



Water in Sport

Final evaluation report to VicHealth

Deakin University

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1. Executive Summary

1.1. BACKGROUND

The Water in Sport initiative (WIS) commenced in January 2018, with funding provided by VicHealth to eight local government areas (LGAs) to each employ a project officer for a two-year period. Project officers were responsible for facilitating the implementation of one of two 'nudges' in a number council-owned and/or -managed sport and recreation and club facilities in each LGA. Nudges were intended to increase the provision and purchasing of healthier drink options and consisted of either i) limiting sugar-sweetened drink display to less than 20% of display space, or ii) removing sugar-sweetened drinks from display.

1.2. AIM

The aim of this report was to evaluate the WIS initiative, including the changes in drink availability, the impact on sales of drinks, staff and customer satisfaction, comparison to change occurring in other non-WIS LGAs, and barriers and enablers to implementation and maintenance.

1.3. METHODS

The WIS initiative was conducted in eight LGAs and included 54 sport and recreation or club facilities (non-seasonal=24, seasonal=30). Project officers were recruited from April-June 2019, with nudges implemented over one and a half years between August 2018 and February 2020. Nudges were negotiated between VicHealth and the LGAs prior to the appointment of the project officers. Depending on a variety of factors, including council readiness to change, some councils were required to implement two complementary nudges over the two-year period, with one nudge implemented in the first year and the second nudge implemented in the second year. However, upon project commencement and understanding the complexities of the project, nudges were negotiated with each facility separately, with the role of the project officers being to encourage and assist retailers at the sport and recreation or club facilities in their LGA to implement one of the two nudges during the funded project.

A mixed method evaluation was undertaken to estimate the extent to which the project was implemented, the consequences of implementation, and barriers and enablers to implementation and maintenance. Drinks available at each facility were assessed every six months and classified according to the Victorian Government's *Healthy Choices* guidelines (HCGs) for sport and recreation facilities as 'green' ('best choice'), 'amber' ('choose carefully') or 'red' ('limit'). In order to promote nudge maintenance, local governments were also required to create a healthy drinks policy which incorporated aspects of the *Healthy Choices* guidelines within all sport and recreation facilities involved in the WIS initiative by the end of the project.

Customers and staff of sport and recreation facilities in the eight LGAs completed a survey at baseline (June-September 2018) and follow-up (June-September 2019). Surveys investigated the perceived need for healthy drink options, the awareness of changes to drink availability and attitudes towards these changes.

Weekly sales data from November 2015 until February 2020 were analysed to evaluate the impact of the initiative on the relative healthiness of drinks sold, and drink revenue. Analyses

included estimating the change in the percentage of 'red', 'amber', and 'green' drinks sold by volume, and total drink revenue before and after project officer appointment.

In order to compare progress toward healthy food and drinks policies in the eight WIS LGAs to progress in other Victorian LGAs (non-WIS councils), an online cross-sectional survey was emailed to all 79 Victorian LGAs in July 2018 and again in July 2020. Survey questions explored: 1) the types of facilities owned or managed by the local government that sold food or drink, and any changes made to improve the healthiness of food and drink provision to date; 2) the priority given to obesity prevention and the removal of sugary drinks from facilities; and 3) barriers and enablers to change.

Focus groups were conducted with council project officers and other key stakeholders, as well as qualitative interviews with 15 selected stakeholders involved in WIS policy development and/or implementation. These were used to assess perceptions of stakeholders regarding the value, limitations, and barriers and enablers of the WIS approach to increase healthy drink provision in sport and recreation facilities.

1.4. RESULTS

Forty-five nudges were implemented by thirty-nine facilities or clubs as part of the WIS initiative with at least one nudge implemented in each LGA. Overall, availability of 'red' drinks decreased from 39 to 11% of all drinks (28 percentage point decrease), and availability of 'green' drinks increased from 43 to 63% of all drinks (20 percentage point increase). Three of the eight participating LGAs implemented a healthy drinks policy for sport and recreation facilities incorporating the *Healthy Choices* guidelines.

Repeat cross-sectional surveys were completed by 1,079 customers and 162 staff at baseline (June 2018), and 1,188 customers and 183 staff at follow-up (June 2020). Over three-quarters of respondents believed that sport and recreation facilities should promote healthy eating, there was no change between baseline and follow-up results. Half of respondents believed that removing sugary drinks from sport and recreation facilities would help reduce consumption and this did not change from baseline to follow-up. More staff believed at follow-up compared to baseline that promoting healthy eating was a high priority in their facility (baseline: staff 40%; follow-up: 50%). More staff believed at follow-up compared to baseline that their facility had made healthy changes in the past six months (baseline: 15%; follow-up: 44%). When limiting responses to only customers at facilities that had implemented a nudge at follow-up, there was low customer awareness of the healthy changes made at the facilities at both time points, although more customers were aware of changes at follow-up compared to baseline (e.g., changes to availability of sugary drinks: baseline: 3%, follow-up: 11%).

Different trends were observed in *seasonal* and *non-seasonal facilities* and they were therefore analysed separately. Following the implementation of the WIS initiative, in eight *seasonal facilities* (typically outdoor pools or those facilities that exhibited seasonal sales), the mean percentage of 'red' drinks sold each week was reduced from 47.9% of volume sales before the initiative to 25.4% of sales after the initiative, a reduction of 22.5 percentage points [95% confidence interval -35.0, -10.0]. The percentage of 'amber' drinks sold increased from 11.4% to 24.2%, and increase of 12.8 percentage points [+6.5, +19.2]). The percentage

of 'green' drinks increased from 40.8% to 50.5%, an increase of 9.8 percentage points [+2.7, +16.8]. The mean percentage of volume of water sold per week increased from 36.4% to 44.0%, an increase of 7.6 percentage points [+0.22, +14.9]. There was no change in total weekly drink revenue before and after the WIS initiative.

In the 15 *non-seasonal facilities* included in analysis, the evaluation estimated the difference between the actual outcome observed and the predicted outcome that would have been observed if the initiative had not been implemented for two timepoints: (i) the week immediately after the project officer commenced; and (ii) the final week of the Water in Sport evaluation period (week 24 February - 1 March 2020). In order to isolate the effect of the intervention, the analysis took account of sales trends over time that were unrelated to the WIS initiative, for example whether sales of 'red' drinks had been trending down before the intervention started. Considerable variation in the impact of the WIS initiative on sales was observed between facilities, such that, on average, no statistically significant overall change in sales were seen. However, when analysed individually, the percentage volume of 'red' drinks sold in February 2020 decreased in 6 of the ten *non-seasonal facilities* (change in percentage points ranged from -46.8 to -7.3), increased in two facilities, and did not change in two facilities. The percentage volume of 'green' drinks sold increased in four *non-seasonal facilities* (change in percentage points ranged from +9.9 to +18.8), decreased in ten facilities, and did not change in five facilities. The percentage volume of 'amber' drinks sold increased in five of the ten *non-seasonal facilities* (change in percentage points ranged +4.9 to +33.7), decreased in three facilities, and did not change in two facilities. In nine of ten facilities, there was no change in weekly drinks revenue, although one facility demonstrated a decrease in revenue by February 2020.

The local government surveys conducted in 2018 and 2020 demonstrated that 'reducing the prevalence of obesity' and 'promoting healthy eating' were a higher priority in local governments participating in the WIS project (n = 8) than in non-WIS local governments (n = 18) at baseline. The priority given to various actions by councils was measured on a scale from 0-10, where 10 was the highest priority and 0 was the lowest priority. The mean priority score for 'reducing the prevalence of obesity' was 7.9 [6.0, 9.7] in WIS councils and 6.7 [5.5, 8.0] in non-WIS councils at baseline. The priority given to 'promoting healthy eating/drinking' at baseline was 8.6 [7.6, 9.6] in WIS councils, and 6.6 [5.4, 7.7] in non-WIS councils. While these priorities did not change at follow-up for WIS councils, non-WIS council priorities for 'increasing the availability of healthy food and drinks in local government-owned sport and recreation facilities' increased (baseline: WIS councils= 8.5 [7.2, 9.8], non-WIS councils= 5.1 [3.8, 6.3]; follow-up: WIS councils= 8.4 [7.6, 9.2], non-WIS councils= 8.7 [8.0,9.5]). Both WIS and non-WIS councils reported support from key stakeholders (e.g. local government elected members, leadership teams) to be the most important enabler of implementing healthy changes, and lack of key support to be the most critical barrier, however a variety of barriers and enablers were identified as important.

Focus groups and fifteen qualitative interviews of key stakeholders involved in the WIS project were conducted, including local government members and project officers. These highlighted the importance of funding, support and knowledge provided by VicHealth and Nutrition Australia (Victoria Division). Stakeholders revealed the key role played by WIS funded project officers in providing tailored support and timely resources to facilities to enable the smooth

implementation of nudges. Stakeholders highlighted that maintaining nudges may require both ongoing human resources and recognition of those facilities that make healthy changes.

1.5. CONCLUSION

This mixed method evaluation of the WIS initiative, providing a dedicated project officer and nutrition support, demonstrates that this can be an effective way to promote healthier drink environments in the sport and recreation setting. In-depth interviews revealed the importance of the project officers for the implementation of nudges. The sustainability of nudges implemented as part of the WIS initiative requires ongoing monitoring, while the cost-effectiveness of resourcing a project officer to assist with a healthy retailer intervention will need to be considered prior to further implementation at scale.

1.6. RECOMMENDATIONS

Based on the evaluation of the WIS initiative, including reflections from key stakeholders in the qualitative evaluation, along with key learnings from the research team, and the broader literature, several actions are recommended to facilitate and promote the implementation of nudges to create healthier food and drink environments in community retail settings.

1.6.1. FOR IMPLEMENTATION SUPPORT AGENCIES (SUCH AS NUTRITION AUSTRALIA)

- Support project officers with targeted training in (a) retailer engagement; (b) policy development; (c) systems thinking and strategic planning; and (d) basic evaluation skills

1.6.2. FOR LOCAL GOVERNMENT

- Start by trialling a small 'quick win' which is easy to implement and unlikely to cause revenue loss, such as rearranging the fridge to put 'green' drinks at eye-level
- Recruit, train, and resource skilled project officers to support retailers with initial changes
- Ensure regular two-way communication between council and facility personnel and management

1.6.3. FOR THE CONVENING AGENCY (SUCH AS VICHEALTH)

- Maximise funding effectiveness by providing (a) some flexibility for fund use, with the majority earmarked for salary support; (b) flexibility for implementation targets, to allow interventions to be tailored to opportunities; (c) sufficient FTE per council (2 to 4 days per week depending on number of engaged facilities for at least 2 years); and (d) longer-term maintenance funding once changes have been made (e.g. 1 to 2 days per week)
- Provide implementation expertise to support council project officers including in product classification, stakeholder engagement, and policy development

2. Background

Local governments can have an important influence on the food environments of their municipality as part of their efforts to promote community health and wellbeing [1]. Sport and recreation and club facilities offer a unique opportunity to promote and encourage health through both physical activity and creating healthy food environments [2].

In January 2018, VicHealth provided funding to eight local government areas (LGAs) to implement the Water in Sport (WIS) initiative. The initiative aimed to support local government-owned and/or managed sport and recreation facilities and clubs to implement a 'nudge' to reduce customer purchases of sugary drinks and make water the drink of choice. Nudges involved either i) limiting display of 'red' drinks to less than 20% of display space, or ii) removing 'red' drinks from display altogether whilst increasing display of healthier (green) drinks to greater than 50%. The healthiness of drinks available was classified according to the Victorian Government's *Healthy Choices* guidelines (HCG) for sport and recreation facilities into 'green' ('best choice'), 'amber' ('choose carefully') and 'red' ('limit') [3].

The Deakin University Global Obesity Centre (GLOBE) was funded to evaluate the effectiveness of the WIS initiative. The research team sought to determine the reach and effectiveness of providing capacity-building support to LGAs to implement the WIS initiative; and to assess the impact of this initiative on progress compared to non-funded councils, policy, healthiness of drink availability, and consumer purchases and attitudes.

2.1. SETTING

VicHealth provided funding to eight LGAs to employ a project officer (PO) to support facilities to remove sugary drinks from sport and recreation and club facilities and make water the drink of choice. In order to be eligible for WIS funding, councils were required to submit an application and demonstrate agreement from the facilities to implement a nudge as described earlier. Nudges were agreed upon with VicHealth and the LGAs prior to the appointment of the project officers with some councils required to implement two separate nudges over the two-year period, with one nudge implemented in the first year and the second nudge implemented within the second year. However, as the project commenced, nudges were negotiated with each retailer separately, with the role of the POs being to encourage all targeted facilities in their LGA to implement one of the two nudges during the project period. Participating facilities included sport clubs, sport and recreation centres and seasonal pools with the number of facilities involved in the project varying per council (see [Table 1](#) for summary of facilities involved). Nutrition Australia Vic Division was funded by VicHealth to provide program delivery support to each LGA via the Healthy Eating Advisory Service (HEAS).

Table 1: Facilities included¹ in the Water in Sport initiative, across eight local government areas in Victoria, Australia.

Local government area	Facility	Food retail outlet type ²	Socio-economic position decile ³	Monthly customer reach ⁴
East Gippsland	Bairnsdale Aquatic and Recreation Centre	Café	3	7,766
	Bairnsdale Outdoor Pool	Kiosk	3	726
	Lakes Entrance Aqua dome	Canteen	2	6,617
	Orbost Outdoor Pool	Canteen	1	1,162
Frankston	Ballam Park Multi Sports Precinct (including Ballam Park Athletics Centre and Peninsula Strikers Junior Soccer Club)	Canteen	5	-
	Jubilee Park (Frankston District Netball Association)	Canteen	6	-
	Overport Park (Baden Powell Cricket Club)	Canteen	5	-
	Peninsula Aquatic Recreation Centre	Café	5	84,259
	The Pines Swimming Pool	Canteen	5	6,145
Greater Bendigo	Bendigo East Pool	Kiosk	4	7,437
	Bendigo Stadium	Canteen	4	-
	Bendigo Tennis	Canteen	4	-
	Brennan Park Aquatic Centre	Kiosk	4	3,043
	Faith Leech Aquatic Centre	Canteen	4	7,086
	Gurri Wanyarra Wellbeing Centre	Café	2	31,677
	Heathcote Aquatic Centre	Kiosk	1	890
	Latrobe University Bendigo Athletics Complex	Canteen	4	-
	Marong Aquatic Centre	Kiosk	6	587
Peter Krenz Leisure Centre	Canteen	1	12,673	
Greater Geelong	Balyang Par 3 Golf Course	Kiosk	8	-
	Barwon Valley Activity Centre	Kiosk	7	-
	Carousel	Kiosk	8	-
	Geelong Arena	Canteen	3	-
	Lara Aquatic Centre	Canteen	6	-
	Leisuretime	Canteen	1	-
	Splashdown	Kiosk	6	-
Greater Shepparton	Aquamoves Verve Café	Café	1	-
	KidsTown - Adventure Playground	Canteen	1	-
	Merrigum Rural Outdoor Pool	Kiosk	2	521
	Mooroopna Rural Outdoor Pool	Kiosk	1	1,564

Local government area	Facility	Food retail outlet type ²	Socio-economic position decile ³	Monthly customer reach ⁴
	Shepparton Sports Stadium	Canteen	1	-
	Tatura Rural Outdoor Pool	Kiosk	3	1,591
Melton	Caroline Springs Leisure Centre	Café	3	-
	Melton Indoor Recreation Centre	Canteen	3	-
	Melton Waves	Café	5	17,697
Northern Grampians	Stawell Sports & Aquatic Centre	Canteen	1	-
Yarra Ranges	Belgrave Outdoor Heated Pool	Kiosk	8	3,883
	Healesville Outdoor Pool	Canteen	4	1,835
	Kilsyth Centenary Pool	Canteen	6	10,810
	Lilydale Outdoor Pool	Canteen	7	1,267
	Monbulk Aquatic Centre	Canteen	6	11,988
	Yarra Centre	Canteen	3	13,334

- , data unavailable

¹ Only facilities with more than two audits (6 months apart) were included. Therefore this table does not align with the total nudges possible in [Table 3](#).

² Facility type was classified according to the type of food and drink sold. Kiosk: ice-cream, pre-packaged snacks and drinks; Canteen: ice-cream, pre-packaged snacks and drinks, and a small selection of hot and cold foods; Café: ice-cream, pre-packaged snacks and drinks, variety of hot and cold foods, food can be made to order.

³ Socioeconomic position, measured using the Socio-Economic Indexes for Areas (SEIFA). Australian Bureau of Statistics. Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) 2011. [Internet]. Canberra (AUST): ABS; 2019 [cited 2020 Aug]. Available from: <http://stat.data.abs.gov.au/>. The area with the lowest score is given a rank of 1 and indicated most disadvantage, the area with the second-lowest score is given a rank of 2 and so on, up to the area with the highest score which is given the highest rank and indicates the most advantage.

⁴ Mean monthly attendance data from January 2018- March 2020, where available.

2.2. REPORT AIM

The aim of this report was to evaluate the WIS initiative, including the changes in drink availability, the impact on sales of drinks, staff and customer satisfaction, comparison to change occurring in other non-WIS LGAs, and barriers and enablers to implementation and maintenance.

2.3. REPORT OBJECTIVES

1. To assess initiative implementation and maintenance by reporting on changes in drink availability according to HCG classification and change in facility food environment.
2. To estimate the effect of the WIS initiative on sales of pre-packaged drinks in sport and recreation and club facilities.
3. To compare change in policies, attitudes, and practices of WIS and other LGAs in Victoria relating to obesity prevention and the provision of healthy food in their sport and recreation facilities

4. To evaluate the perceptions of key stakeholders including to assess:
 - a. customer awareness of healthy drink changes and perceptions of the need for change
 - customer and staff response to (changes in) healthy food and drink policy
 - b. staff awareness of healthy drink changes and perceptions of the need for change
 - c. attitudes to the WIS initiative, and barriers and enablers to its success
5. To develop recommendations and priorities to assist the implementation of healthy retail changes.

2.4. KEY TERMS

Local Government Area (LGA): An administrative division of a state or territory that is below federal and state government.

Non-WIS councils: Councils that have been involved in the local government Victorian survey however have not received funding from VicHealth to engage in the Water in Sport initiative

Healthy Choices guidelines (HCGs): The Victorian Government has developed the *Healthy Choices* guidelines to improve the availability and promotion of healthier foods and drinks in community settings

WIS model: The appointment of a PO to assist with implementation of healthy drinks nudges

Baseline: The first time point at which data was collected by POs (0-months post-baseline)

6-month: The second time point at which data was collected by POs (6-month post-baseline)

12-month: The third time point at which data was collected by POs (12-month post-baseline)

18-month: The fourth time point at which data was collected by POs (18-month post-baseline)

24-month: The fifth and final time point at which data is collected by POs (24-months post baseline)

2.5. METHODS SUMMARY

A mixed methods evaluation was undertaken to explore the implementation and outcomes of the Water in Sport initiative. See [Table 2](#) for a summary of data sources and analysis. Due to the COVID-19-related closure of many facilities, and the drastically altered food and drink availability at others during the pandemic, this report includes food environment audits to 18 months only.

Table 2: Summary of data sources used in the evaluation of Water in Sport initiative, in local government-owned sport and recreation centres, Victoria, Australia, 2018-2020

Data source	Aim	Method (brief)	Timepoints measured	Participants (if applicable)
Photographic audits <ul style="list-style-type: none"> • FoodChecker report • Food environment audit 	To assess initiative implementation and maintenance by reporting on changes in drink availability according to <i>Healthy Choices</i> guidelines classification and change in facility food environment	Six-monthly photographic and checklist audits of drink refrigeration and retail outlet food and surrounds. Audits examined proportion of 'red', 'amber', 'green' food and drinks available.	Baseline, 6-m, 12-m and 18-m	N/A
Sales data	To estimate the effect of the WIS initiative on sales of pre-packaged drinks in sport and recreation and club facilities	Weekly sales data of pre-packaged drinks from each retailer (units sold and total dollar sales)	Oct 2015 until Feb 2020 (where available)	N/A
Local government survey	To compare change in policies, attitudes, and practices of WIS and other LGAs in Victoria relating to obesity prevention and the provision of healthy food in their sport and recreation facilities	A repeat cross-sectional survey assessing LGAs healthy food and drink provision policies relating to sport and recreation facilities and the priority given by LGAs to obesity prevention	Baseline: Jul 2018 Follow-up: Jul 2020	All LGAs in Victoria (n = 79) were invited (Baseline: n = 49; Follow-up: n = 37)
Customer surveys	To assess customer awareness of healthy drink changes and perceptions of the need for change	Repeat cross-sectional customer exit and online surveys assessing sociodemographic characteristics, purchasing patterns, awareness and attitudes towards intervention and need for the intervention	Baseline: Jun-Sep 2018 Follow-up: Jun-Sep 2019	Convenience sample of customers attending or on the mailing list for participating facilities (Baseline: n = 1,079; Follow-up: n = 1,188)

Data source	Aim	Method (brief)	Timepoints measured	Participants (if applicable)
Staff surveys	To assess staff awareness of healthy drink changes and perceptions of the need for change	Repeat cross-sectional staff online surveys on purchasing patterns and attitudes towards intervention and need for the intervention	Baseline: Jun-Sep 2018 Follow-up: Jun-Sep 2019	Key stakeholders involved in policy development and implementation of the WIS initiative. (Baseline: n = 162; Follow-up: n = 183)
Project officer surveys	To assess LGA progress towards implementing the WIS initiative and to identify enablers and barriers to completing the project	A repeated survey on nominating pre-identified and free-text potential enablers and barriers to completing the project in their LGA	6-m, 12-m, 18-m and 24-m	LGA POs, or a relevant LGA employee ¹ (n = 8)
Group workshop	To gain practical lessons to promote healthy retail in sport and recreation and club settings, and to explore how barriers and enablers to healthy policies changed over the lifespan of the WIS project	A group discussion assessing how experiences from the WIS initiative compared to a previously developed systems map for healthy food retail change. Participants were also invited to discuss narratives not captured by the systems map.	Nov 2018	Representatives from 7 LGAs, Nutrition Australia, and VicHealth (n = 10)
Stakeholder interviews	To explore attitudes to the WIS initiative, and barriers and enablers to its success	Semi-structured interviews explored stakeholder roles, barriers and enablers of implementation and other aspects of the WIS initiative	Dec 2019-Apr 2020	Purposively selected stakeholders involved in WIS policy development and/or nudge implementation. This included POs, council staff, and Nutrition Australia and VicHealth staff (n = 15)

LGA, Local Government Area; WIS, Water in Sport; PO, Project officers

¹When the project officer was no longer employed, the project officer's manager completed the survey where possible.

3. Achievement of Water in Sport council project deliverables

3.1. DELIVERABLES SUMMARY

Table 3 summarises LGA progress towards key project deliverables including nudge implementation and policy adoption agreed upon with VicHealth in the original project funding contracts. Nutrition Australia was required to meet with POs face-to-face to provide support with the nudge implementation and maintenance (including policy support). At project conclusion, on average each council had six meetings with Nutrition Australia in their LGA. Further, Nutrition Australia delivered two events per year to encourage a community of practice and capacity building between the project officers. All LGAs had a representative at a minimum of 75% of community of practice sessions. When POs were unavailable to attend in person, they were able to attend via phone, or a member of the LGA attended in their place. The WIS initiative was concluded prematurely in February 2020 due to the COVID-19 pandemic. The small number of planned final 24-month audits that were collected at this timepoint were not included in the analysis as they did not represent what the facility provided before the pandemic due to patron restrictions. A total of 35 nudges limiting ‘red’ drinks to <20% of display space were implemented out of a possible 50, and 10 ‘red’ drinks off display nudges were implemented out of 19 possible nudges.

Table 3: Indicators of local government area progress towards key goals of the Water in Sport initiative at February 2020

Local government area	Number of times project officers met with Nutrition Australia since project officer appointed	Attendance at Nutrition Australia community of practice	Total nudges implemented (facilities implemented/ total participating facilities)		Water in Sport related policy formally adopted ²
			<20% ‘Red’ drinks	‘Red’ drinks off display	
East Gippsland	7	3/4	4/4	0/4 ¹	x
Frankston	7	4/4	4/9	2/2	✓
Greater Bendigo	6	3/4	10/10	0/0	x
Greater Geelong	7	4/4	6/7	2/7 ¹	x
Greater Shepparton	6	4/4	3/3	6/6	✓
Melton	7	4/4	2/3	0/0	✓
Northern Grampians	4	3/3 ³	1/8	0/0	x
Yarra Ranges	7	4/4	5/6	0/0	x

¹ East Gippsland and Greater Geelong agreed to implement ‘red’ drinks off display in the second year of the Water in Sport initiative in addition to <20% ‘red’ drinks in the first year.

² A key deliverable of the Water in Sport councils was to implement a healthy drinks policy based on the *Healthy Choices* Guidelines within all listed facilities by the end of the project.

³The project officer was no longer employed when the final community of practice session was held.

3.2. MEDIA COVERAGE

Media coverage of WIS was collated by POs throughout the project. Seven of the eight councils involved in the WIS initiative reported local media coverage. Media coverage included social media posts, newspaper articles and council press releases. The coverage focused on the initiative itself, and specifically the facilities partnering with VicHealth and the healthy changes that occurred ([Figure 1](#)). Social media posts often focused on promoting the results from the customer survey and drink changes made in the facility.



Figure 1: Example of media coverage ‘Soft drinks loose fizz’ appeared in the Sunday Herald Sun on 17 February 2019

4. Photographic audits

4.1. AIM

To assess initiative implementation and maintenance by reporting on changes in drink availability according to HCG classification and change in facility food environment

4.2. METHODS

4.2.1. FOOD CHECKER REPORT

A photographic audit of food outlets at facilities was completed by POs every six months by taking pictures of the fridges, food available and of any food and/or drink related promotional pictures. The fridge photos from the audits were analysed using The Healthy Eating Advisory Service (HEAS) FoodChecker tool [4], which classifies drinks according to the HCGs and provides a report on the percentage of ‘green’, ‘amber’ and ‘red’ drinks on display [3].

4.2.2. FOOD ENVIRONMENT AUDIT

The food environment audit was completed by POs every six months in conjunction with the FoodChecker report. This audit involved the POs completing a checklist to determine the overall healthiness of the food outlet ([Appendix 1](#)). This included completing a stocktake of the types of food and drink items available for sale and whether they were pre-made or made

on-site¹. The audit examined achievement of 'extra' *Healthy Choices* food and drink standards for sport and recreation facilities, including food and drink advertising, promotion and display, infrastructure to support the preparation of healthy foods and drinks, and whether water is freely available.

4.3. RESULTS

4.3.1. FOOD CHECKER REPORT

The most recent (February 2020) audits of healthiness of drinks available in the sport and recreation and club facilities involved in the WIS initiative are described in [Table 4](#) and [Figure 2](#) with results based on audits completed by the PO between May 2018 and February 2020. At the completion of the WIS initiative (February, 2020), 68% of drinks fridges met the HCGs (facilities with less than two completed audits within a 6-month period, fridges that were no longer in use were removed from the analysis or hidden from customer view), which is an improvement of more than 40% since baseline (May-December 2018), when 24% outlets met HCGs. Overall, availability of 'red' drinks decreased from 39 to 11% of all drinks (28 percentage point decrease), and availability of 'green' drinks increased from 43 to 63% of all drinks (20 percentage point increase). [Appendix 2](#) summarises the healthiness of drinks available at the facilities involved in the initiative, per facility, per LGA.

4.3.2. FOOD ENVIRONMENT AUDIT

The most recent (February 2020) food and drink environment audit at the sport and recreation and club facilities involved in the initiative are described in [Table 5](#) with results based on audits completed between May 2018 and February 2020. All the facilities audited offered a high proportion of 'red' foods and limited 'green' foods. The mean proportion of 'red' foods available in each LGA was above 60% at each time point. On average across WIS councils, 'red' food availability decreased by 5% decrease from baseline (May-December 2018) to the conclusion of the project (February 2020), with a 3% increase in 'green' foods available. [Appendix 3](#) summarises the healthiness of food available at the facilities involved in the initiative, per LGA.

¹ Assumptions made during the analysis in order to classify the food items reported on the audit as green ('best choice'), amber ('choose carefully') or red ('limit'). Green: all sandwiches, wraps and salads were; Amber: hot meals, sushi and popcorn; Red: all sausage rolls, pies, pasties, hot chips, other deep fried food, lollies, chocolate bars, cakes, biscuits, muffins, slices, crisps and ice-cream or icy poles

Table 4: Mean¹ baseline, 6-month, 12-month, 18-month drink availability and if *Healthy Choices* guidelines were met, per Local Government Area

Local Government Area	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall percentage point change (baseline to 18-month)			Healthy Choices guidelines met
	(%)															
	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
East Gippsland	70	16	14	75	17	8	80	16	4	80	16	4	+10	+1	-10	✓
Frankston ^{2,3,4}	31	18	51	47	28	26	65	16	19	61	21	17	+31	+3	-33	✓
Greater Bendigo ³	57	28	16	68	19	13	75	17	8	62	29	9	+6	-1	-7	✓
Greater Geelong ³	48	24	29	51	31	18	64	24	13	53	35	12	+5	+12	-17	✓
Greater Shepparton ³	39	23	39	55	22	23	52	23	26	59	34	7	+14	-1	-13	✓
Melton ³	39	23	38	56	14	30	59	20	21	60	28	12	+21	+5	-27	✓
Northern Grampians	22	3	75	66	9	26	74	11	14	N/A	N/A	N/A	+52	+8	-61	✓
Yarra Ranges ^{3,4}	37	15	48	70	13	17	67	9	25	68	13	19	+31	-1	-29	✓
Overall local government area average	43	19	39	61	19	20	67	17	16	63	25	11	+20	+6	-28	✓

¹ Mean facility availability was used to calculate mean per local government area

² Facilities with less than two completed audits 6-months apart were excluded (Frankston n = 5, Northern Grampians n = 3) from the analysis

³ Drink fridges no longer in use where removed from all steps of the analysis (n =10)

⁴ Drink fridges where the fridges were completely under the counter and out of sight where excluded from the analysis (Frankston n = 1, Yarra Ranges n = 1)

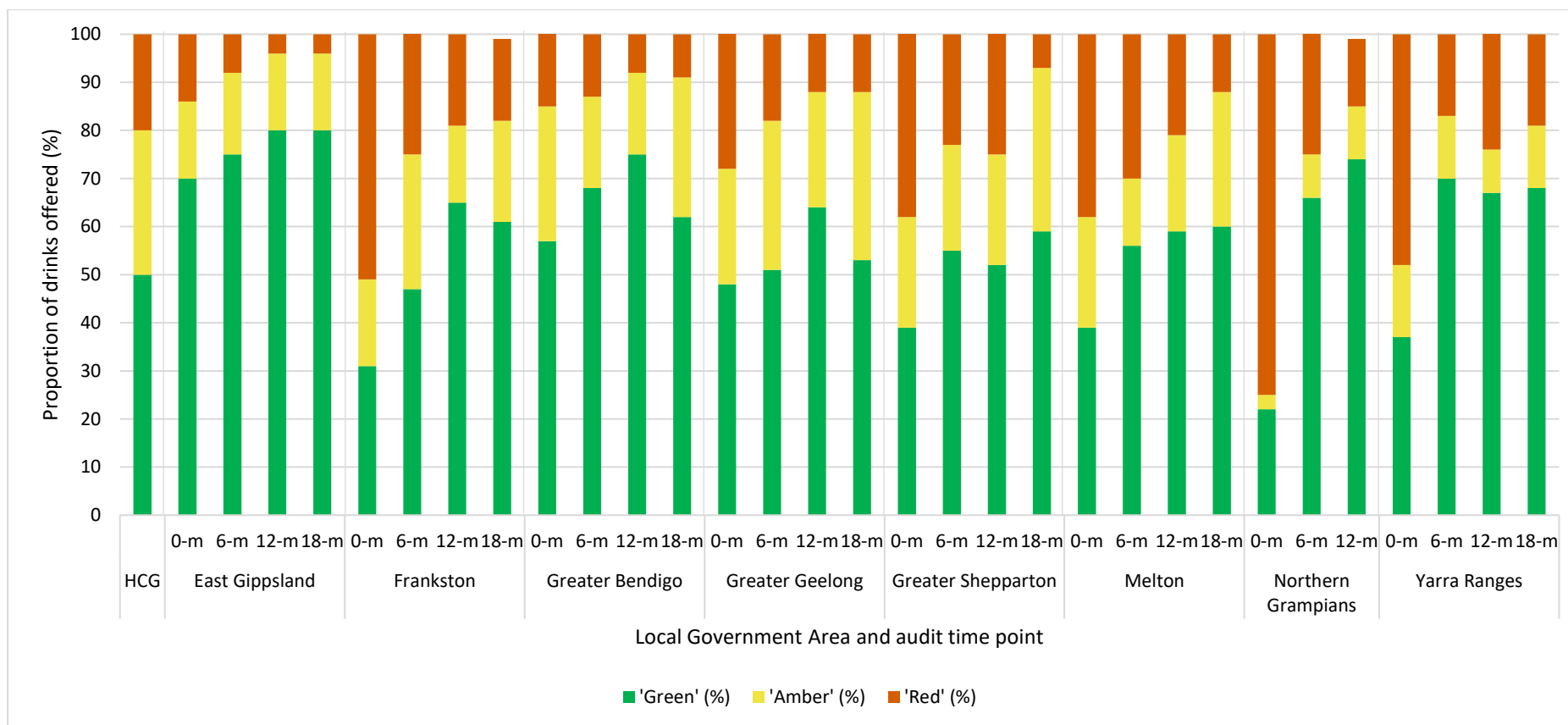


Figure 2: Mean baseline, 6-month, 12-month and 18-month healthiness of drink availability, per Local Government Area

HCG, Healthy Choices guidelines target; 0-m, Baseline; 6-m, 6-month; 12-m, 12-month; 18-m, 18-month

¹ Facilities with less than two completed audits 6-months apart were excluded (Frankston n = 5, Northern Grampians n = 3) from the analysis

² Drink fridges no longer in use where removed from all steps of the analysis (n = 10)

³ Drink fridges where the fridges were completely under the counter and out of sight where excluded from the analysis (Frankston n = 1, Yarra Ranges n = 1)

Table 5: Mean¹ baseline, 6-month, 12-month, 18-month food availability and proportion of *Healthy Choices* standards met, per Local Government Area

Local Government Area	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
	(%)																			
	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
East Gippsland	8	3	89	68	10	4	86	84	8	3	89	88	7	4	90	91	-1	-6	0	22
Frankston ²	9	25	66	60	6	15	78	68	9	25	66	74	11	20	70	75	2	-45	4	15
Greater Bendigo	15	7	77	64	12	11	77	69	15	7	77	75	20	6	74	72	4	-13	-3	7
Greater Geelong	3	8	89	66	2	15	83	69	3	8	89	84	2	16	82	81	0	-24	-7	14
Greater Shepparton	16	8	77	65	8	3	89	68	16	8	77	69	10	6	84	71	-6	-14	7	7
Melton	6	6	88	41	5	9	86	38	6	6	88	48	18	10	72	43	12	-16	-16	2
Northern Grampians ²	0	0	100	36	0	14	86	82	0	0	100	82	N/A	N/A	N/A	N/A	0	0	0	45
Yarra Ranges	3	10	87	43	8	3	89	36	3	10	87	36	3	12	85	58	0	-22	-2	15
Overall local government average	7	8	84	56	7	9	84	64	7	8	84	70	10	10	79	70	3	0	-5	15

Extra HCG, Extra Healthy Choices guidelines food and drink standards for sport and recreation facilities

N/A, data not available

¹ Mean facility availability was used to calculate mean per Local Government Area

² Facilities with less than two completed audits 6-months apart were excluded (Frankston n = 5, Northern Grampians n = 3) from the analysis

5. Water in Sport policy

5.1. AIM

To assess the effect of the progress of participating WIS councils towards adoption of healthy beverage policies.

5.2. METHODS

To ensure the changes implemented during the WIS initiative were sustainable, another required component of the WIS initiative was developing and implementing a healthy drinks policy which incorporated the HCGs within all sport and recreation facilities involved in the WIS initiative by the end of the project.

5.3. RESULTS

To date (February 2020) three councils have developed and implemented a sport and recreation specific policy, with an additional four councils having drafted policies with approval pending ([Table 6](#)).

