

HEALTHY DIETS ASAP
PROCOTOL REPORT –
WARRNAMBOOL CITY
COUNCIL 2023



Introduction

Recently, the cost of living has skyrocketed both in Australia and globally, with essentials such as petrol, power bills, groceries, rent and mortgages increasing disproportionately to income (Foodbank, 2023; Grattan Institute, 2023). For some, this has caused them to radically alter their shopping behaviours and food consumption, as food becomes a discretionary item with little left in their household budget after meeting commitments.

Food security is defined as *“when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets the dietary needs and food preferences for an active and health life”* (Food and Agricultural Organization, 2012). Conversely, food insecurity exists *“whenever the availability of nutritionally adequate and safe foods, or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain”* (Food and Agricultural Organization, 2012).

Food insecurity can negatively impact mental, physical and social health. Households experiencing food insecurity often have poor diet quality, inadequate nutritional intake and are subject to a higher risk of disease and chronic conditions such as diabetes, obesity and heart disease (Bowden, 2020).

Food insecurity is a growing issue locally in the Warrnambool City Council (WCC) as demonstrated in the Victorian Population Health Survey (2014 and 2020). In 2014, 4.3% of adults ran out of money to buy food, whereas in 2020, the percentage of people reporting that they had run out of food in Warrnambool increased to 6.6%, (VAHI, 2020).

On a smaller scale, a [survey](#) conducted by SWH Health Promotion in 2022, which targeted households at risk of food insecurity, found:

- 34% of survey respondents had worried they would run out of food before having money to buy more
- 27% had run out of food in the past 12 months and didn't have enough money to buy more

Given this data, and the anecdotal evidence indicating the increased demand for emergency food relief, the South West Healthcare (SWH) Health Promotion team further investigated food affordability and availability locally. In 2022, the health promotion team utilised the Victorian Healthy Food Basket Survey to assess the cost of food, however in 2023 the team employed the Healthy Diets Australian Standardised Affordability and Pricing (ASAP) Method Protocol to monitor food cost. Findings from the ASAP protocol will be used to raise awareness of food cost, advocate for improved access to affordable food in the WWC and inform local food initiatives.

Local Context

Warrnambool City Council is located in south-west Victoria and covers 120sqkm and includes localities of Warrnambool Central, Allansford, Bushfield, Woodford, Dennington, Merrivale, South East Hopkins and Warrnambool North. Warrnambool has an overall estimated population of 35,600 and is the largest city in South West Victoria.

Map of Barwon South West Region and Warrnambool City Council municipal



[Regional Development Victoria](#)

[Victoria State Emergency Service](#)

Healthy Eating Indicators

Adults	Warrnambool City:		
<ul style="list-style-type: none"> Proportion of adults meeting the vegetable consumption guidelines 	2014	2017	2020
	9%	4%	NA
<ul style="list-style-type: none"> Proportion of adults meeting the fruit consumption guidelines 	58%	40%	NA
<ul style="list-style-type: none"> Proportion of adults drinking soft drink daily 	8%	12%	NA
Children	Warrnambool City:		
<ul style="list-style-type: none"> Children compliance with Vegetable guidelines (year 4 and year 6 students) 	2015	2017	2019
	19%	19%	22%
<ul style="list-style-type: none"> Children compliance with Fruit guidelines (year 4 and year 6 students) 	73%	77%	83%
<ul style="list-style-type: none"> Proportion of participating year 4&6 students consuming sugar sweetened drink <1 serve/day on average 	21%	15%	11%

Indicators of disadvantage and factors related to food security;

Indicator/Factor	Warrnambool	Victoria
SEIFA Index of Relative Socio-economic Disadvantage (ABS)	995 (Decile 7)	NA
Median Age	42	38
Households where a non-English language is spoken	6.5%	30.2%
Median weekly personal income	\$759	\$803
Median weekly household income	\$1420	\$1759
% of households with less than \$650 gross weekly income	19.8%	16.4%
Unemployed	3.1%	5.0%

Single parent households	17.5% (17.6% male, 82.6% female)	15.2% (19.1% male, 80.9% female)
Employment status of parents in couple families; both not working	22.5%	19.8%
Rented household	28%	28.5%
Renter households where rent payments are greater than 30% of household income	31.1%	30.9%
Owner with mortgage repayments greater than 30% of household income	10.6%	15.5%
Reported fair or poor health	22.9%	21.4%
Long-term health conditions (top 5)	MH- 10.4% Asthma- 9.9% Arthritis- 9.7% Diabetes- 5% Heart disease- 4.9%	Art – 8.0% MH - 8.8% Asthma – 8.4% Diabetes – 4.7% Heart – 3.7%
Aboriginal and/or Torres Strait Islander peoples	2.0%	1.0%
Above data is taken from ABS Census Data 2021		

Methodology

There is an array of food basket tools and surveys that have been developed in Australia to monitor and assess cost of food (Lewis and Lee, 2016). In 2022, the South West Healthcare Health Promotion team conducted an investigation into the food affordability and accessibility in the WCC and utilised the Victorian Healthy Food Basket (VHFB) survey to assess food cost (Palermo and Wilson, 2007).

