Evaluating the process of food costing in British Columbia

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Executive summary

Food costing in British Columbia (BC)

Food costing is a food security initiative that monitors the cost of a nutritionally adequate diet – this data provides valuable information for population and public health planning.

Every two years since 2007, the Provincial Health Services Authority (PHSA) works with Dietitians of Canada (DC) and regional health authorities (RHAs) in BC to collect food costs. Food costing data is collected using the National Nutritious Food Basket (NNFB), a standardized tool developed by Health Canada. The NNFB consists of 67 food items considered to be commonly eaten by most Canadians in amounts that should provide a nutritionally adequate, balanced diet.

Changes to 2015 Food Costing

Prior to the 2015 food costing cycle, food costing data was collected and analyzed at the RHA level. In 2014, RHAs expressed interest in collecting more local level data, which is more useful for public health planning. PHSA and the RHAs agreed to collect food costing data at the health service delivery area (HSDA) level for 2015 and to pilot food costing in three to four local health areas (LHA) in Fraser Health. In anticipation of an increased number of stores for costing (e.g. from approximately 130 stores in 2011 and 2013 to approximately 220 stores in 2015) and a corresponding increase in the number of individuals required for HSDA-level data collection (referred to as food costers), PHSA made the following modifications to the food costing process:

- Developed a set of training materials (booklet, video, webinar, and PDF of webinar with voiceover) to support the preparation of food costers and to ensure consistent data collection
- Collaborated with HealthLink BC (HLBC) dietitians to answer questions from food costers during the two-week data collection period
- Reorganized the data collection tool grouping similar food items together to make data collection more efficient

Evaluation

Purpose

The food costing process has never been evaluated in BC. In 2015, with a number of modifications being implemented, PHSA commissioned a formal evaluation to assess the impact of HSDA-level data collection on human resource requirements and the effectiveness of the processes involved in completing the food costing cycle in BC.

Methods

This evaluation used online surveys, semi-structured interviews, and focus group discussions to understand the processes involved in preparing for, and carrying out, food costing. The evaluation also aimed to identify strategies that worked well and highlight challenges that RHAs and PHSA faced during the 2015 food costing cycle. Key stakeholder groups surveyed were food costers, RHA leads,[i] HSDA leads, HLBC dietitians, and PHSA staff.

Findings

The evaluation shows that RHA dietitians successfully organized and mobilized food costing data collection at the HSDA-level. Leads drew upon support from other RHA staff to assist with reviewing the store lists and to conduct data collection. Food costers used the new training materials and the majority found them useful.

PHSA staff, health authority leads, and food costers faced a number of unexpected challenges and inefficiencies. One challenge was updating the purchased grocery store list. Due to a number of inaccuracies, revision of the list took longer than expected and delayed the entire preparation phase. This delay left insufficient time for many health authority leads to effectively connect with stores. Other challenges that emerged included: the reverse consent process coupled with inconsistent and slow postal service; recruitment of volunteers in rural and remote areas; technical difficulties with training materials; food costers not being comfortable asking questions during data collection; and incomplete or inaccurate data sheets returned to PHSA.

A large majority of food costers, and all health authority leads, reported they would consider being involved in future years, citing a number of benefits from their involvement. Both PHSA staff and most health authority leads expressed concern with the increased workload of coordinating costing in more stores, but still promote food costing every two years and emphasized the importance of this data. A number of health authority leads supported developing smaller, regionally appropriate data collection tools to use in conjunction with the NNFB tool to more accurately reflect the cost of healthy eating in BC.

Recommendations to improve the food costing process

- Begin preparation for food costing four to six weeks earlier (consider starting the process in March) to allow time to review the store list and obtain store consent in case of unexpected setbacks
- Organize a training session for all health authority leads and include an updated planning tool with a role description, suggested timeline of activities, and checklist for data review
- Develop strategies to engage RHA staff in rural and remote areas to assist with reviewing the store list, costing and/or recruitment
- Continue to conduct food costing every two years, and provide support to RHA dietitians who may wish to engage in more regular, local-level, and/or context specific food costing within their own RHA

i Each regional health authority had one lead person to coordinate the food costing. Three of the five of regional health authorities also appointed a lead from the health service delivery area.

Conclusion

Overall, this evaluation shows that RHAs have the capacity to collect food costing data at the HSDA-level and there is interest to continue this work. While there were a number of challenges during this costing cycle, many can be easily addressed to streamline the process in future years. Food costing data is useful for informing population and public health policy and practice and requires continued support from the BC Ministry of Health, and from leadership and staff at PHSA and the RHAs.

Introduction

Food costing in British Columbia (BC)

A key indicator of food insecurity is an individual's or household's ability to afford healthy, safe, and culturally appropriate food. Food costing in BC provides insight into the cost required for individuals and families to eat a nutritionally adequate diet. This information is valuable for population and public health planning.

Since 2007, the Provincial Health Services Authority (PHSA) has worked with Dietitians of Canada (DC) and regional health authorities (RHAs)[ii] in BC to collect food costs. Food costing data is collected using the National Nutritious Food Basket (NNFB), a standardized tool developed by Health Canada. The NNFB consists of 67 food items that are minimally processed, require preparation, and are considered to be commonly eaten by most Canadians in amounts that should provide a nutritionally adequate, balanced diet. In BC, food costing data is collected every two years, and prior to 2015, was analyzed by PHSA at the RHA-level.

