

Food Costing in BC 2015

February 2016



Prepared for the Population and Public Health Program Provincial Health Services Authority (PHSA)

Lydia Drasic, Executive Director, British Columbia Centre for Disease Control (BCCDC) Operations and Chronic Disease Prevention, BCCDC and Provincial Health Services Authority

Authors:

Melanie Kurrein, MA, RD, Provincial Manager Food Security, Population and Public Health, Provincial Health Services Authority

Crystal Li, MSc, Surveillance Biostatistician, Population and Public Health, Provincial Health Services Authority

Drona Rasali, PhD, Director Population Health Surveillance and Epidemiology, Population and Public Health, Provincial Health Services Authority

PHSA contact:

This report can be found at: www.phsa.ca/populationhealth

For further information contact:
Provincial Health Services Authority
Population and Public Health Program
#700 - 1380 Burrard Street
Vancouver, B.C. V6Z 2H3
pph@phsa.ca

Suggested citation:

Provincial Health Services Authority. (2016). *Food Costing in BC 2015*. Vancouver, B.C.: Provincial Health Services Authority, Population and Public Health Program.

Table of contents

Executive summary.1

Food costing in BC 20153

 The National Nutritious Food Basket 3

 Food Insecurity. 3

 Methods. 5

 Findings 6

Changes in food costs12

 Conclusion. 13

Appendix: 114

 Maps of food costs for each health authority at the HSDA level. 14

References19

Executive summary

Sufficient, safe, and nutritious food is critical to the health and well-being of the British Columbian population. A food security indicator in BC is the average monthly cost of a nutritionally adequate, balanced diet. Obtaining food costs (food costing) can provide valuable information for population and public health planning. Every two years, the Provincial Health Services Authority (PHSA) works with the Ministry of Health and the five regional health authorities to monitor the cost of a nutritionally adequate diet in British Columbia (BC).

The purpose of this document is to present the 2015 data on the average monthly cost of a nutritionally adequate, balanced diet in BC based on the National Nutritious Food Basket (NNFB).

Methods

In BC, data is collected every two years using Health Canada's NNFB tool, which includes 67 food items that are minimally processed, require preparation, and are considered to be commonly eaten by most Canadians in amounts that provide a nutritionally adequate, balanced diet. Data collection is implemented by the regional health authorities (RHAs) and occurs in the last week of May and the first week of June. A sample of approximately 220 full-service grocery stores were randomly selected and stratified by the health service delivery areas (HSDAs) of the RHAs. Complete data for 196 stores was obtained and used to determine the average cost of the NNFB.

The surveillance team at PHSA analyzed the data submitted by the RHAs using algorithms and information received from Health Canada. The average cost in each food category is weighted by purchase popularity and the amount of food that each person needs, adjusted by sex and age.

Findings

Monthly cost of a nutritious food basket

The average monthly cost of a nutritious food basket for a reference family of four in British Columbia in 2015 is **\$974**. The average monthly cost of a nutritious food basket across the health authorities is \$1,032 in Northern Health (NH); \$997 in Vancouver Coastal Health (VCH); \$973 in Interior Health (IH); \$965 in Island Health (VIHA); and \$958 in Fraser Health (FH). The monthly costs for each of BC's HSDAs were also calculated and range from \$927 in the Fraser East HSDA (FH) to \$1,121 in the North West HSDA (NH).

Changes in food costs

The average monthly cost of the 2015 nutritious food basket for a reference family of four, \$974, shows an increase of \$60/month between 2013 and 2015. Food costs increased in all of the health authorities.

Conclusion

The costing results show that the monthly cost of the NNFB in BC is steadily increasing over time. The cost of a healthy diet can affect individuals and families of all incomes but can have the highest impact among households with the lowest incomes.

Food costing in BC 2015

Sufficient, safe, and nutritious food is critical to the health and well-being of the British Columbian population. Food costing can provide valuable information for population and public health planning, which is why the Provincial Health Services Authority (PHSA) works with key stakeholders such as the Ministry of Health, the five regional health authorities, First Nations Health Authority, and Dietitians of Canada to monitor the cost of a nutritionally adequate diet in British Columbia (BC).

The purpose of this document is to present the 2015 data on the average monthly cost of a nutritionally adequate, balanced diet in BC based on the National Nutritious Food Basket. This document outlines the methods taken to collect and analyze the data and the results; it discusses the health implications of not being able to afford a healthy diet; and it compares the 2015 data to previous years' data.

The National Nutritious Food Basket

The National Nutritious Food Basket (NNFB) was first introduced at a national level in 1974. The Food Prices Review Board developed the tool and Agriculture Canada implemented it in cities across Canada until 1995. In 1997, Health Canada assumed responsibility for the tool and updated it based on data from Statistics Canada, the Canadian Nutrient File, and Canadian nutrition recommendations. In 2008, the NNFB was revised once more to reflect the Dietary Reference Intakes, the updates to *Eating Well with Canada's Food Guide* and the data collected through the Canadian Community Health Survey (CCHS).¹

The NNFB tool is used by provinces and territories across Canada to monitor the cost and affordability of healthy eating. For example, the Ontario Public Health Standards require health boards across Ontario to monitor food affordability on an annual basis.²

The NNFB includes 67 food items that are minimally processed, require preparation, and are considered to be commonly eaten by most Canadians in amounts that would provide a nutritionally adequate, balanced diet. The NNFB does not consider special dietary needs, cultural or other food preferences, non-food items, take-out food or condiments, spices or kitchen equipment and utensils.