In 2023, the Healthy Diets Australian Standardised Affordability and Pricing (ASAP) Method Protocol was utilised to collect food costings in Warrnambool due to the VHFB being decommissioned. The ASAP Protocol was developed by the University of Queensland and is a tool that has been used nationally to assess, monitor and compare the cost of food (Lee et al., 2018).

The protocol compares the cost of a habitual (current, typically less healthy) diet and a recommended (healthy, equitable and more sustainable) for different household types. The current diet is based on actual dietary intake of the general population as reported in the 2011-2012 Australian Health Survey. The recommended diet outlines a diet consistent with the Australian Dietary Guidelines and is more nutritious than the current habitual diet. The protocol collates the types and quantities of food and drink for different family groups per fortnight, for both the recommended and current diet. The reference household consists of four people including an adult male 31–50 years old, an adult female 31–50 years old, a 14 year old boy and an 8 year old girl, and was primarily utilised in this study. However, additional household structures were also analysed for 1 store which was defined as Store A:

- Household 2 (n = 3): single parent with 2 children: adult female 31–50 yrs. old; boy 14 yrs. old; girl 8 yrs. old
- Household 3 (n = 1): single unemployed person: adult male 31–50 yrs. old
- Household 4 (n = 2): older couple with no children: senior adult male 70+ yrs. old; senior adult female 70+ yrs. old: pensioners

The ASAP protocol consists of five parts: diet pricing tools (current and recommended); store location and sample selection; collection and entering of food data; confirmation of household income (median gross income and indicative low disposable income); and analysis and reporting.

Collection of data in the WCC was completed on the 20th of July from Northpoint Coles, Central Warrnambool Woolworths, Swinton's IGA and Aldi Central and applied to the Central and Gateway Coles, Dennington and Gateway Woolworths and Gateway Aldi. Data was also collected from a variety of takeaway stores, including a bakery, a pizza store, burger store, fish and chip store and bottle shop.

Each store was contacted either via phone or email one week prior to conducting the ASAP protocol outlining the process, the purpose for data collection and how the information would be used to inform local initiatives. Upon arrival, each of the store managers were notified the data collection was taking place and to discuss any queries or concerns. Data collection at each supermarket took approximately 1 hour.

Data collected included usual price for specified item brands and sizes; price of cheapest brand if specified brand was unavailable; price of nearest larger size or nearest smaller size if specified size was unavailable; and usual price for loose fresh produce. Alternate product brand names and sizes were recorded in "my brand" and "my size" section. As per the protocol, missing items within a store were allocated the average price for that item from all other stores across the municipality.

Altogether 68 food items, 4 alcohol items and 4 takeaway food prices were recorded. 43 items are included in the recommended (healthy diet) and 75 items were included in the current (unhealthy diet).

The healthy diet includes:

Water	Baked beans	Beef steak
Bottled	Frozen mixed vegetables	Eggs
	Frozen peas	BBQ chicken
Fruit	Grain foods (Cereals)	Milk, yoghurt, cheese & alternatives
Apples	Wholemeal bread	Cheese, regular fat
Bananas	White bread	Cheese, low fat
Oranges	Rolled oats	Milk, full cream
Vegetables & legumes	Cornflakes	Milk, low fat
White Potato	Breakfast wheat biscuits	Yoghurt, regular fat
Broccoli	Spaghetti	Yoghurt, low fat
Cabbage	White rice	
Lettuce	Water crackers	Unsaturated oils & spreads
Carrot		Sunflower oil
Pumpkin	Lean meats, poultry, fish, eggs & alternatives	Olive oil
Brown onion	Tuna	Margarine
Tomato	Peanuts	
Tinned sweet corn	Beef mince	Other
Tinned 4 bean mix	Lamb chops	Sandwich
Tinned tomatoes		

The current diet includes all of the above with the exclusion of peanuts and the addition of

Discretionary choices - other

Tinned soup
Muffin- sweet
2 min Noodles
Sugar
Biscuits, cream-filled- Monte Carlo
Muesli bar
Savoury biscuits- BBQ shapes
Mixed nuts
Confectionary- Minties
Chocolate- Dairy milk
Chips/Crisps- Original
Salad dressing- Fresh
Tomato sauce

Beef sausages
Butter
Leg ham
Frozen lasagne
Frozen fish- Crumbed white fish
Ice cream- Vanilla

Alcoholic Drinks

Beer- VB
White wine, sparkling
Whisky
Red wine

Take-away foods

Pizza

Pie
Burger
Hot chips

Soft Drinks

Soft drink- Full strength cola

Artificially sweetened soft drink

Diet soft drink- Diet or no sugar cola

Other

Sandwich
Tinned steak & vegetables
Orange juice

Confirmation of median household income was obtained through the most recent census data from the Australian Bureau of Statistics (ABS, 2021). The welfare fortnightly household income was calculated based off Centrelink’s Payment and Service Finder and current welfare payment rates at the time (Centrelink, n.d). The low fortnightly income was calculated using minimum wage rates (Fair Work Ombudsman, n.d.). The affordability of both the recommended diet and current diet were calculated for the reference household based on a median fortnightly household income of \$2840, low fortnightly household income of \$2899.78 and a welfare fortnight household income of \$2087.04. Affordability of the diets was presented as a proportion of each of the household incomes.