Prior to the 2015 food costing cycle, RHAs approached PHSA with concerns that RHA-level data does not reflect the local variations in food cost and does not support more local level program and policy planning. PHSA designed the sampling frame and the RHAs agreed to collect food costing data at the health service delivery area (HSDA) level for 2015 and to pilot food costing in three to four local health areas (LHA) in Fraser Health. In anticipation of an increased number of stores for costing (e.g. from approximately 130 stores in 2011 and 2013 to approximately 220 stores in 2015) and a corresponding increase in the number of individuals required for HSDA-level data collection (referred to as food costers), PHSA staff made the following modifications to the food costing process:

- Developed a set of training materials (booklet, video, webinar, and PDF of webinar with voiceover) to support the preparation of food costers and to ensure consistent data collection
- Collaborated with HealthLink BC (HLBC) dietitians to answer questions from food costers during the two-week data collection period
- Reorganized the data collection tool grouping similar food items together to make data collection more efficient

BC has never evaluated the food costing process. In 2015, with a number of modifications being implemented, PHSA commissioned a formal evaluation to assess the impact of HSDA-level data collection on human resource requirements and the effectiveness of the processes involved in completing the food costing cycle in BC. This document presents the findings of a province-wide evaluation of the 2015 food costing process.[iii]

ii There are five RHAs in BC (Fraser Health, Interior Health, Island Health, Northern Health, and Vancouver Coastal Health), each of which is responsible for governing, planning and delivering health care services within their geographic areas. The population served ranges from 300,000 people in Northern Health to more than 1.6 million people in Fraser Health. From: http://www2.gov.bc.ca/

iii This evaluation does not include the data analysis phase of the food costing cycle.

Methods

External evaluators conducted the evaluation of the 2015 food costing process between June 9th and August 5th, 2015. The timing of the evaluation coincided with the completion of data collection so the experience was front of mind. The evaluators, in close collaboration with PHSA staff, developed the evaluation framework and data collection tools. The evaluators collected and analyzed data, and reported the findings.

Purpose of evaluation

The purpose of this evaluation is to understand the processes involved in preparing for, and carrying out, food costing in BC, including: how RHAs organize themselves, review the store list, obtain consent from stores, recruit and train volunteers, support data collection, and review completed data sheets. The evaluation also aims to identify strategies that work well and highlight challenges faced by the RHAs and PHSA during the 2015 food costing cycle.

Theoretical framework

Evaluation approach

The evaluation took an implementation-focused approach. Broadly, implementation research aims to understand how initiatives are carried out; the processes used and the contextual factors that may impact efforts.[1] The goal of an implementation evaluation is "to understand not only what is and isn't working, but how and why implementation is going right or wrong" (27).[1] The starting place for any implementation-focused evaluation is the development of a plausible program theory, or a sensible model of how an initiative is supposed to work.[2] Program theory is often graphically depicted as a logic model.[3] The logic model can then be used to frame the lines of inquiry for evaluating either the processes or outcomes of an initiative to ensure a theory-driven evaluation.[4]

Project logic model

Initial discovery and focus work included consultation with PHSA to create the project logic model, develop evaluation questions, and identify key stakeholders. A three-hour evaluation framework workshop occurred on May 7th, 2015.

The development of the logic model was stakeholder driven, and provided a visual representation of the main inputs, activities, and outputs of the food costing project. The logic model served to focus the evaluation and aided in the development of preliminary evaluation questions. It is organized from left to right, where each activity has a corresponding output. See Appendix A for a condensed version of the logic model that reflects the project activities and outputs included in this evaluation.

Evaluation questions

Based on the logic model components, the primary evaluation questions include:

- How did RHAs organize themselves for the 2015 food costing cycle?
- What was the process for reviewing store lists and obtaining consent?
- How were food costers recruited? Were there enough food costers?
- Which training materials were used? Did they meet the needs of end-users?
- What was the process for collecting food costing data? Was the tool easy to use?
- How were data collection sheets reviewed before being sent to PHSA staff?
- What were stakeholders' experiences with the new food costing approach?
- The evaluators probed for facilitators and barriers with each of the evaluation questions.

Stakeholder groups

PHSA staff identified five stakeholder groups to participate in this evaluation.

Food costers

- This group includes all individuals who collected food costing data during the 2015 food costing cycle such as, public health dietitians, RHA staff, volunteer dietitians, dietetic interns/students, and community volunteers.

RHA leads

- This group consists of the leads from each RHA responsible for carrying out the tasks associated with food costing. RHA leads were in charge of coordinating food costing in their RHA and acted as the main contact between PHSA staff and their HSDA leads.

HSDA leads

- This group consists of the leads from each HSDA who planned for and carried out food costing in their own HSDA.[iv]

HealthLink BC (HLBC)

- This group includes the HLBC dietitians who answered questions from food costers during the two-week data collection period.

iv See section "organization of labour" for further explanation.

PHSA staff

- This group includes members of the Population and Public Health (PPH) team at PHSA,[v] specifically the Provincial Manager, Food Security with support from the Project Manager, Healthy Families BC. PHSA staff provided overarching support to RHAs during the food costing cycle, which includes: creating training materials, information letters and consent forms; contacting grocery store head offices; reviewing and organizing the master store list; answering questions from RHA and HSDA leads; and reviewing completed data sheets.

Data collection and analysis

In consultation with PHSA staff, the evaluators developed both quantitative and qualitative data collection tools.[vi] Data collection strategies included semi-structured interviews, focus groups, and online surveys. Table 1 summarizes the data collection activities and participants for each.

Table 1. Summary of data collection activities and participants

Activity	Participants
On-line survey – for food costers ■ All individuals who collected food costing data were invited to participate in the survey through FluidSurveys	72 food costers (~64% response rate)
On-line survey – for HLBC dietitians ■ All HLBC dietitians who were trained to answer food costing questions were invited to participate in the survey through FluidSurveys	3 respondents
Semi-structured interviews – RHA leads ■ Semi-structured interviews were conducted with RHA leads from each of the 5 RHAs	6 participants[vii]
Focus group discussions – HSDA leads ■ Focus groups were conducted with HSDA leads on two separate occasions	9 participants[viii]
Focus group discussions – PHSA staff ■ One focus group was conducted with PHSA staff	2 participants

Survey data were exported from the online platform (e.g. FluidSurveys) to an excel database before being cleaned and coded. The evaluators conducted descriptive statistics, including frequencies and percentages in Stata.[5]

The evaluators recorded audio during the interviews and focus group discussions, which were uploaded to Atlas ti Qualitative Analysis Software[6] and then coded based on the evaluation framework. Open-ended responses from the surveys were reviewed and used for respondent verification of the data collected from interviews and focus groups.

v The PPH team at PHSA is responsible for coordinating food costing and for analyzing the data.

vi These tools can be made available by contacting the PPH program.

vii One RHA had two leads.

viii There were 12 HSDA leads in total.