Food insecurity

A key indicator of food insecurity in BC is an individual's or household's ability to afford healthy, safe, and culturally appropriate food. Calculating the cost of the NNFB provides insight into the income required for individuals and families to be able to eat a nutritionally adequate diet.

Health Canada defines household/individual food insecurity as "the inability to acquire or consume an adequate diet quality or a sufficient quantity of food in socially acceptable ways or the uncertainty that one will be able to do so".³

Therefore, the meaning of food insecurity ranges from worrying about running out of food (marginal food insecurity), to not being able to afford healthy food (moderate food insecurity),

Calculating the cost of the NNFB provides insight into the income required for individuals and families to be able to eat a nutritionally adequate diet.

to missing meals or going hungry (severe food insecurity). In 2012, 12.7% of the BC population was food insecure: 3.2%, 5.7%, and 3.8% experiencing severe, moderate, and marginal food insecurity respectively.⁴ Higher rates of food insecurity are found in lower income households and among: families headed by single females, Aboriginal Peoples, marginally housed and homeless people, and new immigrants.⁵

Food insecurity affects individual health and healthcare costs. A recent study in Ontario shows that as the severity of food insecurity rises, so too does utilization of health care services. In Ontario, the health care costs are 16% higher for marginally food insecure and 76% higher for severely food insecure households compared to food secure households.⁶ As reported in the Ministry of Health's document the *Core Functions Food Security Evidence Review*,⁷ food security is foundational to healthy eating and for those households that are food insecure, there are a number of health and social challenges that may arise:

Birth outcomes and maternal health

- Inadequate nutrition during pregnancy can have negative health impacts on both the mother and baby. For example, low-income women who are unable to meet their dietary requirements during pregnancy have an increased risk for a low birth weight baby.⁸
- Among food insecure families, the quality and quantity of women's food intake may deteriorate as household incomes dwindle.⁹

Child development

- Food insecure children may have poorer academic outcomes and social skills compared to children who do not experience food insecurity.^{10,11}

Chronic diseases

- Food insecure individuals report higher levels of: poor or fair self-rated health, diabetes, heart disease, high blood pressure, and food allergies.^{12,13}
- Food insecure individuals with diabetes experience greater emotional distress and have a harder time managing their blood sugars and following a diabetic diet.¹⁴
- Youth who experience hunger are more likely to have a chronic condition and asthma.¹⁵
- Food insecure children have poorer general health.¹⁶

Mental health and emotional well-being

- Food insecurity impacts social and mental well-being and can increase the likelihood of depression, distress (including feelings of worthlessness and hopelessness), and social isolation.¹⁷
- Child hunger is an independent risk factor for depression and suicidal symptoms in adolescence and early adulthood.¹⁸

Methods

In BC, data is collected the last week of May and the first week of June every two years by the five regional health authorities. Health Canada's NNFB tool is used to collect the cost and the same tool is used each year to facilitate comparison. From 2009-2013 data was collected and analyzed at the regional health authority (RHA) level and food costs from approximately 130 randomly selected, full-service grocery stores were used to determine the average cost of the 67 food items.

In 2015, data collection and analysis expanded to include all 16 health service delivery areas (HSDA) to address the RHAs request for more local-level data. A sample of approximately 220 full-service grocery stores were randomly selected and stratified by the HSDAs of the RHAs. Complete data for 196 stores was obtained and used to determine the average cost of the NNFB.

The surveillance team at PHSA analyzed the data submitted by the regional health authorities using algorithms and information received by Health Canada. The average cost in each food category was weighted by purchase popularity and the amount of food that each person needs, adjusted by sex and age. Then the total cost was adjusted based on the size of family using the Household Size Adjustment Factor to account for the economies or diseconomies of scale.

Sampling limitations include: data collection was a one-time snapshot event that may not necessarily reflect the average annual cost estimate, and the exclusion of non-full-service grocery stores may influence the estimated costs and may not reflect the cost in remote areas where there are a limited number of full-service grocery stores.

Other limitations include:

- The NNFB costing tool is from 2008 and some of the items and/or sizes may no longer represent the current marketplace.
- The Health Canada costing analysis tool is also from 2008 and may no longer reflect variables such as item popularity.
- When applied to sub-provincial levels, demographic and geographic differences between RHAs/HSDAs may not be fully captured by the current Health Canada NNFB costing analysis tool. These differences include but are not limited to:
 - Age and sex distribution,
 - Ethnicity/culture,
 - Average family composition,
 - Rural/remoteness vs. urbanity,
 - Seasonality of food items, and
 - Seasonality of sales promotion.
- Inflation rate is not considered when comparing prices over time.
- The inclusion of high-end “health food” grocery stores may disproportionately influence the total cost (see discussion on page 13).