To see the detailed breakdown of calculations used to provide the low fortnightly household income and the welfare fortnightly household income see Addendum A.

Results

**Results below are from the Healthy Diets ASAP Protocol Analysis 2023*

Table 1

Store A- Reference store					
Family of 4 (2 adults, 2 children)	Recommended diet fortnightly basket cost	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
	= \$724.29	Median Gross Income	\$2,840.00	26%	31%

	Current diet fortnightly basket cost = \$890.58	Low Household income	\$2,899.78	25%	31%
		Welfare dependent income	\$2,087.04	35%	43%
Older couple no children	Recommended diet fortnightly basket cost = \$348.62	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	12%	13%
	Current diet fortnightly basket cost = \$377.95	Low Household income	-	-	-
		Welfare dependent income	\$1752.00	20%	22%
Single person	Recommended diet fortnightly basket cost = \$192.06	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	7%	11%
	Current diet fortnightly basket cost = \$299.97	Low Household income	\$1535.03	13%	20%
		Welfare dependent income	\$806.70	24%	37%
Single parent family with 2 children	Recommended diet fortnightly basket cost = \$531.96	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	19%	21%
	Current diet fortnightly basket cost = \$590.79	Low Household income	\$2,2193.07	24%	27%
		Welfare dependent income	\$1641.27	32%	36%

Store B

Family of 4 (2 adults, 2 children)	Recommended diet fortnightly basket cost = \$732.00	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	26%	32%
Current diet fortnightly basket cost = \$896.17	Low Household income	Welfare dependent income	\$2,899.78	25%	31%
		Welfare dependent income	\$2,087.04	35%	43%