Limitations

Limitations include:

- Sampling procedures may have introduced some bias. For example, self-selection bias (e.g. respondents had the option of participating in the evaluation) or non-response bias (e.g. when respondent answers differ from the potential answers of those who didn't respond) may have been present.
- Self-reported measures, which can be problematic and result in inaccuracies, were used in this evaluation. For example, respondents may have made errors in recall or presented themselves and/or their experiences in a more or less favourable way.

Findings

PHSA randomly sampled 220 stores for the RHAs to cost and PHSA used 196 stores for the final data analysis. Twenty-four stores were excluded for the following reasons: volunteers did not complete the food costing or did not send back the completed forms; there were too many errors in the data entry forms or too much data was missing; or a store was closed and the lead was not aware they could ask for more contingency stores. These challenges will be explored in further detail throughout the findings.

Each RHA conducted food costing in their assigned stores. The process of preparing for, and carrying out, food costing includes a number of activities, such as:

- Determining how to organize human resources to accomplish food costing.
- Reviewing the store list received from PHSA staff.
- Obtaining consent from stores to collect food costing data.
- Recruiting individuals (RHA staff and community members) to conduct costing.
- Training food costers to collect data.
- Collecting data and supporting food costers to collect data.
- Reviewing completed data sheets before sending them back to PHSA staff.

The findings below describe how RHAs proceeded with each of these activities, and include a discussion of what worked well and the challenges faced. The evaluators provide recommendations for each activity.

Organization of labour: Delegation versus centralized model

For this costing cycle, each RHA designated a “lead” to act as the main contact between PHSA staff and the wider RHA. RHAs approached the management of food costing in two ways: three RHAs used a delegation model (e.g. leads delegated tasks to HSDA leads) and two RHAs took a centralized approach (e.g. leads coordinated the entire process themselves).

What worked well

RHA leads using the delegation model reported that assigning tasks to HSDA leads helped reduce workload and increase their own level of efficiency. In these cases, RHA leads forwarded information from PHSA staff to their HSDA leads with the expectation that they would perform the necessary tasks to ensure effective data collection in their respective areas.

RHA leads taking the centralized approach had mixed experiences. In one case, the benefits of this approach included: standardized food costing procedures; only one RHA staff (the lead) needed to learn all of the food costing details and procedures; and one central point of contact for store owners (which

reportedly facilitated a better rapport between the RHA and stores). The other RHA using a centralized approach did not note any benefits. Their experience is described in the next section.

Challenges

Generally, the delegation model worked well. However, interviews with RHA leads revealed a lack of awareness, at times, of how HSDA leads were carrying out the food costing process in their local areas. As a result, PHSA staff reported lack of consistency and misinformation amongst some of the HSDA leads. In the future, greater oversight from the RHA leads could help ensure consistent implementation. For instance, one RHA used regular RHA-wide dietetics meetings for updating team members throughout the food costing process. This helped support the team and ensure consistency across their HSDAs.

The RHAs using a centralized approach differed in terms of health authority size and the required number of food costers and are therefore difficult to compare. One RHA had approximately three times the number of food costers than the other. Where the number of food costers was large, the RHA lead struggled with the time required to organize individuals and disseminate training materials.

Recommendations

- Provide RHA leads with the pros and cons of each management approach and suggest they choose the model that works best for their RHA
- PHSA develop a short document (1-2 pages) outlining the roles and responsibilities of both the RHA and HSDA leads and recommend that RHA and HSDA leads establish a mutually agreed upon method and frequency of communication throughout the food costing process

Reviewing the store list

Due to the increased number of stores for costing in 2015, PHSA staff purchased an updated list of all grocery stores and markets in BC from an independent company that provided a similar list in 2011. PHSA staff reviewed the initial list by cross-checking store names and locations on the internet and removing any stores that were closed or did not appear to be full-service (e.g. carrying most of the 67 items of the NNFB). PHSA categorized the remaining stores by RHA, HSDA, and LHA and emailed the lists to RHA leads.

RHA leads sent the HSDA leads their respective list to review. Leads checked that stores were open and full-service in a number of ways including:

- Visiting stores in-person.
- Communicating with colleagues familiar with the area.
- Telephoning store owners/managers.
- Asking environmental health officers (EHOs) for verification.
- Using personal knowledge of a community.

What worked well

Drawing upon local knowledge, their own or a colleague's, to determine if a store was full-service proved to be a successful and efficient way of cross-checking the store list. Both RHA and HSDA leads reported contacting EHOs for store verification purposes as highly useful given their regular contact with food establishments.

Some leads asked stores for updated contact information at initial contact, which will be useful for contacting stores in future food costing years.

Challenges

The main challenge with reviewing the store list was the master list. The purchased master list contained a number of inaccuracies; it was neither complete (e.g. excluded all Wal-Mart stores) nor up-to-date (e.g. many stores had closed). This led to a number of delays that resulted in an increased workload for both PHSA staff and leads. Additional challenges are mentioned below, but may be exacerbated because of the inaccuracies of the list.

Community dietitians are not present in many BC communities making it difficult, particularly in rural areas, to verify whether a store is appropriate for costing. According to one HSDA lead, confirming whether stores are full-service has been a major challenge *'since the beginning'*. About a quarter of the leads reported problems when verifying stores via telephone. In some instances, store owners/managers would over-represent the magnitude of their grocery stock, claiming to be full-service when they were not. Leads stated that obtaining accurate information about stores in rural areas is particularly important since food costers might drive four or five hours (often on staff time) to get to the store.

Almost all interview and focus group participants reported the time between receiving the final, randomized list from PHSA staff (three weeks prior to data collection) and beginning data collection was insufficient to obtain store consent.