Findings

Monthly cost of a nutritious food basket

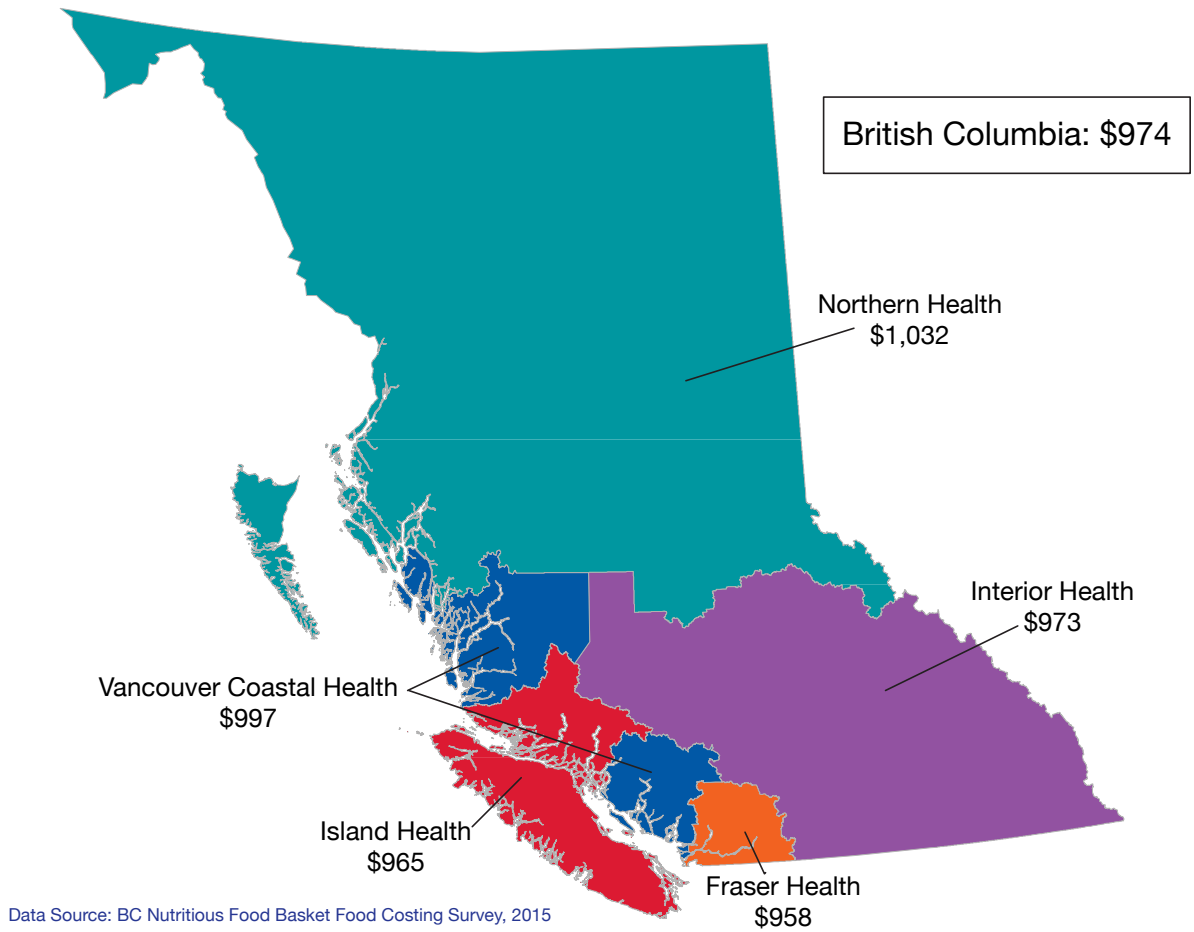
The average monthly cost of a nutritious food basket for a reference family of four in British Columbia in 2015 is **\$974**. The monthly food cost is based on a reference family of four, which is made up of a male and female (age 31-50), a boy (14-18 years old), and a girl (4-8 years old).

The average monthly cost of a nutritious food basket for a reference family of four across the health authorities is presented in Table 1 and is graphically displayed in Figure 1. There is some variation in average monthly cost by health authority: the highest cost is in Northern Health (\$1,032) and the lowest cost is in Fraser Health (\$958).

Table 1. Average monthly cost of the nutritious food basket for a reference family of four across the BC health authorities in 2015

	Average monthly cost 2015	Number of stores sampled 2015
British Columbia	\$974	196
Northern Health	\$1,032	19
Island Health	\$965	35
Fraser Health	\$958	59
Interior Health	\$973	38
Vancouver Coastal Health	\$997	45

Figure 1. Average monthly cost of the nutritious food basket for a reference family of four across the BC health authorities in 2015



The average monthly cost of a nutritious food basket for a reference family of four across the BC HSDAs is presented in Table 2 and Figure 2. Maps showing the average monthly food cost for each of the five regional health authorities by their HSDA are presented in Appendix 1.

Table 2. Monthly food costs for each health services delivery area for a reference family of four in 2015

	Average monthly cost 2015	Number of stores sampled 2015
Fraser Health		
Fraser East	\$927	12
Fraser North	\$953	25
Fraser South	\$979	22
Interior Health		
East Kootenay	\$1,000	6
Kootenay Boundary	\$989	6
Okanagan	\$969	16
Thompson Cariboo	\$952	10
Northern Health		
Northeast	\$1,022	6
Northern Interior	\$973	7
Northwest	\$1,121	6
Vancouver Coastal Health		
North Shore/Coast Garibaldi	\$991	11
Richmond	\$946	6
Vancouver	\$1,011	28
Island Health		
Central Vancouver Island	\$983	12
North Vancouver Island	\$985	6
South Vancouver Island	\$944	17

Figure 2. Locations of the 16 HSDAs across BC



Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

The cost of the nutritious food basket is reported based on a reference family of four (two parents and two children). Table 3 shows the calculation for the reference family of four.

Table 3. Calculation of the 2015 nutritious food basket for a reference family of four in BC

Gender	Age	Average monthly cost
Female	4 – 8 years	\$159
Male	14 – 18 years	\$311
Female	31 – 50 years	\$231
Male	31 – 50 years	\$273
Subtotal		\$974
Multiply by the household adjustment factor for a family of four		X 1.0
Total cost		\$974

Information in Tables 5 and 6 (page 11) can be used to calculate the cost of a nutritious food basket for different family types. Because it costs more per person to feed a smaller family and less to feed a larger family, the household size adjustment factors found in Table 6 must be applied to the total cost. An example of how to calculate the cost of a nutritious food basket using the household size adjustment factor for a single mother with one son is provided in Table 4.