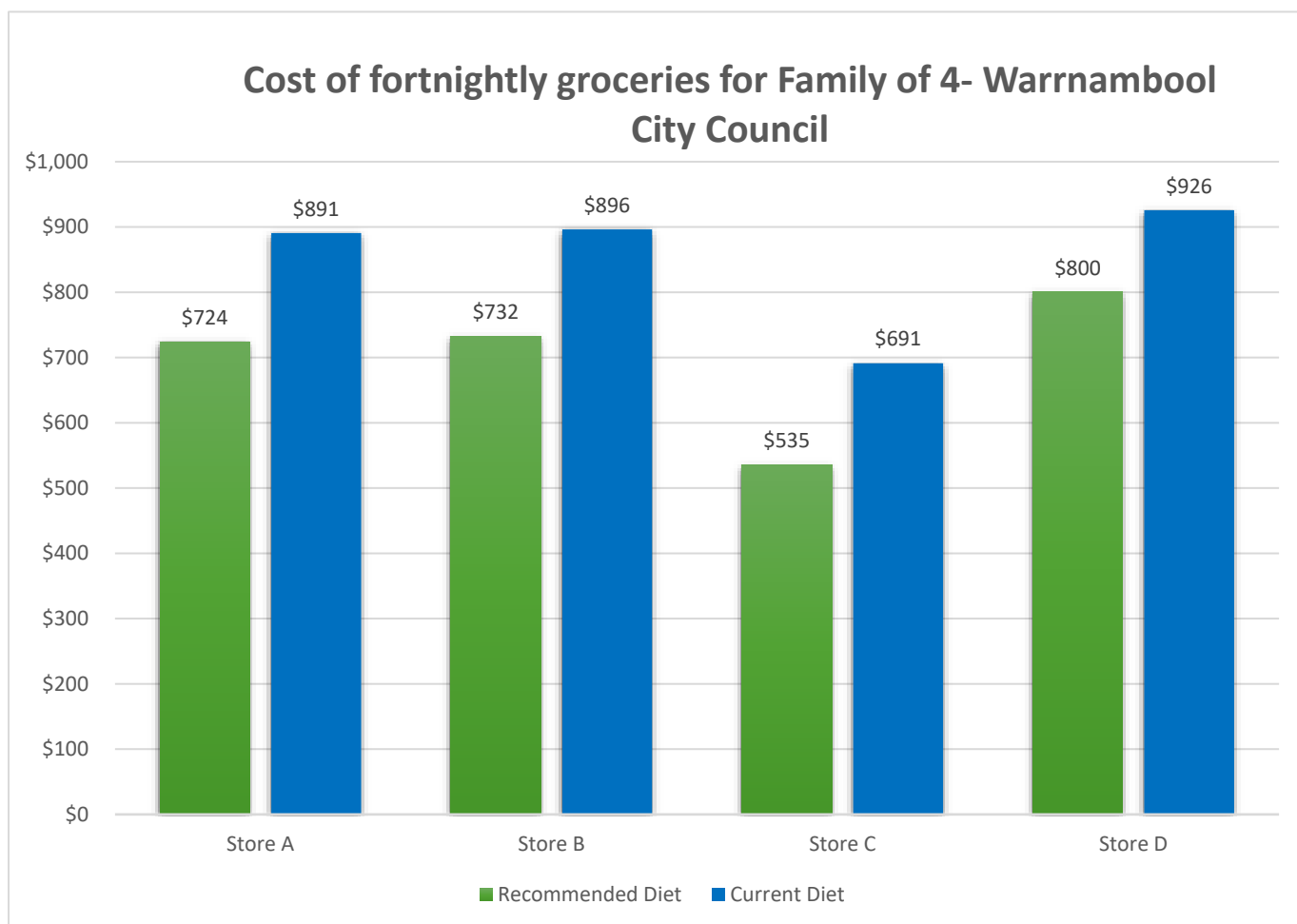
Store C

Family of 4 (2 adults, 2 children)	Recommended diet fortnightly basket cost = \$535.19	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	19%	24%
Current diet fortnightly basket cost = \$691.07	Low Household income	Welfare dependent income	\$2,899.78	18%	24%
		Welfare dependent income	\$2,087.04	26%	33%

Store D

Family of 4 (2 adults, 2 children)	Recommended diet fortnightly basket cost = \$800.36	Income type	Fortnightly income	% income Recommended diet	% Income Current Diet
		Median Gross Income	\$2,840.00	28%	33%
Current diet fortnightly basket cost = \$925.65	Low Household income	Welfare dependent income	\$2,899.78	28%	32%
		Welfare dependent income	\$2,087.04	38%	44%

Graph 1 – Costs of each diet at supermarkets



Difference of cost between select items collected from the Healthy Diets ASAP Protocol in 2023 and Victorian Healthy Food Basket (VHFB) survey collected in 2022

Whilst both the VHFB and ASAP tool monitor and measure the cost of the current standard Australian diet, the tools record different items and brands, and therefore we cannot directly compare the cost of food in the 2022 and 2023 analysis. The tools do however measure the cost price of the same fruit and vegetables and therefore we are able to track whether there has been an increase in cost of these items locally.

Table 2

Store A				
Product	Product size	Price 2022	Price 2023	Price Difference
Tomatoes	per 1kg	\$10.99	\$5.50	-5.49
Potatoes	per 1kg	\$2.25	\$3.90	+1.65
Pumpkin	per 1kg	\$3.90	\$3.50	-0.40

Cabbage	half	\$3.50	\$3.50	-
Lettuce	whole	\$3.50	\$3.90	+0.4
Carrots	per 1kg	\$2.40	\$2.50	+0.10
Onions	per 1kg	\$3	\$3.70	+0.70
Apples, red, loose	per 1kg	\$3.90	\$4.50	+0.60
Bananas, Cavendish, loose	per 1kg	\$3.50	\$4	+0.50
Orange, loose	per 1kg	\$2.20	\$2.50	+0.30
TOTAL		\$39.14	\$37.50	-1.64

Store B

Product	Product size	Price 2022	Price 2023	Price difference
Tomatoes	per 1kg	\$8.90	\$4.50	-4.4
Potatoes	per 1kg	\$4.50	\$3.50	-1
Pumpkin	per 1kg	\$3.50	\$3.50	-
Cabbage	half	\$3.80	\$3.50	-0.30
Lettuce	whole	\$5.90	\$3.90	-2
Carrots	per 1kg	\$1.33	\$2.50	+1.17
Onions	per 1kg	\$6.50	\$3.70	-2.80
Apples, red, loose	per 1kg	\$3.50	\$4.50	+1
Bananas, Cavendish, loose	per 1kg	\$2.80	\$4	+1.20
Orange, loose	per 1kg	\$1.63	\$2.90	+1.27
TOTAL		\$42.36	\$36.50	-5.86

Store C

Product	Product size	Price 2022	Price 2023	Price Difference
Tomatoes	per 1kg	\$7.99	\$4.99	-3
Potatoes	per 1kg	\$1.75	\$2.99	+1.24
Pumpkin	per 1kg	\$2.99	\$2.79	-0.20
Cabbage	half	\$3.49	\$2.99	-0.50
Lettuce	whole	\$6.49	\$3.29	-3.20
Carrots	per 1kg	\$1.99	\$1.29	-0.70
Onions	per 1kg	\$2.49	\$3.49	+1
Apples, red, loose	per 1kg	\$2.99	\$4.99	+2
Bananas, Cavendish, loose	per 1kg	\$2.99	\$3.99	+1
Orange, loose	per 1kg	\$1.83	\$2.29	+0.46
TOTAL		\$35.00	\$33.10	-1.90