Recommendations

- Unless a more accurate store list can be obtained, do not purchase a store list in future. Instead, continue to build off the existing lists and encourage RHA dietitians involved in food costing to update the list regularly especially when visiting rural parts of their RHA
- Consider involving EHOs in a more 'formal' way, either by accessing their database of food stores or having them contribute to the store review process

Obtaining store consent

There are two stages of consent: in the first stage PHSA staff mail information letters and consent forms to the head offices of major grocery chains for approval. In the second stage RHAs send consent forms to all chain stores and independent stores. In 2015, PHSA staff trialed a reverse consent process. If head office provided consent to their chain stores to participate, the leads did not have to obtain written consent from

stores belonging to a chain. Instead, chain stores needed to formally 'opt-out' by signing and returning the form if they did not want to participate.

PHSA staff created template information letters and consent forms for leads to use when obtaining active consent from independent stores and reverse consent from chain stores. Each HSDA was also provided with a list of contingency stores in case a store on their list refused to participate or was closed. Consent from contingency stores was not required unless a contingency store was costed.

RHA dietitians obtained consent in the following ways:

- Regular mail
- E-mail
- Hand delivery and face-to-face
- Fax

Stores who refused to participate either mailed the signed "opt-out" form or called the food costing lead in their area. Most leads agreed that, where possible, obtaining consent in-person prior to going into stores to cost is best.

What worked well

Leads appreciated the template letter and consent forms from PHSA staff because it reduced their workload. One lead also reported that ensuring that stores received their documents via telephone one week after mail-out was worthwhile, particularly when working in rural areas with inconsistent postal service. All leads agreed that re-confirming consent verbally with a store owner/manager upon arrival is a helpful best-practice.

Challenges

Participants noted several challenges when obtaining store consent, including the length of time required to secure approval from head offices. PHSA staff reported that head office consent took at least one month to secure, which was longer than anticipated and negatively impacted the food costing timeline.

For leads, sending information letters and consent forms via mail often hindered the consent process, particularly in rural areas where door-to-door mail service is not available or delivery takes longer than two or three weeks. Some leads thought this made the reverse consent process *'risky'* with consent being assumed due to the lack of form receipt. While not reported as occurring, leads expressed concern over the potential for food costers to arrive at a rural store and not be granted permission to cost.

Leads also reported that obtaining consent from contingency stores in a timely manner after the start of the two-week food costing period was challenging and created inefficiencies.

Leads unanimously expressed that the information letter was too long, *'authoritative',* and did not effectively describe the aims of food costing. Leads perceived that a number of store owners/managers did not

understand how the data would be used, deterring them from participating. Other reasons for store refusal are in Appendix B.

Recommendations

- Create a more targeted informational campaign around food costing for both chain and independent stores
- Start the process early and include activities such as sending an abbreviated version of the previous year's findings to all stores[ix] with a 'thank you' note and improve communication with independent stores about the aim of food costing in the information letter
- Revise the procedure for obtaining consent in the following ways:
    1. Start the process at least two and a half months in advance of the costing (e.g. if costing starts at the end of May, start sending letters to head offices in March)
    2. Ensure active consent is sought ahead of time from ALL stores on the list, including contingency stores; provide food costers with 'proof' of consent to have in-hand when checking in with store owners/managers at the time of costing
    3. Recommend leads hand-deliver information and consent forms (when possible), or use email or fax, rather than regular mail, and plan to follow up with stores (in-person or on the phone), especially in rural and remote areas, to ensure they have received, understood, and submitted their consent form and are prepared to receive a food coster

Recruiting food costers

PHSA staff developed and emailed a volunteer opportunity notice to RHA leads for recruitment purposes. PHSA staff also requested that the announcement be posted to 'Gerry's List', a widely subscribed-to email listserv targeted to dietitians. The opportunity was also included on other listservs, including the University of British Columbia (UBC) dietetics listserv and RHA listservs. Leads reported using existing connections with community service organizations (e.g. food security hubs) and other RHA staff (e.g. public health nurses (PHNs)) to recruit volunteers.

Leads reported there were approximately 113 individuals (including themselves) who collected food costing data, ranging from 10 in Northern Health to 42 in Fraser Health. Of all food costers, 72 people responded to the online survey (response rate ~64%). Over half of survey respondents were RHA staff (44% dietitians, 11% other). Roughly 60% of respondents were directly involved in the field of dietetics, either as practicing dietitians or as dietetics students. Sixty-eight percent of respondents were first-time food costers. The remaining 31% had previously collected food costing data in at least one of the food costing cycles between 2009 and 2013. Table 2 contains general information about the food costers.

ix One participant suggested that the food costing document be made more aesthetic to provide an attractive tool that could be sent to stores to describe the purpose of food costing.

Table 2. Characteristics of survey respondents*

	Frequency (#)	Percent (%)
Gender		
Female	67	94
Male	4	56
Occupation		
Health Authority, Registered Dietitian	32	44
Health Authority, Staff	8	11
University Student, Nutrition and/or Dietetics	11	15
University Student, Other	5	7
Other	16	22
Health Authority		
Fraser	21	29
Interior	13	18
Island	20	28
Northern	7	10
Vancouver Coastal	11	15
Volunteer Status		
New	49	68
Experienced	23	32

*Total n=72. Sample size varies between variables due to missing values. Percentages may not add to 100 due to rounding.

A few survey respondents reported that participating in data collection was simply part of their job or a useful way to gain experience for their resumé. However, most said they took part because of their belief that food costing is important for raising awareness about food security, desire to learn more about the cost of food in BC, and/or wish to connect with the community in which they live and work.

Thirteen (27%) of the 48 new food costers who responded to the survey heard about the opportunity via a listserv. The remainder reported hearing about the opportunity via word-of-mouth from co-workers, friends, or family working within an RHA.

What worked well

Eleven out of the 18 RHA and HSDA leads recruited enough volunteers. Those who did not recruit enough volunteers employed different strategies to cost the stores, as described in the next section. Leads frequently noted that working with dietitians, dietetics students, and other RHA staff (e.g. EHOs, PHNs, social workers) often resulted in efficient and high quality data collection. Leads stated they enjoyed engaging with RHA colleagues who were not generally aware of this work but to whom it could be professionally relevant.