Table 4. Calculation of the 2015 nutritious food basket for a single mom and her son in BC

Gender	Age	Average monthly cost
Female	35 years	\$231
Male	12 years	\$217
Subtotal		\$448
Multiply by the household adjustment factor for a family of two		X 1.10
Total cost		\$493

Table 5. Average monthly cost of the 2015 nutritious food basket in BC for different age and gender groups

Males	Average monthly cost	Females	Average monthly cost
Age group		Age group	
2 - 3 years	\$128	2 - 3 years	\$125
4 - 8 years	\$164	4 - 8 years	\$159
9 - 13 years	\$217	9 - 13 years	\$187
14 - 18 years	\$311	14 - 18 years	\$223
19 - 30 years	\$302	19 - 30 years	\$234
31 - 50 years	\$273	31 - 50 years	\$231
51 - 70 years	\$263	51 - 70 years	\$203
Over 70 years	\$260	Over 70 years	\$200
Pregnancy			
		Younger 18 years	\$250
		19 - 30 years	\$254
		31 - 50 years	\$248
Breastfeeding			
		Younger 18 years	\$259
		19 - 30 years	\$270
		31 - 50 years	\$264

Table 6. Household size adjustment factors for monthly food costs

Family size	Adjustment factor
Individual	Multiply by 1.20
Two people	Multiply by 1.10
Three people	Multiply by 1.05
Four people	Multiply by 1.0
Five to six people	Multiply by 0.95
Seven or more people	Multiply by 0.90

Changes in food costs

The average monthly cost of the 2015 nutritious food basket for a reference family of four is \$974, which shows an increase of \$60/month between 2013 and 2015. Changes in food costs at a provincial level over the last four costing cycles for a reference family of four are included in Table 7.

Table 7. Changes in BC monthly food costs for a reference family of four from 2009-2015ⁱ

	2009	2011	2013	2015
Monthly food cost for BC	\$872	\$868	\$914	\$974

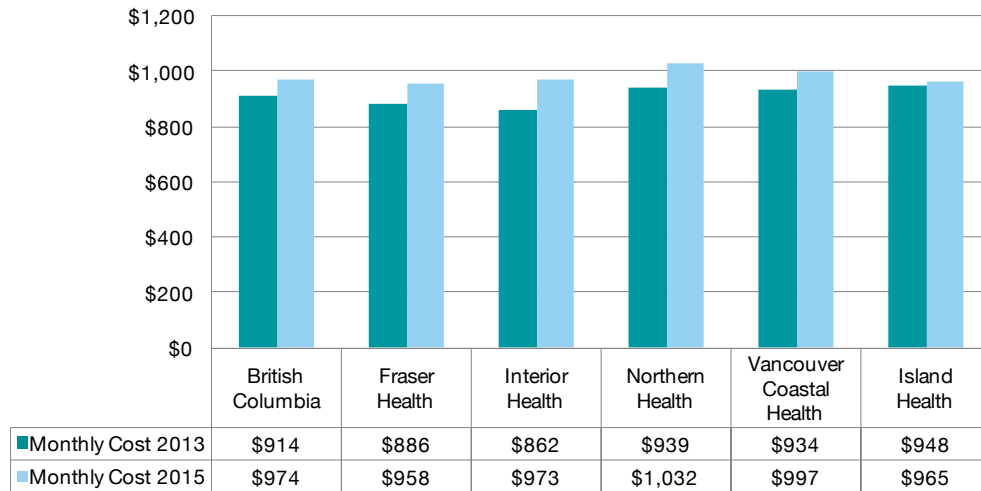
Since 2013, the average monthly cost of the NFB increased in all five of the RHAs. The greatest absolute change was \$111 in Interior Health followed by \$93 in Northern Health. The change in average monthly food costs for each RHA are included in Table 8 and are graphically presented in Figure 3.

Table 8. The change in monthly food costs for BC and each RHA for a reference family of four from 2013 and 2015

	Average monthly cost 2013	Average monthly cost 2015	Absolute change
British Columbia	\$914	\$974	\$61
Northern Health	\$939	\$1,032	\$93
Island Health	\$948	\$965	\$17
Fraser Health	\$886	\$958	\$72
Interior Health	\$862	\$973	\$111
Vancouver Coastal Health	\$934	\$997	\$63

ⁱ Data prior to 2007 is not included in Table 7 because Health Canada updated the NNFB in 2008 so direct comparisons cannot be made.

Figure 3. The change in monthly food costs for BC and each regional health authority for a reference family of four from 2013 to 2015



Costing difference with and without inclusion of high-end “health food” grocery stores

Food costing occurs in randomly selected full-service grocery stores, which includes high-end “health food” grocery stores. The inclusion of these stores may disproportionately influence to food costs. For example, in the 2015 cycle of food costing, four out of the 28 stores sampled (14%) in Vancouver HSDA were high-end “health food” grocery stores (e.g. Whole Foods, Choices), which was higher than in any other HSDA in BC. Vancouver is used to illustrate the difference between including and excluding high-end “health food” grocery stores in calculating the monthly food costs for a reference family of four. The monthly average food cost for Vancouver including all sampled stores is \$1,011. By excluding the four high-end “health food” grocery stores, the monthly cost for the Vancouver HSDA decreases by \$59 to \$952.

Conclusion

Sufficient, safe, and nutritious food is critical to the health and well-being of the BC population. Households that are food insecure face numerous health and social challenges. The National Nutritious Food Basket is a tool used by BC to monitor the cost of food to better understand the challenges food insecure households face to eat healthy.