Table 6: Summary of participating Water in Sport council healthy food and drink policy development and scope, 2018 to 2020

Local Government Area; Policy Name	Policy progress	Where policy applied	Policy criteria
East Gippsland "Healthy Food and Drink Policy"	Draft policy created. Accompanying procedure document planned.	All areas where food and drinks are sold or provided to employees and visitors including vending machines in sport and recreation facilities and food and drinks retail outlets in sport and recreation facilities.	Policy incorporates HCGs for food and drinks: - Food and drinks should provide majority 'green' and less than 20% 'red'. - Free water is available - 'Green' choices are promoted (followed by 'amber' choices, not at the expense of 'green' items) - 'Red' choices are not promoted
Frankston "Healthy Choices Policy"	Approved by council. Implemented 28 Jan 2020. Accompanying	"All areas where council has an influence on the food and drinks provided, and where council funds are used to	Food and drinks should aim to meet HCGs. At least 50% 'green' items and no more than 20% 'red' items.

Local Government Area; Policy Name	Policy progress	Where policy applied	Policy criteria
	procedure document developed.	<p>provide, or influence the provision of food and drinks supplied.</p> <p>Category 1:</p> <ul style="list-style-type: none"> - Category 1 settings typically have high level of Council influence as well as a high level of complexity, including accountability, corporate responsibility, community safety, compliance, and/or quality standards implications. <p>Category 2:</p> <ul style="list-style-type: none"> - Category 2 settings typically have a high-level Council influence, and lower level complexity/risk than Category 1. <p>Category 3:</p> <ul style="list-style-type: none"> - Category 3 settings are Council owned or managed premises which are leased to external parties or partner agencies (although operating at arm’s length from Council) and typically used for their own purposes.” 	
Greater Bendigo “Healthy facilities policy”	Policy proposal and community engagement plan approved December 2019. Accompanying procedure document developed.	<p>“All facilities and venues under lease agreement with council that sell and provide food and drinks.</p> <p>Category 1:</p> <ul style="list-style-type: none"> - Facilities under an agreement with the council who meet: 	<p>“Category 1:</p> <ul style="list-style-type: none"> - Required to implement HCG for food and drinks. Provide a minimum of 50% ‘green’ products and no more than 20% ‘red’ products.

Local Government Area; Policy Name	Policy progress	Where policy applied	Policy criteria
		<ul style="list-style-type: none"> ○ Have paid food service staff whose work relates to the provision of food and drinks equating to 1.0 FTE or over ○ Have adequate space and infrastructure to prepare, store, display and dispose of healthy food and drinks <p>Category 2:</p> <ul style="list-style-type: none"> - Facilities under an agreement with the council who meet: <ul style="list-style-type: none"> ○ Managed mostly by volunteers ○ Have paid food service staff whose work relates to the provision of food and drinks equating to less than 1.0 FTE ○ Have limited space and infrastructure to prepare, store, display and dispose of healthy food and drinks” 	<ul style="list-style-type: none"> - Red products must not be supplied or promoted at specific events including events and functions by the organisations and sponsorship deals <p>Category 2:</p> <ul style="list-style-type: none"> - Must demonstrate a commitment to increase the availability and promotion of ‘green’ products and reduce ‘red’ products.”
Greater Geelong “Healthy food and drink policy”	Draft policy rejected 27/04/2020. A new policy is being drafted.	All facilities and corporate events both internally and externally.	Facility will incorporate aspects of HCGs
Greater Shepperton “Healthy food and drink procedure”	Approved by council. Policy implemented November 2019. Accompanying procedure document developed.	All facilities specifically listed in the policy (facilities that were involved in WIS) and internal fundraising events, vending machines, and catering within council.	Policy incorporates HCGs for food and drinks: <ul style="list-style-type: none"> - Food and drinks should provide majority ‘green’ and less than 20% red - Free water is available

Local Government Area; Policy Name	Policy progress	Where policy applied	Policy criteria
			<ul style="list-style-type: none"> - 'Green' choices are promoted (followed by 'amber' choices, not at the expense of green items) - 'Red' choices are not promoted
Melton "Healthy food and drink policy"	Approved by council. Implemented 29 April 2019. Accompanying procedure document developed.	<p>"All food and drinks provided at council:</p> <ul style="list-style-type: none"> - catered functions and meetings - managed community programs - managed community and partnership events - facilities that have or could have onsite cafes and kiosks; and - facilities that have or could have vending machines." 	<p>Policy incorporates HCGs for food and drinks:</p> <ul style="list-style-type: none"> - Food and drinks should provide majority 'green' and less than 20% red. - Free water is available - 'Green' choices are promoted (followed by 'amber' choices, not at the expense of green items) - 'Red' choices are not promoted
Northern Grampians "Healthy Eating Procedure ¹ "	<p>No Water in Sport related policy drafted.</p> <p>Internal council Healthy Eating Procedure approved by council. Implemented 5 June 2017. Accompanying procedure document developed.</p>	<p>"This procedure applies in all areas where foods and drinks are provided to employees and visitors." (this is specifically related to council workplace and related functions)</p>	<p>Adapted from the HCGs:</p> <ul style="list-style-type: none"> - Majority 'green' food and drink items - No 'red' choices

Local Government Area; Policy Name	Policy progress	Where policy applied	Policy criteria
Yarra Ranges "Yarra Ranges Council Catering Policy ¹ "	Draft internal council catering policy developed. Accompanying procedure document developed.	"All venues and facilities used by Council; and covers all catering for council funded or organised meetings, events and functions, for both internal and external attendees."	"Staff should be mindful of the traffic light system for health catering and seek to order healthy options"

HCG; Healthy Choice guidelines

¹These two policies specifically relate to food and drink provided to council employees and visitors for the purpose of council meetings and functions. These policies **do not** make reference to the type of food and drink provided at sport and recreation facilities.

6. Sales data

6.1. AIM

To estimate the effect of the WIS initiative on sales of pre-packaged drinks in sport and recreation and club facilities

6.2. METHODS

6.2.1. STUDY DESIGN

Weekly sales data were provided for 32 sport and recreation facilities by 7 of the 8 LGAs from October 2015 to February 2020, where available. No sales data were available from Greater Shepparton facilities or any sporting clubs. Twelve facilities were identified as *seasonal* (typically outdoor pools or those facilities that exhibited seasonal sales). Eleven of these facilities were closed for part of the year and one facility which was open all year was treated as a seasonal facility because it typically had low sales (<10 drinks sold per week) for months when seasonal facilities were closed. Twenty facilities were open all year round and considered to be *non-seasonal*.

Four of the 12 *seasonal facilities* were excluded from the analysis: three facilities stopped selling 'red' drinks prior to the start of the intervention and one facility did not provide data on the volume of individual drinks for the whole period. Five of the 20 *non-seasonal facilities* were excluded: one facility provided combined vending machine and drink fridge sales data, three facilities provided insufficient weeks of data prior to the WIS initiative, and one facility appeared to have implemented an a healthy drinks intervention in September 2017 before the start of the WIS initiative in 2018.

6.2.2. PURCHASE DATA

Each facility provided electronic weekly sales data for all pre-packaged drinks including type of drink, quantity, volume, and dollar sales value of the purchases. For each facility, we examined: (i) the weekly percentages of 'red', 'amber' and 'green' pre-packaged drinks sold; (ii) the weekly total sales (\$) for all pre-packaged drinks; (iii) the percentage of water sold; (iv) free sugar content (g/mL) of each product sold; (v) the total amount of free sugar sold (kg); (vi) percentage volume (L) of all pre-packaged drinks sold; and (vii) total number of units of all pre-packaged drinks sold.

Facilities were categorised into: type of facility (canteen, kiosk, and café); size of facility based on the median units of drinks weekly sold during the available data period (<50 drink units, ≥50 drink units per week).

6.2.3. ANALYSIS

6.2.3.1. SEASONAL FACILITIES

For the eight seasonal facilities, weekly sales data for the months October to March were included in the analysis. Inside this window, weeks where sales were <5 units per week were also excluded from the analysis. The intervention was assumed to have been implemented between April and October 2018 when the seasonal facilities were closed (i.e. in preparation for the summer season of 2018/19). For each outcome, multilevel linear models were used

to compare the mean weekly sales outcomes before (pre-initiative period: November 2015 to March 2018) and after the start of the initiative (post-initiative period: October 2018 to February 2020). This analysis approach takes into account clustering of weekly data within each facility. All models were adjusted for maximum weekly temperature for each facility and week, obtained from the Bureau of Meteorology website [5]. Percentage outcomes models also adjusted for size of facility.

6.2.3.2. NON-SEASONAL FACILITIES

Two approaches were used to estimate the effect of the intervention in *non-seasonal* facilities:

The first approach jointly analysed all 15 included non-seasonal facilities that provided sales data between January 2017 and February 2020. Weeks where unit sales were <5 were excluded from the analysis. A common starting date for the initiative was assumed for all facilities (2 April 2018, as this was before most POs had commenced). The effect of the intervention on each outcome was assessed with a multilevel linear interrupted model, which takes into account clustering of weekly data within facilities, and the autocorrelation over time between weekly sales (a lag of 3 was assumed). The model assumed independent linear trends before and after the initiative start date and allowed for a shift at the time of the initiative start. The evaluation estimated the difference between the actual outcome observed and the predicted outcome that would have been observed if the initiative had not been implemented for the week 24 February - 1 March 2020 (the last week of data available before sales were impacted by COVID-19). In order to isolate the effect of the intervention, the analysis took account of sales trends over time that were unrelated to the Water in Sport initiative, for example whether sales of 'red' drinks had been trending down before the intervention started.

The second analysis approach estimated the effect of the intervention on each outcome for each facility separately using a linear interrupted time series model, which takes account of the autocorrelation over time between weekly sales (lag of 3 assumed)¹. Five facilities were excluded because they had ≥ 10 weeks of missing data. For each facility, the intervention was assumed to have started when the project officer was employed by the LGA, with the start date of the intervention varying from 1 March 2018 to 18 June 2018. When the date of PO start date was unknown, it was assumed the initiative started the first week of the following month of employment.

All analyses were conducted assuming that every facility that provided data participated in the intervention ('intention to treat' approach), regardless of how well the initiative was implemented. All analyses were performed in Stata 16.1.

6.3. RESULTS

6.3.1. SEASONAL FACILITIES

In the analysis, facilities provided an average of 43 weeks of sales data pre-intervention and 29 weeks post-intervention. Five of the seasonal facilities were canteens and three were

kiosks, with five of the facilities selling <50 drink units each week based on the median number of sales in the study period.

In the eight *seasonal* facilities, the mean percentage of ‘red’ drinks sold each week was reduced from 47.9% of volume sales before the initiative to 25.4% of sales after the initiative, a reduction of 22.5 percentage points [95% confidence interval -35.0, -10.0]. The percentage of ‘amber’ drinks sold increased from 11.4% to 24.2%, and increase of 12.8 percentage points [+6.5, +19.2]. The percentage of ‘green’ drinks increased from 40.8% to 50.5%, an increase of 9.8 percentage points [+2.7, +16.8] (Table 7). The mean percentage of volume of water sold per week increased from 36.4% to 44.0%, an increase of 7.6 percentage points [+0.22, +14.9]. There was no statistical evidence that free sugar content of drinks sold, overall free sugar, weekly revenue, number of units or total volume of drinks sold differed before and after the initiative.

Mean percentage of ‘red’, ‘amber’ and ‘green’ drinks sold each week in seasonal facilities during the study period are shown in Figure 3, and mean total sales for all pre-packaged drinks sold are shown in Figure 4. Plots for other outcomes are included in Appendix 4.

Table 7: Estimated mean weekly outcomes pre-and post-initiative in eight seasonal facilities

Outcome	Pre-intervention ¹	Post-intervention ²	Intervention effect (difference between pre- and post- intervention outcomes)
	Mean [95% CI]		
Number of units sold	72.8 [43.8, 102]	58.7 [25.4, 91.9]	-14.2 [-46.2, +17.8]
Overall drinks volume sold (L)	36.0 [20.3, 51.8]	28.7 [15.1, 42.2]	-7.35 [-21.8, +7.07]
Volume of drinks sold (%) ³			
‘Red’	47.9 [39.8, 56.1]	25.4 [12.4, 38.5]	-22.5 [-35.0, -10.0]
‘Amber’	11.4 [8.56, 14.1]	24.2 [19.8, 28.6]	+12.8 [+6.51, +19.2]
‘Green’	40.8 [33.1, 48.4]	50.5 [39.7, 61.3]	+9.76 [+2.74, +16.8]
Volume of water sold as proportion of total volume (%)	36.4 [31.2, 41.6]	44.0 [36.6, 51.4]	+7.55 [+0.22, +14.9]
Free sugar content of drinks sold (g/100mL)	4.33 [3.46, 5.21]	2.80 [1.69, 3.91]	-1.53 [-3.11, +0.05]
Overall free sugar ⁴ sold (kg)	1.72 [0.65, 2.78]	0.75 [0.03, 1.46]	-0.97 [-2.34, +0.40]
Total drinks revenue (\$)	239 [141, 338]	188 [99.7, 277]	-51.0 [-134, +31.8]

Outcomes estimated after adjustment for maximum weekly temperature, models for percentage outcomes additionally adjusted for facility size.

Significant differences between pre- and post-intervention outcomes (p<0.05) are bolded).

¹ Pre-intervention was defined as all sales before April 2018 (this date was decided based on project officer appointment)

² Post-intervention was defined as all sales after October 2018

³ Drinks were defined as 'green' (best choice), 'amber' (choose carefully) and 'red' (limit) using the Healthy Eating Advisory Service's FoodChecker tool

⁴ Free sugar was defined as sugar added to drinks by the manufacturer, plus the sugars that are naturally present in honey, syrups and fruit juices.

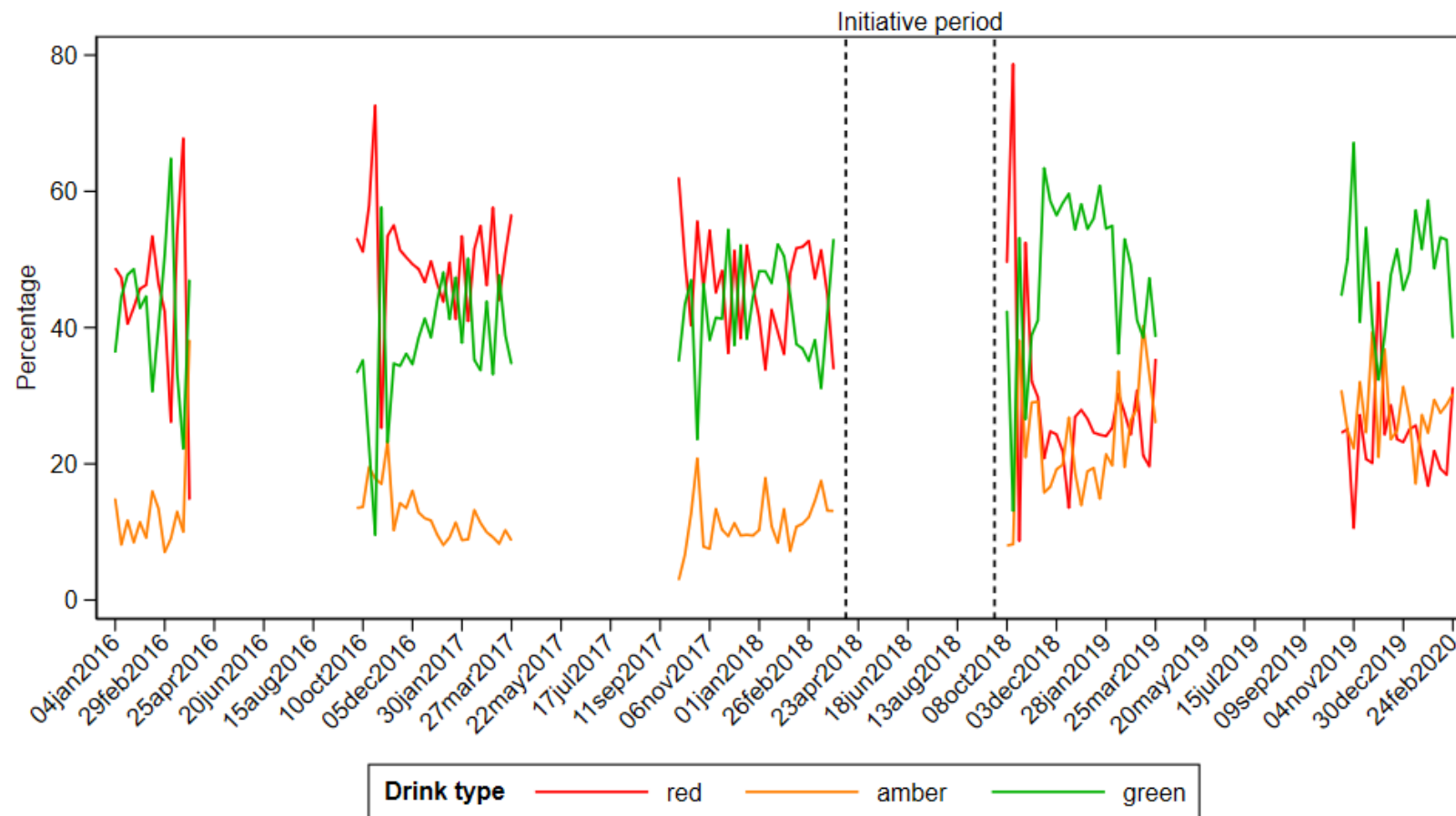


Figure 3: Weekly mean percentage of type of pre-packaged drinks sold, by volume, for eight seasonal facilities, January 2016 to February 2020

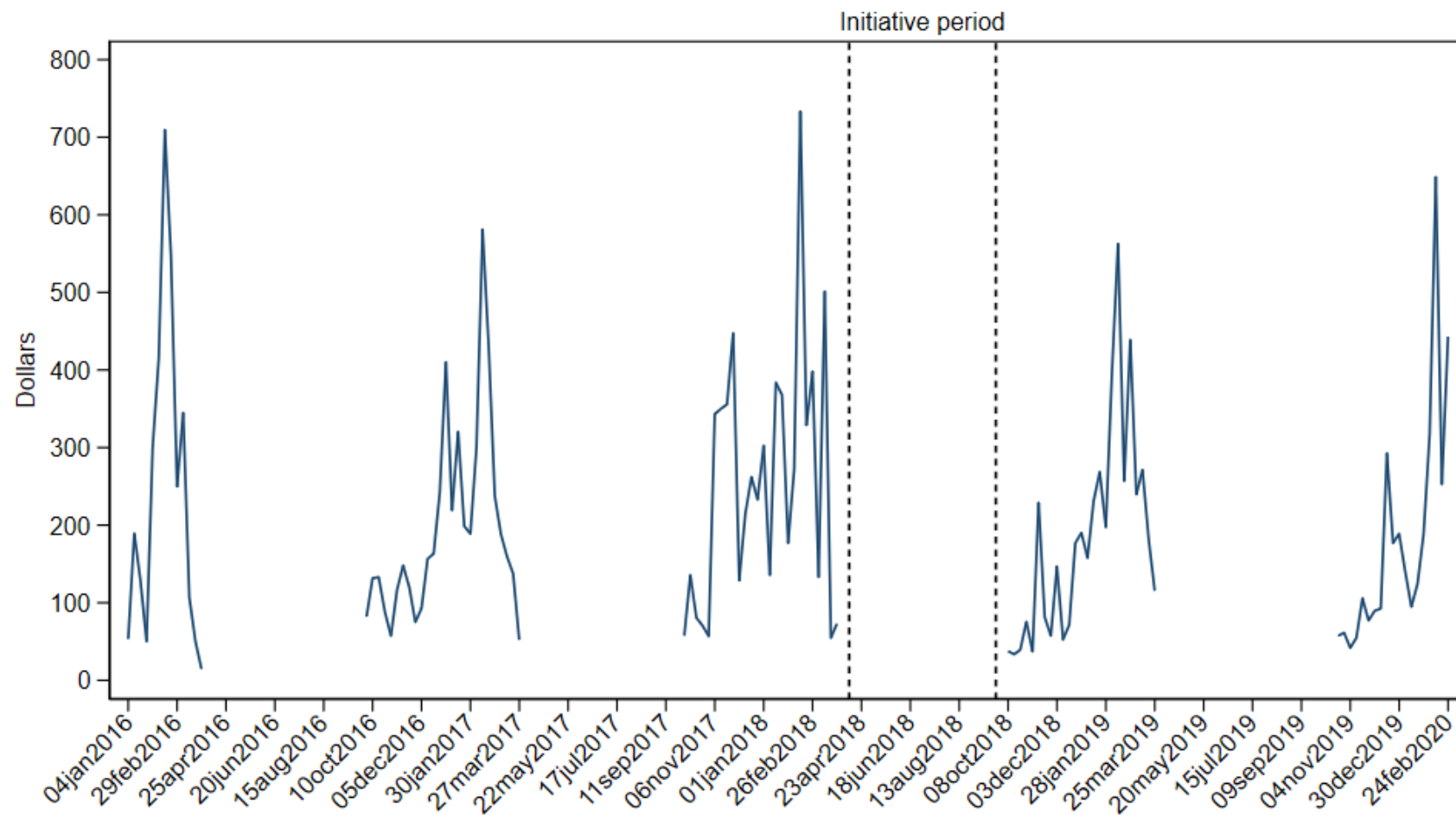


Figure 4: Weekly mean revenue (\$) of pre-packaged drinks for eight seasonal facilities, January 2016 to February 2020

6.3.2. NON-SEASONAL FACILITIES

In the analysis, facilities provided an average of 104 weeks of sales data pre-intervention and 97 weeks post-intervention. Eight of the non-seasonal facilities were canteens, 4 were kiosks, and 3 were cafés, with five of the facilities selling <50 drink units each week based on the median number of sales for the study period, five selling 50 to <90 units, and five selling ≥90 units.

For the *non-seasonal* facilities there was no evidence that, on average, the initiative changed any sales outcome by the end of the study period (February 2020), compared to what would have been expected if the initiative had not occurred. There was high variability found in sales over time, and between facilities, which may have meant that changes in response to the WIS initiative at individual facilities was obscured by the high variability.

Mean percentage of ‘red’, ‘amber’ and ‘green’ drinks sold each week in *non-seasonal* facilities during the study period are shown in [Figure 5](#), and mean total sales for all pre-packaged drinks sold are shown in [Figure 6](#). Plots for other outcomes are included in [Appendix 5](#).

6.3.3. INDIVIDUAL ANALYSIS OF NON-SEASONAL FACILITIES

When 10 non-seasonal facilities were analysed individually, the volume of ‘red’ drinks sold decreased in six non-seasonal facilities (percent point range -46.8 to -7.3 change), increased in two facilities, and did not change in two facilities ([Figure 7](#)). The volume of ‘green’ drinks sold increased in four out of ten non-seasonal facilities (percent point range +9.9 to +18.8 change), decreased in one facility, and did not change in five facilities ([Figure 8](#)). The volume of ‘amber’ drinks sold increased in five non-seasonal facilities (percent point range +4.9 to +33.7 change), decreased in three of ten facilities, and did not change in two facilities ([Figure 9](#)). In nine of ten facilities, there was no change in weekly drinks revenue, although one facility demonstrated a decrease in revenue by February 2020 ([Figure 10](#)) (See [Appendix 6](#) for other outcome results).

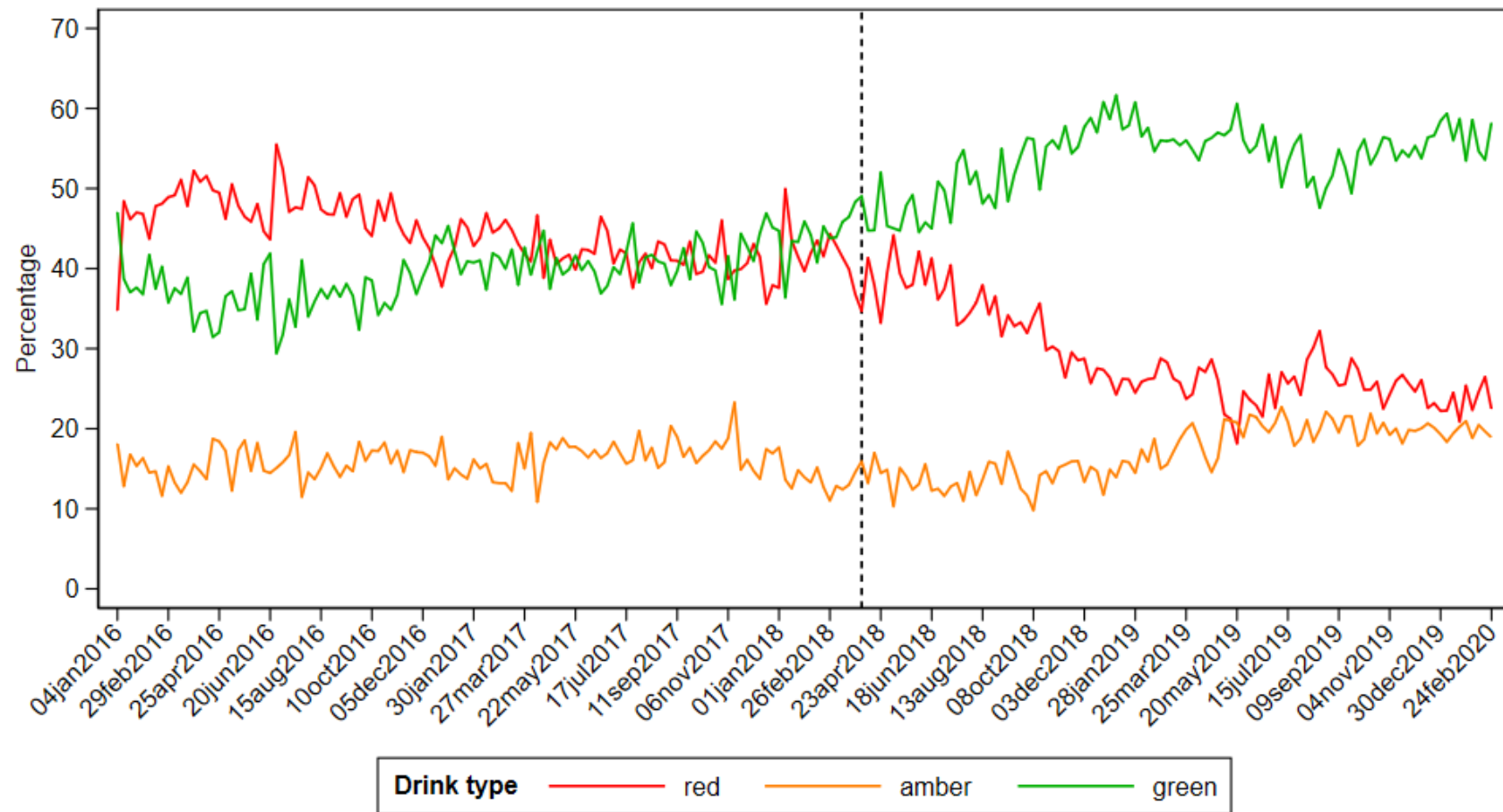


Figure 5: Weekly mean percentage of type of pre-packaged cold drink sold, by volume, for 15 non-seasonal facilities, January 2016 to February 2020

---- intervention started 2 April 2018

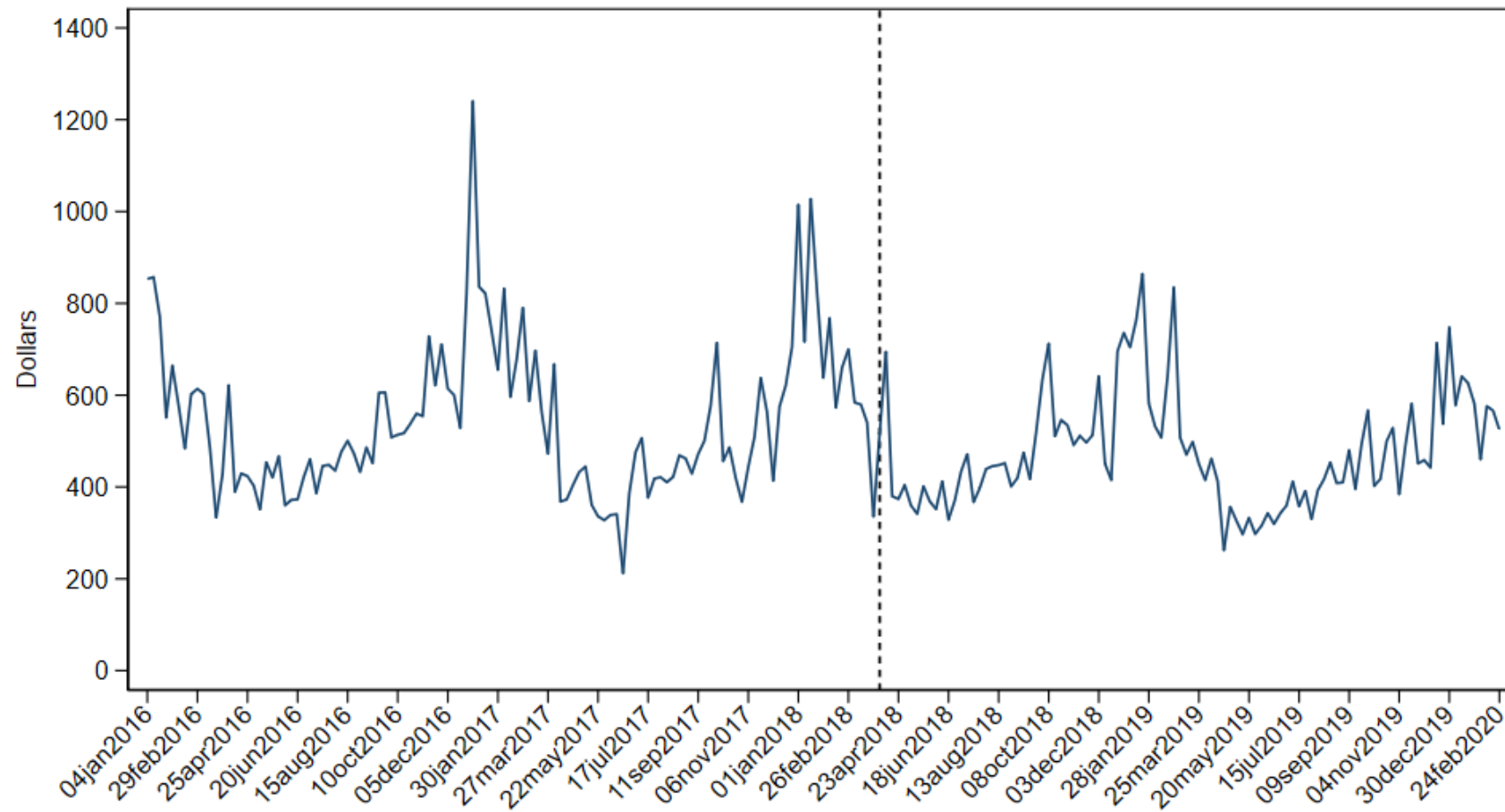


Figure 6: Weekly mean revenue (\$) of pre-packaged drinks for 15 non-seasonal facilities, January 2016 to February 2020
 ---- intervention started 2 April 2018

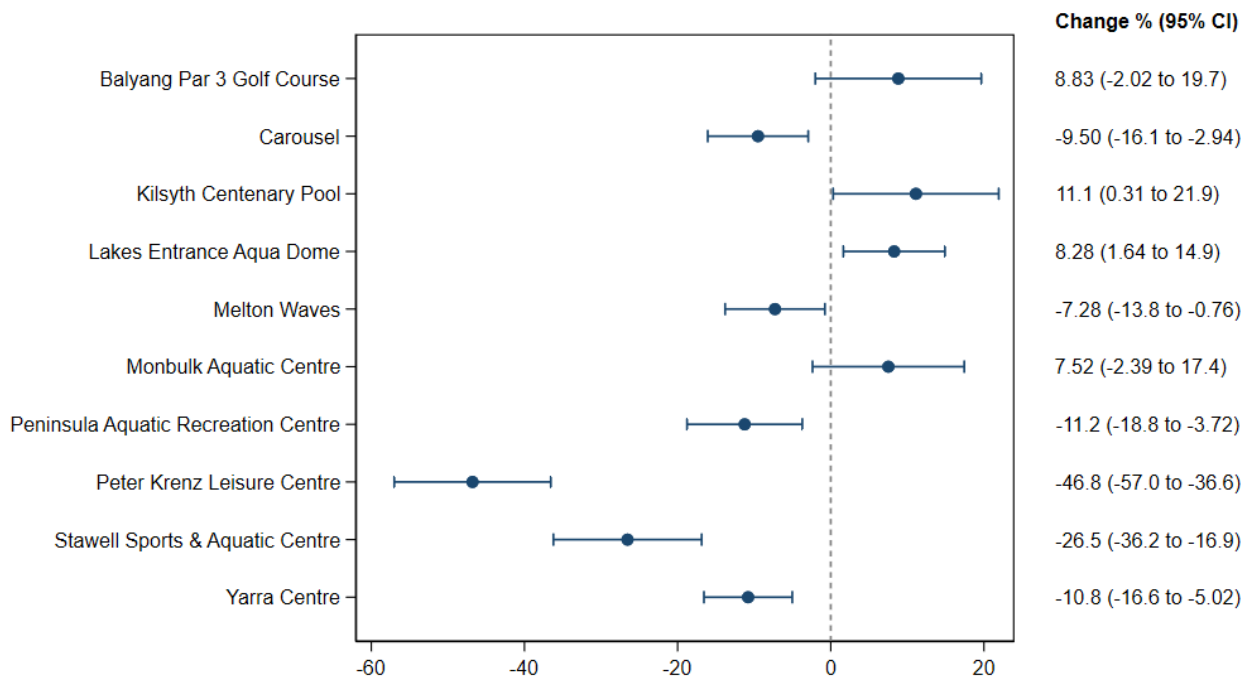


Figure 7: Percentage point change in 'red' pre-packaged drinks sold, by volume, in non-seasonal facilities by February 2020

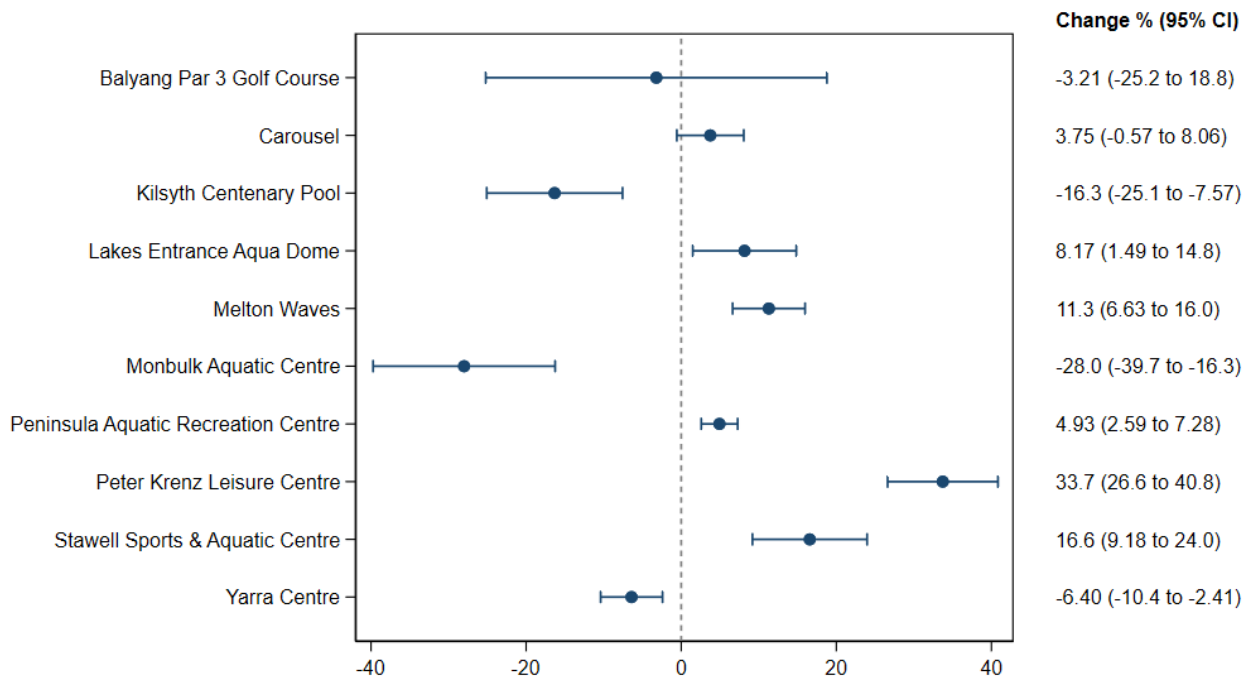


Figure 8: Percentage point change in 'amber' pre-packaged drinks sold, by volume, in non-seasonal facilities by February 2020