Store D

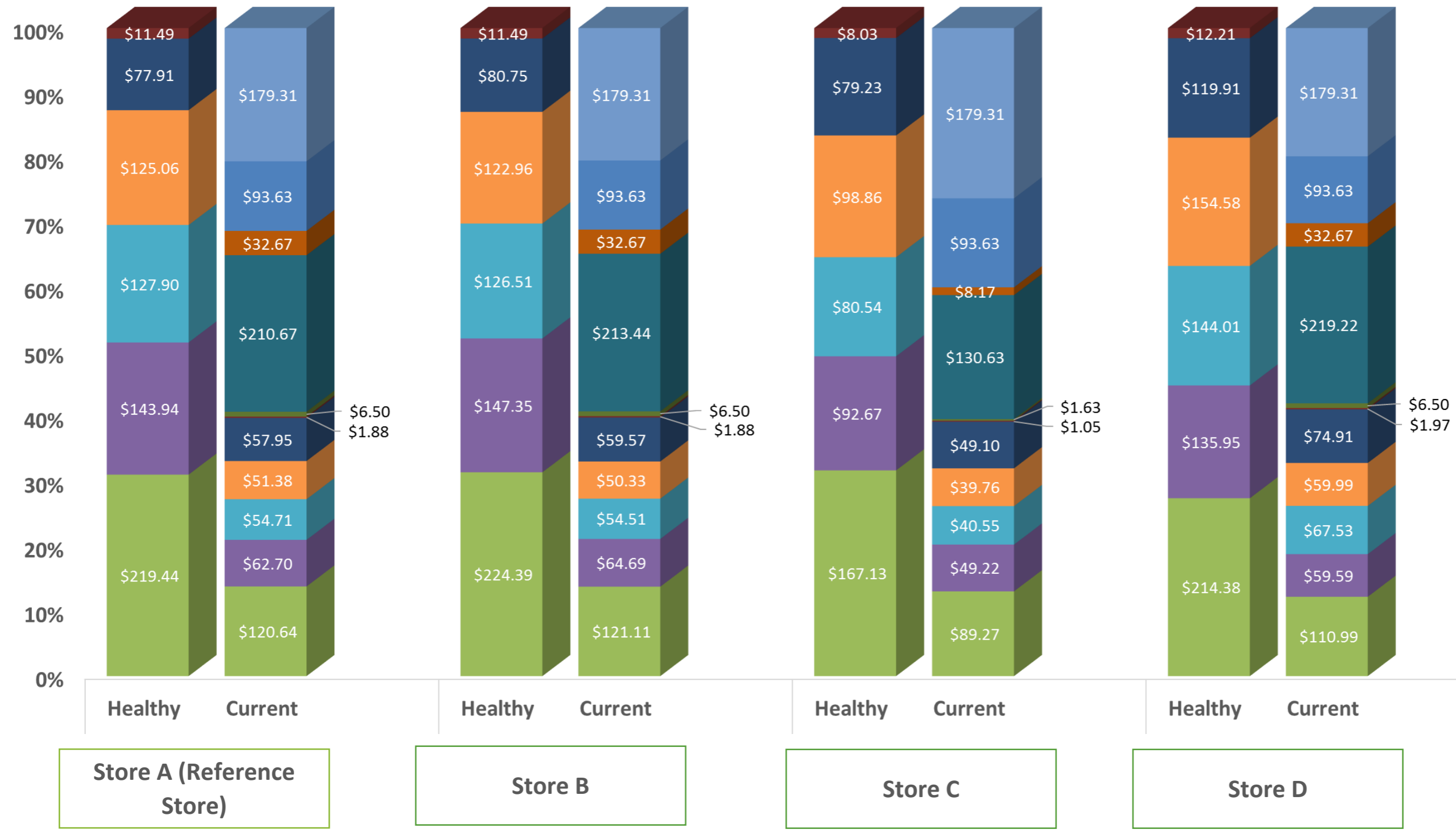
Product	Product size	Price 2022	Price 2023	Price difference
Tomatoes	per 1kg	\$10.99	\$5.99	-5

Potatoes	per 1kg	\$4.49	\$3.99	-0.50
Pumpkin	per 1kg	\$2.20	\$3.49	+1.29
Cabbage	half	\$6.00	\$3.50	-2.50
Lettuce	whole	\$4.49	\$5.99	+1.50
Carrots	per 1kg	\$2.20	\$2.99	+0.79
Onions	per 1kg	\$2.49	\$7.99	+5.50
Apples, red, loose	per 1kg	\$5.49	\$6.99	+1.50
Bananas, Cavendish, loose	per 1kg	\$3.49	\$5.99	+2.5
Orange, loose	per 1kg	\$2.66	\$3.99	+1.33
TOTAL		\$44.50	\$50.91	+5.60