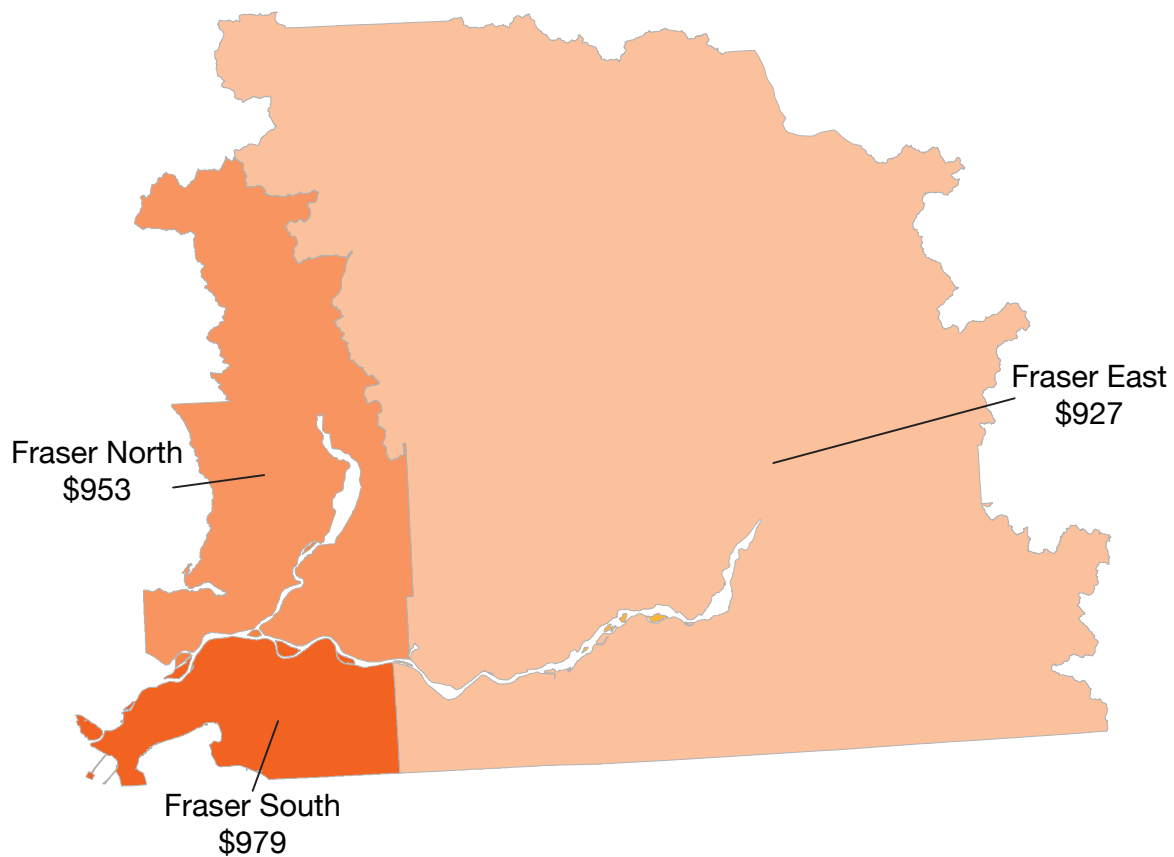
In BC, the 2015 average monthly cost of a nutritious food basket for a reference family of four was \$974, an increase of \$60 since the 2013 survey. There is some variation in average monthly cost by health authority: the highest cost was in Northern Health (\$1,032) and the lowest cost was in Fraser Health (\$958). The data shows that the monthly cost of NNFB in BC is steadily increasing over time. The cost of a healthy diet can affect individuals and families of all incomes but has the highest impact among households with the lowest incomes.