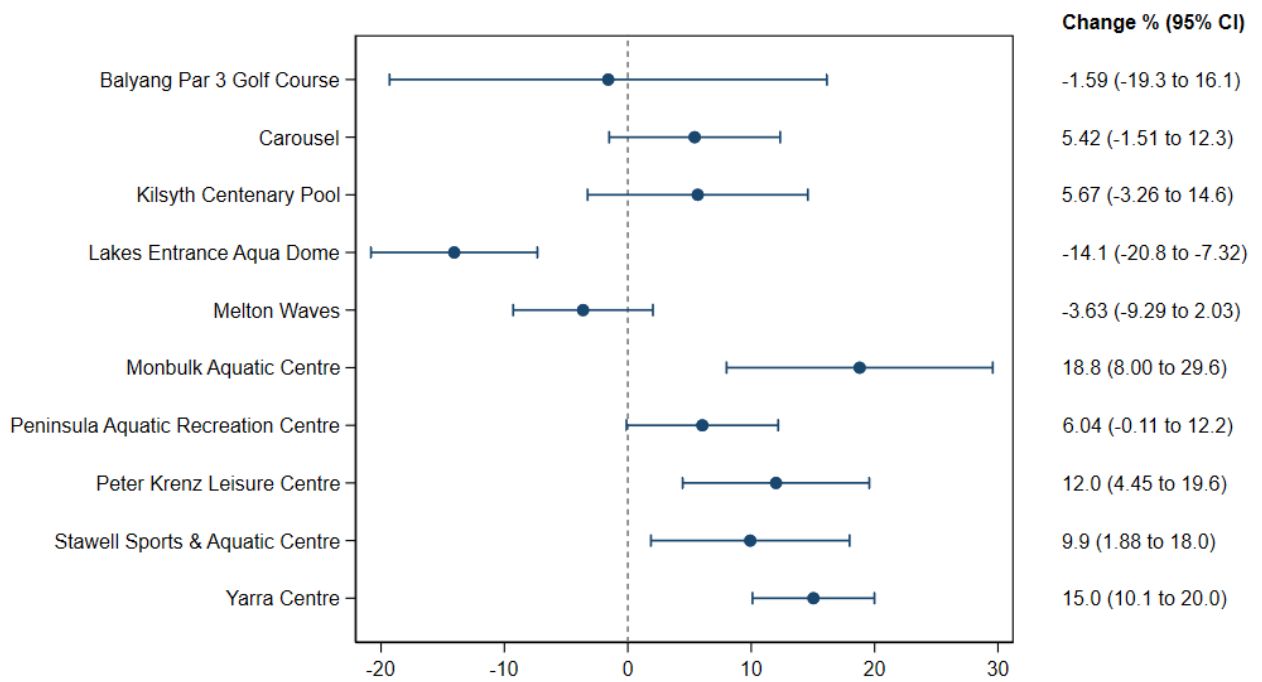


Figure 9: Percentage point change in 'green' pre-packaged drinks sold, by volume, in non-seasonal facilities by February 2020

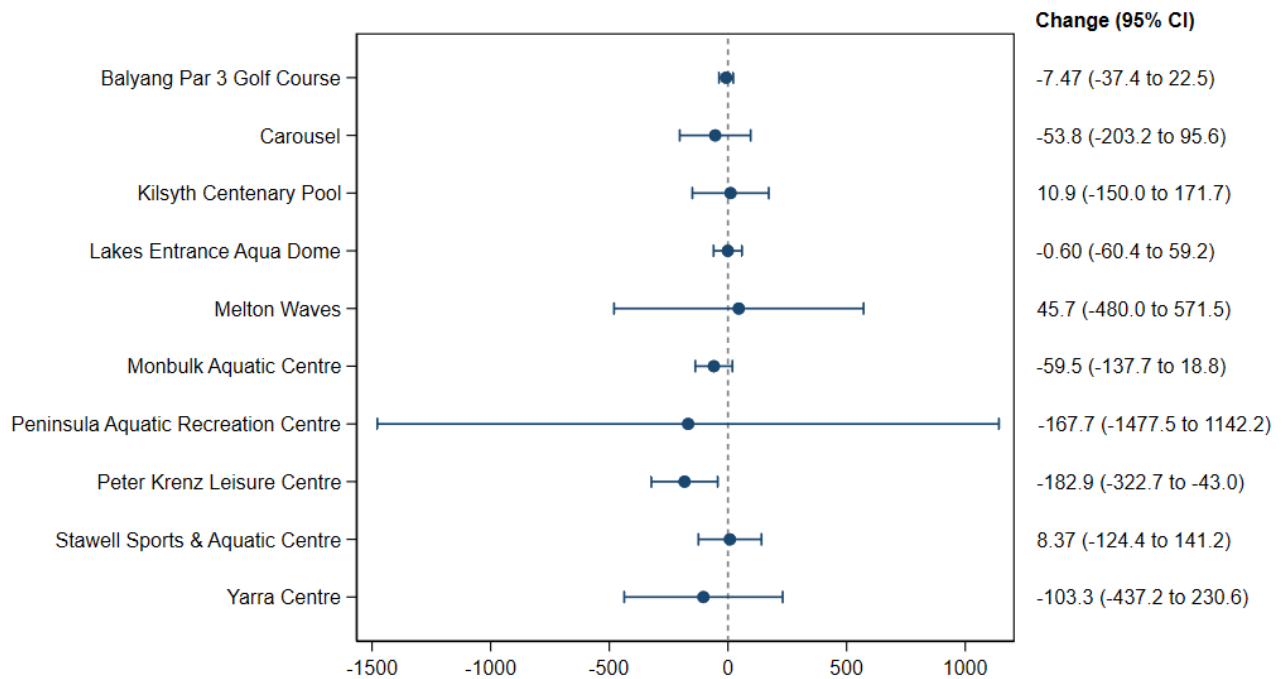


Figure 10: Change in pre-packaged drinks revenue (\$) in non-seasonal facilities by February 2020

7. Victorian local government survey

7.1. AIM

To compare change in policies, attitudes, and practices of WIS and other LGAs in Victoria relating to obesity prevention and the provision of healthy food in their sport and recreation facilities.

7.2. METHODS

An online cross-sectional survey was emailed to all 79 Victorian LGAs in July 2018 and again in July 2020. Questions were informed by a previously developed policy implementation and adoption survey designed for sport and recreation facilities in Canada [6]. Survey questions explored: 1) the types of facilities that sold food or drink owned and/or managed by the LG, and any changes made to improve the healthiness of food and drink provision to date; 2) the priority given to obesity prevention and the removal of sugary drinks from facilities; and 3) barriers and enablers to change. Minor amendment were made to the baseline survey ([Appendix 7](#)) for the follow-up survey ([Appendix 8](#)).

7.2.1. ANALYSIS

The analysis for this report was restricted to the 8 WIS and 18 non-WIS councils (those not involved in the WIS initiative) who completed surveys at both baseline and follow-up to facilitate comparison of changes over time. Questions regarding LGA policies and actions related to healthy food and drinks were different at the baseline and follow-up survey. Therefore, no analysis of change over time in policies and actions is presented. Demographic characteristics and healthy retail actions were compared between WIS and non-WIS councils using Wilcoxon rank-sum test (for ordinal or continuous data) or Pearson chi squared test for categorical data. Changes in the priority given to healthy eating between surveys were assessed using linear regression with clustering at the local government level. This allowed the differences between WIS and non-WIS councils to be compared at each survey timepoint.

7.3. RESULTS

Participating council demographic characteristics

Participating WIS (n = 8) and non-WIS councils (n = 18) were similar in socioeconomic position by area (SEIFA) decile, population size and rurality ([Table 8](#)). They were also reflective of overall Victorian local government characteristics regarding remoteness and SEIFA by area. WIS councils had a higher population compared to non-WIS councils.

Table 8: Demographics of all and participating Victorian local governments (n = 26)

Characteristic	All Victorian LGAs (n = 79)	WIS councils (n = 8)	Non-WIS councils (n = 18)
Median [Interquartile Range]¹			
SEIFA decile ³	5.5, [3,8]	4.5 [2,6]	4 [6.5,8]
Population size ⁴	45,040 [15,952; 134143] *	122,310 [54,453; 142490]	99,387 [16,495; 162,558]
n (%) ²			
Location ⁵			
Major cites	33 (42)	4 (50)	9 (50)
Inner-regional areas	33 (42)	3 (38)	8 (44)
Outer-regional areas	13 (16)	1 (13)	1 (6)

WIS, *Water in Sport*; LGA, *Local Government Area*

* Significant difference in population size of participating [8 WIS and 18 non-WIS councils] versus all Victorian councils (n = 79; p=0.03). No other comparisons between WIS and non-WIS Victorian local government areas, or comparisons between WIS and non-WIS councils were statistically significant.

¹Wilcoxon rank-sum test

² Pearson chi squared test

³Socioeconomic position, measured using the Socio-Economic Indexes for Areas (SEIFA). Australian Bureau of Statistics. Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) 2011. [Internet]. Canberra (AUST): ABS; 2019 [cited 2020 Aug]. Available from: http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_SEIFA_LGA. The area with the lowest score is given a rank of 1 and indicated most disadvantage, the area with the second-lowest score is given a rank of 2 and so on, up to the area with the highest score which is given the highest rank and indicates the most advantage.

⁴Australian Bureau of Statistics. 2016 Census QuickStats. Canberra (AUST): ABS; 2018 [cited 2020 Aug]. Available from: <http://quickstats.censusdata.abs.gov.au>

⁵LGA remoteness, measured using the Australian Bureau of Statistics classifications (major cities of Australia, inner regional Australia, outer regional Australia, remote Australia, and very remote Australia). Australian Bureau of Statistics. Defining Remoteness Areas. Canberra (AUST): ABS; 2018 [cited 2020 Aug]. Available from: <https://www.abs.gov.au/ausstats>

Healthy food retail action and policy adoption

No statistically significant differences were found between WIS and non-WIS councils in actions taken to improve the healthiness of food and/ or drink provision in sport and recreation facilities at either time point ([Table 9](#)). At follow-up, four out of eight WIS councils, and one out of 18 non-WIS councils had official policies in place relating to healthy drinks provision. The single non-WIS council policy included increased availability of water both free and for purchase and no advertising of sugary drinks. However, ten additional non-WIS councils had taken action to discourage sugary drinks in the absence of official written policies. These actions included increasing availability of water both free and for purchase (n = 9 councils), no advertising of sugary drinks (n = 9), sugary drinks hidden from display (n = 4), and no sugary drinks allowed to be sold (n = 4).

Table 9: Comparison of healthy food retail action in Water in Sport and non-Water in Sport councils (n = 26 local governments)

Action taken	n (%)			
	Baseline		Follow-up	
	WIS councils (n = 8)	Non-WIS councils (n = 18)	WIS councils (n = 8)	Non-WIS councils (n = 18)
No change made	0 (0)	5 (28)	0 (0)	6 (33)
Change to drinks only	2 (25)	3 (17)	1 (13)	1 (6)
Change to food only	0 (0)	0 (0)	0 (0)	0 (0)
Change to both food and drink	6 (75)	10 (56)	7 (88)	11 (61)

WIS, *Water in Sport*. No statistically significant differences were found between WIS and non-WIS councils.

Local government priorities

LGA priorities related to obesity and healthy eating were higher in WIS than non-WIS councils at baseline regarding: ‘promoting healthy eating/drinking’ (+2.0 [95%CI: +0.4, +3.7] points on 11-point scale from 0 to 10); ‘increasing the availability of healthy food/drink in LGA owned sport and recreation facilities’ (+3.4 [+1.6, +5.3]); and ‘reducing the availability of sugary drinks for sale in LGA owned sport and recreation facilities’ (+2.9 [+0.8, +5.0]) (all $p < 0.02$; see [Table 10](#)). There was no difference between WIS and non-WIS councils in the priority to reduce the prevalence of obesity at baseline.

There was no change in WIS councils between baseline and follow-up in any of the four priority areas. However, non-WIS council priorities improved between baseline and follow-up surveys such there was no significant difference between WIS and non-WIS councils at follow-up. There was a significant increase in the priority given by non-WIS councils to ‘increasing the availability of healthy food/drink in LGA owned sport and recreation facilities’ of +3.7 [+2.0, +5.3] points ($p < 0.001$).

Barriers and facilitators to improving the healthiness of the food and/or drink environment in sport and recreation facilities

At baseline, the most important enablers (and corresponding barriers) at both WIS and non-WIS LGAs were ‘support from key stakeholders’, ‘adequate control over facilities’, ‘appropriate funding’, and ‘adequate staff time’ ([Table 11](#)). At follow-up, the expanded survey identified ‘financial viability’ and ‘presence (or lack) of LGA healthy food and drink policy’ as important factors, in addition to those issues identified as important at baseline ([Table 12](#)).

Barriers and enablers were generally similar in relevance and ranking of importance at both baseline and follow-up. At baseline, there was greater variation among non-WIS LGAs in the ranking of the importance of the ‘inability to source appropriate healthy alternatives’ (WIS: 5 [4,6]; non-WIS: 5 [3,7]). At follow-up, non-WIS councils ranked the importance of ‘suppliers who are easy to negotiate’ with as more important than WIS councils (WIS: 9 [6,9]; non-WIS: 7 [5,8]; $p = 0.030$). These minor differences may reflect greater variation in the use or access of non-WIS councils to external support to assist in identifying appropriate healthy

alternatives or advise on negotiating with suppliers. Eleven non-WIS councils described having received external support to implement healthy changes: seven facilities had collaborated with or received support from their local primary care partnership or healthcare service, three had received support from their YMCA service provider, and two had received help from dietetics students.

Table 10: Comparison of change in local government priorities relating to promoting healthy eating and obesity in Water in Sport and non- Water in Sport participating local governments (n = 26 local governments)

Priority given in local government to	Mean [95% confidence interval]						
	WIS councils (n = 8)			non-WIS councils (n = 18)			Intervention effect (difference between WIS and non-WIS councils)
	Baseline	Follow-up	Change	Baseline	Follow-up	Change	
Promoting healthy eating/drinking ³	8.6 [7.6,9.6]	7.5 [6.4,8.5]	-1.1 [-2.6,+0.3]	6.6 [5.4,7.7]	5.5 [4.5,6.5]	-1.1 [-3.8,+0.6]	-0.0 [-2.2,+2.2]
Reducing the prevalence of obesity ⁴	7.9 [6.0,9.7]	7.5 [6.4,8.6]	-0.4 [-2.7,+1.9]	6.7 [5.5,8.0]	6.6 [5.3,7.8]	-0.2 [-2.0,+1.6]	-0.2 [-3.2,+2.7]
Increasing the availability of healthy food/drink in LGA owned sport and recreation facilities ⁵	8.5 [7.2,9.8]	8.4 [7.6,9.2]	-0.1 [-1.8,+1.6]	5.1 [3.8,6.3]	8.7 [8.0,9.5]	+3.7 [+2.0,+5.3]¹	-3.8 [-6.2,-1.4]²
Reducing the availability of sugary drinks for sale in LGA owned sport and recreation facilities ⁶	8.1 [6.6,9.6]	7.6 [6.9,8.3]	-0.5 [-2.3,+1.3]	5.2 [3.8,6.7]	5.4 [4.3,6.6]	+0.2 [-2.1,+2.5]	-0.7 [-3.6,+2.2]

WIS, Water in Sport; LGA, Local Government Area

¹ p<0.001. ² p=0.003. No other differences statistically significant (all p>0.05).

³ “Within your LGA would you say promoting healthy eating/drinking is a: (rank priority) (11-point priority scale: 0= low priority, 10= high priority)?”

⁴ “What is your local government’s position on taking action to reduce the prevalence of obesity in your LGA? (11-point priority scale: 0= we have not thought about it, 10= it is a major focus)”

⁵ “What is your local government’s position on taking action to increase the availability of healthy food/drink in LGA owned sport and recreation facilities? (11-point priority scale: 0= we have not thought about it, 10= we have completed all changes to increase availability of healthy offerings)”

⁶ “What is the local government’s position on taking action to reduce the availability of sugary drinks for sale in your LG-owned sport and recreation facilities? (11-point priority scale: 0= we have thought about it, 10= we have fully removed sugary drinks).”

Table 11: Comparison between Water in Sport and non-Water in Sport councils in the identification and importance of barriers and enablers to improving the healthiness of the food and/or drink environment in sport and recreation facilities, baseline survey, 2018 (n = 26 local governments)

Domain	Enablers					Barriers				
		WIS council (n = 8)		non-WIS council (n = 18)			WIS council (n = 8)		non-WIS council (n = 18)	
		LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²		LGAs identifying barrier (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying barrier (n (%)) ¹	Importance ranking (median, [IQR]) ²
Stakeholder support	Support from key stakeholders	8 (100)	1 [1,1.5]	15 (83)	2 [1,3]	Inadequate support from key stakeholders	7 (88)	2 [1,6]	14 (78)	3[2,4]
Funding	Appropriate funding	7 (88)	3 [2,3]	15 (83)	2 [2,3]	Inadequate funding	7 (88)	3 [2,5]	15 (83)	3 [2,5]
Control over facilities	Adequate control over facilities	8 (100)	2.5 [1.5, 4]	13 (72)	4 [2,5]	Inadequate control over facilities	8 (100)	3.5 [2.5, 4]	13 (72)	2 [1,3]
Time	Adequate time	7 (77)	4 [3,5]	13 (72)	4 [3,5]	Inadequate time	6 (75)	2.5 [2,5]	13 (72)	3 [2,4]
Ability to source appropriate healthy alternatives	Ability to source appropriate healthy alternatives	8 (100)	4 [2.5,6]	12 (67)	5 [3, 5.5]	Inability to source appropriate healthy alternatives	6 (75)	5 [4,6] *	11 (61)	5 [3,7] *
Suppliers	Agreeable suppliers	6 (75)	5 [5,7]	10 (56)	5 [4,6]	Disagreeable suppliers	5 (63)	5 [5,6]	10 (56)	5.5 [4,6]

WIS, Water in Sport; LGA, Local Government Area; IQR, interquartile range

¹ Chi squared tests compared the proportion of WIS and control LGAs identifying factor as barrier or enabler.

² Baseline: ranked from 1 to 7 where 1=most important and 7=least important; Follow-up: ranked from 1 to 7 where 1=most important and 10=least important.

*p = 0.038: significant difference in barrier ranking between WIS and control group using Wilcoxon rank-sum test. All other p-values non-significant (p>0.05)

Table 12: Comparison between Water in Sport and non- Water in Sport councils in identification and ranking of barriers and enablers to improving the healthiness of the food and/or drink environment in sport and recreation facilities in surveyed local government follow-up survey, 2020 (n = 26 local governments)

Domain	Enablers					Barriers				
		WIS councils (n = 8)		Non-WIS councils (n = 18)			WIS councils (n = 8)		Non-WIS councils (n = 18)	
		LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²		LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²
Stakeholder support	Internal support	6 (75)	1.5 [1,2]	14 (78)	3 [2,5]	Inadequate support from internal stakeholders	6 (75)	1.5 [1,8]	11 (61)	2 [1,3]
	External support	8 (100)	3.5 [2.5, 4.5]	14 (78)	3 [1,5]	Inadequate support from external stakeholders	6 (75)	1 [1,1.5]	15 (83)	2 [1,3]
Funding	Adequate funding	7 (88)	2.5 [1, 5.5]	13 (72)	2 [1,6]	Inadequate funding	7 (88)	5 [3,8]	13 (72)	5 [2,5]
Control over facilitates	Adequate control over facilities	7 (88)	3 [3,6]	12 (67)	3.5 [3,5.5]	Inadequate control over facilities	8 (100)	2 [1,5]	15 (83)	3 [2,7]
Time	Adequate staff time	7 (88)	4 [2,8]	12 (67)	3.5 [2.5,4.5]	Inadequate staff time	7 (88)	4 [4,7]	11 (61)	4.5 [2,6]
Ability to source appropriate healthy alternatives	Ability to source appropriate healthy alternatives	6 (75)	7 [5,8]	11 (61)	4 [2.5,6.5]	Inability to source appropriate healthy alternatives	7 (88)	6 [3,7]	10 (56)	5 [2,7]

Domain	Enablers				Barriers					
		WIS councils (n = 8)		Non-WIS councils (n = 18)			WIS councils (n = 8)		Non-WIS councils (n = 18)	
		LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²		LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²	LGAs identifying enabler (n (%)) ¹	Importance ranking (median, [IQR]) ²
Suppliers	Suppliers who are easy to negotiate with	6 (75)	9 [6,9] *	7 (39)	7 [5,8] *	Problems negotiating with suppliers	6 (75)	8.5 [6,9]	9 (50)	6 [3,9]
Financial viability	Financial viability of food outlet not a concern	7 (88)	4 [2,8]	12 (67)	3.5 [1.5,7]	Concerns relating to impact on outlet financial viability	8 (100)	3 [2,4]	14 (64)	3 [2.5, 4]
Policy	Presence of healthy food and drink policy	7 (88)	4 [2,5]	12 (67)	3.5 [1.5, 5]	Lack of healthy food and drink policy	7 (88)	5 [3,8]	12 (67)	2.5 [2,6]

WIS, Water in Sport; LGA, Local Government Area; IQR, interquartile range

*p= 0.030: significant difference in enabler ranking between WIS and control group using Wilcoxon rank-sum test. All other p-values non-significant (p>0.05).

¹ Chi squared tests compared the proportion of WIS and control LGAs identifying factor as barrier or enabler.

² Baseline: ranked from 1 to 7 where 1=most important and 7=least important; Follow-up: ranked from 1 to 7 where 1=most important and 10=least important. Wilcoxon rank-sum test compared ranking in WIS and control LGAs identifying enabler or barrier.

8. Customer surveys

The results presented below were included in the *24-month WIS: Deakin University report to VicHealth*, however they are also included in the final report for completeness.

8.1. AIM

To assess customer awareness of healthy drink changes and perceptions of the need for change.

8.2. METHODS

Customer surveys were conducted at baseline (June-September 2018) and follow-up (June-September 2019), and completed by customers frequenting specific sport and recreation facilities at the eight LGAs, noting that nudges were implemented in 2/54 facilities at the baseline time point and 36/54 facilities at the follow-up time point ([Appendix 9](#)). The survey investigated the perceived need for healthy drink options, awareness of healthy drinks changes, and customer knowledge related to the healthiness of sugary drinks, as well as customer demographics. To compare responses between the same customers at both baseline and follow-up, a specific survey link was sent at follow-up to those customers that provided their email at baseline. However, the number of customers who completed both surveys was too small (n = 90) to analyse these results separately.

8.2.1. ANALYSIS

Customer responses were compared between baseline and follow-up using logistic regression or ordered logistic regression in Stata 15, as appropriate. Comparisons were made for the whole sample, and further sensitivity analyses included i) restricting analysis to only those facilities with no nudges at baseline, ii) where the nudge of limiting sugary drinks (<20%) was implemented at follow-up, and iii) removing responses where the facility was unknown (customers did not select what facility they most frequented on the paper based survey or due survey error in the online survey). The results were also adjusted for LGA and facility. This was done to ensure similar customer profiles at baseline and follow-up. Only statistically significant results between baseline and follow-up are reported on in the text below (p<0.05).

8.3. RESULTS

Customer demographic characteristics

The customer survey was completed by 1,079 customers at baseline and 1,188 customers at follow-up (based on the number of people who completed the last survey question prior to demographic questions) ([Table 13](#)). Three hundred and fifty-seven surveys were excluded from analysis as their location was unknown or their facility was not actively involved in the WIS initiative.

At both time points, the majority of customers who completed the survey were female, aged between 25-44 years, and had a university degree or higher or had completed year 12 or a trade certificate. Customers who completed the survey most commonly purchased food or drink 1-4 times per week or never purchased food or drink at the café at the sport and recreation facility ([Table 14](#)).

Table 13: Customer survey response numbers per local government area at baseline (2018, n = 1,079) and follow-up (2019, n = 1,118)

Local government area	Baseline	Follow-up	Total
East Gippsland	156	147	303
Frankston	334	261	595
Greater Bendigo	138	317	455
Greater Geelong	34	39	73
Greater Shepparton	153	151	304
Melton	131	79	210
Northern Grampians	31	22	53
Yarra Ranges	102	172	274
Total	1,079	1,188	2267

Table 14: Characteristics of all local government respondents at baseline (2018, n = 1,145) and follow-up (2019, n = 1,300)

Characteristic	n ¹ (%)	
	Baseline	Follow-up
Gender	n = 1,040	n = 1,165
Male	271 (26.1)	298 (25.7)
Female	767 (73.9)	861 (74.2)
Age (years)	n = 1047	n = 1166
15 to 24	84 (8.0)	107 (9.2)
25 to 44	459 (43.8)	493 (42.3)
45 to 64	363 (34.7)	405 (34.7)
65 and older	141 (13.5)	161 (13.8)
Education	n = 1,041	n = 1,159
Did not complete high school	84 (8.7)	88 (7.6)
Still in high school	29 (2.8)	36 (3.1)
Year 12 or trade certificate	418 (40.2)	478 (41.2)
University degree or higher	510 (49.0)	557 (48.1)
SEIFA² quintiles	n = 1,300	n = 1,496
1 (most disadvantaged)	399 (30.7)	407 (27.2)
2	202 (15.5)	415 (27.7)
3	589 (45.3)	470 (31.4)
4	119 (8.5)	204 (13.6)
5 (least disadvantaged)	0 (0.0)	0 (0.0)
Purchase frequency from facility café	n = 1145	n = 1300
Never	408 (35.6)	481 (37.4)
Less than once per week	187 (16.3)	183 (14.1)
1-4 times per week	537 (46.9)	612 (47.1)
≥ 5 times per week	13 (1.1)	19 (1.5)

¹ Australian Bureau of Statistics 2011, *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*, Commonwealth of Australia, retrieved 23rd July 2018 2018, <http://stat.data.abs.gov.au>

The area with the lowest score is given a rank of 1 and indicated most disadvantage, the area with the second-lowest score is given a rank of 2 and so on, up to the area with the highest score which is given the highest rank and indicates the most advantage.

² Statistically significant differences ($p < 0.05$) between responses at baseline and at follow-up are bolded.

Customer awareness of intervention

At follow-up, a slightly higher proportion of customers noticed a change in the variety (baseline: 4.0%; follow-up: 6.0%) and availability (3.7%; 7.8%) of sugary drinks, as well as changes to the availability (1.9%; 4.1%) and advertisement (0.8%; 2.89%) of water ([Table 15](#)). The sensitivity analysis, where the sample was restricted to no nudge at baseline and the nudge of limited sugary drinks implemented at follow-up, produced similar results. At follow-up, customers were more likely to notice changes to the variety (3.6%; 7.8%) and availability of sugary drinks (2.7%; 10.9%), as well changes to the variety (1.8%; 5.6%), availability (1.7%; 7.1%), and advertising (0.8%; 5.2%) of water after a nudge was implemented ([Appendix 11](#)). Support was high at baseline with no reported difference at follow-up for i) sport and recreation facilities have a responsibility to promote healthy eating (76.9%), or ii) removing sugary drinks from sport and recreation facility would lead to reduced consumption in the community (54.2%), however there was no change between baseline and follow-up results.

Difference in health-related knowledge

Customer knowledge related to the health effects of sugary drinks and which drinks are healthy for everyday consumption was greater at follow-up. Specifically, more respondents identified that drinking sugary drinks leads to weight gain (baseline: 91.7%; follow-up: 94.2%) and increases risk of heart disease (74.0%; 79.4%) at follow-up compared to baseline ([Table 15](#)). Further in the sensitivity analysis, where the sample was restricted to facilities where a nudge had been implemented at follow-up, customers appeared to have more knowledge related to the impact of sugary drinks on health at follow-up compared to baseline ([Appendix 11](#)).

Differences in water consumption

When customers were asked about their water consumption at the facilities (including purchased water, water from tap or from home); water consumption was high at baseline (81.2%), with no reported difference at follow-up. In the sensitivity analysis, restricting to facilities that implemented the 'limit 'red' drinks' nudge between baseline and follow-up surveys, there was also no change in water consumption from baseline to follow-up ([Appendix 11](#)).

Table 15: Comparison of customer knowledge and attitudes in relation to water and sugary drinks, and awareness of interventions between baseline (2018, n = 1,079) and follow-up (2019, n = 1,118) surveys

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 1,079)	Follow-up (n = 1,188)	
Awareness of change: Have you noticed changes to:²			
The food and drink offered at the facility	21.1 [18.8,23.5]	21.6 [19.3,23.8]	+0.5 [-2.8,+3.7]
The variety of sugary drinks	4.0 [2.8,5.1]	6.0 [4.6,7.4]	+2.0 [+0.2,+3.9]
The availability of sugary drinks	3.7 [2.6,4.8]	7.8 [6.3,9.4]	+4.1 [+2.2,+6.1]
The fridge display	10.0 [8.3,11.8]	13.1 [11.1,15.1]	+3.1 [+0.4,+5.7]
The price of drinks	3.9 [2.8,5.0]	4.6 [3.4,5.8]	+0.7 [-0.9,+2.4]
The variety of water	2.0 [1.2,2.9]	3.5 [2.4,4.6]	+1.5 [+0.1,+2.8]
The availability of water	1.9 [1.1, 2.7]	4.1 [2.9, 5.2]	+2.2 [+0.8,+3.6]
The advertising of water	0.8 [0.3,1.3]	2.9 [1.9,3.9]	+2.1 [+1.0,+3.2]
Knowledge related questions:²			
<i>Is the following a healthy drink for everyday:</i>			
Water	98.5 [97.8,99.3]	98.6 [97.9,99.3]	+0.1 [-0.9,+1.0]
Juice	1.3 [1.1,1.5]	1.4 [1.2,1.6]	+0.1 [-1.2,+4.3]
Sugary drinks	1.5 [0.8,2.3]	1.0 [0.4,1.5]	-0.5 [-1.5,+0.4]
Diet sugary drinks	2.7 [1.8,3.7]	4.2 [3.1,5.3]	+1.5 [-0.0,+2.9]
<i>Drinking sugary drinks often will...</i>			
Lead to weight gain	91.7 [90.0,93.3]	94.2 [92.8, 95.5]	+2.5 [+0.4,+4.6]
Increase your risk of heart disease	74.0 [71.4,76.6]	79.4 [77.2,81.7]	+5.4 [+2.0,+8.9]
Have no impact on your health	9.0 [7.3,10.7]	8.1 [6.5,9.6]	-0.9 [-3.2,+1.4]
Increase your risk of diabetes	85.1 [83.0,87.2]	85.1 [83.1,87.1]	+0.0 [-2.9,+2.9]
Help you live a healthier life	2.5 [1.5,3.4]	3.0 [2.0,3.9]	+0.5 [-0.8,+1.8]
Increase your risk of dental decay	85.9 [83.9,88.0]	85.0 [84.0,88.0]	-0.9 [-2.8,+2.8]
Water consumption:²			
Drank water while at the facility on day of survey	81.2 [78.9,83.5]	81.1 [79.0,83.3]	-0.1 [-3.1,+3.0]
Agreement with:³			

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 1,079)	Follow-up (n = 1,188)	
<i>Sport and recreation facilities have a responsibility to promote healthy eating</i>			
Strongly disagree	6.0 [4.9,7.0]	6.0 [4.9,7.0]	0.0 [-0.8,+0.9]
Disagree	4.2 [3.3,5.1]	4.2 [3.3, 5.1]	0.0 [-0.5,+0.5]
Neither disagree no agree	13.1 [11.5,11.5]	13.1 [11.5,14.6]	0.0 [-1.3,+1.3]
Agree	37.0 [34.9,39.0]	37.0 [35.0,39.0]	0.0 [-0.9,+0.9]
Strongly agree	39.9 [37.1,42.6]	39.8 [37.2,42.5]	-0.1 [-3.7,+3.6]
<i>Removing sugary drinks from sport and recreation facilities will lead to reduced consumption on the community</i>			
Strongly disagree	8.5 [7.2,9.7]	9.4 [8.0,10.71]	+0.9 [-0.3,+2.1]
Disagree	14.6 [13.0,16.3]	15.7 [14.0,17.4]	+1.1 [-0.4,+2.6]
Neither disagree no agree	22.6 [20.8,24.4]	23.4 [21.6,25.2]	+0.7 [-0.3,+1.7]
Agree	35.9 [33.8,38.1]	34.8 [32.7,36.9]	-1.1 [-2.7,+0.4]
Strongly agree	18.3 [16.4,20.3]	16.8 [15.0,18.6]	-1.5 [-3.7,+0.6]

¹ Logistic regression compared change across question response. Statistically significant differences ($p < 0.05$) between responses at baseline and at follow-up are bolded.

² "Yes" responses reported.

³ Ordered logistic regression compared change across question response.

9. Staff surveys

The results presented below were included in the *24-month WIS: Deakin University report to VicHealth*, however it is included in the final report for completeness.

9.1. AIM

To assess staff awareness of healthy drink changes and perceptions of the need for change.

9.2. METHODS

Staff surveys were conducted at baseline (June-September 2018) and follow-up (June-September 2019) in the eight participating LGAs and were completed by individuals involved in policy development related to the nudges, the implementation of nudges, and those that the policy would influence (i.e. facility staff) ([Appendix 10](#)). Staff were recruited by WIS POs via staff mailing lists. Staff who completed the survey at baseline were not necessarily the same staff who completed the survey at follow-up. The survey investigated the perceived need for healthy drink options, the awareness of healthy drinks policy implementation, staff opinion on organisational intent to improve overall healthiness of offerings, and whether the staff member was personally involved in the healthy retail changes. In an attempt to compare responses between the same staff at both baseline and follow-up, a specific survey link was sent at follow-up to those staff that provided their email at baseline. However, the number of staff who completed both surveys was too small ($n = 20$) to analyse those results separately.

9.2.1. ANALYSIS

Staff responses were compared between baseline and follow-up using logistic regression for binary responses or an ordered logistic regression for scale responses in Stata 15, as appropriate. Comparisons were made for the whole sample, as well a sensitivity analysis where the sample was restricted to only those facilities where the 'limit red drinks' nudge was not implemented at baseline and was implemented at follow-up (34/54 facilities). The sensitivity analysis results were adjusted for LGA, the primary analysis was not adjusted for LGA. Only statistically significant results between baseline and follow-up are reported on in the text below ($p < 0.05$).

9.3. RESULTS

Staff demographic characteristics

The staff survey was completed by 162 staff at baseline and 183 staff at follow-up ([Table 16](#)). Six surveys were excluded from the analysis as respondents were not at facilities who were actively involved in the WIS initiative.

At baseline and follow-up, most staff responding were employed by council and worked in sport and recreation in a customer service role and had worked at the local government for more than two years. Staff who completed the survey at follow-up were more likely to have been involved in making the healthy retail change (baseline: 35.7%, follow-up: 53.8%). Staff who completed the survey most commonly purchased food or drink 1-4 times per week or never purchased food or drink at the café at the sport and recreation facility ([Table 17](#)).

Table 16: Staff survey response numbers per local government area at baseline (2018, n = 162) and follow-up (2019, n = 183)

Local government area	Baseline	Follow-up	Total
East Gippsland	15	12	27
Frankston	15	23	38
Greater Bendigo	33	51	84
Greater Geelong	16	19	35
Greater Shepparton	29	21	50
Melton	26	15	41
Northern Grampians	11	18	29
Yarra Ranges	17	24	41
Total	162	183	345

Staff knowledge regarding organisational priorities and support for change

Staff perceived of their organisation’s intention to improve the healthiness of drinks available for sale in its sport and recreation facilities increased between baseline and follow-up. Furthermore, a larger number of staff selected that their organisation had made changes in the past 6 months that were still in place at follow-up (baseline: 15.5%; follow-up: 44.4%) (Table 18). Similar results were seen in the sensitivity analysis between baseline and follow-up (Appendix 11).

There was no change from baseline to follow-up in staff beliefs that i) sport and recreation centres have a responsibility to promote healthy eating, or ii) removing sugary drinks from sport and recreation facility would lead to reduced consumption in the community, agreement remained high at both time points. There was also no change in staff support for making new or additional healthy retail changes (Table 18).

Similar results were found in the sensitivity analysis (where the sample was restricted to those facilities that had implemented a ‘limit red drinks’ nudge between baseline and follow-up survey), although fewer staff reported that their organisation had made changes within the past 6 months at follow-up (38.4%; 37.4%) (Appendix 11).

Difference in staff awareness of policy change

A higher proportion of staff were aware of official policies relating to the provision of drinks within their council’s sport and recreation facilities at follow-up, including: reducing the amount of sugary drinks for sale (baseline: 29.8%; follow-up: 58.9%), no advertising of sugary drinks (16.4%; 33.7%), and increasing the availability of water (27.5%; 50.0%) (Table 18). Similar results were seen in the sensitivity analysis (Appendix 11).