**green indicates most affordable*

Graph 2: Cost breakdown of each food category for recommended and current diet

- Lean meat, poultry, fish, eggs and alternatives
- Milk, yoghurt, cheese and alternatives
- Grain foods (cereals)
- Vegetables & legumes
- Fruit
- Unsaturated oils & spreads
- Artificially sweetened soft drink
- Discretionary choices - other
- Sugar sweetened soft drink
- Alcoholic drinks
- Take-away foods



Discussion

This investigation analysed the cost of a recommended diet and the current Australian diet from four supermarkets, and take-away stores in Warrnambool. It was found the recommended diet in line with the national dietary guidelines was more affordable than the current diet at every supermarket. However, even the recommended diet was shown to be costly, requiring approximately 25% of a median household income and may be unaffordable for some households. Based upon these findings it is evident that the reference household on a median income would be experiencing food stress to a certain degree even if they purchased the recommended diet. Food stress occurs when a household spends more than 25% of their income on food, and if 30% or more is spent on food it is deemed unaffordable (Landrigan et al., 2018). The reference household would be required to spend 25% or more of their median income on the recommended diet in three stores, Store A (26%), Store B (26%) and Store D (28%), compared to Store C which sits at 19% of household income. This showcases that food stress is likely to be occurring not only in low income households but experienced by median/middle income households. For the reference household the recommended diet costs between \$535.19 at Warrnambool's most affordable supermarket and \$800.36 per fortnight at the most expensive store, with any costs over \$710 equating to food stress.

Food affordability is defined as the amount of money spent on food compared to income (Landrigan et al., 2017). Those on a lower income are especially affected by the affordability of food as they generally spend a higher proportion of their income on food. (Landrigan et al. 2018). If fixed expenses such as rent and bills rise then typically it will impact upon food affordability and contribute to food stress. When subject to food stress, many households employ coping strategies to sustain themselves. Some common strategies include eating smaller portions, eating less meat, skipping meals and limiting variety of foods. Eating less meat, eating smaller meals and eating low cost packaged foods were the most common coping strategies employed locally, identified in the Food Insecurity in Warrnambool 2022 report.

The recommended diet would cost a welfare dependant household 26%-38% of their income which reiterates the greater impact that the rising cost of living crisis has on those already experiencing financial difficulties. This higher proportion of income needed to afford food has forced some individuals and families to turn to emergency food relief to get their supply, with Warrnambool & District Food Share seeing a significant increase of emergency food hampers. Although accessing food relief can provide temporary reprieve it does not address the key drivers of food insecurity, which is largely driven by low socioeconomic status (Seivwright et al., 2020).

Within the recommended diet the food category with the highest cost was lean meats, poultry, fish, eggs and alternatives with a mean cost of \$206.34 which equates to 29.56% of the total mean cost of the recommended diet. Second was milk, yoghurt, cheese and alternatives with a mean cost of \$129.98 and 18.62% of the total cost. Whilst the price of some food items have remained steady, overall cost of food is still high, with some food categories such as dairy seeing the biggest spike, rising by 15.2% in the June quarter (ABS, 2023).

The current diet was shown to be less affordable with the reference family spending between 24-33% of their income. The current diet for the reference household would cost between \$691.07 and \$925.65, dependent on where the food was purchased. Eating the recommended diet in line with the Australian Dietary Guidelines would cost approximately \$156 less per fortnight. The current diet includes sugar sweetened soft drinks, takeaway food, alcoholic drinks and discretionary choices. Analysis found the reference family would spend 57-60% of the total cost of the current diet on

discretionary items of which 21% comprised of takeaway foods. The proportion spent on fruit and vegetables in the current diet was 13%, with this figure not providing enough fruit and vegetables to meet recommended dietary intakes. The recommended diet however had a mean total proportion of 31% spent on fruit and vegetables. A diet high in fruit and vegetable consumption is a protective factor against many chronic diseases, and conversely a diet high in processed packaged foods and takeaway is linked with numerous chronic conditions (Aune et al., 2017). The current diet would likely increase the risk of individuals developing or exacerbating chronic illnesses.

Food prices varied significantly across the four supermarkets, with the analysis recording a major price difference between the most affordable and most expensive supermarket. The most affordable was Store C, with the recommended diet costing \$535 and the current diet costing \$691. Store D was the most expensive with the recommended diet costing \$800.36 and the current diet costing \$925.65. Between these supermarkets \$265.36 would be saved on the recommended diet and \$234.65 on the current diet if the reference household shopped at Store C.

Warrnambool has access to three major supermarket chains (Woolworths, Coles and Aldi) and one independent chain (Swintons IGA) providing the community with choice of where they conduct their grocery shopping. This is a stark contrast to some more rural townships in South West Victoria which only have an independent supermarket or convenience store. Independent stores generally offer a lower volume, cannot access mega buys which cut down costs, are subject to variation in supply and may have issues with transport. There was no substantial difference in price between Woolworths and Coles, with both of these stores offering the largest variety of food and products and therefore many people may choose to purchase their groceries at these stores due to ease of access.