Appendix: 1

Maps of food costs for each health authority at the HSDA level

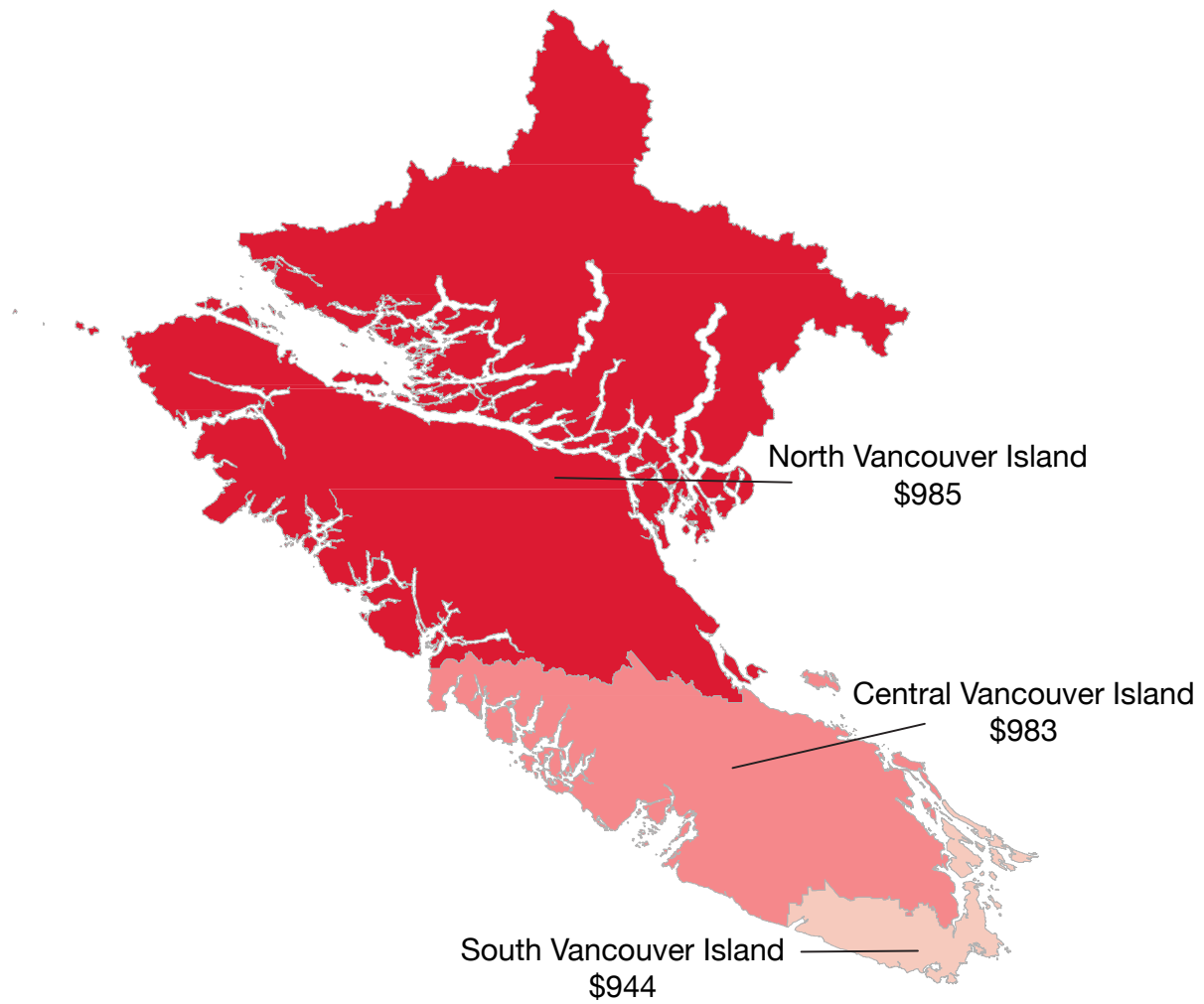
Figures 4-8 show the average monthly cost of a nutritious food basket for a reference family of four across the HSDAs for each of the five regional health authorities.

Figure 4. Average monthly cost of the nutritious food basket for a reference family of four across the Fraser Health HSDAs in 2015



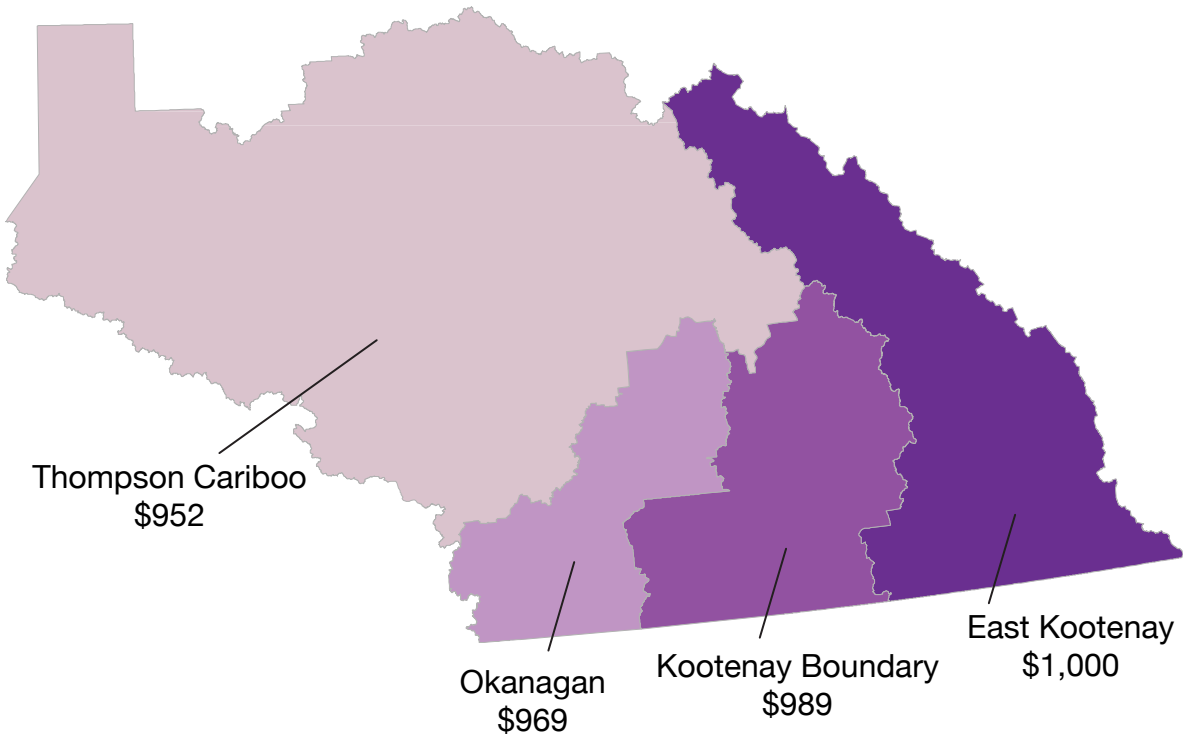
Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

Figure 5. Average monthly cost of the nutritious food basket for a reference family of four across the Island Health HSDAs in 2015