Table 17: Characteristics of staff survey respondents at baseline (2018, n = 220) and follow-up (2019, n = 235)

Characteristic	(n (%))	
	Baseline	Follow-up
Job description	n = 186	n = 200
<i>Employed by council</i>		
Senior management	14 (7.5)	19 (9.5)
Health promotion	26 (14.0)	30 (15.0)
Sport and recreation	47 (25.3)	36 (18.0)
<i>Employed by sport and recreation facility</i>		
Management	20 (10.8)	32 (16.0)
Customer service	27 (14.5)	40 (20.0)
Volunteer (management)	8 (4.3)	6 (3.0)
Volunteer (customer service)	2 (1.1)	5 (2.5)
Other (e.g. lifeguard)	42 (22.6)	32 (16.0)
Time in role	n = 186	n = 202
Less than 6 months	29 (15.6)	28 (13.9)
6 months to 1 year	38 (20.4)	35 (17.3)
More than 1 year	21 (11.3)	32 (15.8)
2 years or more	98 (52.7)	107 (53.0)
Role in making healthy retail changes	n = 165	n = 190
Yes	59 (35.7)	102 (53.8)
Role related to:		
<i>Implementing the change</i>	n = 117	n = 190
Yes	33 (28.2)	57 (30.0)
No	84 (71.8)	133 (70.0)
<i>Policy development</i>	n = 116	n = 190
Yes	24 (20.7)	36 (18.9)
No	92 (79.3)	154 (81.0)
<i>Customer discussion</i>	n = 114	n = 190
Yes	26 (22.8)	36 (18.9)
No	88 (77.2)	154 (81.0)
Purchase frequency from facility café	n = 186	n = 202
Never	61 (32.8)	45 (22.3)
Less than once per week	27 (14.5)	39 (19.3)
1-4 times per week	95 (51.1)	115 (56.9)
≥5 times per week	3 (1.6)	3 (1.5)
SEIFA quintiles¹	n = 220	n = 235
1 (most disadvantaged)	89 (40.5)	70 (29.8)
2	33 (15.5)	67 (28.5)
3	77 (35.0)	68 (28.9)
4	21 (9.5)	30 (12.8)
5 (least disadvantaged)	0 (0.0)	0 (0.0)

¹Australian Bureau of Statistics 2011, *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*, Commonwealth of Australia, retrieved 23rd July 2018 2018,

<http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_SEIFA_LGA>. The area with the lowest score is given a rank of 1 and indicated most disadvantage, the area with the second-lowest score is given a rank of 2 and so on, up to the area with the highest score which is given the highest rank and indicates the most advantage.

² Statistically significant differences (p<0.05) between responses at baseline and at follow-up indicated in bold.

Table 18: Comparison of staff knowledge regarding organisational intent to implement healthy changes and awareness of policies related to the healthy change intervention at baseline (2018, n = 162) and follow-up (2019, n = 183)

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 162)	Follow-up (n = 183)	
Organisational intent			
<i>Promoting healthy eating is a:</i> ²			
Low priority	13.3 [9.0, 17.6]	10.0 [6.5, 13.4]	-3.3 [-7.4, +0.8]
Medium priority	43.7 [37.8, 49.7]	39.0 [33.2, 44.7]	-4.7 [-10.5, +1.0]
High priority	43.0 [35.8, 50.2]	51.1 [44.1, 58.0]	+8.1 [-1.6, +17.9]
<i>Compared to one year ago, [your organisational priority to promote healthy eating]:</i> ²			
Decreased	4.4 [2.0, 6.8]	2.8 [1.2, 4.3]	-1.6 [-3.0, -0.3]
Stayed the same	27.2 [21.9, 32.5]	20.4 [15.8, 24.9]	-6.7 [-11.4, -2.1]
Increased	52.9 [45.7, 60.1]	68.0 [61.4, 74.6]	+15.1 [+5.5, +24.8]
Unsure	15.5 [10.8, 20.2]	8.8 [5.6, 12.0]	-6.7 [-11.2, -2.2]
<i>Which best describes your organisation's intent on making healthy changes:</i> ²			
Not thought about it	8.8 [4.9, 12.7]	2.0 [0.9, 3.1]	-6.8 [-9.9, -3.5]
Thinking about it	15.0 [10.3, 19.8]	4.3 [2.5, 6.1]	-10.7 [-14.7, -6.8]
Preparing for change	26.0 [20.4, 31.5]	11.3 [8.0, 14.7]	-14.7 [-19.4, -9.9]
Made changes within the past 6 months	34.1 [28.8, 39.4]	35.3 [30.0, 40.7]	+1.2 [-3.0, +5.5]
Made changes within the past 6 months that are still in place	15.5 [11.0, 20.0]	44.4 [37.6, 51.1]	+28.9 [+21.5, +36.2]
Made changes within the past 6 months that are no longer fully in place	0.6 [0.1, 1.1]	2.6 [0.5, 4.7]	+2.0 [+0.4, +3.7]
Awareness of policy change: Are you aware of a policy related to:			
No sugary drinks sold	0.6 [-0.6, 1.7]	6.8 [3.3, 10.4]	+6.2 [+2.5, +10.0]
Sugary drinks must be hidden from view	7.0 [3.2, 10.8]	10.5 [6.2, 14.9]	+3.5 [-2.3, +9.3]
Reducing the amount of sugary drinks for sale	29.8 [23.0, 36.7]	58.9 [52.0, 65.9]	+29.1 [+19.3, +39.0]
No advertising of sugary drinks	16.4 [10.8, 21.9]	33.7 [27.0, 40.4]	+17.3 [+8.6, +26.0]
Decreasing the price of water	7.2 [3.2, 10.8]	11.6 [7.0, 16.1]	+4.4 [-1.4, +10.5]

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 162)	Follow-up (n = 183)	
Increasing the availability of water	27.5 [20.8, 34.2]	50.0 [42.9, 57.1]	+22.5 [+12.7, +32.3]
Agreement with: ²			
<i>Sport and recreation facilities have a responsibility to promote healthy eating</i>			
Strongly disagree	3.2 [1.3, 5.1]	3.7 [1.6, 5.9]	+0.5 [-0.8, +1.9]
Disagree	3.5 [1.5, 5.4]	4.0 [1.8, 6.3]	+0.5 [-0.8, +1.9]
Neither disagree no agree	11.7 [7.9, 15.4]	13.2 [9.2, 17.2]	+1.5 [-2.1, +5.1]
Agree	36.0 [30.6, 41.4]	37.5 [32.1, 42.9]	+1.5 [-2.0, +5.0]
Strongly agree	45.6 [38.3, 53.0]	41.5 [34.6, 48.4]	-4.1 [-13.8, +5.5]
<i>Removing sugary drinks from sport and recreation facilities will lead to reduced consumption in the community</i>			
Strongly disagree	4.5 [2.2, 6.8]	4.8 [2.3, 7.2]	+0.3 [-1.4, +2.0]
Disagree	12.1 [8.2, 16.1]	12.8 [8.8, 16.7]	+0.7 [-3.1, +4.4]
Neither disagree no agree	22.3 [17.5, 27.1]	22.9 [18.1, 27.7]	+0.6 [-3.2, +4.4]
Agree	43.5 [37.9, 49.1]	42.9 [37.4, 48.4]	-0.6 [-4.4, +3.1]
Strongly agree	17.6 [12.6, 22.6]	16.7 [12.0, 21.4]	-0.9 [-6.3, +4.6]
Would you support council with:			
Making new/additional healthy changes	93.2 [89.3, 97.1]	93.4 [89.9, 97.0]	+0.2 [-5.0, +5.5]

¹ Statistically significant differences (p<0.05) between responses at baseline and at follow-up are bolded.

² Ordered logistic regression compared change across question response.

10. Qualitative analysis

10.1. AIMS

To describe and critique the health promotion approaches used to implement the WIS project, to explore whether key implementation narratives varied over time or between local governments, and to identify leverage points and recommendations for local government-facilitated food and drink policy changes.

10.2. METHODS

The qualitative evaluation applied a sequential convergent mixed method approach [7] including repeat longitudinal council PO surveys, a group workshop, and stakeholder interviews. Results from each data source were initially analysed separately, and then converged for the report. Results from the three data sources were considered complementary and used to build a comprehensive understanding of the dynamic process of implementing a healthy drink initiative in council-owned sport and recreation clubs and facilities. Details of the purpose and design of each data source are described below. We also provided specific strategy ideas (detailed in [Table 20](#)), based on integrated quantitative and qualitative evaluation findings, along with key learnings from the research team and the broader literature.

The underlying theoretical framework and participant questions for the qualitative evaluation were informed by a previously developed systems map. The systems map identifies the role of factors affecting the successful implementation of healthy food retail interventions in health promoting settings [8]. This systems map development was based on post-hoc analyses of interviews conducted with retail managers, implementers and other key stakeholders involved in a range of healthy food retail interventions in health-promoting settings. It uses system dynamics [9] to identify potential points of intervention through which community-based organisations can shift to healthier food provision. It additionally captures important feedback loops that could drive potential unintended consequences. We have used the map in this evaluation as a framework with which to analyse and present key narratives that have previously been identified in other food retail initiatives.

10.2.1. COUNCIL PROJECT OFFICER SURVEYS

Surveys were completed by LGA POs four times, every 6 months over the 2-year project (2018-2020) ([Appendix 12](#)). This survey asked POs to nominate the relevance of pre-identified potential enablers and barriers to completing the project in their LGA. The survey also allowed free text entry of additional barriers, enablers, or contextual factors within the LGA. Note that due to staff turnover, the PO who completed the survey changed for three councils during the survey period, and not all surveys were completed at every timepoint. When a PO was unable to complete the survey a council manager completed it where possible.

10.2.2. GROUP WORKSHOP

A group workshop was conducted toward the end of the WIS initiative to gain practical lessons and identify key leverage points to promote healthy retail in sport and recreation settings, and to explore how barriers and enablers to healthy policies changed over the lifespan of the WIS project. POs from seven LGAs, as well as representatives from Nutrition Australia and VicHealth (total, n = 10 participants), attended a 3-hour workshop in November 2019.

The group discussion was structured around the previously developed systems map for healthy food retail change. Based on principles of the *Most Significant Change* [10] qualitative approach,

participants self-identified their most important experiences during the WIS project in relation to the systems map, to form groups of two to four people for discussions. Participants were also invited to discuss narratives not captured by the systems map. Six small group discussions were followed by a whole group reflection on key narratives, and challenges of WIS implementation. Discussions were audio-recorded (with consent from participants) and transcribed verbatim for analysis.

10.2.3. STAKEHOLDER INTERVIEWS

Qualitative interviews with selected stakeholders involved in WIS policy development and/or implementation were used to assess perceptions of stakeholders on the value, and limitations, barriers and enablers of a capacity building approach to increasing healthy drink provision in council-owned sport and recreation facilities and affiliated sporting clubs. Fifteen stakeholders were purposively selected to provide diverse views and provide insights into the application of the WIS model, enablers and barriers in different contexts. Selected stakeholders from four LGAs were invited to participate, as well as representatives from Nutrition Australia and VicHealth. The four LGAs were selected for inclusion in order to provide variety across i) the number of sporting clubs in the LGA; ii) speed of implementation of WIS nudges; iii) extent of WIS implementation; and iv) metropolitan and regional LGAs. It was considered preferable to interview more people at a variety of levels from a smaller number of LGAs rather than to include a smaller number of people from each of the eight participating LGAs. Thirty to sixty-minute semi-structured interviews were conducted over the phone, via video call or face-to-face post implementation from December 2019 to April 2020. Key questions included the process and outcomes of implementation, key barriers and facilitators, and recommendations for future initiatives (see [Appendix 13](#) for interview questions). Interviews were audio recorded (with consent from participants) and transcribed verbatim for analysis.

10.2.4. QUALITATIVE DATA ANALYSIS AND SYNTHESIS

Results from each data source were initially analysed separately. Qualitative data from interviews and focus groups was coded using a deductive approach to identify similarities and divergences from the initial systems map. MB, DR and TBR initially created a coding dictionary using *a priori* identified factors or interest from the systems map, with openness to new factors emerging. MB coded all interviews and workshop groups using this dictionary while maintaining openness to new factors. Half of all interviews were cross coded by DR or TBR. Key themes were identified separately for focus groups and interviews, and then merged to form a coherent narrative through discussion between MB, DR and TBR. These themes were then cross-checked against PO survey results, with minor additions made. We have structured the qualitative findings under key recommendations of the report, to illustrate the participant experiences behind these recommendations. The recommendations are targeted at the convening agency (such as VicHealth), local governments, implementation support agencies (such as the Healthy Eating Advisory Service) and/or other stakeholder groups.

10.3. RESULTS

RECOMMENDATION 1: CREATE STRONG PROJECT GOVERNANCE AND STRATEGIC FUNDING MECHANISMS [CONVENING AGENCY]

“I’ve always felt in other areas working with VicHealth that they’ve been – you can pick up the phone and talk to them. But particularly in this project I guess I was surprised by the level of coordination and support that they were involved in.” [Council manager]

Respondents identified that, as the convening agency for WIS, VicHealth provided resourcing, accountability, and funding. The value of funding project officer positions is described below (see ‘Recruit, develop and resource skilled project officers’). The VicHealth interviewee reported that several factors were considered in allocating funds including council socioeconomic and health indicators; demonstrated facility and council support for participation; and council plans for sustaining the project long-term. During the project, additional council contextual factors emerged as important in predicting council achievement of VicHealth deliverables. These included previous implementation (some facilities claiming funding had already fully implemented the nudge prior to funding commencement); internal council relationships and the ability to work across council to achieve project aims; seasonality and operations of food outlets; and adequate requested full time equivalent (FTE) funding for POs to achieve project aims.

The VicHealth project manager was identified as responsible for dealing with issues around progress towards council contracted deliverables, including nudge implementation targets. One council required intensive management by VicHealth and Nutrition Australia after repeatedly missing reporting and implementation deadlines. Stakeholders attributed the issues to council management turnover and difficulties engaging council leadership in change. VicHealth and Nutrition Australia negotiated a workplan with council management and POs, and increased frequency of check-in meetings between VicHealth, Nutrition Australia and the council. These measures were ultimately unsuccessful in restarting council progress.

RECOMMENDATION 2: FACILITATE REGULAR AND STRATEGIC EXTERNAL STEERING-GROUP COLLABORATIONS [CONVENING AGENCY]

“And I think having those clearly defined roles from the beginning, even though coming in half-way, I knew quite clearly Deakin was doing the evaluation, [VicHealth Project Manager] was looking after X, Y and Z and we were there for, I guess, that project support and regularly checking in with the project officers, so definitely having that clear roles and responsibilities between all three organisations was really helpful.” [Nutrition Australia project officer]

Frequent communication between the different organisations involved in the project (VicHealth, local governments, Nutrition Australia and Deakin) was key in identifying and addressing issues early. Connections allowed pooling of expertise and resources, including media and communications resources. Steering group meetings became less frequent as the project progressed, with less involvement from senior stakeholders. This may have resulted in

less strategic planning including potential missed opportunities for broader linkages with other external stakeholders for promotion and policy, and translation.

RECOMMENDATION 3: RECRUIT, DEVELOP, AND RESOURCE APPROPRIATELY SKILLED PROJECT OFFICERS [CONVENING AGENCY, IMPLEMENTATION SUPPORT AGENCY, LOCAL GOVERNMENT]

“It was about the [amount of paid project officer time] definitely, especially our larger centres that actually takes quite a lot of work, a bit of hand holding really to change traditional practises.” [Council manager]

All stakeholders agreed that paid staff were needed to drive the implementation of the WIS initiative, with two to four days per week of paid work on this project needed for stakeholder engagement and policy progress. Several stakeholders noted that POs funded for less than two days per week seemed to struggle to meet both internal council and facility engagement tasks, for example with a minimum base-level of time was required for council policy development. The council prioritisation of the WIS project was also reflected in how much of the allocated Full Time Equivalent (FTE) POs spent carrying out WIS tasks, rather than other council tasks. POs who were enabled by council to be flexible in their allocated workdays and times were noted to be better able to respond to site needs.

While many council stakeholders noted they had thought nutrition skills would be important for POs prior to project commencement, not all POs had formal nutrition training. Most respondents did not consider it essential for the role, after witnessing PO contributions towards achieving project deliverables. This was because of the specialised nutrition support provided by Nutrition Australia. However, POs were instrumental in providing nutrition knowledge, sourcing healthy product alternatives, and developing resources and tools for facilities. These resources reduced facility personnel time and resources required for change and included fridge planograms, supermarket shopping lists, and marketing materials. Previous exposure to food retail interventions or professional hospitality experience were considered significant advantages in understanding merchandising approaches (e.g. price, placement, and promotion of food) and creating change within retail settings.

PO characteristics that were associated with delivery of the project aims included: an ability to work independently and flexibly, including in areas of project management, time management and problem-solving skills. They used evidence-based sales, auditing, and customer survey tools to monitor progress. They advocated for policy change in council to increase the likelihood changes would be maintained. Public health skills were considered an asset to understand research and outcomes and were beneficial in council policy development.

Different skills were recognised by stakeholders as being required by POs as WIS progressed, depending on stages of engagement, implementation, and maintenance. Almost all interviewees discussed the importance of communication skills including stakeholder engagement skills, particularly in the initial project period. The POs who had the most success in delivering project aims were able to work across different settings and with a variety of stakeholders from suppliers to council leadership. High-performing POs thought carefully about motivations of facilities, personnel, and management, and tailored their engagement strategies accordingly. They engaged site managers and personnel by using a variety of techniques including appealing to personal health concerns, promoting competitive advantages of change,

and by implementing contractual requirements for compliance. Most interviewees described stakeholder engagement as an innate rather than learned skill - “you definitely have to be a people person”.

RECOMMENDATION 4: PROVIDE PRACTICAL IMPLEMENTATION SUPPORT TO COUNCILS [IMPLEMENTATION SUPPORT AGENCY]

“I think that the individuals were resources in themselves...We could have all the paper and online resources we want but individuals are sometimes the best wealth of information on how to navigate those or where we need to go as well.” [Council manager]

Nutrition Australia and VicHealth stakeholders described that Nutrition Australia was contracted to provide support to local government POs at 0.6FTE for the duration of the project. Nutrition Australia advisors provided technical support in use of FoodChecker, and tailored support in advice on facility engagement and policy development. Support was provided face-to-face, or via email or phone. Initial onsite meetings with POs at intervention facilities were considered important for Nutrition Australia to understand intervention context. POs and council staff acknowledged the invaluable support that was provided by Nutrition Australia, as often other council staff lacked specific nutrition knowledge and implementation skills to assist the PO.

Peer-to-peer support, including through the Nutrition Australia -facilitated ‘community of practice’ sessions was popular among PO interviewees. Community of practice sessions were structured workshops with Nutrition Australia POs, council POs, Deakin researchers, and VicHealth representatives, and were used to provide formal training in nudge implementation, use of FoodChecker, and policy implementation, as well as a formal setting for PO updates and group problem-solving. Sessions enabled knowledge and resource sharing and provided inspiration and a feeling of solidarity for POs. Over time, as PO skills increased and the project progressed, POs became more independent with less need for intensive support from Nutrition Australia. POs also supported each other outside the scope of the community of practice through email and telephone calls, to share experiences and brainstorm ideas.

RECOMMENDATION 5: STRENGTHEN INTERNAL COUNCIL COLLABORATION AND ENGAGE COUNCIL LEADERSHIP IN HEALTH PROGRAM, AND VISION FOR AND PROCESS OF CHANGE [LOCAL GOVERNMENT]

“I guess the way we approached it was, first of all, municipal public health and wellbeing and senior buy-in to that plan, having a good support network through our executive to actually be able to implement some things that are a little bit challenging, but then also working within our existing network of the City to try and make health everyone’s business and looking at where are all our touchpoints and what are our highest return on investment options.” [Council manager]

Interviews indicated that council leadership in healthy food provision was exhibited through policy, procedures, and prioritisation of WIS. Nutrition Australia and VicHealth stakeholders noted that council leadership acceptance generally seemed to have increased over time as a result of WIS participation. Councils demonstrated high levels of support for WIS by including healthy eating or obesity in their council plans. This provided a platform to progress healthy

retail policies in sport and recreation and other settings. Participation of council executives and senior management on project steering committees was useful to progress work and encouraged POs to feel that the work was valued. PO managers could also be an important source of day-to-day oversight of POs. Interviewees identified that where a council was perceived as having a lower prioritisation of the project and high council management turnover, this resulted in inadequate project oversight and stalled progress. Further, some POs had several part time roles within council which sometimes resulted in competing time and capacity priorities.

“my perspective of council is that you have a lot of power at council to make change because you have a lot of core business that have a functional delivery in services for community that can be done in a way that are conducive to health and wellbeing for community. And that’s a huge benefit of working at council and embedding within council. But things also take a long time. There’s a number of different people you have to get on side. It’s very much a game of building awareness and understanding internally as well to make things happen.” [Council manager]

Internal council collaboration was noted to be important for success at several councils. Consultation with council sport and recreation team members contributed to policy development, created an “in” with clubs and facilities, reduced internal council resistance to change, and created a potential avenue for ongoing monitoring and support to facilities from council. Council managers emphasised the value of working laterally across council teams, rather than hierarchically within teams. At one council, openness to negotiation and discussions with other teams allowed what was initially a point of tension between the health and sustainability teams- promotion of bottled water - to become an opportunity for working towards a plan to reduce plastic use in sport and recreation facilities. One interviewee commented that relationship building within councils took much longer than anticipated, and that having more lead-in time to plan and identify potential challenges and roadblocks would offer greater chance of success.

RECOMMENDATION 6: CONSIDER CONTEXT IN THE DESIGN AND IMPLEMENTATION OF HEALTHY FOOD AND DRINK POLICIES [LOCAL GOVERNMENT AND ACCREDITING AGENCIES¹]

“knowing some internal work wasn’t received well in the past shapes how we proceed in the future. Knowing that we have certain pockets that have particular demographics as well shapes where our focus needs to be in the WIS Project as well. You know, the recreation centres – some sat in the eastern corridor, which is our more affluent areas and some sat in the mountain township area, which was one of our least affluent areas and has high rates of diabetes and obesity so understanding that we should be putting a little bit more effort towards that area as opposed to other areas that might be going along fine.” [Council manager]

Many participants described the importance of intervention site and LGA context in determining the ease of implementation and outcomes of WIS. Within both sport and recreation facilities

¹ A governing agency to oversee accreditation for example: VicHealth or Department of Health and Human services

and clubs, important contextual factors included infrastructure, organisational structures, and customer demographics. Storage facilities affected ability to store low selling items, and purchase in bulk to reduce costs and workload for sourcing products. Organisational structures supported implementation when there were fewer management levels between those making decisions about participation and site personnel implementing changes. Customer age and type of activity customers were undertaking at the site (e.g. community sport, volunteering, solo exercise, spectating) affected customer purchasing and preferences, for example whether customers were more likely to be seeking fuel for exercise or a treat. This in turn affected customer acceptability of changes (see 'Recommendation 10' for further discussion).

Food outlets run by sporting clubs, such as basketball or football clubs, were generally considered a more difficult implementation setting than permanent sport and recreation facilities. Clubs frequently had more *ad hoc* drinks stocking processes, fewer paid staff and more volunteers with limited training and time, were more likely to be operating seasonally only, and food outlet opening hours were less likely to correspond to council PO working hours. Clubs that did implement changes had a greater emphasis on the canteen as a core club function, with longer opening hours, facilitating infrastructure, and higher club committee prioritisation of healthy changes.

RECOMMENDATION 7: ENGAGE RETAIL PERSONNEL AND MANAGEMENT EARLY AND OFTEN

RECOMMENDATION 7.1: BRING EVERYONE ALONG FOR THE JOURNEY [LOCAL GOVERNMENT (PROJECT OFFICER); FACILITY MANAGEMENT]

RECOMMENDATION 7.2: ENSURE REGULAR TWO-WAY COMMUNICATION BETWEEN COUNCIL AND SITE PERSONNEL AND MANAGEMENT [LOCAL GOVERNMENT (PROJECT OFFICER)]

RECOMMENDATION 7.3: RECRUIT, TRAIN, AND REINFORCE FACILITY PERSONNEL AND VOLUNTEERS WHO SUPPORT HEALTHY CHANGES [FACILITY MANAGEMENT]

"It's the future and we need to very strongly push that forward in what we do. And just take people on the journey with you. Sometimes it's not about everyone being onboard early. Some people might take a small amount of time, or a large amount of time, but time will change, and people will see the need for it." [Facility manager]

Councils that had made previous changes, had previous established relationships with facilities, or that included new facilities designed with HCG compliance in mind often were perceived to have an easier time engaging site managers and personnel. However, previous experiences of unsuccessful changes made personnel more resistant to WIS implementation. At one council, some initial club resistance stemmed from a lack of club understanding before the project started on the level of support and what the project required them to do.

The engagement of the PO with facility personnel and management was viewed as a key first step in implementation. For clubs, decision-makers may also include the management committee. This was integral to getting decision-makers and implementors on board with healthy changes, understanding and addressing their concerns, and ensuring the longevity of changes. At the site level, manager willingness was influenced by preference for the *status quo*, anticipatory and actual profit losses, customer resistance, and personnel engagement. However, it could be increased by engagement with POs, demonstration of customer support, and successful implementation of a small 'quick win'. For example, this might include using case

studies of profitable interventions, or discussing the alignment between club community development and promoting healthy eating. Customer survey results were used by POs to demonstrate customer support to council and managers.

Some retailers used their own anecdotal data to determine if the project was effective, for example perceived changes in order volume from suppliers. Some POs fed back sales results to retailers to address concerns around loss of profit. However, during WIS, the value of sales data to facilities was often lost because feedback was not provided by the research team during the project time frame. Furthermore, many clubs did not collect accurate sales data, which made it difficult to demonstrate the impact of the project on commercial and health behaviour outcomes.

Food outlet personnel are responsible for implementation and are the direct interface with customers. Personnel engagement and understanding of project requirements was therefore considered important for engaging customers (and thereby managers), and in intervention maintenance. Personnel training required PO responsiveness and flexibility in approach. Education of site managers was sometimes sufficient to filter down to personnel, but targeted training for personnel at regular intervals to account for casual personnel and personnel turnover was important.

RECOMMENDATION 8: START BY TRIALLING A SMALL 'QUICK WIN' WHICH IS EASY TO IMPLEMENT AND UNLIKELY TO CAUSE REVENUE LOSS [LOCAL GOVERNMENT (PROJECT OFFICER)]

"Give it a go. Definitely. Do it." [Facility manager]

A staged implementation approach was universally seen as desirable. A gradual process allowed for learning from, and adapting to, challenges, and for customers and personnel to adjust to the change. At the beginning of project, starting with trialling small and easy-to-implement "quick wins", such as rearranging the fridge to put 'green' drinks at eye-level, was a non-threatening way to engage facility personnel and management. By contrast, full HCG achievement was seen by POs as too challenging a goal to be discussed in initial retailer engagement. Moreover, success in small trials could be used as case studies for engagement of other facilities.

RECOMMENDATION 9: ESTABLISH SUPPLY SIDE INITIATIVES TO SUPPORT HEALTHY FOOD RETAIL INTERNALLY AND EXTERNALLY TO FACILITIES TO IMPROVE THE SUPPLY CHAIN [LOCAL GOVERNMENT (PROJECT OFFICER); IMPLEMENTATION SUPPORT AGENCY]

"I think the support really comes from advocating with suppliers...Healthy eating is just another layer in there for them. And it's been appreciative the efforts that they're going to now, they've recognised that and recognised the financial importance of that for their brand to now be able to supply [healthy alternatives] at [our chain] venues." [Facility manager]

The ability to source appropriate healthy alternatives was universally noted as key to maintaining customer demand and profitability. Most stakeholders acknowledged that drink suppliers now have a wide range of healthy alternatives to appeal to customers and expected range to continue to increase as population demand for healthy alternatives increased. Healthy food options were still limited but increasing. Even so, PO time was important in exploring supply options and for correctly classifying items as 'red', 'amber' or 'green'. For example, while

classic soft drinks were easy to identify as being 'red' drinks, some drink types including juices and milk-based products were more challenging for facility personnel to consistently identify correctly.

The limited range of alternatives from specific contracted suppliers combined with restrictive supplier agreements, was the major supply barrier for facilities. The engagement of the supplier was one way of encouraging the supplier to source new alternatives. However, local government reported mixed success in engaging suppliers in change and this was frequently perceived as being outside the influence of local government or individual facilities. At one council, the PO worked with Nutrition Australia to deliver a "Healthy Choices Forum" to engage suppliers. This provided education to suppliers on the HCGs as well as demonstrating demand for healthier alternatives.

Challenges in accessing and maintaining a supply of healthy alternatives were especially prominent in smaller facilities and clubs due to lower purchasing power, limited storage facilities, and informal stocking practices. In one case where multiple facilities served different consumer groups, excess stock was able to be moved around to meet the needs of the customers. Where this was not possible, excess stock was regarded as a liability. Many clubs purchased stock directly from the supermarket, with different individuals responsible in different weeks. At the supermarket, while there was a large range of options, purchases were usually driven by what was on price special. One PO developed a buyers' guide for supermarket shopping, to provide a quick reference for 'green', 'amber', and 'red' classifications.

RECOMMENDATION 10: FOCUS ON THE CUSTOMER EXPERIENCE [LOCAL GOVERNMENT (PROJECT OFFICER); FACILITY MANAGEMENT]

"Something that I found is customer surveys for example are really helpful for almost debunking those myths around our customers don't want that food because then you can go well actually they told us that they do want that food, here's the evidence." [Council Project Officer]

Stakeholders agreed customer engagement was critical to profitability and personnel and manager engagement. Stakeholders reported there was generally low awareness by customers of changes, and most resistance faded to acceptance over time. In some cases, a small but vocal minority of unhappy customers reduced personnel interest and engagement in initiative. There were some instances of serious customer pushback that stalled or even reversed progress. One site reversed some healthy changes due to customers vocalising their resistance to the change.

In situations where staff were cautious of the changes and concerned about profit loss, it was usually staff driving resistance against changes, rather than the customers themselves. To alleviate these concerns, POs used customer surveys that identified that most customers were supportive of the changes.

Customer demographic characteristics were noted to affect acceptability. Mothers with young children, teenagers, and older persons were specified as being most resistant to change and were more likely to value junk food as a treat in sport. This highlighted the need to engage customers in other ways and provide a variety of food and drink options. Strategies used to increase the appeal of healthy options in store included: promotional posters; digital menus;

traffic light labelling; attractive display cabinets; reduced pricing on healthy foods and drinks; increased pricing on 'red' drinks (also increased profit); water giveaways; and healthy meal deals. POs who provided more complementary resources to promote WIS reported better engagement from management. The most successful facilities engaged customers through a variety of techniques and undertook to build a healthy brand.

RECOMMENDATION 11: RECOGNISE AND INCENTIVISE IMPLEMENTATION AND MAINTENANCE OF HEALTHY CHANGES [LOCAL GOVERNMENT AND ACCREDITING AGENCIES¹]

“Getting them to fully meet the guidelines often requires them to remove a lot of things. Because usually they’re quite heavily stocked with a lot of unhealthy food and drinks, so there comes a point where you can’t just keep introducing healthier stuff, they may need to remove some of the unhealthy stuff to help tip the balance a bit; and often they’re really hesitant to do that, because often that stuff is the best sellers. So that’s when the financial thing comes into it.” [Nutrition Australia project officer].

In contrast to starting with the quick wins to kick-start momentum for change, stakeholders noted that later changes were often more difficult. For example, they may require removing 'red' best-sellers. This could result in manager and personnel “project fatigue” and reluctance to continue with implementation. Retailer engagement techniques (see 'Recommendation 7') and strategies to engage customers (see 'Recommendation 10') could help to offset potential profit losses of these more difficult changes. However, the additional support required even more time and resourcing from the PO. Some stakeholders commented that once the PO role ended, this would remove the reinforcement for these more difficult changes, reducing maintenance. Some councils considered opportunities for financial incentives to adopt and maintain healthy changes via leasing agreements, and other forms of recognition and reward for compliant facilities. It was unclear if these had been effective at increasing adoption and maintenance to date. While marketing material is available from the Healthy Eating Advisory service to promote compliant facilities, several stakeholders flagged the importance of recognising progress towards the HCGs, even if full implementation had not been reached.

RECOMMENDATION 12.1: CREATE COUNCIL STRUCTURES FOR ONGOING SUPPORT AND MAINTENANCE OF HEALTHY FOOD POLICIES [LOCAL GOVERNMENT]

RECOMMENDATION 12.2: ESTABLISH ONGOING COUNCIL REPORTING AND MONITORING SYSTEMS TO MAINTAIN SITE AND COUNCIL ACCOUNTABILITY [LOCAL GOVERNMENT]

“One thing is having to change, the other thing is sustaining it, and then getting through the road, potholes and the bumps that come along the way as well. It is a journey, it’s not just a marker in time and then everyone moves on.” [Facility manager]

Participants were generally optimistic that the changes to date would be maintained. However, they identified that further changes to the healthiness of the food and drink environments within participating facilities or expansion to other settings were unlikely once the PO had finished. Considerable time and support were needed to embed practices. While certain resources and tools such as fridge planograms and council policies would encourage adherence,

¹ A governing agency to oversee accreditation for example: VicHealth or Department of Health and Human Services

a person or contact was considered necessary. There were further concerns about the loss of knowledge with facility personnel turnover and the need to regularly train new site personnel. Several respondents suggested ongoing site monitoring could increase site accountability and therefore the likelihood of nudge maintenance. However, POs made note of the large amount of time required to collect monitoring data for the WIS initiative evaluations. This included communicating with personnel at the facility to set up at time to complete the environmental and fridge audit and conducting the audit itself. In the absence of a PO, councils were considering using other departments already engaged with facilities for monitoring. The importance of continued organisational resourcing for maintenance was acknowledged by stakeholders at all levels, but no clear source of such funding was identified.

RECOMMENDATION 12.3: DEVELOP AND REGULARLY REVISE HEALTHY FOOD AND DRINKS POLICY AND IMPLEMENTATION PLANS FOR COUNCILS AND INTERVENTION FACILITIES [LOCAL GOVERNMENT]

“How do we actually get in there, and what are our advantages and how do we play to our advantage?” [Council project officer]

Program planning was often reported to have been given insufficient attention at the beginning of WIS. An acknowledgement that healthy retail changes take at least two years to embed necessitated long-term strategic planning and a staged approach. Participants reflected on the need for broader strategic planning about where WIS fits in to the overall council obesity and wellbeing strategies. There was also inconsistent consideration of current barriers, and opportunities for change within council, which may have been exacerbated by the highly focused nature of WIS funding and deliverables.

One council WIS used a strategic staged approach beginning with integration of healthy eating priorities into the Municipal Plan, or Health and Wellbeing Plan prior to WIS. The plan acknowledged the resources available for the project, with a planned phased facility engagement process, to allow tailoring to individual facilities, and for learnings to be integrated over time. This approach facilitated ongoing revision of the workplan in reference to the broader goal of promoting healthy eating across council areas of influence.

11. Discussion

Sport and recreation and club facilities are increasingly recognised as key players in promoting health, however the food and drinks provided are often misaligned with their healthy lifestyle messages. The evaluation of the WIS initiative demonstrates that this capacity building approach can support healthy retail change in sport and recreation facilities. The combination of the appointment of a PO and funding of Nutrition Australia appeared to support the implementation of the nudges. A number of stakeholders identified that the PO acted as the ‘champion’ of the program, and that providing these ‘champions’ with practical support from Nutrition Australia filled critical knowledge gaps.

Overall, 45 nudges were implemented in 39 facilities or clubs with at least one nudge implemented in each LGA. The WIS initiative had a subsequent effect on the availability of drinks, with a 28% reduction in ‘red’ drinks (baseline: 39%; 18-months: 11%) and an 20% increase in ‘green’ drinks (baseline: 43%; 18-months: 63%) available at the WIS sport and recreation facilities. While the proportion of ‘red’ drinks decreased, the food environment audits demonstrated that a high proportion of foods available continued to be classified as ‘red’ at every timepoint. Making changes to the food available at the facilities was outside the original scope of the WIS project and therefore only a small decrease in ‘red’ item availability (-5%) was observed. Following the implementation of the WIS initiative, in *seasonal facilities*, the mean percentage volume of ‘red’ drinks sold each week was reduced by 22.5 percentage points. In *non-seasonal facilities* there was considerable variation and therefore there was no significant overall change. However, there was a decrease in ‘red’ drinks sold in six of ten analysed *non-seasonal facilities*.

