new bench-top fridge and stand.	Attendance and sales	Reduction in overall sales turnover betweeb 2013/14 and 2012/13, but this may have been due to a numbe rof other factors, including a colder summer. Spend per attendee was however similar between the two seasons. Healthy changes in the Lara Pool kiosk menu resulted in a 45% reduction in energy (kilojoules) and a 72% reduction in saturated fat provided to customers during the 2013/14 season compared to the 2012/13 season

Table 2 Studies reported on the healthy oils scoping paper

Author/s	Year	Study design	Location	Type of outlet	Sample size	Description of intervention/study	Outcomes measured	Results
Uusitalo, U., Feskens, E., Tuomilehto, J., Dowse, G., Haw, U., Fareed, D., Hemraj, F., Gareeboo, H., Alberti, K. and Zimmet, P.	1996	Repeated cross-sectional	Mauritius	All outlets and homes using ration oil.	10,242	Investigated the extent to which reducing the saturated fat composition of a commonly used cooking oil influenced changes in cholesterol concentration in the Mauritius population. The government limited content of palm oil in the most commonly used cooking oil , replaced with wholly soya bean oil.	Fatty acid composition of phospholipids in pooled serum samples from men and women from the two surveys; measured and predicted change in serum cholesterol concentration.	Saturated fatty acids: reduced by 3.5% in men, 3.6% in women. Polyunsaturated fatty acids: increased by 5.5% in men and 5.6% in women. Total cholesterol concentration: reduced by 0.79mmol/l in men and 0.82mmol/l in women.
Azadi, L., Brennan, M. and Swinburn, B.	2004	Cohort	Australia	Independent fish and chip shops and general stores.	7	Aimed to reduce levels of saturated fat and offer healthier options. Outlets encouraged to adopt healthier cooking practices in order to meet a set of criteria making outlets eligibale for recognition.	Total fat of chips at baseline and follow up, saturated fat of chips at pre-intervention, post training and 12 months post intervention. Outlet operators attitudes. Consumer attitudes and knowledge.	Mean total fat reduction: 12.4% to 9.6%. Saturated fat reduced among outlets on average between 3-3.5%.
Al-alawy, Khamis & Kitchen, Fiona	2014	Cohort	London, UK	Fish and chip outlets	12	Aimed to train outlets in healthier cooking practices to address total fat, saturated fat and other components of food. A portion of chips was purchased and analysed for fat content. Environmental Health Officer trained outlet in best practice cooking practices, testing conducted again after 3 months.	Portion weight (grams), total energy per portion (kcals), total fat per portion (grams), total saturated fat per person (grams) and total salt per portion.	Average total fat decreased by 15% and average saturated fat decrease by 36% (95& CI, p<0.05). Improvements were made by all outlets.
Angell, S., Cobb, L., Curtis, C., Konty, K. and Silver, L.	2012	Repeated cross-sectional	New York City, USA.	Chain fast food outlets.	168	Aimed to assess the effect of the regulation to limit trans-fat by comparing the trans-fat, saturated fat and trans- plus saturated fat content in lunchtime purchases before and after the ban. Receipts were collected from customers at fast food chains within 3 months of the ban being phased in and again within one year after the implementation of the ban.	Change in mean grams of trans-fat, change in mean grams of saturated fat, change in mean grams of trans-fat plus saturated fat, trans-fat per 1000/kcal purchase.	Mean trans-fat reduced by 2.4gin 2 years (95% CI, p=<0.001). Mean saturated fat increased by 0.6g (95% CI, p=0.011). Mean trans-fat plus saturated fat reduced by 1.9g (95% CI, p=<0.001).
Cities Institute - London Metropolitan University.	2012	Cohort	London, UK	Fast food outlets	23	Aimed to reduce levels of saturated fat and offer healthier options. Outlets encouraged to adopt healthier cooking practices in order to meet a set of criteria making outlets eligibale for recognition.	a) Criteria fulfilled before intervention. b) Criteria fulfilled after intervention. c) Criteria the business does not want to address. d) Number of changes made.	Between 0 & 6 changes made, average 3.6 changes, 1 business did not need to make any changes to secure the award.

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c. Description of potential interventions

- Incentivising fast-food outlets to make existing options more healthy
- Incentivising fast-food outlets to sell more healthy options
- Adding in a section to the Victoria Planning Provisions/State Planning Act around taking the impact on health into account when making planning decisions on fast-food outlets.

5. Potential to use evidence as the basis for intervention

Variable	Study	Results for use in modelling
Percentage of population currently consuming takeaway foods	EMMA 2014 market research study – emailed for more detail	50% of Australians (approx. % - emailed for more precise number) have visited a quick service restaurant (QSR) in the last 4 weeks. Average is 4 visits/month
	EMMA 2014 market research study – emailed for more detail	60 % of Australians aged 14-29 say they visit a Quick Service Restaurant at least once a month. 36% of 45 to 64 year olds visit at QSR once a month. 22% of 65+ year olds visit a QSR once a month.
Impact of takeaway food on weight-gain	Bes-Rastrollo et al 2009, Spain	Eating out ≥ 1 time/week associated with a 1.22–1.33 higher **risk of becoming overweight/obese** compared to not eating out ($p < .001$). Eating out at least twice a week was associated with 129-g **weight gain** per year and 36% higher risk of gaining 2 kg or more per year.
	Duffey et al 2009, USA	1 time/week more fast-food consumption associated with a 0.15 ± 0.05kg **weight gain** over a 13 year follow-up. Each additional visit to fast-food outlets per week increased **waist circumference** by 0.12 cm over 13 years, and for restaurants, it was 0.08 cm.
Impact of takeaway food on BMI-change in women	Ball et al 2002	Women who consumed takeaway foods once a week were 15% less likely to maintain their BMI within a 5% range after four years, compared with those who never or rarely ate them.

Impact of redesigning menus to promote healthier items	Lee 2013, USA	Healthy entrée sales increased by 27%. Odds of total healthy item sales increased by 26%. No change in comparison shops.
Impact of redesigning menus to promote healthier items and adding extra healthier items	Lee 2013, USA	Odds of selling healthy beverages and sides increased by 49%, compared to baseline. Odds of total healthy item sales increased by 44%. No change in comparison shops.
Impact of redesigning menus to promote healthier items and adding extra healthier items, plus offering healthy combination meals with a reduced price promotion	Lee 2013, USA	Odds of total healthy item sales increased by 53%. No change in comparison shops.
Impact of using healthier cooking oils on fat and saturated fat	See Cooking Oils scoping paper	

6. Feasibility of interventions' implementation in Australian context

a. Stakeholders

- Policy makers/regulators
- Industry
- Advocates
- Academics

b. Issues specific to this intervention

Communities often want independent businesses in their area and so may object to chain fast-food restaurants for these reasons. More generally, communities have shown that they want more control over what businesses operate in their local area, even if their objections to new businesses are not on health grounds.

High densities of fast-food restaurants are usually in low socioeconomic areas, both in Australia and internationally, therefore use of planning regulations is likely to have more positive impact in low socioeconomic areas.

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