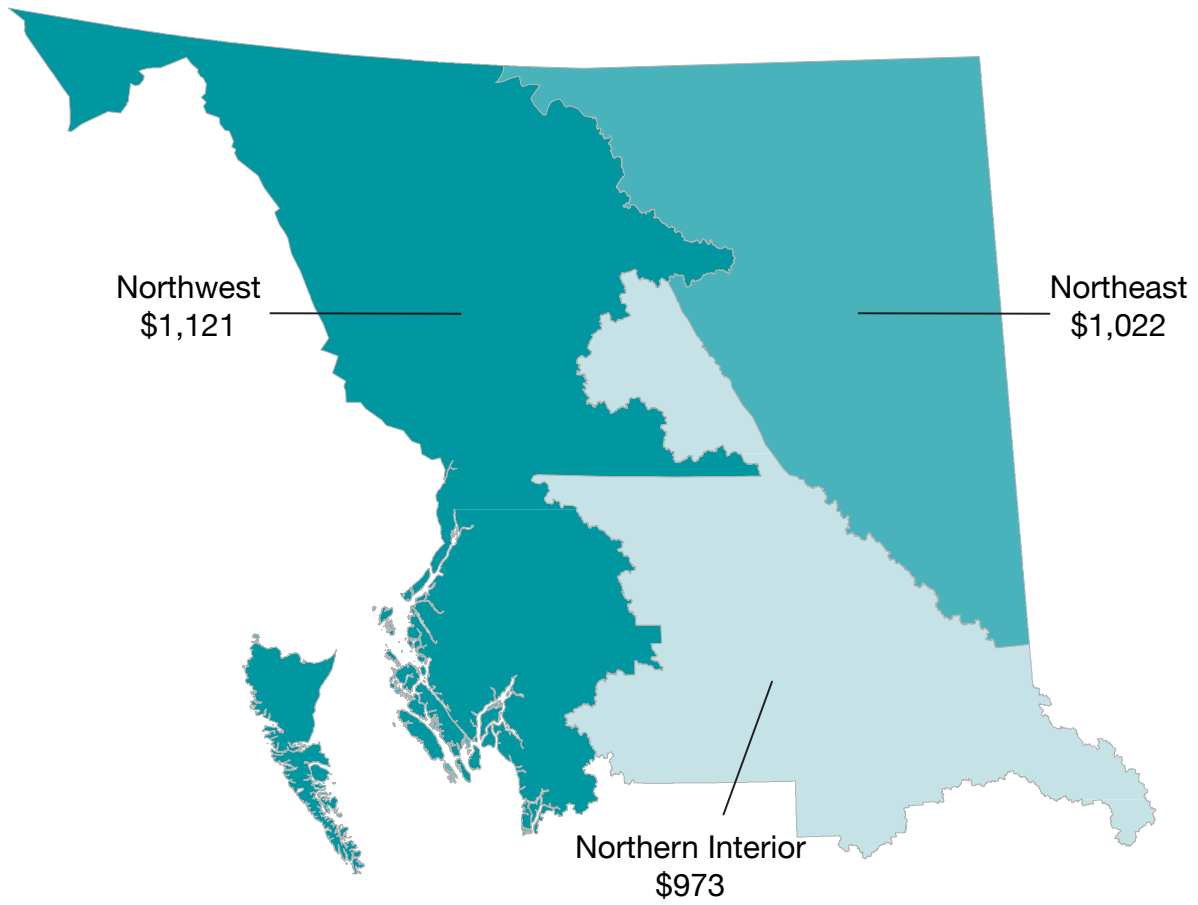
Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

Figure 6. Average monthly cost of the nutritious food basket for a reference family of four across the Interior Health HSDAs in 2015



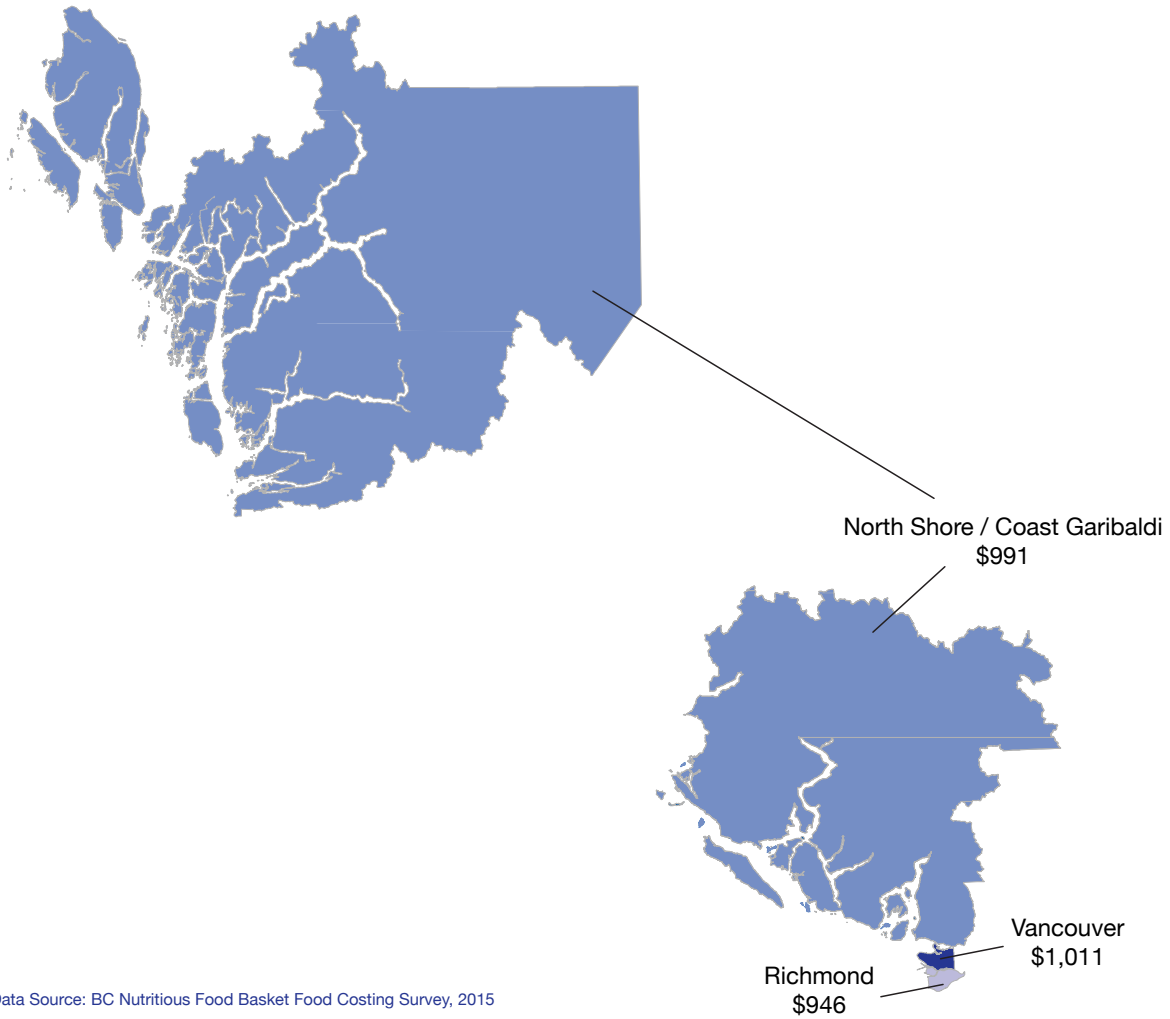
Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