There is limited literature on the current food and drink landscape in sport and recreation facilities in Australia or elsewhere, however one Australian study examined the food and drinks purchased by customers at these facilities, finding a high proportion classified as unhealthy [11]. A similar initiative to the WIS initiative, whereby sport and recreation facilities (n = 21) in Canada were provided with training support and resources to improve their food and drink retail environment demonstrated a 10% decrease in availability of unhealthy vending products and a 4% increase in availability of healthy vending products [12]. Facilities which received support and training demonstrated greater improvement, highlighting the importance of support in making healthy changes [12].

Following the implementation of the WIS initiatives, sales volume of ‘red’ drinks decreased in *seasonal facilities* and in six of the ten analysed *non-seasonal facilities*. Similarly, a recent study exploring the impact of a sugary drink reduction intervention, whereby facilities reduced the availability of sugary drinks over a one-year period. This intervention, in 16 Victorian sport and recreation facilities, reported that volume sales of ‘red’ drinks decreased by 46.2% one year after implementation [13]. Other studies have demonstrated similar reductions in the sales of targeted unhealthy food and drinks in sport and recreation facilities when availability is reduced [14, 15]. In the WIS initiative, sales of the volume of ‘green’ drinks increased in four *non-seasonal facilities*. A no ‘red’ healthy eating trial conducted in another Victorian sporting facility also demonstrated that the changes in availability of ‘red’ drinks had positive effect on purchasing behaviour, with sales of ‘red’ items decreasing by around 60% and an increase in ‘green’ and ‘amber’ drinks sold [16]. The relatively smaller change in sales of ‘red’ drinks in WIS facilities may be because the priority to promote healthy drink purchasing was already high prior to the

implementation of the WIS project, demonstrated by applying for WIS funding. As part of the council application to receive funding, council needed to provide letters of support from the participating facilities. Therefore, these facilities may have already undergone small healthy changes meaning that further decrease was unlikely as evidence in the sales data.

Surveys conducted at facilities involved in the WIS initiative demonstrated that three-quarters of customers and staff believed that sport and recreation facilities should promote healthy eating. Customer support to healthy change has been demonstrated in similar settings both within Australia [17, 18] and internationally [19]. The changes to drinks availability and displays implemented in the WIS program were selected as nudges based on evidence indicating that eating is largely an automatic behaviour dictated by environmental cues and therefore the availability and display of food can have a large impact on choice [20]. Indicative of this, there was low customer awareness of the change before and after the intervention, however there was a small increase in awareness at follow-up. Similar results of high customer support and low awareness have been seen in another Victorian nudge trial in three sport and recreation facilities discounting the price of healthy options and increasing the price of unhealthy option and discounted healthy bundles [21]. In the WIS initiative, both customers and staff had little confidence that removing sugary drinks would reduce consumption of these items. Coupling availability-based interventions such as the removal of unhealthy drinks with other strategies such as pricing or promotion may increase its effectiveness [21-23].

The LGA food policy and action surveys conducted in 26 LGAs in 2018 and 2020 demonstrated that LGA priorities related to obesity and healthy eating were higher in WIS councils than in non-WIS councils at baseline (including reducing the availability of sugary drinks in sport and recreation facilities). While these priorities did not change at follow-up for WIS councils, non-WIS council priorities for obesity and healthy eating increased from baseline to follow-up. The increase in prioritisation in non-WIS LGAs is reflective of the large amount of work currently occurring to improve the food and drink environment in sport and recreation facilities in Victoria. The lack of change in WIS councils is likely due to these councils already having high prioritisation of obesity and healthy eating, indicated by their application to be a part of the WIS initiative. Barriers and enablers to implementing healthy retail changes were similar between WIS and the non-WIS LGAs, at both baseline and follow-up. A range of barriers and enablers were identified as important by LGA respondents at both timepoints. Both WIS and non-WIS councils reported support from key stakeholders (e.g. LGA members, leadership teams) to be the most important enabler of implementing healthy changes, and lack of key support to be the most important barrier. LGA respondents identified financial viability of a healthy retail change as a barrier and enabler at follow-up (this barrier was not available for selection at baseline). Interviews with WIS stakeholders also revealed that fear around loss of profit was a key concern when implementing healthy changes. These findings align with results of qualitative interviews with Victorian [21] and Canadian [24] sport and recreation managers which identified staff, management and customer support as facilitators [21, 24], and fear of sacrificing short term profitability as a barrier to implementation [24], and reflected the broader literature concerning retailer barriers to implementing healthy changes.

WIS stakeholders reported that they benefited from practical implementation support provided by Nutrition Australia and fellow POs, a finding reflected in a systematic review which identified financial and human resources as facilitators to healthy food retail implementation [25]. WIS stakeholders noted the importance of acknowledging retailers for their success in creating

healthier food environments, through central accreditation schemes, such as the Victorian Achievement Program [26]. The Achievement Program is a Victorian Government initiative in partnership with Cancer Council Victoria that supports Victorian workplaces, schools, and early childhood services to create healthy environments. Organisations can register for this free program and can receive recognition once they meet specific standards such as encouraging healthy eating. Limited research exists evaluating the effect of such programs, however one study evaluating a similar accreditation scheme present in Hong Kong schools, demonstrated the effectiveness of this program [27]. The study concluded that schools achieving accreditation had a larger reduction of childhood obesity compared to those without accreditation [27]. An accreditation scheme could be established to support sport and recreation facilities to improve their food and drink environment and could include meeting standards such as offering free water and displaying and promoting healthy drinks.

WIS stakeholders identified that lack of staff availability and high staff/volunteer turnover as a key barrier to implementing the WIS initiative. This was often seen in smaller facilities or club facilities. For example, high facility staff turnover made it challenging to provide training to classify drinks according to the HCGs to ensure appropriate drinks were purchased for facilities. It is therefore important to consider organisational structure and build capacity within an organisation so that initiative sustainability is not dependent on one single person [28, 29].

Conclusion

The evaluation of the WIS initiative demonstrated that the availability reductions of unhealthy drinks was feasible, created healthier drink environments, and resulted in reduced purchases of targeted drinks by sport and recreation patrons. Qualitative enquiry revealed the perceived importance of the support of the PO for implementation. Further implementation and the ongoing sustainability of the WIS initiative are likely to require financial support for human resourcing from councils or external organisations given the key role of PO throughout the project.

12. Recommendations

Based on the evaluation of the WIS initiative, including reflections from key stakeholders in the qualitative evaluation, along with key learnings from the research team, and the broader literature, several recommendations and suggested implementation strategies are outlined to facilitate and promote the implementation of nudges to create healthier food and drink environments in community retail settings ([Table 19](#)). The recommendations are targeted at the convening agency (such as VicHealth), local governments, implementation support agencies (such as the Healthy Eating Advisory Service) and/or other stakeholder groups. The greatest population impact will be supported by different stakeholders taking action to promote healthy food retail within their own spheres of influences.

Table 19: Recommendations and suggested implementation strategies

Recommendation	Target stakeholder	Suggested implementation strategies
R1 Create strong project governance and strategic funding mechanisms	Convening agency	<p>S1.1 Maximise funding effectiveness by providing (a) some flexibility for fund use, with the majority earmarked for salary support; (b) flexibility for implementation targets, to allow interventions to be tailored to opportunities; (c) sufficient FTE per council (2 to 4 days per week depending on number of engaged facilities for at least 2 years); and (d) longer-term maintenance funding once changes have been made (e.g. 1 to 2 days per week).</p> <p>S1.2 Work with councils to source alternative sources of funding to increase independence and sustainability.</p> <p>S1.3 Assess council suitability for participating, and support council needs by considering: (a) internal council environment and management support; (b) existing council connections with facilities; (c) outlet seasonality; (d) appropriateness of council planning to resource project, including planned project officer full time equivalent (FTE) allocation; and (e) suitability of proposed project officer for appointment (see Recommendation 3).</p> <p>S1.4 Manage councils that are not achieving project deliverables by (a) ensuring each council has a work plan; (b) monitoring progress against the work plan; and (c) creating performance management plan for councils not meeting planned progress, including engaging council managers and identifying any additional implementation support needed, e.g. further advice on policy development.</p>
R2 Facilitate regular and strategic external steering-group collaborations	Convening agency	<p>S2.1 Hold regular meetings for senior team members from each partner organisation to improve strategic oversight and identification of new opportunities and linkages.</p> <p>S2.2 Leverage other resources and connections regionally, state-wide, and nationally to complement and maintain project, e.g. identify practitioner networks to disseminate findings to, or use marketing collateral developed by other organisations.</p> <p>S2.3 Commence media and communications planning early, consider key outcomes, channels, timing, and resources.</p>

Recommendation	Target stakeholder	Suggested implementation strategies
R3 Recruit, develop, and resource appropriately skilled project officers	Convening agency, implementation support agency, local government	<p>S3.1 Prioritise the following skills in project officer recruitment: (a) stakeholder engagement; (b) project management; (c) retail experience in hospitality or health promotion; and (d) health promotion or public health skills.</p> <p>S3.2 Support project officers with targeted training in (a) retailer engagement; (b) policy development; (c) systems thinking and strategic planning; and (d) basic evaluation skills.</p> <p>S3.3 Allocate a minimum 2 to 4 days per week FTE for project officers depending on number of engaged facilities. Ensure flexibility in use of project officer time and support within council to preserve and leverage allocated project days.</p>
R4 Provide practical implementation support to councils	Implementation support agency	<p>S4.1 Provide implementation expertise to support council project officers including in product classification, stakeholder engagement, and policy development.</p> <p>S4.2 Create opportunities for peer-to-peer support via a virtual and/or physical community of practice.</p>
R5 Strengthen internal council collaboration and engage council leadership in health program, and vision for and process of change	Local government	<p>S5.1 Be progressive and start now. Food policies take a long time to be implement and embed.</p> <p>S5.2 Engage council senior leadership and executive by (a) including healthy eating and obesity in council plan or health and wellbeing plan; (b) involve leadership team members in council steering committees; (c) provide progress updates on implementation and project outcomes to council leadership; and (d) work with broader council network on related projects.</p> <p>S5.3 Include project officer supervisors in external and internal WIS meetings on a regular basis, to allow supervisor engagement both in day-to-day tasks and strategic planning and assessment.</p> <p>S5.4 Work towards healthy food policy alignment across all settings of council influence to maximise reach and exposure including (a) internal catering; (b) events; (c) council owned and operated facilities; and (d) council-supported sporting and community clubs.</p> <p>S5.5 Integrate healthy food policy into existing procedures and documentation, such as facility tenancy manuals.</p> <p>S5.6 Convene council steering groups at formation of food policy project across portfolios likely to be affected, including sport and recreation, health, and sustainability. Ideally, the steering group should include senior council leadership.</p> <p>S5.7 Encourage open communication across council departments, for example through considering council seating arrangements to group staff by setting focus rather than discipline.</p>

Recommendation	Target stakeholder	Suggested implementation strategies
R6 Consider context in the design and implementation of healthy food and drink policies	Local government and accrediting agencies ¹	<p>S6.1 Assess facility physical and resource capacity for change, along with reasons for current operations, to inform site engagement and intervention plans.</p> <p>S6.2 Consider a tiered policy approach to allow for different implementation expectations depending on site capacity and level of council influence, e.g. facilities without the ability to prepare food or drinks on site have lower ‘green’ availability targets.</p> <p>S6.3 Create a health enabling context by developing accountability mechanisms, e.g. incorporate healthy requirements into facility lease agreements and contracts.</p>
R7 Engage retail personnel and management early and often		See strategies for R7.1 to 7.3 below
<i>R7.1 Bring everyone along for the journey</i>	Local government (Project officer); Facility management	<p>S7.1.1 Identify who the decision-makers and implementors are at target facilities and build relationships early on.</p> <p>S7.1.2 Be inclusive and responsive to different facility personnel and manager perspectives, concerns, and motivations and tailor engagement accordingly. Try using case studies or customer surveys to demonstrate customer support for change to retailers.</p> <p>S7.1.3 Identify where previous healthy interventions have been difficult, as these facilities may require more intensive personnel and manager engagement.</p> <p>S7.1.4 Encourage and enable staff from different facilities to support each other make changes and motivate one another to understand need for change (e.g. via site visits to ‘successful facilities’).</p> <p>S7.1.5 Identify a low-risk and low-intensity intervention to trial first (see Recommendation 8).</p>

¹ A governing agency to oversee accreditation for example: VicHealth or Department of Health and Human services

Recommendation	Target stakeholder	Suggested implementation strategies
<i>R7.2 Ensure regular two-way communication between council and site personnel and management</i>	Local government (Project officer)	S7.2.1 Check in regularly with face-to-face meetings with managers and food outlet personnel. S7.2.2 Communicate changes in healthiness of sales and financial outcomes to managers regularly.
<i>R7.3 Recruit, train, and reinforce facility personnel and volunteers who support healthy changes</i>	Facility management	S7.3.1 Incorporate health and wellbeing values into facility personnel and volunteer recruitment and performance assessment, as appropriate for role, e.g. include values in job descriptions. S7.3.2 Work with site managers to schedule volunteer or personnel orientation training and training updates in healthy food provision. Tailor education content and format (e.g. online, face-to-face, group training), to site needs and capacity.
R8 Start by trialling a small 'quick win' which is easy to implement and unlikely to cause revenue loss	Local government (Project officer)	S8.1 Rearrange the fridge to put 'green' drinks at eye-level.

Recommendation	Target stakeholder	Suggested implementation strategies
R9 Establish supply side initiatives to support healthy food retail internally and externally to facilities to improve the supply chain	Local government (Project officer); Implementation support agency	<p>S9.1 Engage and negotiate with existing suppliers to offer a range of healthy alternatives in line with the Healthy Choices guidelines.</p> <p>S9.2 If existing suppliers are unable to provide appropriate or cost-effective healthy alternatives, source new suppliers, and embed these in the regular supply chain.</p> <p>S9.3 Consider establishing cooperative buyers' groups with other retailers to reduce the wholesale costs of healthier food and drink orders.</p> <p>S9.4 Encourage suppliers to contact Nutrition Australia for support in classifying product portfolio according to <i>Healthy Choices</i> guidelines. This may increase the accuracy of supplier-provided classifications to retailers, raise awareness among suppliers about current portfolio healthiness, and allow suppliers to specifically market healthier alternatives to retailers.</p> <p>S9.5 Develop a quick reference supermarket shopping guide for retailers to identify 'red', 'amber', and 'green' food and drink products quickly and accurately.</p>
R10 Focus on the customer experience	Local government (Project officer); Facility management	<p>S10.1 Work with retailers to understand their customer demographics and design targeted strategies to appeal to customers such as promotional posters, water giveaways or free tastings.</p> <p>S10.2 Work with retailers to build a healthy brand and increase the appeal of healthy options available by using a variety of techniques. Consider using digital menus; traffic light labelling; attractive display cabinets; reduced pricing on healthy foods and drinks; increased pricing on 'red' drinks (also increased profit); and healthy meal deals.</p> <p>S10.3 Conduct customer surveys to gauge customer support for changes.</p>
R11 Recognise and incentivise implementation and maintenance of healthy changes	Local government and accrediting agencies ¹	<p>S11.1 Provide financial incentives for adoption and maintenance of healthier food provision, such as (a) fee exemptions for healthy food businesses; and/or (b) funding grant (c) reduced site rent as reward for adherence.</p> <p>S11.2 Recognise facility achievement and progress towards healthier food provision using (a) centre awards; (b) formal thanks from partners; (c) healthy signage/ healthy business recognition; (d) internal council communication; (e) external communication such as on council websites; and/or (f) a stepped achievement recognition.</p>

¹ A governing agency to oversee accreditation for example: VicHealth or Department of Health and Human services

Recommendation	Target stakeholder	Suggested implementation strategies
R12.1 Create council structures for ongoing support and maintenance of healthy food policies	Local government	<p>S12.1.1 Identify a contact for ongoing practical support for facilities via Nutrition Australia or council.</p> <p>S12.1.2 Create facility-based maintenance processes and tools, for example healthy food and drink ordering guides and individual planograms per fridge.</p> <p>S12.1.3 Plan new food outlets to facilitate <i>Healthy Choices</i> compliance and considering the customer experience. For example, do not install deep fryers; ensure sufficient food preparation and cold display space for fresh foods; and consider digital menus to allow promotion of healthy alternatives.</p>
<i>R12.2 Establish ongoing council reporting and monitoring systems to maintain site and council accountability</i>	Local government	<p>S12.2.1 Integrate healthy food provision compliance checks with routine site monitoring, e.g. food safety or facility checks.</p> <p>S12.2.2 Report regularly (e.g. bi-annually) to facilities and council leadership on site sales and food environment performance against key outcomes, such as <i>Healthy Choices</i> targets, and outcomes relevant to other stakeholders including profit.</p> <p>S12.2.3 Digitise sales and wastage data. Create finely graded categories of products to allow distinction between different varieties. This allows for iterative adaptation of intervention to maximise profit and health behaviour outcomes including detection and removal or adaption of unprofitable items, and classification of products into ‘red’, ‘amber’ and ‘green’ categories for health behaviour outcome monitoring.</p>
<i>R12.3 Develop and regularly revise healthy food and drinks policy and implementation plans for councils and facilities</i>	Local government	<p>S12.3.1 Identify current activities, relationships and barriers and enablers to healthy changes, including complementary council and regional programs.</p> <p>S12.3.2 Engage a variety of stakeholders and council leadership in developing a council strategic plan for a phased approach. This should include integration into the municipal plan, developing internal council policies and procedures, engagement of councillors, planning laws, developing relationships with retailers, and sustainability planning.</p> <p>S12.3.3 Develop a facility workplan informed by the council strategic plan in partnership with retail personnel. This should include a staged approach with interim targets and start with an easy change like rearranging the drinks fridge to place ‘green’ drinks at eye-level.</p> <p>S12.3.4 Revisit council and facility plans periodically. Compare progress against targets and council strategic plan, and scan for new opportunities.</p>

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13.2. PARTICIPANTS

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Appendix 1: Food and drink environment audit

Date of Audit:

Audit conducted by:

Time of audit:

Name of facility:

Instructions:

- Complete Table 1 by ticking which foods/snacks/drinks are currently available in the retail outlet **on the day of the audit (please conduct the audit during outlet opening hours)**.
 - For certain foods/snacks, please specify if they are made on site or pre-made from a supplier.
 - Please note the drinks section is only for **drinks made on site**, assessments of drinks fridges will be completed through FoodChecker.
- Complete Table 2 by answering yes/no to the various standards.
 - Add any comments where necessary.
 - If unsure of food classification please answer specifically for **drinks only** and make a note in the comments

Table 1. Food and drink checklist

Food/ Snacks	Drinks made on site
<input type="checkbox"/> Sandwiches/rolls/wraps <ul style="list-style-type: none"> ○ Made on site <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Pre-made from supplier <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Salads <ul style="list-style-type: none"> ○ Made on site <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Pre-made from supplier <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Fresh fruit <input type="checkbox"/> Number of varieties _____ <input type="checkbox"/> Sausage rolls, pies, pasties <ul style="list-style-type: none"> ○ Number of varieties _____ <input type="checkbox"/> Hot chips <input type="checkbox"/> Other deep-fried foods <input type="checkbox"/> Specify: __ <input type="checkbox"/> Made on site <ul style="list-style-type: none"> ○ Number of varieties _____ Pre-made from supplier <ul style="list-style-type: none"> ○ Number of varieties _____ <input type="checkbox"/> Hot meals <ul style="list-style-type: none"> ○ Made on site <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Pre-made from supplier <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Sushi <ul style="list-style-type: none"> ○ Made on site 	<input type="checkbox"/> Tea, coffee, hot chocolate <input type="checkbox"/> Iced coffee/chocolate <input type="checkbox"/> Milkshakes/smoothies <input type="checkbox"/> Fresh juices <input type="checkbox"/> Slushies <input type="checkbox"/> Other _____ Other __

Food/ Snacks	Drinks made on site
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Pre-made from supplier <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Lollies <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Chocolate bars <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Cakes, biscuits, muffins, slices <ul style="list-style-type: none"> ○ Made on site <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Pre-made from supplier <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Chips (packet) <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Popcorn <ul style="list-style-type: none"> ○ Flavoured <ul style="list-style-type: none"> ▪ Number of varieties _____ ○ Plain <ul style="list-style-type: none"> ▪ Number of varieties _____ <input type="checkbox"/> Ice creams or icy poles <ul style="list-style-type: none"> ▪ Number of varieties _____ 	

Please define GREEN and RED items as the following:

The GREEN category – best choices.

These foods and drinks are the healthiest choices. These include:

- grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties
- vegetables and legumes/beans
- fruit
- milk, yoghurt, cheese and/or their alternatives, mostly reduced-fat
- Lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans.
- Water

The RED category – limit.

These foods and drinks should be consumed rarely and in small amounts. These include:

- Foods high in energy (kilojoules)
- Foods high in saturated fat (butter, oil, coconut oil) , added sugar and/or salt
- Sugar sweetened drinks
- Flavoured milk
- Deep fried foods
- Confectionary
- Alcohol

Table 2. Other Healthy Choices food and drink standards for sport and recreation facilities

Standard	Met? (Yes/ No)	Comments
Food and drink advertising, promotion and display		
GREEN foods and drinks are actively advertised and promoted and prominently displayed		
RED foods and drinks are not advertised or promoted or displayed in prominent areas		
The organisation’s logo is not used alongside RED foods and drinks		
Prepacked RED foods and drinks are ONLY provided in the smallest size available (e.g 150ml for a can of sugary drink)		
Water		
Clean and safe tap water is always available free of charge (for example, from water bubblers and/or retail food outlets) in high traffic public areas and staff rooms.		
Infrastructure to support healthy foods and drinks		
Food and drink retail outlets have space to prepare, store and display healthy items (for example, preparation benches, refrigeration space, and display cabinets). If yes, please state which is present		
Facilities are available for staff to prepare and store healthy foods and drinks (for example, staff fridge and freezer, preparation space, microwave, sandwich maker). If yes, please state tools available.		

Standard	Met? (Yes/ No)	Comments
Food and drink advertising, promotion and display		
GREEN foods and drinks are actively advertised and promoted and prominently displayed		
RED foods and drinks are not advertised or promoted or displayed in prominent areas		
The organisation's logo is not used alongside RED foods and drinks		
Prepacked RED foods and drinks are ONLY provided in the smallest size available (e.g 150ml for a can of sugary drink)		
Water		
Clean and safe tap water is always available free of charge (for example, from water bubblers and/or retail food outlets) in high traffic public areas and staff rooms.		
Infrastructure to support healthy foods and drinks		
Food and drink retail outlets have space to prepare, store and display healthy items (for example, preparation benches, refrigeration space, and display cabinets). If yes, please state which is present		
Presence of a deep fryer that is used routinely for food preparation		
<u>If you are unaware of the following, say I Do NOT know</u>		
Fundraising activities, prizes and giveaways		
Fundraising that promotes unhealthy foods and drinks is discouraged, and healthier options or fundraising opportunities not related to foods and drinks are supported.		
No RED foods and drinks are supplied as awards, giveaways, gifts and vouchers for children and youth.		
Sponsorship and marketing		
The organisation does not engage in sponsorship, marketing, branding or advertising to children and youth of foods and drinks inconsistent with Healthy Choices.		

Appendix 2: Drink fridge audit results at project completion, by LGA

Appendix 2, Table S1 demonstrates the most recent (February 2020) healthiness of drinks available at the facilities involved in the initiative. These results are based on audits completed by the project officers, making use of the Healthy Eating Advisory Service's FoodChecker tool (administered by Nutrition Australia Victoria division) [4].

Table S1: Mean¹ baseline, 6-month, 12-month, 18-month drink availability and if Healthy Choices guidelines were met, per local government area

Local government area	Sport and recreation/club facility	Fridge	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall change baseline to 18-month			HCG met
			(%)															
			'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
East Gippsland	Bairnsdale Aquatic and Recreation Centre	Fridge 1	64	20	16	77	10	13	-	-	-	-	-	-	-	-	-	✓ ¹
	Bairnsdale Outdoor Pool	Fridge 1	86	14	0	79	21	0	82	18	0	85	15	0	-1	1	0	✓ ¹
	Lakes Entrance Aquadome	Fridge 1	48	16	36	72	19	9	77	16	7	73	20	7	+25	+4	-29	✓
	Orbost Outdoor Pool	Fridge 1	83	13	4	71	19	10	81	14	5	82	14	5	-1	+1	+1	✓ ¹
Frankston ³	Frankston District Netball Association	Inside canteen Fridge 1	48	10	41	69	19	12	71	29	0	71	29	0	+23	+19	-41	✓
	Carrum Downs Recreation Reserve	Southern United Football club	33	10	57	25	7	68	72	0	28	-	-	-	+39	-10	-29	No
		Fridge 1	0	24	76	50	31	19	56	37	7	66	30	5	+66	+6	-71	✓
		Fridge 2	15	32	54	40	47	14	50	32	18	50	34	16	+35	+2	-38	✓

Local government area	Sport and recreation/club facility	Fridge	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall change baseline to 18-month			HCG met
			(%)															
			'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
	Peninsula Aquatic Recreation Centre ⁵	Fridge 3	21	23	56	51	30	20	54	29	17	55	28	17	+34	+5	-39	✓
		Fridge 4	31	15	54	51	30	20	59	37	4	57	39	4	+26	+24	-50	✓
		Fridge 5	-	-	-	15	56	29	82	18	0	84	12	4	+69	-44	-25	✓
		Mean per facility	17	24	60	41	39	20	60	31	9	62	29	9	+21	-10	-11	✓
	Pines Forest Aquatic Centre	Fridge 1	21	21	59	50	31	19	49	24	27	42	29	29	+21	+8	-30	✓
	Ballam Park Multi Sports Precinct	Frankston Little Athletics Centre Fridge 1	35	49	16	50	34	16	70	12	18	57	20	24	+22	-29	+8	✓
		Long Island Cricket Club	7	13	80	18	14	68	8	33	58	27	23	50	+20	+10	-30	x ²
		Peninsula Strikers Fridge 1	6	12	81	39	17	44	35	16	49	-	-	-	+29	+4	-32	x
	Overport Park (Baden Powell Cricket Club)	Fridge 1	55	3	42	53	47	0	100	0	0	75	0	25	+20	-3	-17	✓
	Greater Bendigo	Bendigo Stadium	Fridge 1	64	18	18	66	0	34	67	16	17	61	20	19	-3	-2	+1
Fridge 2			69	13	18	67	13	20	75	8	17	67	13	20	-2	0	+2	✓ ¹
Fridge 3			60	20	20	40	38	21	61	19	20	59	21	20	-1	+1	0	✓ ¹
Mean per facility			64	17	19	58	17	25	68	14	18	62	18	-2	+1	+1	-2	✓ ¹
Bendigo East Swimming Pool		Fridge 1	21	31	48	50	33	17	75	0	25	50	33	18	+29	+2	-30	✓
Bendigo Tennis Association		Fridge 1	53	34	13	62	17	21	54	27	19	52	35	13	-1	+1	0	✓ ¹
Brennan Park Swimming Pool		Fridge 1	90	10	0	78	22	0	42	58	0	63	38	0	-27	+28	0	✓

Local government area	Sport and recreation/club facility	Fridge	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall change baseline to 18-month			HCG met
			(%)															
			'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
	Faith Leech Aquatic Centre	Fridge 1	43	53	4	85	15	0	79	21	0	-	-	-	+36	-32	-4	✓
	Peter Krenz Leisure Centre ⁵	Fridge 1	49	7	43	70	10	20	73	23	4	76	20	4	+27	+13	-39	✓
		Fridge 2	9	55	36	100	0	0	100	0	0	100	0	0	+91	-55	-36	✓
		Mean per facility	29	31	40	85	5	10	87	12	2	88	10	2	+59	-21	-38	✓
	Gurri Wanyarra Wellbeing Centre	Fridge 1	80	20	0	72	28	0	71	29	0	74	26	0	-6	+6	0	✓ ¹
		Fridge 2	0	100	0	31	69	0	100	0	0	69	31	0	+69	-69	0	✓
		Fridge 3	-	-	-	33	67	0	75	25	0	44	56	0	+11	-11	0	×
		Mean per facility	40	60	0	45	55	0	82	18	0	62	38	0	+17	-17	0	✓
	Heathcote Aquatic Centre	Fridge 1	100	0	0	100	0	0	100	0	0	50	50	0	-50	+50	0	✓ ¹
	La Trobe University Bendigo Athletics Complex	Fridge 1	27	41	32	21	22	57	59	21	20	54	20	26	+27	-21	-6	×
Marong Swimming Pool	Fridge 1	100	0	0	100	0	0	100	0	0	80	20	0	-20	+20	0	✓ ¹	
Greater Geelong	Balyang Golf Course ⁵	Fridge 1	33	31	37	48	0	52	49	12	40	53	20	27	+20	-11	-10	×
	Barwon Valley Activity Centre	Fridge 1	27	0	74	50	38	13	59	24	17	50	38	13	+23	+38	-61	✓
	The Carousel	Fridge 1	65	10	25	61	19	21	100	0	0	65	13	23	0	+3	-2	×
	Leisuretime Sports Precinct	Fridge 1	48	23	30	34	51	14	47	36	17	60	27	14	+12	+4	-16	✓
		Fridge 2	42	25	33	N/A	N/A	N/A	78	0	22	23	69	8	-19	+44	-25	×
	Mean per facility	45	24	32	34	51	14	63	18	20	42	48	11	-4	24	-21	×	

Local government area	Sport and recreation/club facility	Fridge	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall change baseline to 18-month			HCG met
			(%)															
			'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
	Splashdown ⁶	Fridge 1	-	-	-	-	-	-	60	20	20	67	10	23	+7	-10	+3	×
	The Arena ⁵	Fridge 1	46	48	7	47	44	9	48	52	0	41	59	0	-5	+11	-7	×
	Lara Aquatic Centre	Fridge 1	43	57	0	36	64	0	52	48	0	80	21	0	+37	-36	0	×
		Fridge 2	100	0	0	100	0	0	77	23	0	52	48	0	-48	48	-	✓ ¹
		Mean per facility	72	29	0	68	32	0	65	36	0	66	35	0	-6	6	0	✓
Greater Shepparton	Aquamoves ⁵	Fridge 1	22	15	63	41	30	29	55	25	21	42	23	32	+20	+8	-31	×
	Kids Town ⁵	Fridge 1	14	25	62	59	29	12	54	35	11	67	25	8	+53	0	-54	✓
	Shepparton Sports Stadium	Fridge 1	37	15	48	60	11	29	56	12	31	63	37	0	+26	+22	-48	✓
	Merrigum Outdoor Pool	Fridge 1	51	26	23	54	17	29	43	26	31	50	50	0	-1	+24	-23	✓
	Mooroopna Outdoor Pool	Fridge 1	45	36	18	52	33	14	48	24	28	58	42	0	+13	+6	-18	✓
	Tatura Outdoor Pool	Fridge 1	62	21	17	64	12	24	56	13	31	74	26	0	+12	+5	-17	✓
Melton	Caroline Springs Leisure Centre	Fridge 1	35	41	25	51	20	29	58	36	6	46	39	15	+11	-2	-10	×
	Melton Waves ⁵	Fridge 1	31	10	59	59	12	29	59	23	17	48	34	17	+17	+24	-42	×
		Fridge 2	75	0	25	100	0	0	100	0	0	100	0	0	+25	0	-25	✓
		Mean per facility	53	5	42	80	6	15	80	12	9	74	17	9	+21	+12	-34	✓
Melton Indoor Recreation Centre	Fridge 1	28	24	48	38	16	46	40	12	49	-	-	-	+12	-12	1	×	
Northern Grampians ⁴	Stawell Sport and Aquatic Centre	Fridge 1	22	3	75	66	9	25	74	11	14	-	-	-	+52	+8	-61	✓

Local government area	Sport and recreation/club facility	Fridge	Baseline			6-month post-baseline			12-month post-baseline			18-month post-baseline			Overall change baseline to 18-month			HCG met
			(%)															
			'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	'Green'	'Amber'	'Red'	
Yarra Ranges	Kilsyth Centenary Pool ⁵	Fridge 1	20	20	60	78	16	6	77	4	20	72	8	20	+52	-12	-40	✓
	Monbulk Aquatic Centre	Fridge 1	33	14	53	70	5	26	69	5	25	73	8	20	+40	-6	-33	✓
	Yarra centre	Fridge 1	34	15	51	63	15	23	63	16	22	64	18	18	+30	+3	-33	✓
	Belgrave Outdoor Heated Pool	Fridge 1	49	12	39	69	17	15	60	11	29	71	9	20	+22	-3	-19	✓
	Lilydale Outdoor Pool	Fridge 1	49	12	39	71	12	17	64	7	29	60	24	17	+11	+12	-22	✓
	Healesville Outdoor Pool	Fridge 1	20	10	70	33	17	50	33	11	56	33	11	56	+13	+1	-14	x ²
Overall LGA mean			43	19	39	61	19	20	67	17	16	63	25	11	+20	+6	-28	✓

LGA, Local Government Area; HCG, Healthy Choices guidelines; -, Audit not complete

¹ Fridge met nudge at baseline

² Fridge not included in final analysis as these fridges were under the counter and out of site from patrons and percentages were calculated per product line.

³ Frankston had the following facilities removed from the analysis as i) less than two audits being completed or ii) three audits were completed but they were more than six months apart: Frankston Junior Dolphin, Auskick/Junior Football club and Karingal Football Club

⁴ Northern Grampians had the following facilities removed from the analysis as only one audit was completed: Lord Nelson Park, Central Park and Northern Park

⁵ Facilities had one fridge that was no longer in operation and removed from the analysis (n =8)

⁶ Facilities had two fridges that were no longer in operation and removed from the analysis (n =2)

Appendix 3: Food environment audits results at project completion, by LGA

Table S2: Availability of 'red', 'amber', and 'green' foods and proportion of Healthy Choices standards met, per local government area at baseline, 6-month, 12-month and 18-month at February 2020.