Whilst Warrnambool has multiple supermarkets across the city, some residents may experience difficulty accessing food due to lack of transport, and poor walkability to these stores. A food desert is defined as an area that has limited access to food within a convenient travelling distance (Murphy et al., 2017), with evidence demonstrating people will not walk more than 800m-1km to services or shops (Gunn et al., 2017). The area of West Warrnambool is identified as a food desert as it does not have a supermarket or grocery store, however it does have one takeaway store which may influence the food behaviours of those residents without access to a personal vehicle.

Fruit and vegetable cost comparison from 2022 to 2023

The VHFB was utilised in the 2022 food insecurity investigation in Warrnambool and The Healthy Diets ASAP Method Protocol was utilised in 2023. Both tools were used to assess the affordability of a healthy and habitual diet in Warrnambool. As the tools use different methods, metrics and collect prices on different items, comparisons cannot be made between the overall cost of food between 2022 and 2023. However, given the cost of the same fruit and vegetable items were recorded between the two methods, price fluctuation in the fresh produce can be explored.

As seen in Table 2, there was comparison of prices between 2022 and 2023 for 10 items, those being tomatoes, potatoes, pumpkin, cabbage, lettuce, carrots, onions, apples, bananas and oranges.

Across all of the supermarkets there was a significant difference between the prices of tomatoes per kg between the 2022 and 2023 data collection. Tomatoes were more expensive in 2022 with prices ranging from \$7.99-\$10.99 compared to \$4.50-\$5.99 in 2023. The cost of lettuce was more expensive in 2022 in Stores B (\$5.90 in 2022 and \$3.90 in 2023) and Store C (\$6.49 in 2022 and \$3.29 in 2023). In 2022 the prices of tomatoes and lettuces were much more expensive than usual due to increased production and transport costs caused by wet weather and flooding, which resulted in a gap in supply. Analysis showed Store B and Store C had more items that were cheaper in 2023 than

the 2022 price points, compared to Store A and D which had more price rises. Results from Table 2 indicate that the total cost of all of the fruit and vegetable items were more affordable in Store A, B and C in 2023 and more expensive in Store D in 2023.

Our local study has shown, prices of fruit and vegetables is less affected by inflation in 2023 (ABS, 2023). However, the cost of healthy eating can still be unattainable not only for those on low incomes or receiving welfare payments, but also those on a middle income.

Strengths and Limitations

The Healthy Diets ASAP methods protocol was created as a standardised tool to measure the cost of food nationally. It is a practical and streamlined method to assess the affordability and availability of the current and recommended diet. The current diet outlined within the protocol aims to provide a representation of the typical current Australian diet based on data from the Australian Health Survey. However, as the dietary intake was calculated from reported 2011-2012 dietary habits of Australians intake could have changed and therefore this may no longer be a true and accurate representation of the current Australian Diet, particularly in the current climate.

This method doesn't take into consideration specific dietary needs such as; culturally specific food, dietary needs due to allergies or the dietary requirements for those pregnant or breastfeeding. It also doesn't take into account food grown or produced at home, or food obtained from food swaps and community gardens.

Prices were gathered at one point in time, and therefore doesn't account for fluctuations in price due to demand and availability, seasonality and other factors. If items were missing or unavailable then the average price of that item from the other stores was used which may have been an underrepresentation. Supermarket sales or promotional deals were ignored when conducting the analysis, which could have influenced the price. It also did not take into consideration costs associated with accessing food e.g. travel and petrol to reach a supermarket.

With all data collection, inputting of manual data can be subject to human error which could impact upon the end result.

Recommendations

At a national level further work is needed to tame the cost of living and inflation. Safeguarding consumers against high energy and housing costs will allow them spend a greater proportion of their income on food, and for food not to be a discretionary item. Increasing welfare payments to ensure recipients are living above the poverty line is called for, with this study showing local welfare dependent households would spend at a minimum 26% of their income on the recommended diet. Australia has a reliable food industry with about 90% of fruit, vegetables, dairy and meat sold in supermarkets being made or grown domestically, however we have seen recently the devastating impacts climate change can have on both producing and distributing food (Department of Agriculture, Fisheries and Forestry, 2023). Australia's National Food Plan developed in 2013, requires updating to provide a strategic and coordinated approach to food production and distribution. It is imperative this strategy focus on food affordability and availability, as well as climate change, outlining climate change impacts on agriculture and strategies to mitigate the associated challenges. Furthermore, increasing funding and support to food relief providers and initiatives would assist as a short term solution, assisting providers to meet the increasing demand.

At a community level, increasing access to local produce may be helpful to mitigate issues associated with supply and shock cost increases. Strategies to enhance access to local produce could include food swaps, community markets and gardens and farm gates. Furthermore, greater support and promotion of local producers and building stronger relationships between producer and consumer could enhance uptake of local produce. School and community gardens are also a great opportunity to increase access to affordable local produce, and facilitate educational sessions on how to grow your own food.