Listservs were an efficient, passive recruitment tool, especially in urban areas with post-secondary institutions. It was helpful to connect with RHA colleagues in rural and remote areas to recruit food costers.

Leads also provided recognition to food costers for their time, including:

- The provision of grocery store gift cards to all costers.
- Thank-you emails and managers made aware of their staffs' work.
- 'Official' documentation of volunteer hours (particularly important for students).

Leads unanimously stated it was important to provide recognition to food costers, especially given both RHA staff and community volunteers (e.g. students, retirees) often used their own time for costing.

Challenges

Leads noted several challenges with recruitment. They expressed that recruitment was rushed because of the length of time it took to review the store list and to identify store locations. In some cases, leads were not able to engage effectively in recruiting from remote areas. In these instances, leads either travelled long distances on staff time (e.g. a full day spent travelling to cost one store) or excluded these stores altogether.

Leads do not regularly travel to the rural and remote communities of their RHAs. Two leads stated they lacked connections with RHA staff in these communities and felt uncomfortable reaching out to them, even though they might have aided in recruitment.

One lead reported challenges with recruiting community volunteers. There were no formalized recruitment criteria which resulted in recruitment of individuals who were less suitable for this task. In retrospect, almost all leads expressed interest in including community members again in future, but felt there were insufficient RHA resources to engage with, and support, these individuals in a manner that would ensure an enjoyable costing experience while also producing high quality data.

Because there were more food costers in 2015 compared to previous years, leads engaged in a large amount of 'back-and-forth' communication regarding volunteer logistics (e.g. location, access to transportation). This communication with food costers added to the leads' workload and they felt inefficient as logistics became increasingly complicated (e.g. disseminating training materials to remote community volunteers).

Recommendations

- Increase use of RHA staff in rural and remote communities; strategize ways to create connections between RHA leads/dietitians and other RHA staff (particularly in remote communities) to increase the level of comfort dietitians feel in requesting support for food costing
- Recognize the efforts of food costers in a consistent and formal manner, with volunteer certificates or grocery store gift cards

- Develop a set of criteria[x] for leads to use when determining eligibility of community volunteers to ensure a positive experience for food costers and more rigorous data collection
- Create a standardized document (e.g. an application form) for leads to use upon initial communication with volunteers; collating essential volunteer information should increase efficiency when organizing volunteers[xi]

Training

PHSA developed four training materials (an information booklet, a short training video, a webinar, and a PDF of the webinar with voiceover) for the 2015 food costing cycle. PHSA staff provided in-person training to HLBC dietitians and a webinar to leads and volunteers. PHSA disseminated links to the training video, an electronic version of the booklet, and a PDF of the webinar with voiceover of the webinar via email. PHSA printed and distributed a hard copy version of the booklet to RHA leads to disseminate.

Ninety-seven percent of survey respondents reviewed at least one training material; however, nearly 60% reviewed three of the four materials offered. Table 3 provides more detail about the training process.

Table 3. Number and type of materials reviewed and the total time spent training, overall and by new and experienced costers*

	Overall	New	Experienced
	% (n)		
Training Materials Reviewed			
Booklet	97 (68)	100 (49)	91 (17)
Video	90 (63)	88 (43)	95 (20)
Webinar	39 (27)	33 (16)	48 (10)
PDF with voiceover	49 (34)	47 (23)	52 (11)
Number of Materials Reviewed			
1	6 (4)	8 (4)	0 (0)
2	26 (18)	25 (12)	29 (6)
3	59 (41)	59 (29)	57 (12)
4	10 (7)	8 (4)	14 (3)
Time Spent Training			
Less than 30 minutes	11 (8)	14 (7)	5 (1)
30 minutes to < 1 hour	40 (28)	45 (22)	29 (6)
1 hour to < 1.5 hours	27 (19)	20 (10)	43 (9)
1.5 hours to < 2 hours	16 (11)	14 (7)	19 (4)
2 hours to < 2.5 hours	6 (4)	6 (3)	5 (1)

*Total n=70 (new n=49, experienced n=21). Sample size varies between variables due to missing values. Percentages may not add to 100 due to rounding.

x Ideas for essential criteria included: at minimum, high school graduate but ideally enrolled in or graduated from a post-secondary institution; no mobility issues; detail oriented; good comprehension of English.

xi Examples of essential information to collect from costers might be: precise address, access to transportation, mobility challenges, number of stores they can commit to, where they will be able to pick up training items and drop off completed data sheets.

Generally, survey respondents reported satisfaction with the way information was presented in all of the training materials. Less than 20% of respondents reported slightly lower satisfaction with the ease of accessing the webinar and the quality of sound on the PDF with voiceover. Universally, the training booklet was reported as the most useful training material. In some cases, respondents described taking the booklet to stores as a reference when collecting data.[xii]

Nearly 85% of respondents perceived the booklet and the webinar as containing 'just the right amount of information', and almost three-quarters stated the video contained 'just the right amount of information'.

Tables 4 and 5 show respondents' perception of the usefulness of and quantity of information included in each training material.*

Table 4. Respondents' perception of the usefulness of training materials in preparing them to collect food costing data

	Very Useful	Somewhat Useful	Not Very Useful	Not at All Useful
	% (n)			
Booklet	71 (48)	29 (20)	0 (0)	0 (0)
Video	54 (33)	34 (21)	12 (7)	0 (0)
Webinar	53 (18)	38 (13)	9 (3)	3 (1)
PDF w/voiceover	54 (21)	28 (11)	18 (7)	0 (0)

Table 5. Respondents' perception of the quantity of information included in each training material

	Too much information	Just the right information	Not enough information
	% (n)		
Booklet	6.0 (4)	83.6 (56)	10.4 (7)
Video	3.3 (2)	72.1 (44)	24.6 (15)
Webinar	9.1 (3)	84.5 (28)	6.1 (2)
PDF w/voiceover	12.1 (4)	72.7 (24)	15.2 (5)

*Thirty-four respondents commented on the usefulness of the webinar, yet only 27 reported participating in it. There was a similar discrepancy for the PDF with voiceover. These inconsistencies suggest respondents may have been uncertain about how these two training materials differed from one another.