Local Government Area	Sport and recreation and club facility	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
		(%)																			
		'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
East Gippsland	Bairnsdale Aquatic and Recreation Centre	27	2	71	100	25	5	70	100	-	-	-	-	-	-	-	-	-2	3	-1	0
	Bairnsdale Outdoor Pool	4	4	92	73	9	5	86	100	10	5	86	91	16	4	80	100	+12	0	-12	+27
	Lakes Entrance	0	2	98	64	0	2	98	73	5	0	95	91	5	2	93	82	+5	0	-5	+18
	Orbost Outdoor Pool	0	3	97	38	6	6	88	64	0	6	94	82	0	4	96	91	0	+1	-1	+53
Frankston ¹	Frankston District Netball Association	6	6	89	91	5	10	85	73	0	23	77	82	6	13	81	82	0	+7	-8	-9
	Carrum Downs Recreation Reserve: Southern United Football club	43	21	36	63	22	33	44	82	0	50	50	82	-	-	-		-43	+29	+14	+12
	Peninsula Aquatic Recreation Centre	20	14	67	50	21	12	67	63	25	30	44	73	18	36	47	73	+53	+22	-20	+23
	Pines Forest Aquatic Centre	0	0	100	25	0	17	83	80	0	22	78	91	16	20	64	82	+91	+20	-36	+57

Local Government Area	Sport and recreation and club facility	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
		(%)																			
		'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
	Ballam Park Multi Sports Precinct: Frankston Little Athletics Centre	3	38	59	80	3	38	59	82	3	26	71	91	3	29	68	80	0	-9	+9	0
	Ballam Park Multi Sport Precinct: Long Island Cricket Club	0	100	0	67	0	0	100	67	0	11	89	60	10	0	90	60	+10	-100	+90	-7
	Ballam Park Multi Sport Precinct: Peninsula Strickers	0	15	85	50	0	13	87	50	0	14	86	50	-	-	-	-	0	-1	+1	0
	Overport park (Baden Powell Cricket Club)	0	8	92	55	0	0	100	64	0	0	100	64	-	-	-	-	0	-8	+8	+9
Bendigo	Bendigo Stadium	15	0	85	27	23	0	77	36	27	16	57	45	30	5	65	36	+15	+5	-20	+9
	Bendigo East Swimming Pool	0	0	100	44	0	0	100	56	0	0	100	44	0	0	100	44	0	0	0	0
	Bendigo Tennis Association	35	0	65	82	26	9	65	73	46	11	43	82	55	7	38	82	+20	+7	-27	0
	Brennan Park Swimming Pool	0	11	89	50	0	8	92	63	0	13	88	91	0	0	100	91	0	-11	+11	+41

Local Government Area	Sport and recreation and club facility	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
		(%)																			
		'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
	Faith Leech Aquatic Centre	35	17	48	91	0	21	79	100	0	19	81	100	-	-	-	-	-35	+2	+33	+9
	Peter Krenz Leisure Centre	15	2	84	50	29	9	65	73	21	14	64	82	32	11	57	82	+17	+9	-27	+32
	Gurri Wanyarra Wellbeing Centre	39	16	45	91	26	29	46	91	31	31	38	91	38	28	34	100	-1	+12	-11	+9
	Heathcote Aquatic Centre	0	11	89	73	0	13	88	64	0	13	88	82	0	0	100	73	0	-11	+11	0
	La Trobe University Bendigo Athletics Complex	16	2	82	45	19	9	72	45	24	9	67	45	21	6	74	45	+5	+4	-8	0
	Marong Swimming Pool	0	11	89	91	0	11	83	91	0	13	88	91	0	0	100	91	0	-11	+11	0
Geelong	Balyan Golf Course Kiosk	0	0	100	63	0	0	100	70	0	11	89	82	0	13	87	82	0	+13	-13	+19
	Barwon Valley Activity Centre	0	0	100	38	0	0	100	67	0	0	100	82	0	0	100	82	0	0	0	+44
	The Carousel	0	0	100	38	0	0	100	38	0	0	100	82	0	0	100	73	0	0	0	+35
	Leisuretime Sports Precinct	14	10	76	75	0	25	75	89	0	22	78	91	0	25	75	82	-14	+15	-1	+7
	Splashdown	0	12	88	73	0	14	86	50	0	12	88	82	0	8	92	73	0	-4	+4	0
	The Arena	5	15	80	88	17	19	64	70	14	22	65	73	11	24	65	73	+6	+9	-15	-15

Local Government Area	Sport and recreation and club facility	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
		(%)																			
		'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
	Lara Aquatic Centre	0	20	80	91	0	46	54	100	10	55	35	100	6	39	56	100	+6	+19	-24	+9
Greater Shepparton	Aquamoves	13	6	81	55	10	0	90	55	11	11	78	64	15	10	75	64	+2	+4	-6	+9
	Kidstown	24	10	66	64	22	11	67	73	19	4	78	64	47	26	26	64	+23	+16	-40	0
	Shepparton Sports Stadium	11	7	83	36	17	0	83	64	0	0	100	64	0	0	100	55	-11	-7	+17	+19
	Merrigum Outdoor pool	0	0	0	90	0	0	100	82	0	0	100	73	0	0	100	82	0	0	+100	-8
	Mooroopna Outdoor Stadium	0	0	0	70	0	0	100	64	0	0	100	80	0	0	100	82	0	0	+100	+12
	Tatura Outdoor Pool	0	0	0	73	0	7	93	73	0	0	100	64	0	0	100	82	0	0	+100	9
Melton	Caroline Springs Leisure Centre	0	4	96	38	14	4	82	38	2	2	96	50	10	12	78	50	+10	+8	-18	+12
	Melton Waves	14	14	72	50	2	16	82	63	14	14	71	50	27	8	65	36	+13	-6	-7	-14
	Melton Indoor Recreation Centre	4	0	96	36	0	8	92	38	0	0	100	44	-	-	-	-	-4	0	+4	+8
Northern Grampians ²	Stawell Sport and Aquatic Centre	0	0	100	36	0	14	86	82	21	3	76	82	-	-	-	-	+21	+3	-24	+46
Yarra ranges	Kilsyth Centenary Pool	4	5	91	30	3	5	91	18	4	8	88	22	5	0	95	56	+1	-5	+4	+26

Local Government Area	Sport and recreation and club facility	Baseline				6-month post-baseline				12-month post-baseline				18-month post-baseline				Overall change baseline to 18-month			
		(%)																			
		'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)	'Green'	'Amber'	'Red'	Extra HCG (% met)
Monbulk Aquatic Centre	8	32	60	64	4	32	64	55	5	21	75	64	10	19	71	82	+2	-13	+11	+18	
Yarra Centre	4	18	78	36	0	24	76	45	6	29	65	55	4	26	69	55	0	+8	-9	+19	
Belgrave Outdoor Heated Pool	0	6	94	27	0	0	100	27	0	0	100	18	0	14	86	36	0	+8	-8	+9	
Lilydale Outdoor Pool	0	0	100	64	0	0	100	45	0	0	100	36	0	0	100	64	0	0	0	0	
Healesville Outdoor Pool	0	0	100	36	0	0	100	27	0	0	100	18	0	11	89	55	0	+11	-11	+19	
Overall LGA Average	7	8	84	56	7	9	84	64	7	8	84	70	10	10	79	70	3	0	-5	15	

LGA, Local Government Area; Extra HCG, Extra Healthy Choices guidelines food and drink standards for sport and recreation facilities; -, Audit not complete

¹ Frankston had the following facilities removed from the analysis as i) less than two audits being completed or ii) three audits were completed but they were more than six months apart: Frankston Junior Dolphin, Auskick/Junior Football club and Karingal Football/ Netball Club

² Northern Grampians had the following facilities removed from the analysis as only one audit was completed: Lord Nelson Park, Central Park and Northern Park

Appendix 4: Sales data analysis: Seasonal facilities

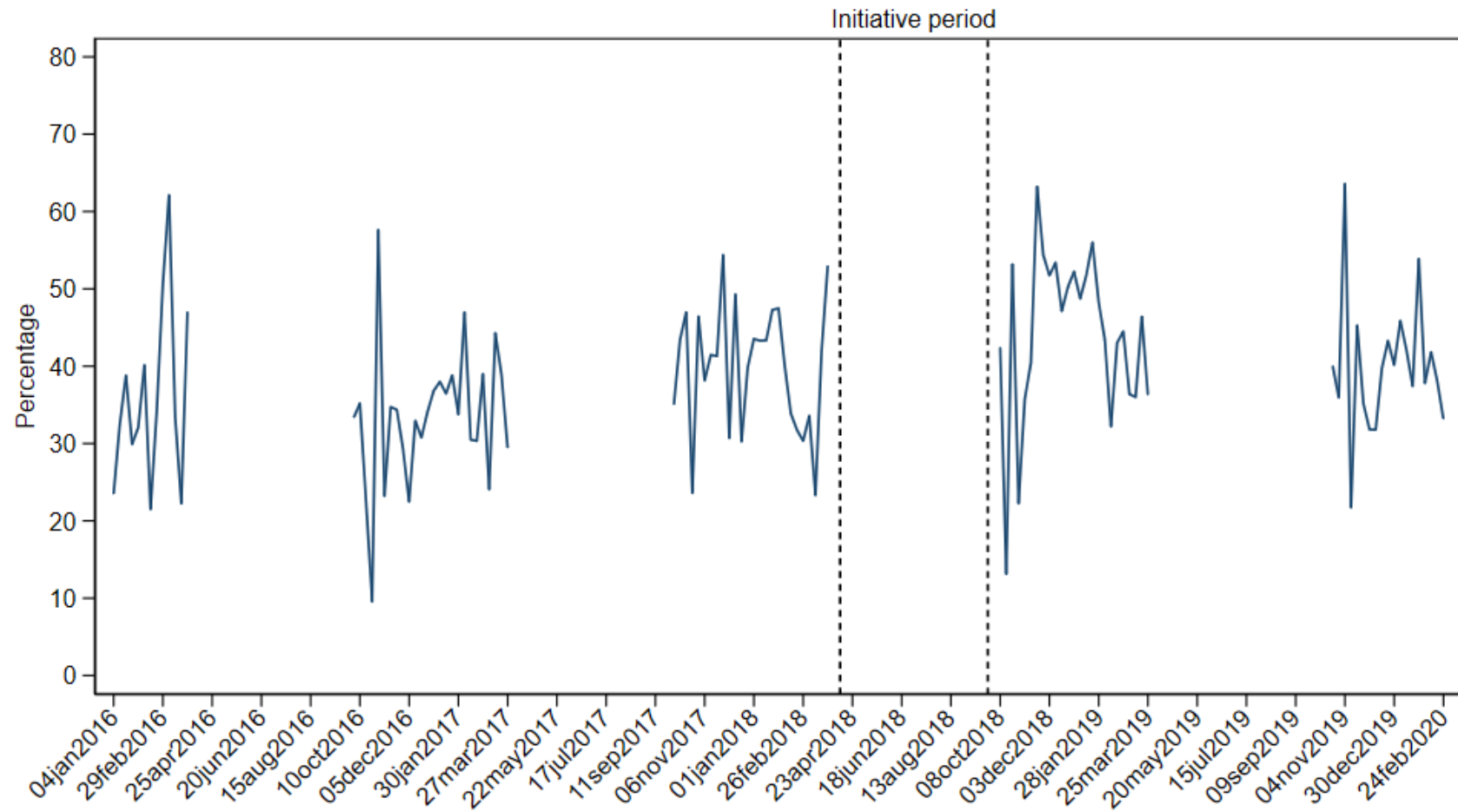


Figure S1: Weekly mean percentage of water sold as proportion of all packaged drink volume for 8 seasonal facilities, January 2016 to February 2020

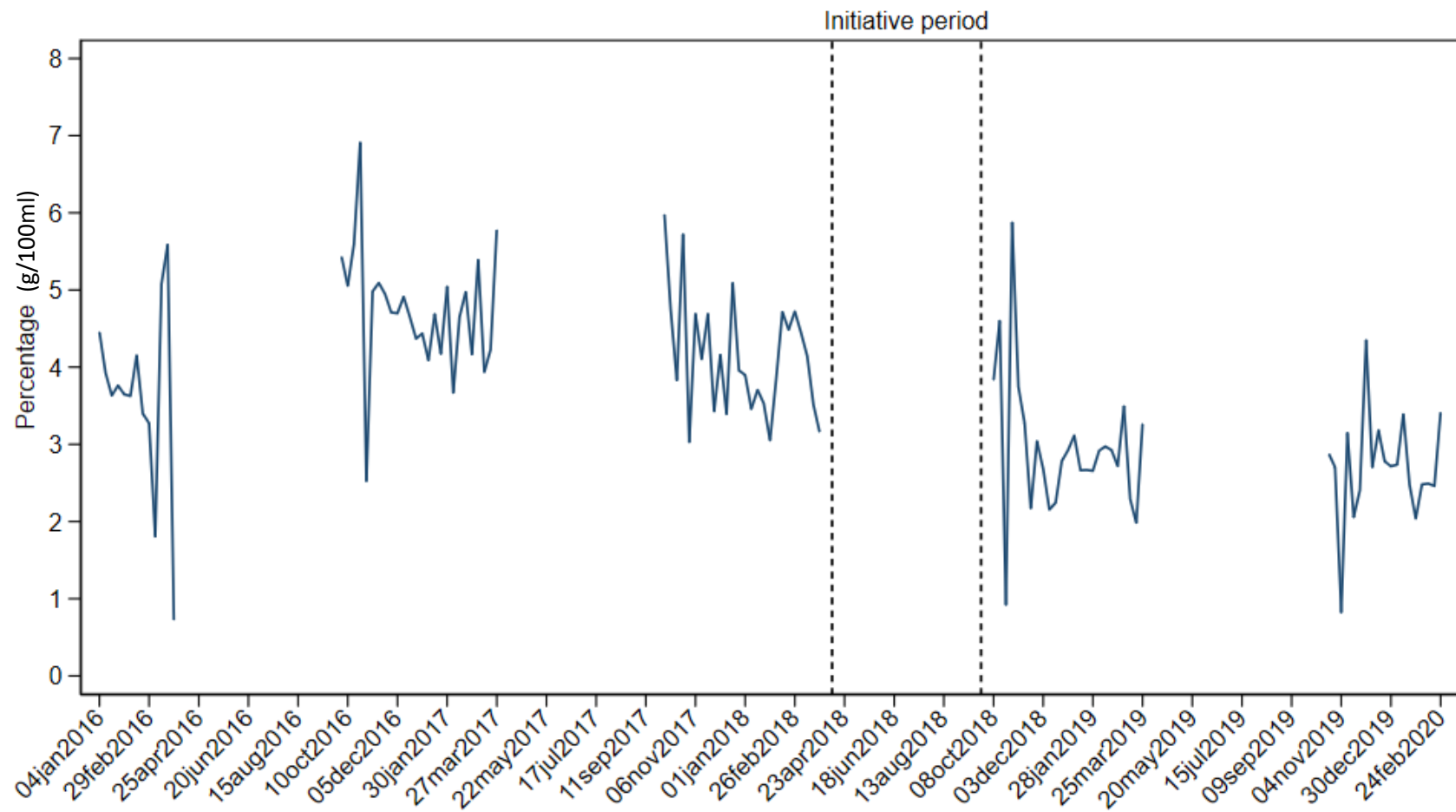


Figure S2: Weekly mean free sugar content (g/100mL) for 8 seasonal facilities, January 2016 to February 2020

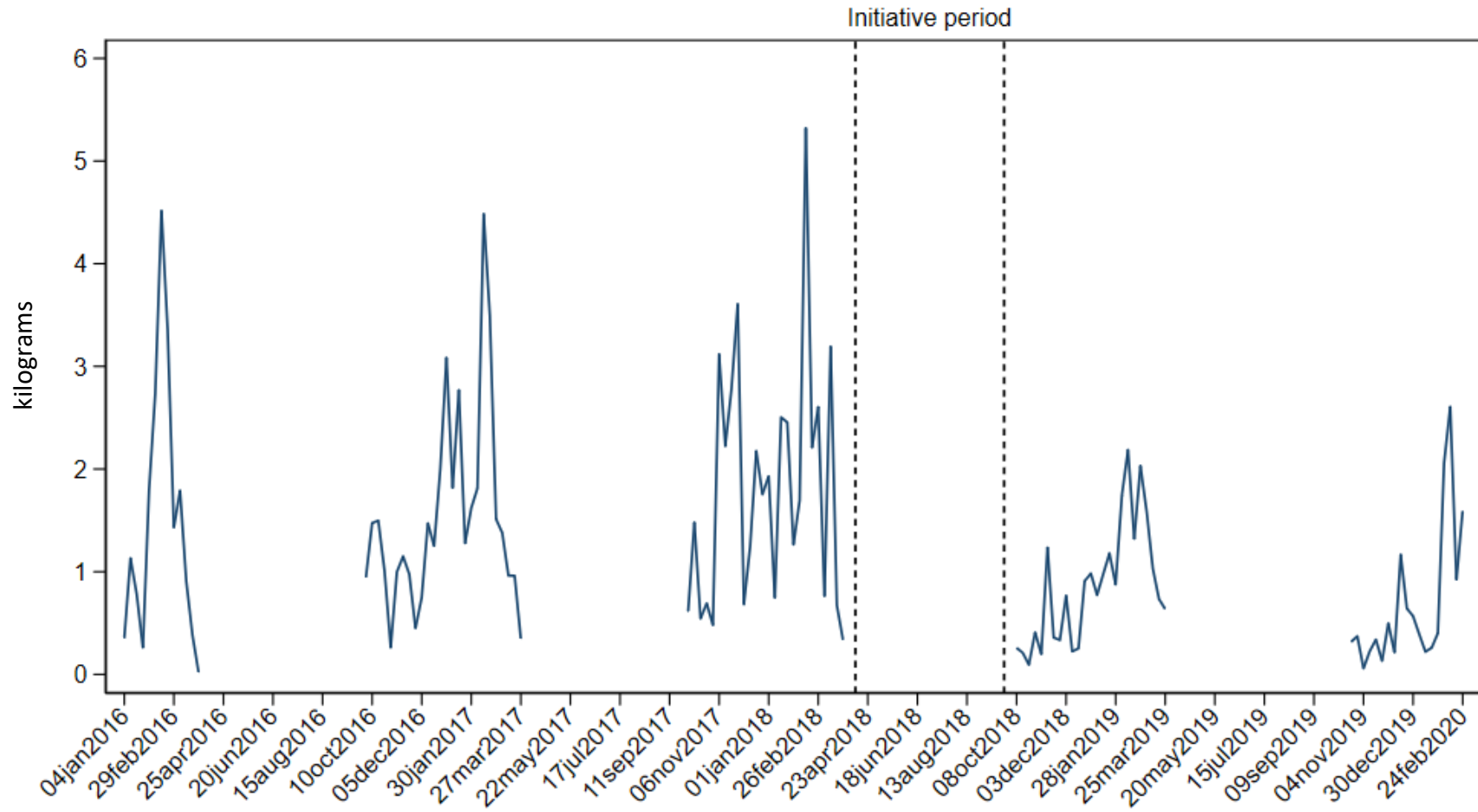


Figure S3: Weekly mean total amount of free sugar sold (kg) for 8 seasonal facilities, January 2016 to February 2020

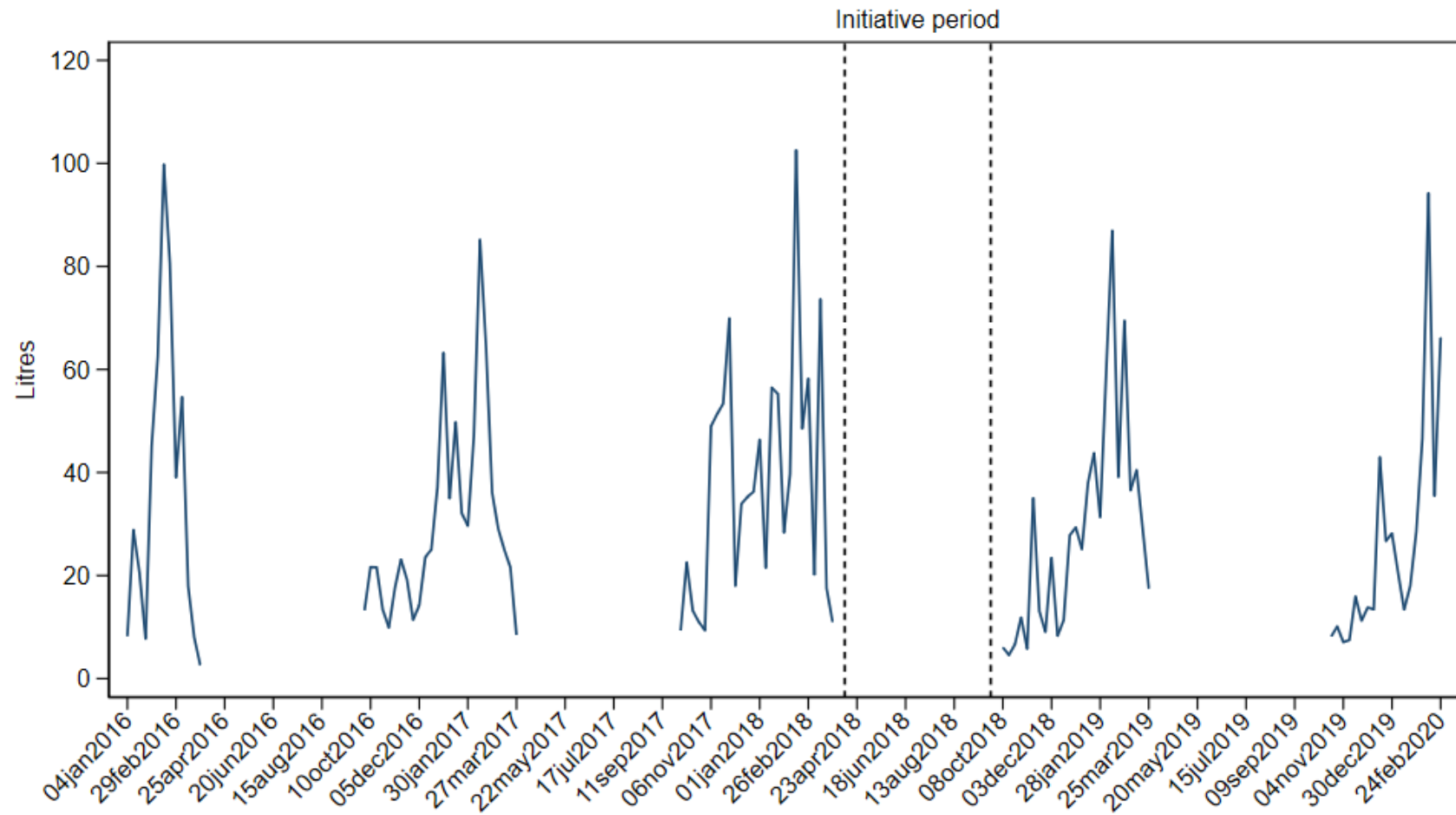


Figure S4: Weekly mean total pre-packed drink volume sold for 8 seasonal facilities, January 2016 to February 2020

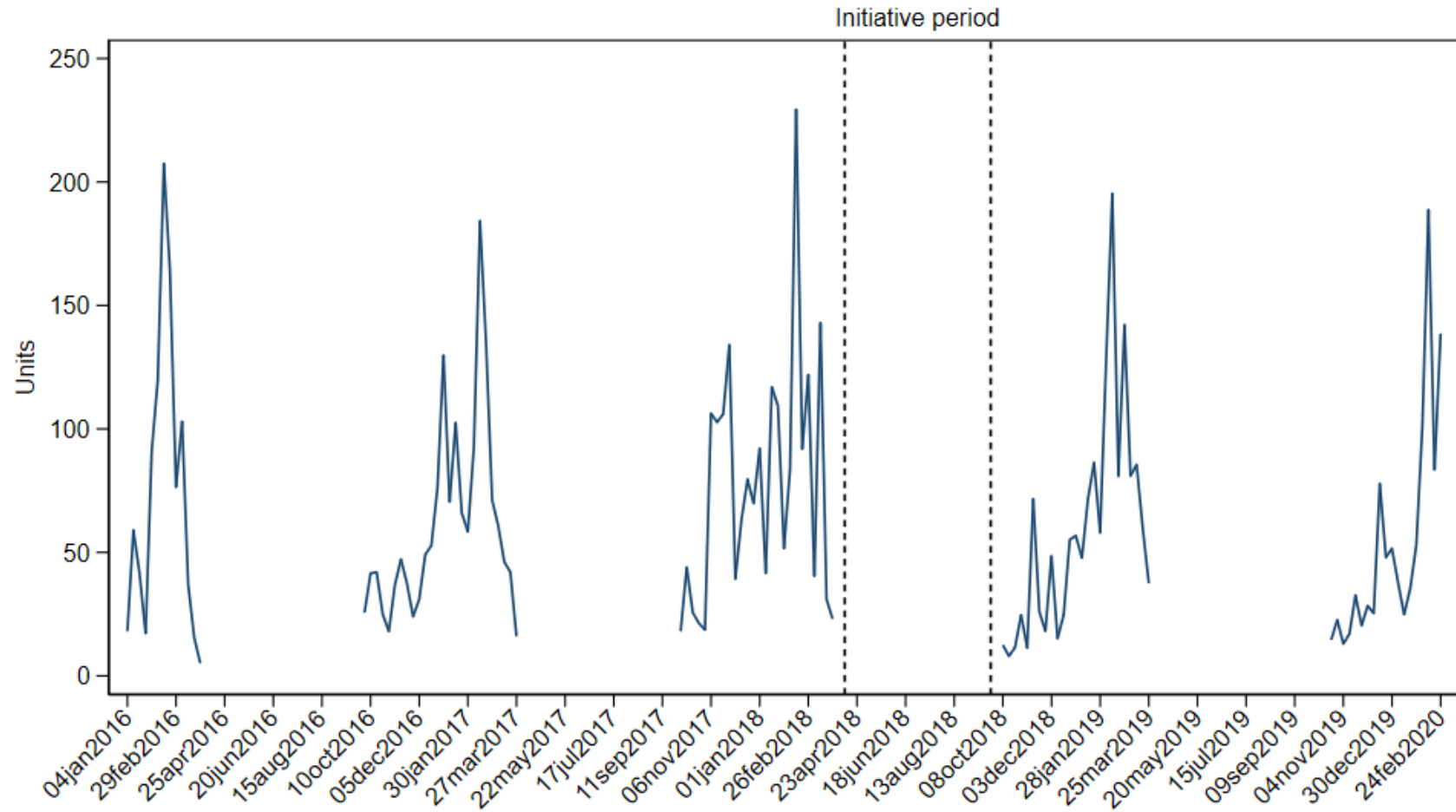


Figure S5: Weekly mean number of drinks units sold for 8 seasonal facilities, January 2016 to February 2020

Appendix 5: Sales data analysis: Non-seasonal facilities

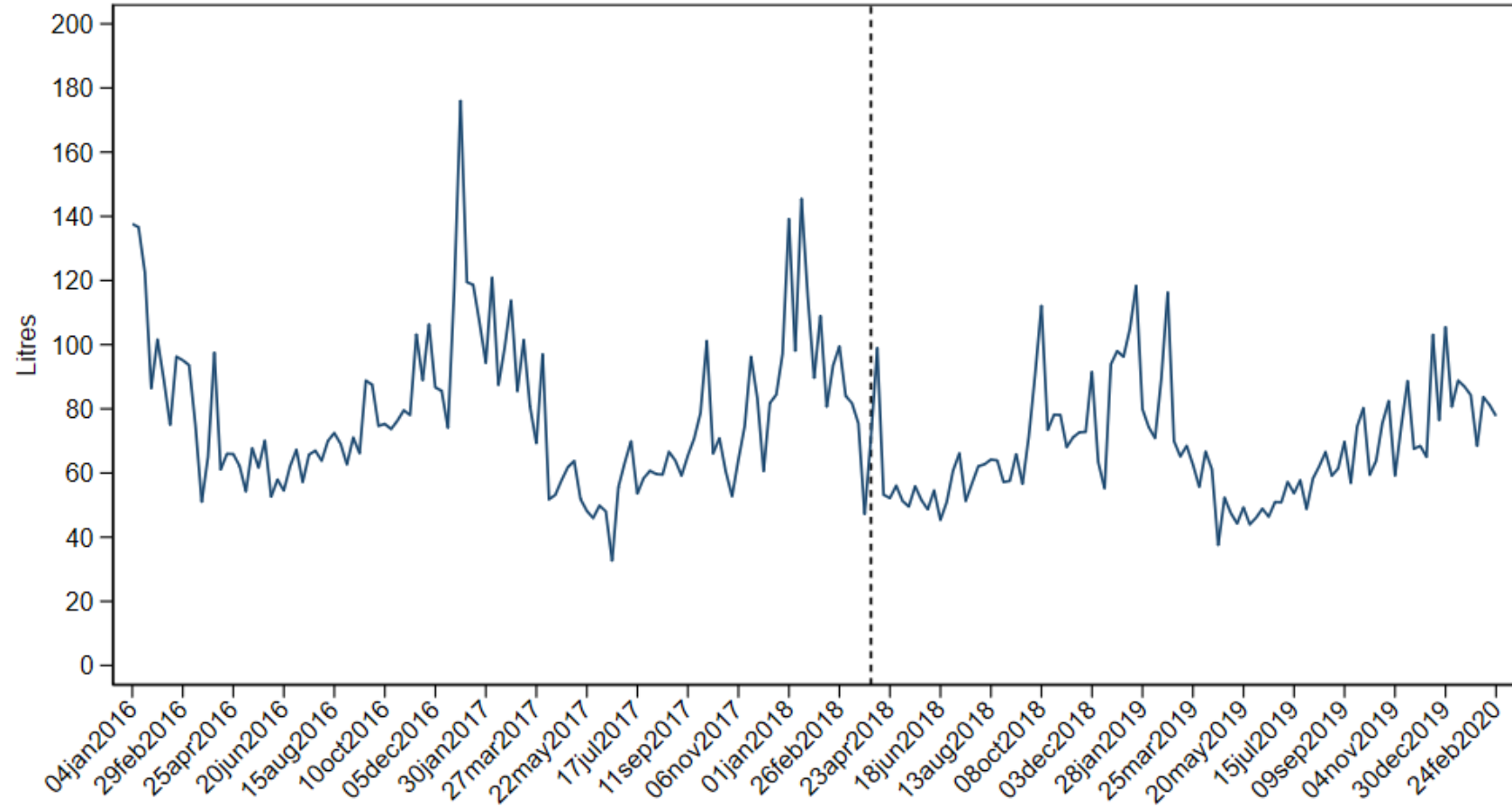


Figure S6: Weekly mean total volume of pre-packaged drinks sold for 15 non-seasonal facilities, January 2016 to February 2020
---- intervention started 2 April 2018

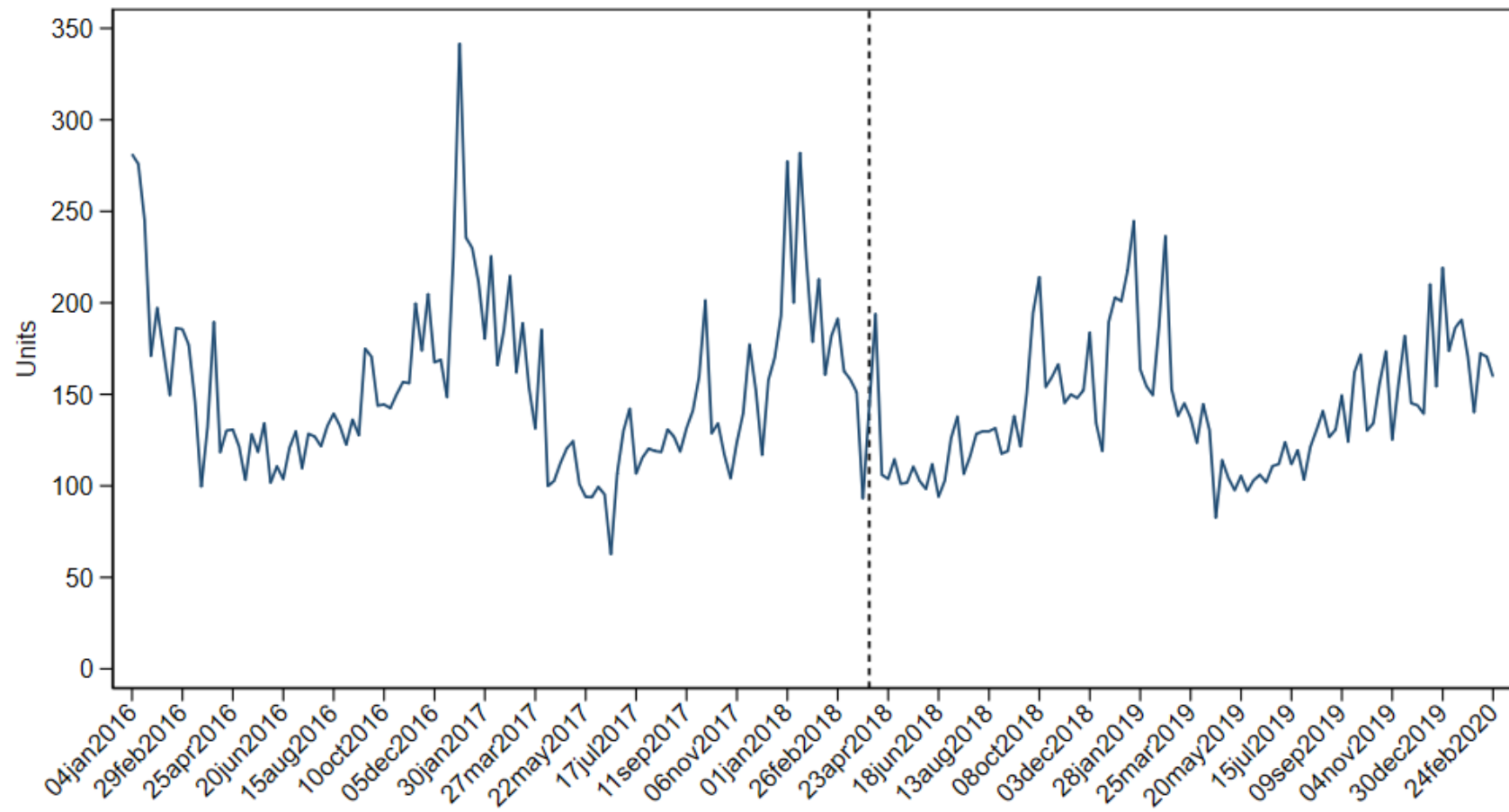


Figure S7: Weekly mean number of pre-packaged drinks units sold for 15 non-seasonal facilities, January 2016 to February 2020
 --- intervention started 2 April 2018

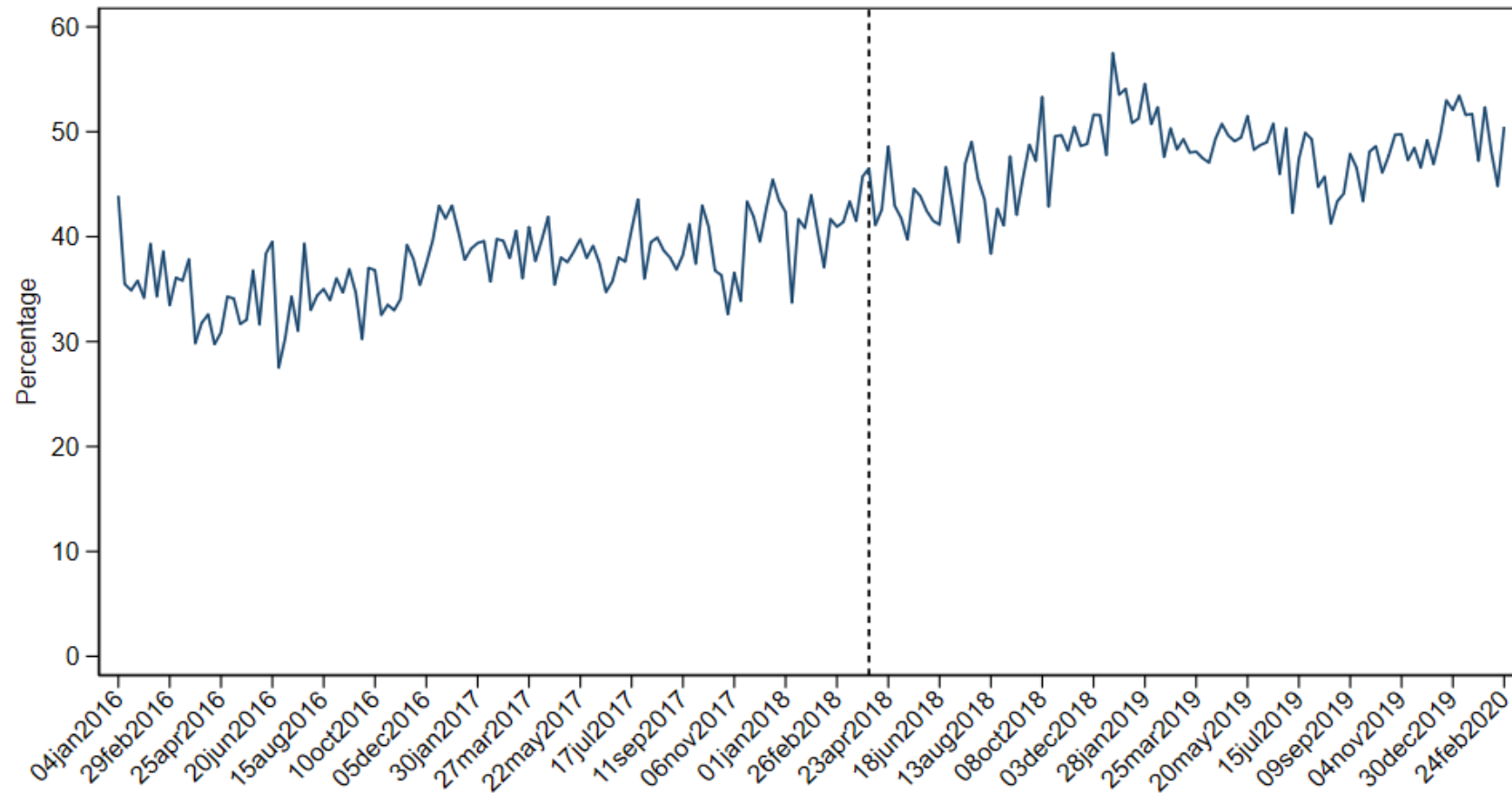


Figure S8: Weekly mean percentage of water sold as proportion of all packaged drink volume for 15 non-seasonal facilities, January 2016 to February 2020
 ---- intervention started 2 April 2018