Figure 7. Average monthly cost of the nutritious food basket for a reference family of four across the Northern Health HSDAs in 2015



Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

Figure 8. Average monthly cost of the nutritious food basket for a reference family of four across the Vancouver Coastal Health HSDAs in 2015



Data Source: BC Nutritious Food Basket Food Costing Survey, 2015

References

- 1 Health Canada. *History of food baskets in Canada*. Last modified February 2, 2009. <http://www.hc-sc.gc.ca/fn-an/surveill/basket-panier/hist-eng.php>
- 2 Ontario Ministry of Health Promotion. "Nutritious Food Basket Guidance Document." 2010. Retrieved from <http://www.mhp.gov.on.ca/en/healthy-communities/public-health/guidance-docs/NutritiousFoodBasket.PDF>
- 3 Health Canada. *Household food insecurity in Canada: An overview*. Last Modified July 25, 2012. <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/insecurit/index-eng.php>
- 4 Tarasuk, V, Mitchell, A, Dachner, N. "Household food insecurity in Canada, 2012." 2014. Retrieved from http://nutritionalsciences.lamp.utoronto.ca/wp-content/uploads/2014/05/Household_Food_Insecurity_in_Canada-2012_ENG.pdf
- 5 Health Canada. *Household food insecurity in Canada in 2007-2008: Key statistics and graphics*. Last modified July 25, 2012. <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/insecurit/key-stats-cles-2007-2008-eng.php>
- 6 Tarasuk, V, Cheng, J, de Oliveira, C, Dachner, N, Gundersen, C, & Kurdyak, P. "Association between household food insecurity and annual healthcare costs." *Canadian Medical Association Journal*, 187 (14), 2015: E429-E436
- 7 B.C. Ministry of Health. "Food security evidence review." 2013. Retrieved from: <http://www.health.gov.bc.ca/public-health/core-public-health-functions.html>
- 8 Fowles, E.R. "Prenatal nutrition and birth outcomes." *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 33, 2004: 809-822.
- 9 Tarasuk, V.S., McIntyre, L., & Li, J. "Low-income women's dietary intakes are sensitive to the depletion of household resources in one month." *Journal of Nutrition*, 137 (8), 2007: 1980-1987.
- 10 Alaimo, K., Olsen, C., & Frongillo, E. "Food insufficiency and American school-aged children's cognitive, academic and psychological development." *Pediatrics*, 108, 2001: 44-53.
- 11 Jyoti, D.F., Frongillo, E.A., & Jones, S.J. "Food insecurity affects school children's academic performance, weight gain, and social skills." *Journal of Nutrition*, 135, 2005: 2831-2839.
- 12 Che, J. & Chen, J. "Food insecurity in Canadian households." *Health Reports*, 12 (4), 2001: 11-22. Ottawa, ON: Statistics Canada. (Catalogue No. 82-003-XIE).
- 13 Vozoris, N. & Tarasuk, V. "Household food insufficiency is associated with poorer health." *Journal of Nutrition*, 133 (1), 2003: 120-126.
- 14 Seligman, H.K., Jacobs, E.A., Lopez, A., Teschann, J., Fernandez, A. "Food insecurity and glycemic control amount low-income patients with type 2 diabetes." *Diabetes Care*, 35, 2012: 233-238.
- 15 Kirkpatrick, S.I., McIntyre, L., & Potestio, M.L. "Child hunger and long-term adverse consequences of health." *Archives of Pediatric and Adolescent Medicine*, 164 (8), 2010: 754-762.
- 16 Ibid.
- 17 Vozoris & Tarasuk. *Household food insufficiency*, 120-126.
- 18 McIntyre, L., Williams J.V.A., Lavorato, D.C., Patten, S. "Depression and suicide ideation in late adolescence and early adulthood are an outcome of child hunger." *Journal of Affective Disorders*, 150 (1), 2012: 123 – 129.