HLBC dietitians corroborated these findings and felt the booklet (and the in-person training by PHSA staff) was 'very useful' (results not shown). HLBC dietitians were uncertain about the types of questions they might receive but all felt confident in their ability to help.

xii Interviews and focus groups revealed a high level of satisfaction with the new training materials. The training materials were not discussed in great detail because all participants provided feedback on this topic when completing the online survey.

What worked well

Training materials in multiple formats ensured different learning styles were supported and alternate materials were available, particularly in cases where access was hampered (e.g. live webinar was not accessible). Some leads supported training beyond simply disseminating materials. Two leads met in-person to disseminate and review the training materials with food costers. In another case, a new coster accompanied an experienced coster to a store to cost as part of training. Overall, leads indicated the dissemination of training materials was relatively 'hand's-off' on their part with few reported challenges. It is not clear whether these additional training methods resulted in a greater understanding of how to complete food costing, but leads thought these may be promising ways to support new costers.

Survey respondents stated the training materials were adequate and provided them with sufficient information to accurately collect food costing data. Following training, three-quarters of new costers reported being 'very confident' in their ability to collect data. Additionally, 65% of experienced costers felt training had improved compared with past years, and 40% of returning costers reported having learned something new from the new training materials. Overall, the training materials were useful and well received.

Respondents offered several suggestions for enhancing the training tools (Appendix C).

Challenges

Some costers reported thinking the materials were repetitive and did not offer any new information. This repetition may have resulted in volunteers spending more time training than necessary.

Numerous respondents were unable to access the live webinar due to the limited number of available phone lines. A PDF with voiceover was created to compensate for this. However, technological issues with the sound were reported for the voiceover of the PDF. According to PHSA staff, the PDF without the sound was not sufficient as a stand-alone tool.

Leads and survey respondents noted there were gaps in knowledge among some costers, both new and experienced, following training. These gaps were evident both through the questions asked and the quality of the data received. Leads speculated that gaps were due to costers neglecting to thoroughly review the training materials.

Recommendations

- Designate the booklet as the primary training source and the other materials as supplementary; encourage review of supplementary materials depending on level of confidence, experience, and learning style
- Ensure there are multiple opportunities to participate in the live webinar, that sufficient phone lines are available for participants, and that the webinar is recorded and easily accessible for those who cannot attend a live session; can discontinue the use of the PDF with voiceover

Data collection

During the two-week data collection period, leads were involved in a number of tasks including:

- Disseminating printed data collection booklets.
- Collecting food costing data.
- Answering inquiries from costers via email and telephone.
- Selecting and obtaining consent from contingency stores.

All leads reported a strong willingness to support costers and one lead stated they could likely answer inquiries better than HLBC dietitians. Leads contacted PHSA staff for support when they received questions they were unable to answer or when they ran out of contingency stores.

Three-quarters of survey respondents reported taking between one to two hours to cost a store. Approximately one-quarter of new volunteers took two hours or more per store compared with only 10% of experienced volunteers (Table 6). Most survey respondents reported collecting data from one or two stores. About half of the food costers were employed by an RHA, the majority of whom (three-quarters) used staff time and resources to conduct the costing.

Table 6. Number of stores costed per person and time spent costing per store, overall and by new and experienced costers*

	Overall	New	Experienced
	% (n)		
Number of Stores			
1 store	36 (25)	37 (18)	33 (7)
2 stores	34 (24)	37 (18)	29 (6)
3 stores	20 (14)	14 (7)	33 (7)
4 stores	7 (5)	8 (4)	5 (1)
5 or more stores	3 (2)	4 (2)	0 (0)
Time per Stores			
Less than 1 hour	3 (2)	2 (1)	5 (1)
1 hour to < 1.5 hours	31 (22)	29 (14)	38 (8)
1.5 hours to < 2 hours	44 (31)	43 (21)	48 (10)
2 hours to < 2.5 hours	16 (11)	18 (9)	10 (2)
2.5 hours or more	6 (4)	8 (4)	0 (0)

*Total n=70 (new n=49, experienced n=21). Sample size varies between variables due to missing values. Percentages may not add to 100 due to rounding.

What worked well

Interview and focus group participants almost unanimously agreed the design of the data collection tool had improved compared with previous years. Respondents stated that grouping similar food items together made costing more efficient than previous years. Ninety percent of survey respondents felt the data collection tool was easy to use. A variety of potential improvements to the tool are listed in Appendix D.

Two leads reported having planned for the two-week data collection period in advance which helped to ensure costing in certain stores, particularly those in rural areas. In one case, a lead booked RHA vehicles for the entire data collection period to ensure costing in more remote locations. In another area, one lead scheduled a work appointment in a rural community to coincide with food costing, using staff resources more efficiently.

Challenges

HLBC dietitians received only three questions from food costers during data collection. Given HLBC's availability (Monday to Friday, 9-5 pm), leads speculated that calling HLBC was not convenient for individuals costing outside of work hours. While not reflective of all costers, one survey respondent stated that being referred to HLBC did not feel like sufficient support.

Twenty-five percent of new costers reported having questions before and/or during food costing. Only one-third of these individuals reached out to anyone for answers, reportedly always to their lead. In the interviews and focus groups, leads claimed to have received more questions than survey respondents reported. Reasons for not reaching out were not articulated well enough to report but it is clear food costers faced barriers to asking questions.

Some food costers signed-up to do more than three stores, which led to a situation of over-commitment resulting in volunteer drop-out prior to completing data collection. In at least one instance, a coster neglected to inform the lead that data collection was incomplete leaving insufficient time to arrange a replacement coster. This lead felt over-commitment was likely due to new food costers not having a full understanding of the time commitment needed for training and costing.[xiii]

Recommendations

- Modify what can easily be changed on the data collection sheet based on food costers' proposed changes[xiv] (Appendix D)
- Discontinue the services of HLBC dietitians in future food costing cycles
- Encourage leads in RHAs with rural and remote areas to develop a strategy to prepare for data collection in remote areas (e.g. book vehicles, make connections at health units)
- Restrict the number of stores given to new costers to a maximum of two to three stores to avoid over-commitment and drop-out

xiii Despite the volunteer invitation prepared by PHSA clearly stating the time commitment.

xiv Some of the proposed changes are likely easier to make than others: formatting changes should occur now whereas other improvements will need to wait until the tool is updated by Health Canada.