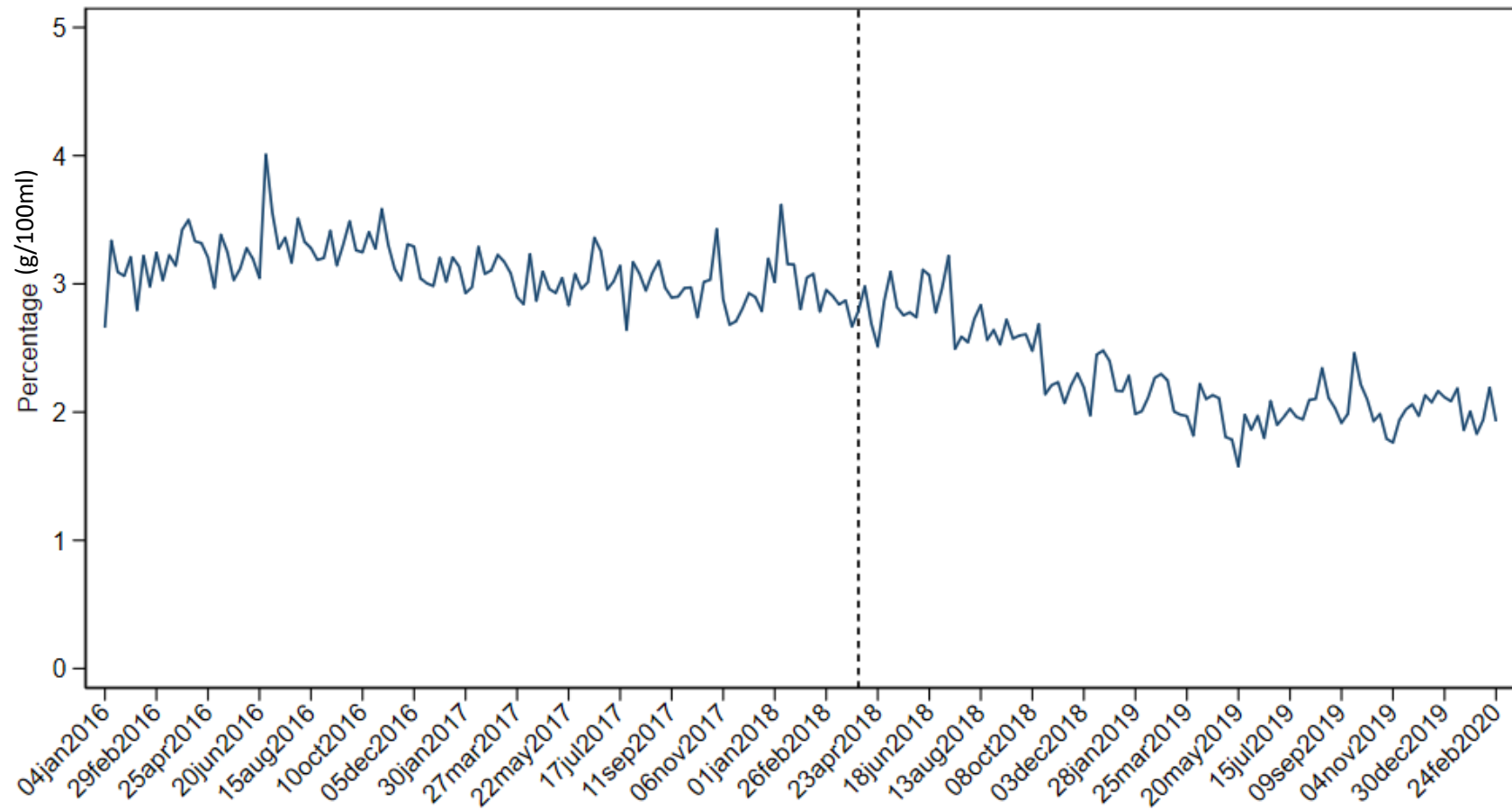


Figure S9: Weekly mean free sugar content (g/100mL) of packaged drinks sold for 15 non-seasonal facilities, January 2016 to February 2020
 ---- intervention started 2 April 2018

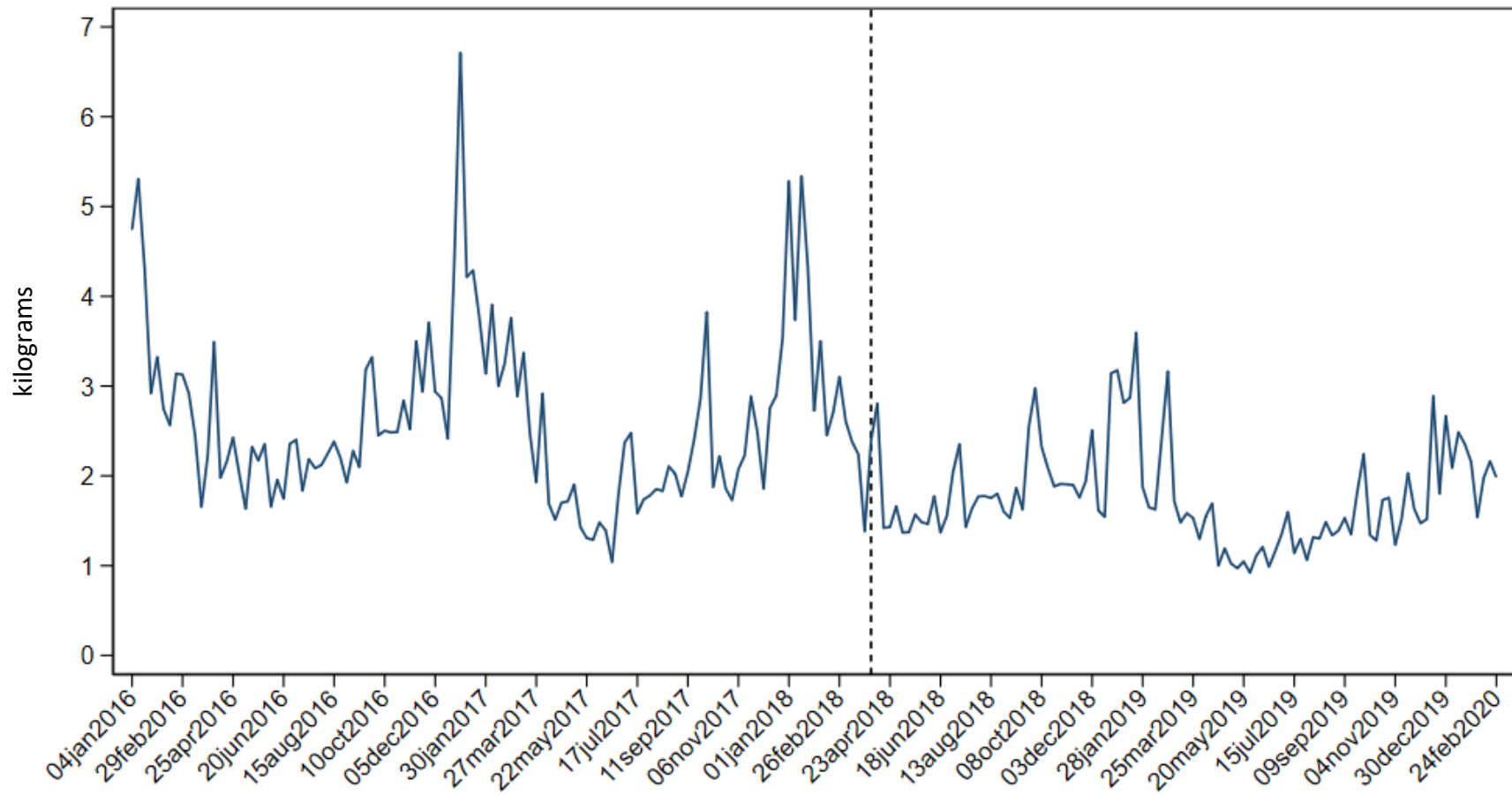


Figure S10: Weekly mean total amount of free sugar sold (kg) for 15 non-seasonal facilities, January 2016 to February 2020
 ---- intervention started 2 April 2018

Appendix 6: Sales data analysis: Individual non-seasonal facilities

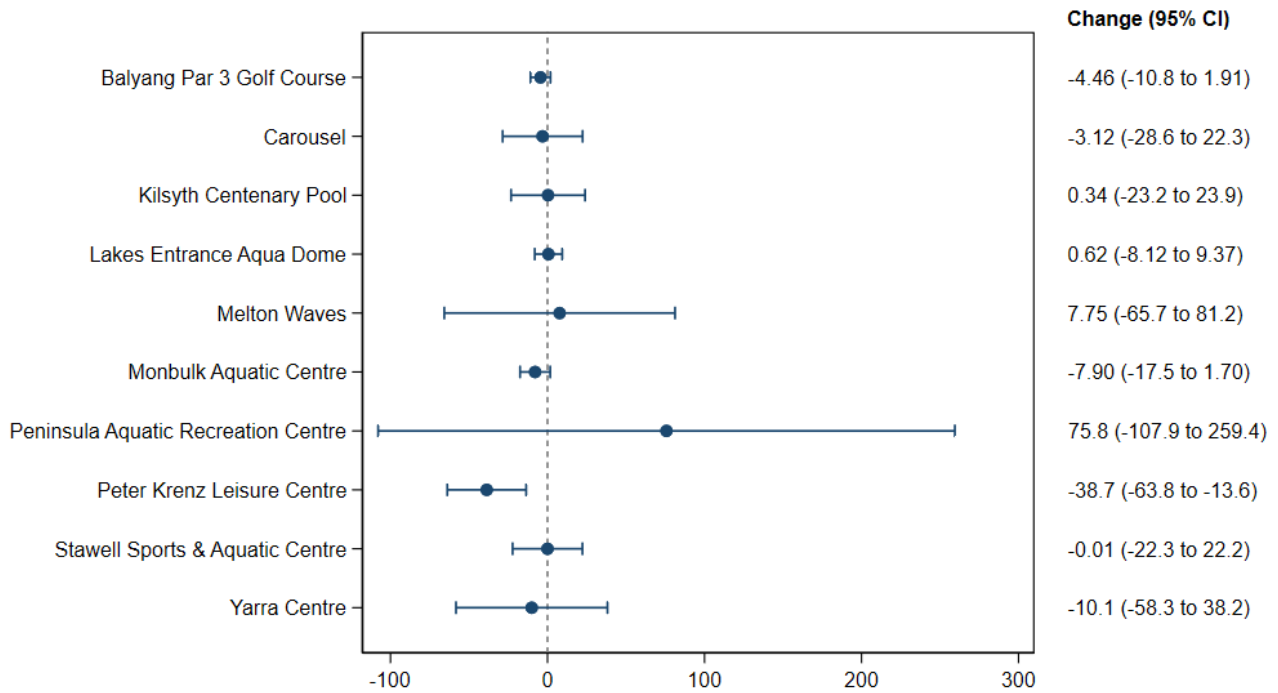


Figure S11: Change in total volume (L) of pre-packaged drinks sold in non-seasonal facilities by February 2020

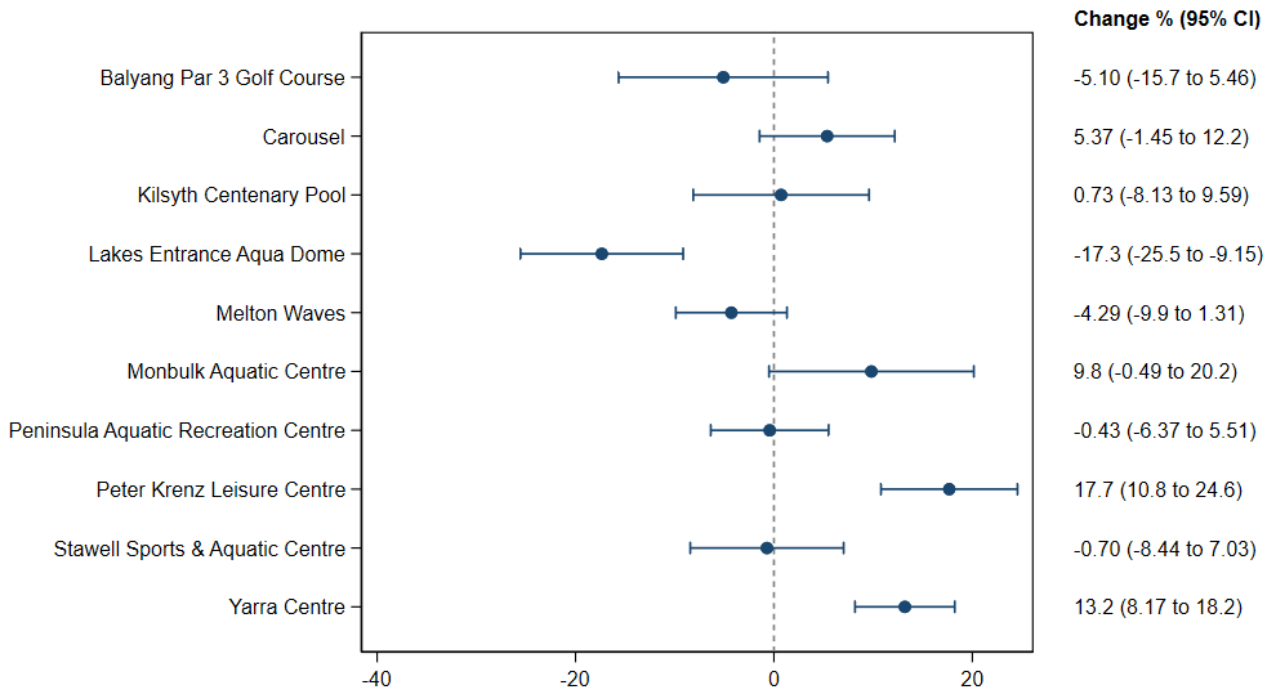


Figure S12: Change in percentage volume of water as a proportion of all pre-packaged drinks sold in non-seasonal facilities by February 2020

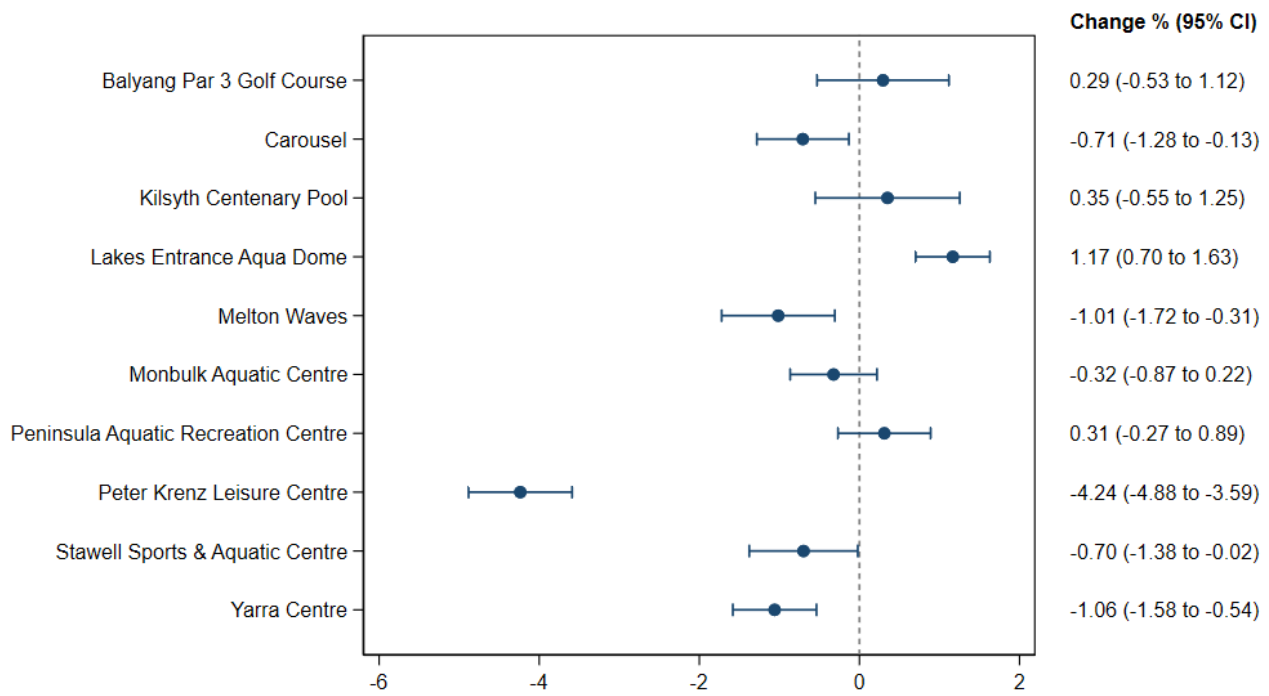


Figure S13: Percentage point change in free sugar content (g/100mL) in pre-packaged drinks sold in non-seasonal facilities by February 2020

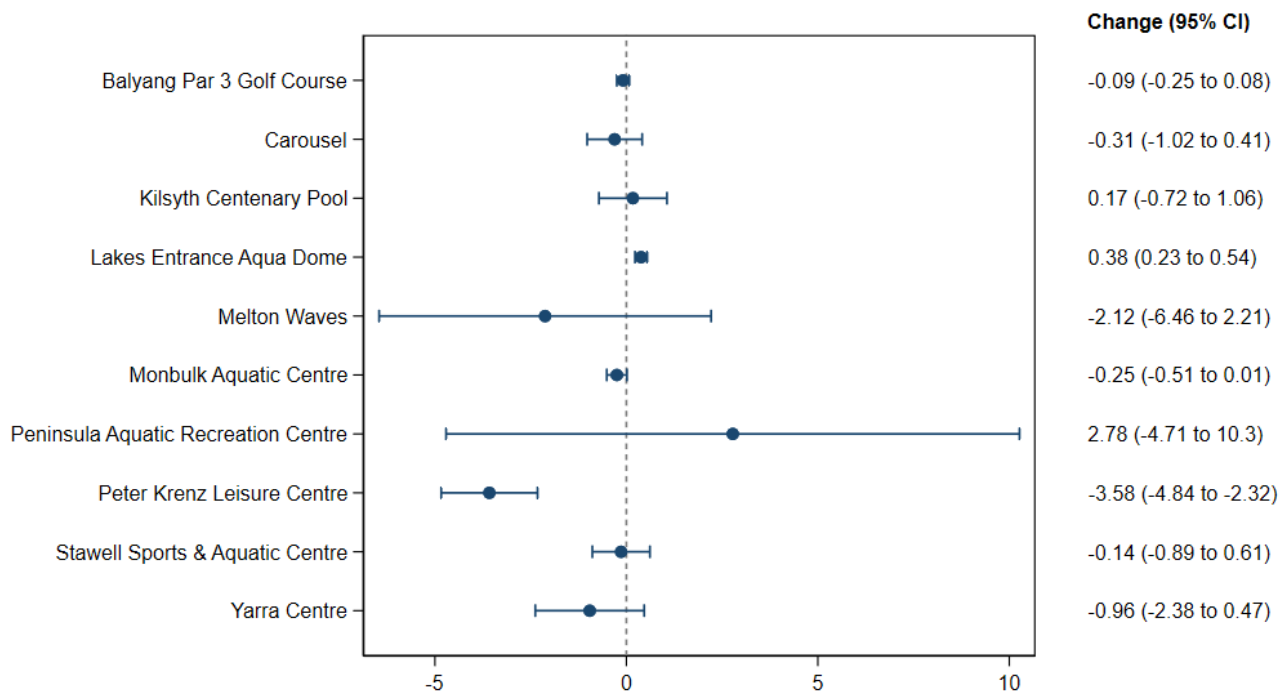


Figure S14: Change in total of free sugar content (kg) in pre-packaged drinks sold in non-seasonal facilities by February 2020

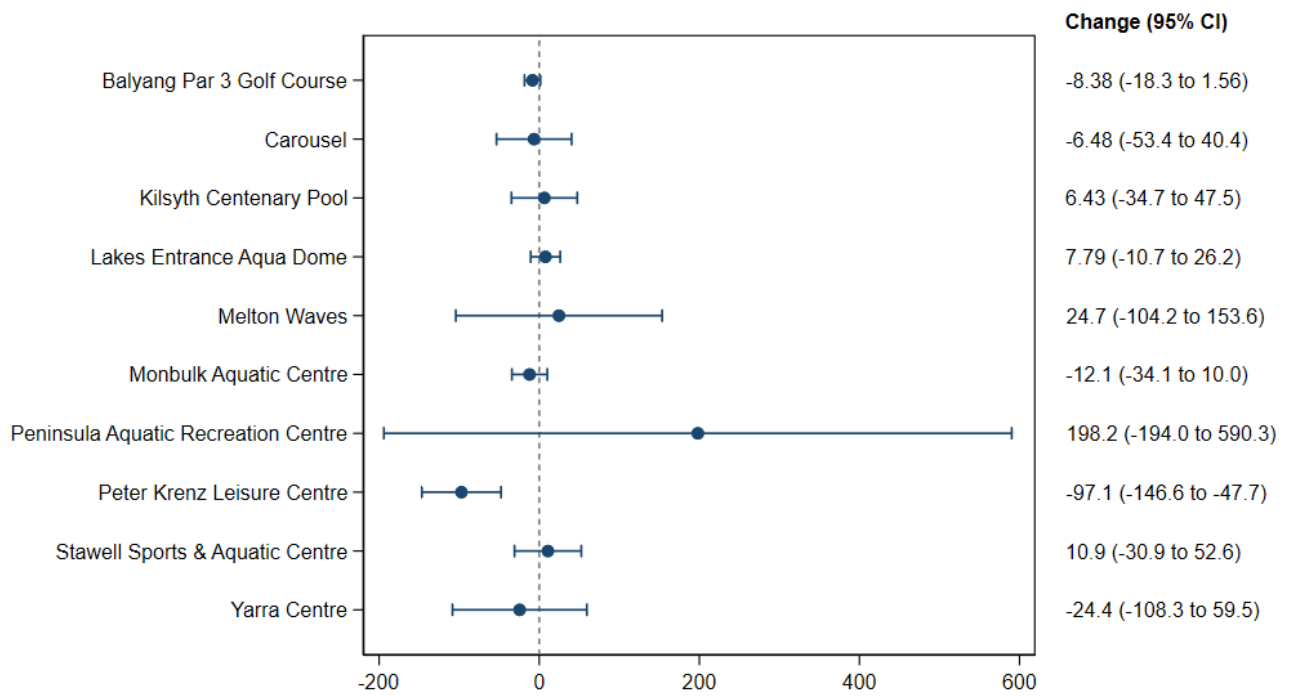


Figure S15: Change in number of units of pre-packaged drinks sold in non-seasonal facilities February 2020

Appendix 7: Survey of food and drink policies and provision in Victorian sport and recreation facilities (baseline)

The following information is optional- and will be useful when we follow up in 2 years. Please note that your private information will not be made public at any stage.

Organisation:

Name:

Email address:

Phone number:

1. Which organisation are you representing?
2. Which of these best describes your position?
 - a. Employed by the organisation in senior management
 - b. Employed by the organisation in health promotion
 - c. Other (please specify) _____
3. Time in role:
 - a. Less than 6 months
 - b. 6 months to 1 year
 - c. More than 1 year and less than 2 years
 - d. 2 years or more

Please answer each of the following questions to the best of your knowledge. The word 'drinks' refers to all non-alcoholic drinks and the word council refers to local government.

4. Which of the following council owned **sport and recreation facilities that sell food or drinks** (e.g. through vending machines, kiosk and/or cafe but excluding once-off events like sausage sizzles or chocolate drives) are present in your local government area (LGA)?

Please specify the number of facilities. If unsure or you don't know please write "Don't Know"

Please note: If you have a facility that combines multiple categories (e.g. aquatic centre with outdoor hard courts) please add this to the "other (please describe)" category and provide the details of the combination.

	Facilities that sell food/drink	Number of facilities
Indoor sports stadium		
Outdoor hard courts (e.g. netball, basketball, tennis)		
Aquatic centres		
Golf course		
Gym		
Ovals		
Club facilities (please describe)		
Other (please specify)		
Other (please specific)		

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks and flavoured milk. (Note, excludes all diet versions)

Definition of diet drinks: diet drinks refers to drinks that are sugar free, artificially sweetened and includes both diet and zero versions (e.g. PowerAde zero, diet coke).

5. Has your LGA implemented changes to improve the **healthiness of food and drinks available** in council owned sport and recreation facilities?
 - a. Yes (only food)
 - b. Yes (food and drinks)
 - c. No changes made

6. Which option below best describes **official policy** relating to the provision of non-alcoholic drinks within your organisation managed sport and recreation facilities?

If you select 'yes' for the presence of a policy please provide more details about the policy for example “our organisation implemented a policy that all of our aquatic centre cafés remove sugary drinks from display” and to the best of your knowledge please specify what year the change occurred and the number of facilities the change applies too

I am not aware of any policy that relates to drink provisions in sport and recreation facilities

(If you have selected true please leave the table below blank)

- a. True
- b. False

	Yes	No	Unsure	Details about the policy
No sugary drinks allowed to be sold				
Sugary drinks must be hidden from customer (off display)				
Reduced the amount of sugary drinks available for sale				
No advertising of sugary drinks				
Decrease the price of water				
Increase availability of water				
Other (please describe below)				

7. The previous question asked about change related to official policy, this question relates to changes that may have occurred in the absence of official policy.

Which option below best describes health-promoting practices (relating to drink provisions) that any facilities in your local government area have implemented in **the absence of official policy?**

If you select 'yes' for the presence of a change; to the best of your knowledge please specify what year the change occurred and the number of facilities the change applies to.

I am not aware that any facilities have made the changes below without a policy
(If you have selected true please leave the table below blank)

- a. True
- b. False

	Yes	No	Unsure	Details about the policy
No sugary drinks allowed to be sold				
Sugary drinks must be hidden from customer (off display)				
Reduced the amount of sugary drinks available for sale				
No advertising of sugary drinks				
Decrease the price of water				
Increase availability of water				
Other (please describe below)				

8. Has your organisation engaged with any external organisations/individuals to assist with changing the food/drink environment in your facilities? *(For example: Healthy Eating Advisory Service, Dietitians)*

- a) Not applicable, since no changes were made
- b) No, we made the changes ourselves
- c) Yes –please specify

9. Have you received **funding and/or in-kind support** to assist with changing the food and/or drink environment in your facilities?

If you have selected '**yes**' please specify if this was provided for food/drink/both and the support provided

- a. Not applicable, since no changes were made
- b. No, we made the changes without funding
- c. Yes (please specify funding source_____)

10. Which of the following does council think are **barriers** to making the food and/or drink environment healthier in sport and recreation facilities throughout your LGA?

(Please rank these from 1 to 7 where 1=most important and 7=least important)

If you think that only some of these are barriers, rank them accordingly (e.g. if you identify four barriers, label them from 1-4 and leave others as 0)

- Inadequate funding
- Inadequate support from key stakeholders (e.g. council members, centre staff, customer etc.)
- Inadequate time
- Inadequate control over facilities
- Inability to source appropriate healthy alternatives (e.g. healthier drink options)
- Problems negotiating with suppliers
- other (please specify _____)

11. Which of the following does council see as **facilitators** to making the food and/or drink environment healthier in sport and recreation facilities throughout your LGA?

(Please rank these from 1 to 7 where 1=most important and 7=least important)

If you think that only some of these are facilitators, rank them accordingly (e.g. if you identify four facilitators, label them from 1-4 and leave others as 0)

- Adequate funding
- Adequate support from key stakeholders (e.g. council members, centre staff, customer etc.)
- Adequate time
- Adequate control over facilities
- Ability to source appropriate healthy alternatives (e.g. healthier drink options)
- No issues negotiating with suppliers
- other (please specify _____)

12. Compared to one year ago, would you say the priority given to promoting healthy eating/drinking by the council has:

- a) Decreased
- b) Stayed the same
- c) Increased

13. Which of the following best represents council's intentions to improve the healthiness of drink offerings available for sale in sport and recreation facilities throughout your LGA?

- a) Council has not thought about it
- b) Council is thinking about it

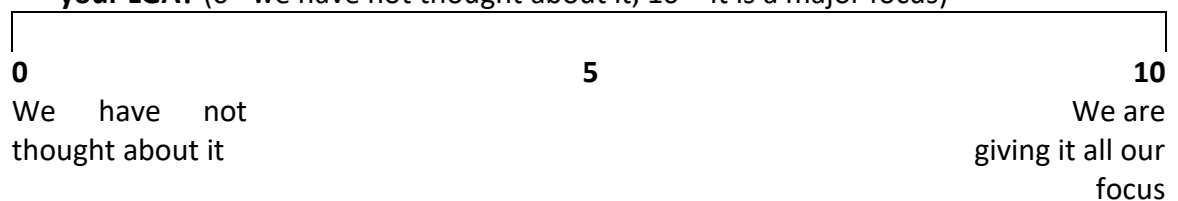
- c) Council is in preparation (planning programs and/or taking some steps)
- d) Council has made changes to the healthiness of drink offerings within the past 6 months
- e) Council has made changes to the healthiness of drink offerings more than 6 months ago which are still in place
- f) Council has made changes to the healthiness of drink offerings more than 6 months ago which are no longer in place

For the following four questions please drag the bar across the line to the spot which most accurately represents councils current position

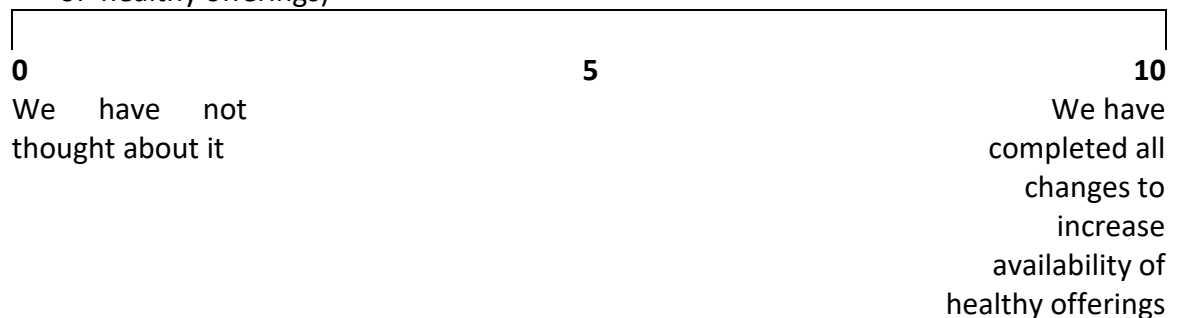
14. Within your LGA would you say **promoting healthy eating/drinking** is a: (0= low priority, 10= high priority)



15. What is the council's position on taking action to **reduce the prevalence of obesity in your LGA?** (0= we have not thought about it, 10= it is a major focus)



16. What is the council's position on taking action to **increase the availability of healthy food and/or drink** in your council-owned sport and recreation facilities? (0= we have not thought about it, 10= We have completed all changes to increase availability of healthy offerings)



17. What is the council's position on taking action to **reduce the availability of sugary drinks** for sale in your council-owned sport and recreation facilities? (0= we have thought about it, 10= we have fully removed sugary drinks)

0	5	10
We have not thought about it		We have fully removed sugary drinks

Please attach any official **council policies** relating to the provision of food and drinks within any of your council's sport and recreation facilities? (optional)

If you need to upload multiple files please compress all files into a ZIP file before uploading. Files uploaded can be up to 100MB. For security reasons, executable files (such as those ending in .exe) are not permitted.

Or please enter the weblink below

Does the council have any **other** official policies relating to healthy food and drink provision within the community outside the sport and recreation scope?

For example: all council events must have free water available

- b. Yes
- c. No
- d. I don't know

Please attach any official **council policies** relating to healthy food and drink provision within the community **outside the** sport and recreation scope? (optional)

If you need to upload multiple files please compress all files into a ZIP file before uploading. Files uploaded can be up to 100MB. For security reasons, executable files (such as those ending in .exe) are not permitted.

Or please enter the weblink below

Do you have any other comments you would like to make about health promotion practises throughout your LGA, including how VicHealth and the Department of Health and Human Services can help you achieve your goals in this area?

Do you have any other comment you would like to make regarding the survey?

Appendix 8: Survey of food and drink policies and provision in Victorian sport and recreation facilities (follow- up)

The following information is optional- and will be useful when we follow up in 2 years. Please note that your private information will not be made public at any stage.

Organisation:

Name:

Email address:

Phone number:

1. Which Local Government Area (LGA) are you representing?

2. Which of these best describes your position?
 - a. Employed by council in health promotion role
 - b. Employed by council in sport and recreation role
 - c. Employed by council as an environmental health officer
 - d. Employed by council in community development or planning
 - e. Other (please specify) _____

3. Time in role:
 - a. Less than 6 months
 - b. 6 months to 1 year
 - c. More than 1 year and less than 2 years
 - d. 2 years or more

Please answer each of the following questions to the best of your knowledge. The word 'drinks' refers to all non-alcoholic drinks and the word 'council' refers to local government.

4. Does your council own any sport or recreation facilities?
 - a. Yes
 - b. No

****Skip Logic****

5. Which of the following council-owned **sport and recreation facilities sell food or drinks** in your LGA? For example, but not limited to: through vending machines, ice cream freezers, kiosk and/or café but excluding once-off events like sausage sizzles or chocolate fundraisers.

Please specify the number of facilities. If unsure or you don't know please write "Don't Know"

Please note: If you have a facility that combines multiple categories (e.g. aquatic centre with outdoor hard courts) please add this to the “other (please describe)” category and provide the details of the combination.

	Facilities that sell food/drink (Yes/No/Unsure)	Number of council-owned and managed facilities (enter 0 if not applicable)	Number of council-owned and externally managed facilities (enter 0 if not applicable)
Indoor sports stadium			
Outdoor hard courts (e.g. netball, basketball, tennis)			
Aquatic centres			
Golf course			
Gym			
Ovals			
Club facilities (please describe)			
Other (please specify)			

The definitions below will be useful for the remaining questions.

Sugary drinks: sugary drinks refer to any non-alcoholic water-based drinks with added sugar, including sugar-sweetened soft drinks and flavoured mineral waters, fortified waters, energy and electrolyte drinks, fruit and vegetable drinks, and cordials. This does not include fruit juice that is 100% fruit.

Diet drinks: diet drinks refers to drinks that are sugar free, sweetened with intense sweeteners (artificial or natural) and includes both diet and zero versions (e.g. PowerAde zero, diet coke).

Healthy change to drinks: any changes made to the drinks available or promoted such as reducing the amount of sugary drinks available, increasing the availability of healthy options such as water, 100% fruit juice and small flavoured milks, or decreasing marketing of unhealthy drinks.

Healthy changes to food: any changes made to the food available and promoted that reduce unhealthy food options and increase healthy food options. Including reducing the availability of deep-fried options and/or high fat and sugar snacks (such as chocolate and ice cream) and increasing the variety of whole grains or fruit or vegetable products, or reducing marketing of unhealthy foods.

- Are you aware of any written council policy that relates to healthiness of food and/or drinks available in sport and recreation facilities?

- a. Yes (only drinks)
- b. Yes (only food)
- c. Yes (food and drinks)
- d. No policy relating to food or drinks

****Skip Logic****

7. Which of the options below are part of **council official policy** relating to the provision of food and non-alcoholic drinks within your council-owned sport and recreation facilities that have been made?

If you select 'yes' for the presence of a policy please provide more details about the policy and to the best of your knowledge please specify what year the change occurred (policy was implemented) and the number of facilities to which the change applies. For example "In 2017 our council implemented a policy that all of our aquatic centre cafés remove sugary drinks from display (placed behind counter or covered with poster in fridge)".

Drink changes:	Yes	No	Unsure	Details about the policy	Year introduced	Number of facilities implemented the policy to date
No sugary drinks allowed to be sold						
Sugary drinks must be hidden from customer (off display)						
Reduced the display of sugary drinks						
Reduced the amount/range of sugary drinks available for sale						
No advertising or promotion of sugary drinks						
Decreased the price of water						
Increased the availability of water (free and/or for purchase)						
Labelling drinks options using a traffic light labelling system						
Other (please describe)						

Food options:	Yes	No	Unsure	Details about the policy	Year introduced	Number of facilities implemented the policy to date
Increase the prominence or display of healthy food options						
Decreased the prominence or display of unhealthy food options						
Increased number of healthy food options						
Decreased the number of unhealthy food options						
No value deals with unhealthy options (e.g. free soft drink with sandwich or free chips with a burger)						
Labelling food options using a traffic light labelling system						
No advertising or promotion of unhealthy foods						
Other (please describe)						

8. The previous question asked about changes related to council official policy, this question relates to changes that may have occurred in the **absence of official policy**.

Has your LGA made changes to improve the **healthiness of food and/or drinks available** in council-owned sport and recreation facilities in the **absence of official policy** since November 2018?

- a. Yes (only drinks)
- b. Yes (only food)
- c. Yes (food and drinks)
- d. No changes made

****SKIP LOGIC****

If you select 'yes' for the presence of a change; to the best of your knowledge please specify what year the change was implemented and the number of facilities the change applies too.