Independent supermarkets have shown to be more expensive than the chain supermarkets. Interventions to create healthier retail environments have proven successful in other Victorian independent supermarkets and could possibly be adapted locally. The independent supermarkets generally have more flexibility over their pricing and promotions, and are conscious of giving back to their local community. Further investigation should be undertaken to examine whether local supermarkets are open to creating a more health promoting retail environment.

It is a common belief that healthier diets are more expensive and this is commonly perceived by those with lower socioeconomic status (Lee et al., 2013). Evidence has shown that there is a lower intake of fruit and vegetables and typically an overall unhealthier diet in those on a lower income (Van de Heijden et al., 2021; Zorbas et al., 2018). This study dispelled this myth, and demonstrated a diet in line with the Australian Dietary Guidelines is more affordable. Awareness raising is required to promote the affordability of a healthy diet, and the costliness of consuming alcohol, takeaway and packaged foods. Awareness raising activities could include localised campaigns to educate people on the affordability of a healthier diet, and share resources supporting them to shop economically and prepare budget friendly meals. Cross collaboration between different stakeholders is needed when implementing these activities to reach a larger scope of the Warrnambool population.

Conclusion

This investigation highlights that a recommended (healthy diet) is more affordable than the current diet, at every supermarket in Warrnambool. However due to the rising cost of living, food is becoming more unaffordable and is causing many households to experience food stress and to significantly alter their shopping habits. It was found that up to 28% of the median household income would be spent on the recommended diet and up to 33% on a current diet. A multipronged and multifaceted approach to address food affordability and support the community to obtain nutritious food is required. Involvement from a broad range of sectors at a national and local level will provide the most effective outcomes.

Appendices

Addendum A: Income Calculations

Low fortnightly income August 2023

Household 5: Two parents with two children		
Adult male, adult female, 14yr boy, 8yr girl		
Assumptions	<ul style="list-style-type: none"> • The adult male works on a permanent basis at national minimum wage for 38 hours a week (\$23.23/hr) • The adult female works on a part-time basis at national minimum wage (\$23.23/hr) for 6 hours a week • Both children attend school and are fully immunised • None of the family are disabled • The family has some emergency savings that earn negligible interest • The family is privately renting a 3 bedroom house at \$450/week 	Amounts per fortnight Aug 2023
INCOME		
Paid employment - adult male	\$23.23/hr for 38h/week	\$ 1,765.48
Paid employment - adult female	\$23.23/hr for 6h/week	\$ 278.76
JobSeeker Allowance	\$253.10/fortnight	\$ 253.10
Parenting Payment	N/A (as youngest child is not under 8 years)	\$ -
Family Tax Benefit A fortnightly payment	\$490.84/fortnight	\$ 490.84
Family Tax Benefit A annual supplement	\$879.65/child/year	\$ 67.67
Family Tax Benefit B fortnightly payment	\$70.28/fortnight	\$ 70.28
Family Tax Benefit B annual supplement	\$430.70/year/family	\$ 16.57
Age Pension fortnightly payment	N/A	\$ -
Age Pension Fortnightly Supplement	N/A	\$ -
Total Clean Energy Supplement (from all payments)	included in FTB/JobSeeker estimator amounts	\$ -
Rent Assistance	\$184.94/fortnight	\$ 184.94
INCOME TAX PAID	Tax p.a. less low income tax offset & low-middle income tax offset	-\$ 227.85
FORTNIGHTLY INCOME TOTAL		\$ 2,899.78

Welfare fortnightly income August 2023

Household 5: Two parents with two children		
Adult male, adult female, 14yr boy, 8yr girl		
Assumptions	<ul style="list-style-type: none"> The adult male is unemployed The adult female is unemployed Both children attend school and are fully immunised None of the family are disabled The family has some emergency savings that earn negligible interest The family is privately renting a 3 bedroom house at \$450/week 	Amounts per fortnight Aug 2023
INCOME		
Paid employment - adult male	n/a	
Paid employment - adult female	n/a	
Newstart Allowance	\$639.10/fortnight	\$ 639.10
Parenting Payment	\$639.10/fortnight	\$ 639.10
Family Tax Benefit A fortnightly payment	\$490.84/fortnight	\$ 490.81
Family Tax Benefit A annual supplement	\$879.65/child/year	\$ 67.67
Family Tax Benefit B fortnightly payment	\$48.86/fortnight	\$ 48.86
Family Tax Benefit B annual supplement	\$430.70/year/family	\$ 16.57
Age Pension fortnightly payment	N/A	-
Age Pension Fortnightly Supplement	N/A	-
Total Clean Energy Supplement (from all payments)	included in FTB/JobSeeker estimator amounts	\$ -
Rent Assistance	\$184.94/fortnight	\$ 184.94
INCOME TAX PAID	Nil	
FORTNIGHTLY INCOME TOTAL		\$ 2,087.04

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