Post-data collection

Food costers returned their completed data sheets to leads in the following ways:

- Inter-office mail
- In-person
- Scanned email
- Fax
- Regular mail

For the delegation model, the RHA leads thoroughly reviewed data sheets from their own HSDA, yet reported that they only briefly reviewed the forms from their other HSDA leads. RHA leads expected the HSDA leads to review their own completed data sheets prior to sending them to their RHA lead. In the centralized model, the RHA lead reviewed all of the data collection forms.

Leads (both RHA and HSDA) reported checking to make sure that every item was priced, store information (on the front cover) was complete, all calculations were complete, and that sheets were legible and relatively "clean".

What worked well

No single delivery method for receiving completed data sheets was considered most useful; however, for new costers, handing in their sheets in-person may be helpful. HSDA leads reported that it was useful to review completed forms with costers as errors could be identified together. In these instances, costers were asked to return to the respective store and correct the information.

Challenges

For the most part, leads felt they had done a fair job reviewing the data sheets; however, PHSA staff reported finding numerous errors. Some leads reported that receiving completed data sheets from volunteers in a timely manner was problematic and left little time for errors to be identified and corrected.

PHSA staff heard from a couple of leads that they did not review the data sheets from their RHA/HSDAs before they sent them to PHSA.

Waiting for sheets to be returned from RHA leads and having to check the sheets that were returned contributed to an increased workload for PHSA staff, delays in data entry and analysis, and the need to eliminate data where the information was unclear. Where possible, PHSA staff went back to the lead who then contacted the volunteer but, due to the lag in time, volunteers could not always clarify the item in question.

Recommendations

- Provide leads with clear directions for reviewing the completed data sheets prior to sending them to PHSA staff – provide a check list of common errors
- Provide a firm deadline for submission and ask RHA leads to appoint a back-up lead to review completed data sheets if they cannot meet the deadline
- Request that food costers return their data sheet as soon as a store costing is complete. When possible, suggest leads review completed data sheets with food costers throughout the two-week data collection period to address any concerns before the costing period is over

Overall experiences and limitations of food costing

Workload, timeline, and experience: RHA/HSDA leads and PHSA staff

Most leads said their workload was manageable over the course of the food costing process, especially when HSDA leads supported the process. A few leads thought it was too much work or had to travel long distances to cost stores. PHSA staff also reported their workload was often greater than anticipated throughout the food costing process.

Leads expressed a desire for the process to be rolled out in *'a tighter package'*. They stated there was too much communication from PHSA staff during the organizing process including multiple email threads with different versions of attachments, causing some confusion, missed communications, and inefficiencies. Leads wanted the organizing process to be slightly more streamlined (e.g. information letters and consent forms without errors). However, they acknowledged that many changes were made for this costing cycle and that PHSA staff also experienced a learning curve.

PHSA staff and leads felt the entire process was more rushed and stressful than previous years due to the numerous unexpected inefficiencies that occurred. Starting four to six weeks earlier may help alleviate any bottlenecks and provide sufficient time to engage grocery stores.

Leads identified several instances where they would benefit from additional support from non-dietetics RHA staff, for example, help with: confirming the eligibility of stores on the store list, recruiting costers, and potentially collecting data. This support may help ensure certain rural stores are not excluded in future costing cycles as they were in the 2015 cycle.

All leads stated they would take on the lead role again in future years and viewed this work as important and useful for their own practice. Leads were excited to involve other RHA staff in the process, in particular those who reported the benefit of food costing to their own work within the RHA.

Food costers' experience: benefits and willingness to volunteer in future

Eighty-eight percent of survey respondents stated they would volunteer in future years (85% of new volunteers and 95% of experienced volunteers). Some of the benefits experienced by respondents include:

- Greater awareness of food prices (65%)
- Feeling good about lending their time to the project (60%)
- Learning why it's important to collect food prices (35%)
- Feeling more engaged with their community (31%)
- Gaining confidence in their ability to collect data (29%)
- Gaining confidence in approaching new people (15%)

Two years versus three years: the future of food costing

Leads responded in a variety of ways when asked whether they would support changing the food costing cycle from every two years to every three years. Almost all leads support a two year food costing cycle primarily because of the value of the data.

Some leads thought conducting food costing on a more local level is ideal, and that every three years would be acceptable if LHA-level data were collected. Alternatively, a few leads stated that data are most useful as soon as the findings are released and that extending the cycle beyond two years would not be ideal. These leads thought that if the entire food costing process was more streamlined (discussed above), collecting data yearly might be feasible.

One lead supported a combination of food costing cycles that included conducting food costing at the HSDA-level every three years and at the LHA-level either before (year two) or after (year four) the main costing cycle.

PHSA staff stated they support a three-year food costing cycle given the current level of resources required to coordinate the food costing and to clean and analyze the data. To support the continuation of the food costing work, PHSA suggested the following be in place: government commitment to the project, commitment from RHA leadership, and RHAs to have well-thought out plans for disseminating and using the data.

Limitations of the current food costing process

Leads in both rural and urban areas said that they value the NNFB tool yet agreed that it does not fully reflect the cost of eating in BC. For rural areas, leads stated it would be important to collect data on other factors such as distances to stores, travel times and modes (e.g. boat, car), and gas prices to capture the true cost of eating for individuals in these locations. Leads also thought the criteria for reviewing the store list (e.g. that a store is full-service) automatically excludes stores where populations in rural BC shop. This

same issue arose for urban leads, who felt that excluding most green grocers was problematic given that urbanites often frequent these vendors. Respondents suggested the creation of a short food costing tool (e.g. 10 items) that reflects the different contexts of BC and that RHAs could use to collect local level data on their own.