Drink changes:	Yes	No	Unsure	Details about the change	Year begun	Number of facilities implemented
No sugary drinks allowed to be sold						
Sugary drinks must be hidden from customer (off display)						
Reduced the display of sugary drinks						
Reduced the amount of sugary drinks available for sale						
No advertising or promotion of sugary drinks						
Decreased the price of water						
Increased the availability of water (free and/or for purchase)						
Labelling drinks options using a traffic light labelling system						
Other (please describe)						

Food options:	Yes	No	Unsure	Details about the change	Year begun	Number of facilities implemented
Increase the prominence or display of healthy food options						
Decreased the prominence or display of unhealthy food options						
Increased number of healthy food options						
Decreased the number of unhealthy food options						
No value deals with unhealthy options (e.g. free soft drink with sandwich or free chips with a burger)						
Labelling food options using a traffic light labelling system						
No advertising or promotion of unhealthy foods						
Other (please describe)						

9. Has your council engaged with any external government and/or non-government organisations or individuals to assist with changing the food and/or drink

environment in your facilities? (For example: Dietitians, National Heart Foundation, researchers, students)

- d) No, we made the changes ourselves
- e) Yes –please specify

10. Has council received **funding and/or in-kind support** to assist with changing the food and/or drink environment in your facilities?

- a. Not applicable, since no changes were made
- b. No, we made the changes without funding and/or in-kind support
- c. Yes, we made the changes with funding and/or in-kind support

If yes:

What was the funding and/or in-kind support targeted at?

- a. Food
- b. Drinks
- c. Both

Please provide details of the type of support that was provide

****END SKIP LOGIC****

11. Which of the following does **council leadership** see as **barriers** to making the food and/or drink environment healthier in sport and recreation facilities throughout your LGA?

(Please rank these from 1 to 10 where 1=most important and 10=least important)
If you think that only some of these are barriers, rank them accordingly (e.g. if you identify four barriers, label them from 1-4 and leave others as 0)

- [] Inadequate funding (this can include lack of funding to have a dedicated employee)
- [] Inadequate support from internal stakeholders (e.g. council elected members, council staff, centre staff.)
- [] Inadequate support from external stakeholders (e.g. customers, community members)
- [] Inadequate staff time
- [] Inadequate control over facilities (e.g. council doesn't manage the kiosk)
- [] Inability to source appropriate healthy alternatives (e.g. healthier drink options)
- [] Problems negotiating with suppliers

- Concerns relating to impact on financial viability of food outlet(s)
- Lack of healthy food and drink policy
- Other (please specify _____)

12. Which of the following does **council leadership** see as **facilitators** to making the food and/or drink environment healthier in sport and recreation facilities throughout your LGA?

(Please rank these from 1 to 10 where 1=most important and 10 =least important)
If you think that only some of these are facilitators, rank them accordingly (e.g. if you identify four facilitators, label them from 1-4 and leave others as 0)

- Adequate funding (e.g. ability to hire a person for this role)
- Adequate support from internal stakeholders (e.g. council elected members, council staff, centre staff.)
- Adequate support from external stakeholders (e.g. customers, community members)
- Adequate time
- Adequate control over facilities
- Ability to source appropriate healthy alternatives (e.g. healthier drink options)
- No issues negotiating with suppliers
- No concerns relating to impact on financial viability of food outlet
- Presence of healthy food and drink policy
- Other (please specify _____)

13. Which of the following best represents council's intentions to improve the healthiness of drink offerings available for sale in sport and recreation facilities throughout your LGA?

- g) Council has not thought about it
- h) Council is thinking about it
- i) Council is in preparation (planning programs and/or taking some steps)
- j) Council has made changes to the healthiness of drink offerings within the past 6 months
- k) Council has made changes to the healthiness of drink offerings more than 6 months ago which are still in place
- l) Council has made changes to the healthiness of drink offerings more than 6 months ago which are no longer in place

*END SKIP LOGIC FOR LGAS WITHOUT SPORT AND REC FACILITES**

14. Compared to two years ago, would you say the priority given to promoting healthy eating/drinking by the council has:

- d) Decreased

- e) Stayed the same
- f) Increased
- g) Unsure

15. Has your council collaborated with any local health services to develop and/or support local promotion of healthy eating and drinks?

- a) No
- b) Yes –please specify including.
 - i. Support
 - ii. Resourcing

For the following four questions please drag the bar across the line to the spot which most accurately represents council leadership's current position

16. Within your LGA would you say **promoting healthy eating/drinking** is a: (0= low priority, 5= medium priority, 10= high priority)

0	5	10
Low priority		High priority

17. What is the council's position on taking action to **reduce the prevalence of obesity in your LGA?** (0= we have not thought about it, 10= it is a major focus)

0	5	10
We have not thought about it		We are giving it all our focus

18. What is the council's position on taking action to **improve public health and wellbeing LGA?** (0= we have not thought about it, 10= it is a major focus)

0	5	10
We have not thought about it		We are giving it all our focus

Skip Logic Only council that noted change*

19. What is the council's position on taking action to **increase the availability of healthy food and/or drink** in your council-owned sport and recreation facilities? (0= we have not thought about it, 10= We have completed all changes to increase availability of healthy offerings)

0	5	10
We have not thought about it		We have completed all changes to increase availability of healthy offerings

20. What is the council's position on taking action to **reduce the availability of sugary drinks for sale** in your council-owned sport and recreation facilities? (0= we have not thought about it, 10= we have fully removed sugary drinks)

0	5	10
We have not thought about it		We have fully removed sugary drinks

21. What is the council's position on taking action to **reduce the availability of unhealthy foods for sale** in your council-owned sport and recreation facilities? (0= we have not thought about it, 10= we have fully removed unhealthy food)

0	5	10
We have not thought about it		We have fully removed unhealthy food

22. Please attach any official **council policies** relating to the provision of food and drinks within any of your council's sport and recreation facilities.

If you need to upload multiple files please compress all files into a ZIP file before uploading. Files uploaded can be up to 100MB. For security reasons, executable files (such as those ending in .exe) are not permitted.

Or please enter the weblink below

****End skip logic****

23. Does the council have any **other** official policies relating to healthy food and drink provision within the community outside the sport and recreation scope?

This may include health care services, schools and childcare centres.

For example: all council events must have free water available

- a. Yes
- b. No
- c. I don't know

24. Please attach any official **council policies** relating to healthy food and drink provision within the community **outside the sport and recreation scope** (optional)

For example: Healthy catering policy for staff events

If you need to upload multiple files please compress all files into a ZIP file before uploading. Files uploaded can be up to 100MB. For security reasons, executable files (such as those ending in .exe) are not permitted.

Or please enter the weblink below

25. Do you have any other comments you would like to make about public health practises throughout your LGA, including how the state government can help you achieve your goals in this area?

26. Do you have any other comments you would like to make regarding the survey?

Appendix 9: Customer Survey

You must be 15 years or older to complete this survey

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks, flavoured milk excluding the diet version

Definition of diet drinks: diet drinks refers to drinks that are sugar free, artificially sweetened and include the diet and zero versions (e.g. PowerAde zero, diet coke).

1. Please select which sport and recreation facilities you are at today? (Please tick one)
2. In the past 6 months, how often would you usually purchase food or drink from the food outlet at this facility? (Please circle one)
 - a. Everyday
 - b. Three or more days a week
 - c. One or two days a week
 - d. Less than once a week
 - e. Less than twice per month
 - f. Never before

<p>3. What food/s did you purchase from the food outlet at this facility today? (Tick all that apply)</p> <ul style="list-style-type: none"><input type="radio"/> Lollies, chocolate, chips (packet)<input type="radio"/> Cakes, biscuits, muffins<input type="radio"/> Ice creams or icy poles<input type="radio"/> Sandwiches, rolls, wraps<input type="radio"/> Fruit, vegetables<input type="radio"/> Sausage rolls, hot chips, fried foods<input type="radio"/> Hot meals<input type="radio"/> Sushi<input type="radio"/> Other <p>Please specify:</p> <p>_____</p> <p>_____</p> <ul style="list-style-type: none"><input type="radio"/> I didn't purchase food	<p>4. What drink/s did you purchase from the food outlet at this facility today? (Tick all that apply)</p> <ul style="list-style-type: none"><input type="radio"/> Regular soft drink or regular energy drink<input type="radio"/> Diet soft drink or diet energy drink<input type="radio"/> Water<input type="radio"/> Slushy<input type="radio"/> Milkshake/thick shake<input type="radio"/> Smoothie<input type="radio"/> Coffee/ tea<input type="radio"/> hot chocolate<input type="radio"/> Other <p>Please specify:</p> <p>_____</p> <p>_____</p> <ul style="list-style-type: none"><input type="radio"/> I didn't purchase drinks
---	---

5. Did you drink any water while you were at the facility today?
 - Yes
 - No

6. If yes, when you drank water did you (tick all relevant):

- purchase water at the facility
- bring water from home
- purchase water from outside the facility
- use the water fountain at the facility

7. What would make you more likely to drink from the water fountain? (tick all that apply)

- Cleanliness of fountain
- Appearance of the fountain
- Change in water temperature
- Better location
- Water pressure
- Other
Please specify

-
- I am happy with the water fountains
 - No water fountains at this facility

8. Did you consume any food or drinks while you were at the facility today that were brought from outside the facility?

- Yes
- No

9. If yes, what did you bring from outside the facility? (Tick all relevant)

- Lollies, chocolate, chips (packet)
- Cakes, biscuits, muffins
- Ice creams or icy poles
- Sandwiches, rolls, wraps
- Fruit, vegetables
- Sausage rolls, hot chips, fried foods
- Hot meals
- Sushi
- Regular soft drink or regular energy drink
- Diet soft drink or diet energy drink
- Water
- Slushy
- Milkshake/thick shake
- Smoothie
- Coffee/ tea
- hot chocolate

- Other
Please specify
-

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks, flavoured milk excluding the diet version

Definition of diet drinks: diet drinks refers to drinks that are sugar free, artificially sweetened and include the diet and zero versions (e.g. PowerAde zero, diet coke).

- **Have you noticed any changes to the food and drink offered at the facility in the last 6 months?** Yes
- No

10. If yes, what have you noticed? (Tick all relevant)

- Changes in the variety of sugary drinks
 - Changes to the availability of sugary drink
 - Changes to fridge display
 - Changes to prices
 - Changes in the variety of water
 - Changes to the availability of water
 - Changes to advertising of water
 - Other. Please specify:
-

11. On how many days in the past week did you drink regular sugary drinks (non- diet version)?

- None
- 1-2
- 2-4
- 5-6
- 7

12. On how many days in the past week did you drink diet sugary drinks?

- None
- 1-2
- 2-4
- 5-6
- 7

13. Considering your current intake of sugary drinks, would you like to (circle one):

Drink much less	drink less	drink the same amount	drink more	drink much more
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14. Where is the most common place that you purchase sugary drinks?

- Supermarket
- Convenience store
- Restaurants
- Sport and recreation facilities
- Other. Please specify:

- I don't purchase sugary drinks

15. Which of the following do you think are healthy drink options for drinking every day?

(Tick all that apply)

- Water
- Juice
- Milk
- Regular soft drinks/regular energy drinks
- Diet soft drinks/diet energy drinks

16. Please select all those statements that apply. Drinking sugary drinks often will...

- Lead you to gain weight
- Increase your risk of heart disease
- Have no impact on your health
- Increase your risk of diabetes
- Help you live a healthier life
- Increase your risk of dental decay

17. Do you believe your community needs to implement changes to reduce sugary drink consumption? (Circle one)

Definitely yes	probably yes	probably not	definitely not	unsure
----------------	--------------	--------------	----------------	--------

18. Who do you think is responsible for reducing the consumption of sugary drinks? (Tick all that apply)

- Me
- Local Government
- Federal Government
- Parents of children
- Primary and secondary schools
- Other. Please specify:

- I don't think the level of consumption needs to be changed

- I don't know

19. If sugary drinks were removed from sales from your sports facility would you be most likely to (tick one):

- Buy no drinks
- Buy another sort of drink
- Bring your own sugary drinks (diet and regular) from outside
- Not applicable - I don't buy sugary drinks
- Other. Please specify:

20. What do you think sport and recreation facilities should do to help reduce the consumption of sugary drinks? (Tick all that apply)

- Increase the price of sugary drinks
- Reduce the price of water
- Remove all sugary drinks from customer view
- Remove all sugary drinks completely from sale
- Limit the amount of sugary drinks for sale
- Other. Please specify:

- I don't think they should change anything

21. In general, how much do you agree with the statement: “removing sugary drinks from sport and recreation facilities will lead to reduced consumption in the community”? (Circle one)

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
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22. How much do you agree with the statement: “Sport and recreation centres have a responsibility to promote healthy eating”? (Circle one)

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
-------------------	----------	----------------------------	-------	----------------

23. If you have any other feedback you would like to provide about this food outlet, please provide this below.

About you (demographic questions):

Age (circle one):

15 – 17	18 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65 years or older
---------	---------	---------	---------	---------	---------	-------------------

--	--	--	--	--	--	--

Gender (tick one): Female

- Male
- Other

What is your highest level of formal education that you have completed?

- Still in high school
- Did not complete high school
- Year 12 or Trade certificate or diploma
- University degree or higher

Postcode (home): _____

About your visit today:

No. of adults in your group (tick one):

- 1
- 2
- 3 +

No. of children your group (tick one):

- 0
- 1
- 2
- 3 +

Appendix 10: Staff Survey

You must be 18 years or over to complete this survey

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks, flavoured milk excluding the diet version

Definition of diet drinks: diet drinks refers to drinks that are sugar free, artificially sweetened and include the diet and zero versions (e.g. PowerAde zero, diet coke).

1. Please select which sport and recreation facility you work in (where applicable)

2. Which of these best describes your job position?

- a. Employed by council in senior management
- b. Employed by council in health promotion
- c. Employed by council in sport and recreation
- d. Employed by sport and recreation facility in management role
- e. Employed by sport and recreation facility in customer service or front-of-house role
- f. Volunteer at sport and recreation facility in management role
- g. Volunteer at sport and recreation facility in customer service or front-of-house role
- h. Other (please specify) _____

3. Time in role:

- a. Less than 6 months
- b. 6 months to 1 year
- c. More than 1 year and less than 2 years
- d. 2 years or more

4. In the past 6 months, how often have you personally purchased food or drink from council owned sport and recreation centres

- a. Everyday
- b. Three or more days a week
- c. One or two days a week
- d. Less than once a week
- e. Less than twice per month
- f. Never before

5. Within your organisation would you say promoting healthy eating is a:

- a. Low priority
- b. Medium priority
- c. High priority

6. Compared to one year ago, would you say the priority given to promoting healthy eating within your organizations has:

- a. Decreased
- b. Stayed the same
- c. Increased
- d. I don't know

- 7. Which of the following best represents your organisation's intent to improve the healthiness of your drink offerings available for sale in your sport and recreation facilities?**
- We have not thought about it
 - We are thinking about it
 - We are in preparation (planning programs and/or taking some steps)
 - We have made changes to the healthiness of drink offerings within the past 6 months
 - We made changes to the healthiness of drink offerings more than 6 months ago which are still fully in place
 - We made changes to the healthiness of drink offerings more than 6 months ago which are no longer fully in place

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks, flavoured milk excluding the diet version

- 8. Are you aware of any official policies relating to the provision of drinks within your council's sport and recreation facilities that include the following? (select as many that apply)**
- No sugary drinks allowed to be sold
 - Sugary drinks must be hidden from customer (off display)
 - Reduced the amount of sugary drinks available for sale
 - No advertising of sugary drinks
 - Decrease the price of water
 - Increase availability of water
 - Other (please specify _____)
 - I'm not sure

- 9. Have you been involved with any healthy food or drinks changes made in your organisation?**
- Yes
 - No

- 10. If yes, what has been your role? (select all that apply)**
- Implementing the changes (e.g. ordering stock, rearranging shelves)
 - Policy development (planning, writing, approving policy)
 - Talking to customers about changes
 - Other (please specify _____

_____)

- 11. Would you support your council making additional/new health related changes to your sport and recreation facilities related to the provision of healthy food and drinks?**
- Yes
 - No

Definition of sugary drinks: sugary drinks refers to any drink that has added calories from sweeteners including soft drinks, sodas, sport and energy drinks, fruit drinks, flavoured milk excluding the diet version

12. In general, how much do you agree with the statement “removing sugary drinks from sport and recreation facilities will lead to reduced consumption in the community?”

- a. Strongly disagree
- b. Disagree
- c. Neither agree nor disagree
- d. Agree
- e. Strongly Agree

13. How much do you agree with the statement: “Sport and recreation centres have a responsibility to promote healthy eating.”

- a. Strongly disagree
- b. Disagree
- c. Neither agree nor disagree
- d. Agree
- e. Strongly Agree

14. Would you be willing to be contacted by the researchers for further follow-up concerning healthy drinks changes in sport and recreation facilities, for a:

- a. Follow up survey
- b. Follow up interview
- c. Neither

15. If you have selected a or b in question 16, please provide email address

Email addresses will only be available to Deakin University researchers involved in the project in order to look at changes in responses over time and/or to invite you to participate in further research for this project. Email addresses WILL NOT be used to identify you in any communication with your employer or in any publication.

Thank you for participating in this survey. Please add any final comments you have about the survey or this project: _____

Appendix 11: Sensitivity analysis results for customer and staff survey

Table S3: Comparison of awareness and knowledge between baseline and follow-up for customers from facilities that implemented the 'limit red drinks' nudge between baseline (2018, n = 871) and follow-up (2019, n =954) surveys

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 871)	Follow-up (n = 954)	
Awareness of change: Have you noticed changes to:			
The food and drink offered at the facility	20.5 [17.7,23.3]	23.4 [20.6,26.3]	+2.9 [-1.5,+7.3]
The variety of sugary drinks	3.6 [2.4,4.8]	7.8 [5.5,10.1]	+4.2 [+1.4,+7.0]
The availability of sugary drinks	2.7 [1.7,3.7]	10.9 [8.1,13.9]	+8.2 [+5.0, +11.5]
The fridge display	8.9 [7.0,10.7]	16.8 [13.9,19.7]	+7.9 [+4.2,+11.7]
The price of drinks	3.3 [2.0,5.1]	5.7 [3.6,7.8]	+2.4 [-0.3,+5.2]
The variety of water	1.8 [0.9,2.7]	5.6 [3.7,7.6]	+3.8 [+1.5,+6.1]
The availability of water	1.7 [0.8,2.5]	7.1 [4.3,9.8]	+5.4 [+2.3,+8.4]
The advertising of water	0.8 [0.2,1.3]	5.2 [1.9,8.6]	+4.4 [+0.8,+8.1]
Knowledge related questions:			
<i>Is the following a healthy drink for everyday</i>			
Water	98.0 [96.8,99.1]	97.9 [96.9,99.0]	-0.1 [-1.6,+1.6]
Juice	15.0 [12.3,17.8]	13.8 [11.5,16.1]	-1.2 [-5.2,+2.7]
Sugary drinks	2.2 [0.9,3.5]	1.6 [0.7,2.5]	-0.6 [-2.3,+1.0]
Diet sugary drinks	2.2[1.2,3.2]	5.8 [3.8,7.8]	+3.6 [1.2,+6.0]
<i>Drinking sugary drinks often will</i>			
Lead to weight gain	90.8 [88.6,93.0]	93.8 [92.2,95.5]	+3.0 [0.0,+6.1]
Increase your risk of heart disease	74.3 [71.1,77.5]	79.3 [76.4,82.1]	+5.0 [0.3,+9.7]
Have no impact on your health	9.6 [7.4,11.9]	8.7 [6.7,10.8]	-0.9 [-4.3,+2.5]
Increase your risk of diabetes	85.3 [82.8,87.8]	84.9 [82.4,87.5]	-0.4 [-4.3,+3.5]
Help you live a healthier life	3.2 [1.8,4.6]	3.9 [2.4,5.3]	+0.7 [-1.4,+2.8]
Increase your risk of dental decay	86.2[83.7,88.8]	86.0 [83.5,88.4]	-0.2 [-4.2,+3.6]
Water consumption			

Survey question and possible answers	Mean [95% CI]		Percentage point difference in response between baseline and follow-up [95% CI] ¹
	Baseline (n = 871)	Follow-up (n = 954)	
Drank water while at the facility on day of survey	78.6 [75.5,81.7]	81.4 [78.9,84.0]	+2.8 [-1.6,+7.2]
Agreement with: ³			
<i>Sport and recreation facilities have a responsibility to promote healthy eating</i>			
Strongly disagree	5.4 [4.3,6.5]	6.6 [5.3,8.0]	+1.2 [+0.0,+2.4]
Disagree	3.8 [2.9,4.7]	4.5 [3.5,5.5]	+0.7 [+0.0,+1.4]
Neither disagree no agree	12.2 [10.5,13.9]	14.0 [12.2,15.9]	+1.8 [+0.0,+3.7]
Agree	36.1 [33.7,38.4]	37.3 [35.0,39.6.0]	+1.2 [+0.0,+2.5]
Strongly agree	42.5 [39.1,46.0]	37.5 [34.4,40.7]	-5.0 [-9.8,-0.1]
<i>Removing sugary drinks from sport and recreation facilities will lead to reduced consumption in the community</i>			
Strongly disagree	8.2 [6.8,9.7]	9.8 [8.1,11.4]	+1.6 [-0.1,+3.2]
Disagree	14.0 [12.2,15.9]	15.9 [13.9,17.8]	+1.9 [-1.7,+3.8]
Neither disagree no agree	22.7 [20.6,24.7]	23.9 [21.8,25.9]	+1.2 [-0.1,+2.6]
Agree	36.3 [33.9,38.7]	34.4 [32.0,36.8]	-1.9 [-3.9,+0.2]
Strongly agree	18.8 [16.4,21.3]	16.2 [14.1,18.2]	-2.6 [-5.5,+0.2]

Note, surveys where the facilities were unknown were excluded from the analysis (n = 309)

¹ Statistically significant differences (p<0.05) between responses at baseline and at follow-up are bolded.

²“Yes” responses reported.

³ Ordered logistic regression compared change across question response.

Table S4: Comparison of staff knowledge regarding organisational intent to healthy changes and awareness of policies related to the healthy change intervention at baseline and follow-up for staff from facilities where a 'limit red drinks' nudge was implemented between baseline and follow-up surveys

Survey question and possible answers	Mean [95% CI]		Difference in response between baseline and follow-up (%) ¹
	Baseline (n = 83)	Follow-up (n = 97)	
Organisational intent:			
<i>Promoting healthy eating is a:</i>			
Low priority	17.6 [10.5, 24.6]	11.7 [6.6, 16.8]	-5.9 [-12.9, +1.1]
Medium priority	43.6 [35.7, 51.6]	38.0 [30.3, 45.4]	-5.6 [-12.6, +1.0]
High priority	38.7 [28.8, 48.7]	50.5 [41.1, 60.0]	+11.8 [-1.5, +25.0]
<i>Compared to one year ago, has the above:</i>			
Decreased	5.8 [2.0, 9.5]	3.9 [1.2, 6.5]	-1.9 [-4.2, +0.3]
Stayed the same	24.8 [17.8, 31.9]	19.4 [13.3, 25.4]	-5.5 [-11.1, +0.1]
Increased	53.2 [43.0, 63.4]	67.1 [58.0, 76.0]	+13.9 [+0.4, +2.74]
Unsure	16.2 [9.4, 22.7]	9.7 [5.0, 14.4]	-6.5 [-13.0, 0.0]
<i>Which best describes your organisation's intent on making healthy changes:</i>			
Not thought about it	11.2 [5.2, 17.1]	3.5 [1.2, 5.7]	-7.7 [-12.6, -2.8]
Thinking about it	13.5 [7.3, 19.7]	5.1 [2.2, 8.0]	-8.4 [-13.3, +3.5]
Preparing for change	17.8 [11.2, 24.6]	8.9 [4.9, 12.9]	-8.9 [-14.0, +3.9]
Made changes within the past 6 months	38.4 [30.8, 46.0]	37.4 [30.1, 44.8]	-0.9 [-6.2, +4.2]
Made changes more than past 6 months that are still in place	18.3 [11.3, 25.4]	42.7 [33.6, 51.9]	+24.4 [+14.0, +34.8]
Made changes more than past 6 months that are no longer fully in place	0.7 [-0.1, 1.5]	2.4 [-0.3, 5.0]	+1.7 [-2.8, +3.7]
Awareness of policy change: Are you aware of a policy related to:			
No sugary drinks sold	No affirmative responses	6.9 [2.0, 11.9]	
Sugary drinks must be hidden from view	6.8 [1.6, 12.3]	5.9 [1.3, 10.5]	-1.1 [-8.1, +6.0]
Reducing the amount of sugary drinks for sale	34.9 [24.8, 45.0]	58.2 [48.9, 67.5]	+23.5 [+9.6, +37.4]
No advertising of sugary drinks	24.4 [15.3, 33.5]	35.6 [26.3, 45.0]	+11.2 [-1.8, +24.2]
Decreasing the price of water	10.5 [3.9, 17.0]	8.9 [3.4, 14.5]	-1.6 [-10.8, +7.0]
Increasing the availability of water	31.4 [21.6, 41.2]	45.5 [36.0, 55.3]	+14.1 [+0.3, +28.0]

Survey question and possible answers	Mean [95% CI]		Difference in response between baseline and follow-up (%) ¹
	Baseline (n = 83)	Follow-up (n = 97)	
Agreement with: ³			
<i>Sport and recreation facilities have a responsibility to promote healthy eating</i>			
Strongly disagree	4.2 [1.1, 7.3]	4.6 [1.3, 8.0]	+0.4 [-1.9, +2.7]
Disagree	5.9 [2.2, 9.5]	6.3 [2.2, 9.5]	+0.4 [-2.3, +3.3]
Neither disagree no agree	15.0 [9.2, 20.9]	16.0 [10.0, 22.0]	+1.0 [-4.4, +6.2]
Agree	44.2 [37.1, 51.6]	44.5 [37.2, 51.8]	+0.3 [-0.8, +1.1]
Strongly agree	30.5 [21.4, 39.5]	28.5 [20.1, 36.9]	-2.0 [-1.3, +9.3]
<i>Removing sugary drinks from sport and recreation facilities will lead to reduced consumption in the community</i>			
Strongly disagree	6.7 [2.5, 10.8]	5.6 [2.1, 9.1]	-1.1 [-4.1, +2.1]
Disagree	18.4 [11.6, 25.2]	16.2 [10.2, 22.2]	-2.2 [-8.7, +4.3]
Neither disagree no agree	30.1 [23.1, 35.7]	28.9 [22.0, 35.7]	-1.2 [-4.9, +2.5]
Agree	35.7 [27.4, 44.0]	38.5 [30.4, 46.7]	+2.8 [5.7, +11.3]
Strongly agree	9.2 [4.4, 13.9]	10.7 [5.5, 15.9]	+1.5 [-3.2, +6.3]
Would you support council with:			
Making new/additional healthy changes	88.0 [80.1, 95.0]	94.8 [90.4, 99.0]	+96.8 [-1.4, +15.2]

Note, surveys where the facilities were unknown were excluded from the analysis (n = 193), a further 54 were excluded depending on nudge implementation

¹ Statistically significant differences (p<0.05) between responses at baseline and at follow-up indicated in bold.

² Ordered logistic regression compared change across question response.

Appendix 12: Project officer progress survey

This survey will ask your thoughts on the value and potential challenges associated with the Water in Sport initiative. In the survey, “Water in Sport” refers to both policy changes and changes to drink availability associated with the initiative within your LGA. “Food outlets” refers to food and/or drink retail outlets within council-owned sport and recreation facilities. “Healthy drink provision changes” refers to changes to either: display of ‘red’ drinks – i.e. ‘red drinks off display’ OR ‘red’, ‘amber’, ‘green’ shelf space changes (<20% ‘red’ drinks available) as part of the Water in Sport initiative.

Section One

Please **highlight a response** from “strongly disagree” to “strongly agree” to indicate your agreement with each of the following statements:

Question	Answer				
Q1 <u>‘Water in Sport’ is endorsed by the leadership of my local council (e.g. through formal policy).</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q2 <u>‘Water in Sport’ receives practical support from my local council (e.g. additional EFT).</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q3 <u>‘Water in Sport’ fits with the strategic aims of my LGA’s council-owned sport and recreation facilities.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q4 <u>Healthy drink provision is supported by the broader local community.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q5 <u>Food outlet managers are willing to implement ‘Water in Sport’.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q6 <u>‘Water in Sport’ is time consuming for food outlet staff to implement.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q7 <u>‘Water in Sport’ is costly to implement for sport and recreation facilities (e.g. through extra resources).</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Section Two

Please highlight a response from “strongly disagree” to “strongly agree” to indicate your expectations regarding the following outcomes at project completion.

Q8	<u>‘Water in Sport’ will require changes to sport and recreation facility operation.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q9	<u>‘Water in Sport’ can be implemented in a staged-approach (where each step can be trialed and adjusted).</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q10	<u>‘Water in Sport’ will improve the healthiness of the food environment.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q11	<u>‘Water in Sport’ will improve the healthiness of the food environment beyond what would have occurred otherwise over the next X [time period until the end of WIS project] ..</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q12	<u>‘Water in Sport’ will be visible to the public.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q13	<u>‘Water in Sport’ will improve the image of food outlets.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q14	<u>‘Water in Sport’ will create a positive point-of-difference in comparison with sport and recreation facility competitors.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q15	<u>‘Water in Sport’ will be supported by customers.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q16	<u>‘Water in Sport’ will increase food outlet profit.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q17	<u>‘Water in Sport’ contributes to favourable relationships with external organisations.</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q18	<u>‘Water in Sport’ could be adapted to fit with changes in food outlets over time (e.g. customer changes).</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q19	<u>‘Water in Sport’ is likely to be maintained in my LGA food outlets over the next X [time period until the end of WIS project] .</u>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Section Three

For the questions below, please **highlight a response** from “greatly decreases” to “greatly increases” to indicate the relationship between different factors which may affect implementation of the ‘Water In Sport’ project in your LGA. Then, rank the strength of influence of these relationships in your LGA using the column on the right-hand side of the page from 1 (strongest effect) to 9 (weakest effect). Each number from 1 to 9 should appear once.

Part 1: Direction of relationship					Part 2: Ranking	
Relationship 1 <i>(highlight response)</i>	Local council leadership endorsement of healthy drink changes (e.g. adoption of formal policy) the likelihood of changes to healthy drink provision.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 2 <i>(highlight response)</i>	'Water in Sport' participation... ... the healthiness of drink provision at food outlets.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 3 <i>(highlight response)</i>	Healthy drink provision changes... ... the healthiness of drink purchases.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 4 <i>(highlight response)</i>	Profitability of healthy drink changes the food outlet manager's willingness to participate in a healthy drink initiative.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 5 <i>(highlight response)</i>	Broader community support for healthy food retail in sport and recreation facilities... ... the food outlet manager's willingness to participate in a healthy drink initiative.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 6 <i>(highlight response)</i>	Customer support for healthy drink provision changes in sport and recreation facilities... ... the food outlet manager's willingness to participate in a healthy drink initiative.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	
Relationship 7 <i>(highlight response)</i>	Broader community support for healthy food retail in sport and recreation facilities... ... local council practical and resource support for healthy drink changes.					
	Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases	

Relationship 8 Food outlet staff time and/or resources required for healthy drink provision changes...

(highlight response)

Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases
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... the food outlet manager's willingness to participate in a healthy drink initiative.

Relationship 9 Local council practical and resource support for healthy drink changes...

(highlight response)

Greatly decreases	Slightly decreases	Has no effect on	Slightly increases	Greatly increases
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...the sustainability of healthy drink provision changes.

Have you already encountered or do you anticipate any other potential barriers or enablers to implementing the Water in Sport project not listed above? Please describe:

End of survey. Thank you for taking the time to complete.

Barriers:	
Enablers:	

Appendix 13: Interview discussion guide

Table S5: Project officer interview discussion guide

No.	Question
1	Can you describe your role at [organisation]? a. How long have you been in this role?
2	How does implementation of the Water in Sport initiative fit into your role? a. may be to inspire, coach, practical support, enforcement
3	Can you describe for me the first steps you took towards implementing the WIS project? a. Why did you start there? b. What were the consequences of that action?
4	Can you describe how you approached the café management or staff in relation to the WIS project? (How were you approached?)
5	What steps did take to implement the nudges? a) Did you need to source new products or a new drinks supplier?
6	What changes have you seen as a results of the changes to healthy drinks? How have retailers/ councils responded to seeing those changes?
7	What has been the response by customers to change? What factors have you found affect whether healthy changes are acceptable to customers? How has this changed over time?
8	Can you describe how the healthy drink changes have affected store sales? b. How do retailers measure and respond to changes in profitability?
9	Can you tell me about some of the other people involved in making these changes and what their role was?
10	What has been the role of your managers and other staff within council? a. Can you describe any support you received from council and facility staff? b. Would any further support have been helpful?
11	What support did you received from Nutrition Australia and VicHealth to implement WIS? a) Was it the level of support you anticipated? b) Can you describe any tools available from Nutrition Australia? Did you find them useful? (e.g. FoodChecker, policy planning docs). c) What was most useful about the Nutrition Australia workshops? d) What could have been done differently? (what was least useful?) e) Would any other support have been useful?
12	Can you describe the progress towards embedding policies within you council/ the WIS councils? a. What factors have influenced the ability to have those policies endorsed? b. How high a priority do you think this project has been for Melton council management? c. Healthy Food and Drink Policy- not specific to sport and rec- how to encompass water in Sport?
13	Can you describe a challenge you've encountered through the WIS process and how you worked through it or tried to work through it? a) What happened? b) Who was involved?

No.	Question
	<p>c) What tools or resources did you use? Did you received any other support from Nutrition Australia?</p> <p>d) Are there any other resources that would have been useful?</p> <p>e) (Diminishing returns, working with suppliers)</p>
14	<p>Did all the planned facilities and clubs make the planned drink changes?</p> <p>a. Why do you think this differed from what had been planned? (what was different about sites that did or did not complete the planned changes? What was different about the circumstances?)</p> <p>b. Melton Indoor Recreation centre- only weekend hours</p> <p>Did you notice any difference between facilities and clubs in implementing changes?</p>
15	<p>What do you think will happen in healthy retail in the WIS councils in the future?</p> <p>Are some sites more likely to maintain changes than others? Why?</p> <p>What do you think could be done to increase the likelihood of changes being maintained?</p> <p>Are there alternative sources of funding that could be used for capacity building?</p>
16	<p>If someone in a similar position to yourself at another council/ centre was going to be involved in implementing (as relevant) healthy drink changes, what advice would you give them?</p> <p>a. Where should they start?</p>
17	<p>What are the characteristics of an effective project officer in this kind of project?</p> <p>Are different skills more important at different stages of the project?</p>
18	<p>For the interviews, we are also speaking to other people from Nutrition Australia, VicHealth and planning to talk to some project officers and their managers. Who else do you think we should talk to get a better idea of the process and outcomes of the WIS project?</p>
19	<p>Is there anything else you would like to add to your conversation today?</p> <p><i>Outline what will happen next to results, transcripts</i></p>

Table S6: Council manager interview discussion guide

No.	Question
1	Can you describe your role at X? a. How long have you been in this role?
2	How does implementation of the Water in Sport initiative fit into your role? a. (senior management) may be to inspire, coach, practical support, enforcement
3	Can you tell me about some of the other people involved in making these changes and what their role was?
4	Can you describe the general approach to implementing healthy drink policies at X? a. Why did you start there? b. What were the consequences of that action?
5	What support did you received from Nutrition Australia and VicHealth to implement WIS? f) Was it the level of support you anticipated? g) Can you describe any tools available from Nutrition Australia? Did you find them useful? (e.g. FoodChecker, policy planning docs). h) What was most useful about the Nutrition Australia workshops? i) What could have been done differently? (what was least useful?) j) Would any other support have been useful?
6	Did all the planned facilities and clubs make the planned drink changes? Same pace? a. Why do you think this differed from what had been planned? (what was different about sites that did or did not complete the planned changes? What was different about the circumstances?)
7	What changes have you seen as a results of the changes to healthy drinks? How have retailers/ councils responded to seeing those changes? Can you describe how the healthy drink changes have affected store sales?
8	Can you describe the progress towards embedding policies within your council? a. What factors have influenced the ability to have those policies endorsed?
9	What are the characteristics of an effective project officer in this kind of project? Are different skills more important at different stages of the project?
10	What do you think will happen in healthy retail in the future in your local council/ to the WIS councils in the future? Are some sites more likely to maintain changes than others? Why? What do you think could be done to increase the likelihood of changes being maintained? Are there alternative sources of funding that could be used for capacity building?
11	If someone in a similar position to yourself at another council was going to be involved in implementing healthy drink policies, what advice would you give them? a) Where should they start? b) What should they do next?
12	Is there anything else you would like to add to your conversation today? <i>Outline what will happen next to results, transcripts</i>