Overall recommendations

- Prepare for food costing four to six weeks earlier (consider starting the process in March) to allow time to review the store list and obtain store consent
- Organize a training session for all leads and include an updated planning tool with a role description, suggested timeline of activities, and checklist for data review
- Develop strategies to engage regional health authority staff in rural and remote areas to assist with reviewing the store list, costing and/or recruitment
- Continue to conduct food costing every two years, and provide support to RHA dietitians who may wish to engage in more regular, local-level, and/or context specific food costing within their own RHA

Conclusion

This evaluation explored the process of, and experiences associated with, food costing from preparation to post-data collection. The 2015 food costing cycle was successful due to the impressive mobilisation of food costers to collect data from more stores and more communities than ever before at the HSDA-level and, in one RHA, at the LHA level. A number of effective strategies and new training materials were used; however, it was not without challenges and inefficiencies, including the need to: update the grocery store list, obtain reverse consent, recruit and organize rural and remote volunteers. There were technical difficulties with training materials, costers feeling uncomfortable to ask questions during data collection, and data sheets not being thoroughly reviewed before being sent to PHSA. There was a resounding sense that organizing and being involved in food costing was a worthwhile experience despite the 'growing pains' experienced during this costing cycle. Leads expressed the importance of collecting this data. While they value the provincial and RHA-level data, they also desire data that better reflects local contexts, data that represents those living in remote communities and on Aboriginal reserves.

Despite these challenges, the evaluation shows that it is possible to collect data at the HSDA-level and there is interest by the health authorities to continue this work. This evaluation is the first step in increasing the efficiency of food costing for future years. Continued support is needed from relevant managers and directors at the BC Ministry of Health, PHSA, and RHA levels for this work to continue. Collecting food costing data can help inform population and public health policy and practice. A coordinated approach to disseminating the food costing findings is needed. The next phase of this evaluation will explore dissemination.

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Appendix A: Logic model

Appendix B: Reasons for store refusal

Reasons cited by food costers for store refusal included:

- Anxiety about the idea of "food costing" (fear of price comparisons).
- Lack of understanding about the aim of food costing.
- Time frame was too short to digest the information.
- Worried that this might take up staff time.
- Worried the store may not be clean enough (equate health authority with Environmental Health Officer).
- Belief that because the store participated in costing in previous years it wasn't necessary to participate again.
- Due to the inaccuracies of the store list, current contact names for stores were not up to date and, in at least one case, the manager took offense and refused to participate.

Appendix C: Recommendations for enhancing training

Suggestions cited by food costers to enhance training are listed below:

1. Include more information about how to price different cuts of meat (and clarification is needed for the different types, e.g. Top Round Roast versus Top Round Steak)
2. Include a film with someone going through a store to look for the right size, check that it's not organic, compare prices, etc.
3. Include practical examples in the training
4. Include information about contacting the individual store ahead of time prior to arriving for costing
5. During the webinar, the presenter should go through each food item section in the order it was laid out in the costing tool and state which page the food item under discussion is on
6. Make it clear that the information in each of the training materials overlaps greatly; it would help to know this ahead of time
7. Include more detail in the training booklet for use when in stores costing
8. Training should not be mandatory for returning participants unless the process has changed
9. Clarify with 'new' costers that it is not necessary to cost all items on the list IF the highlighted item is available
10. Use the video as an overview only - to show potential volunteers what is involved
11. Do two live webinars at different days/ times and provide hard copy resources earlier so they are available for the training time
12. Include a table of contents in the Guide to Food Costing in BC
13. Include an explanation in the booklet as to why costers are to use the preferred purchase unit, regardless of whether a larger package size is on sale for a cheaper total dollar value than the preferred unit. Make it clear whether or not value packages or smaller packages could be used
14. Add to booklet where certain items (e.g. lentils or peanuts) are usually found in the store
15. Offer real-life practice scenarios in the booklet that require decision making about a product
16. Include more in the training about how to do conversions (e.g. pounds vs grams)

Appendix D: Recommendations for enhancing data collection tool

Suggestions cited by food costers to enhance the data collection tool included:

1. Add a column to the left hand side with only one box per item (e.g. do not include a box for all the alternate items) so the coster could keep track by checking off each food item as it is costed
2. Move the items around on the tool to reflect the layout of a grocery store (e.g. start with produce to avoid flipping back and forth through the pages)
3. Make it clear when to collect bulk prices (for foods such as raisins/ peanuts) and when to collect prices for pre-packaged items which are not the same as the preferred size
4. Make the preferred weight or produce pounds rather than kilograms like on grocery store signage
5. The data collection tool needs to be more representative of the actual sizes found in grocery stores. For example, on the tool yogurt is 750ml, whereas the majority of yogurt sizes are 650ml. This led to having to choose a more expensive yogurt. There were also sizing issues with: bran and raisin cereal, canola oil, frozen vegetables, whipped salad dressing, parboiled rice, peanuts, and lentils. Also, hamburger buns did not have the weight on the package but the Nutrition Facts Table specified the weight of one bun, so this needs to be multiplied by 8 to get the total weight assuming the weight was accurate
6. Exclude the block fish/suggest a different fish product. Price salmon fillets instead/as well as the block fish. Cost 400g fresh fillets when available
7. Include some ethnic items (e.g. roti, dhal)
8. Include more currently used options such as wraps, not pitas
9. Some products on the tool are not necessarily healthy food items (e.g. sliced ham, peanut butter with sugar and hydrogenated fat added) and they also contradict what many RDs would recommend as a healthy food
10. Reflect in the tool that some items like “romaine” lettuce and cantaloupe are often priced by “each” rather than weight
11. Make the desired item even more obvious on the tool (somehow highlighted/separated or coloured).
12. Create a separate section for items that need to have multiple items costed or highlight them (e.g. a star or arrow pointing to the item that says ‘multiple item costing’)
13. If the standard size is not available, then there should not be multiple other options, as this makes the form longer and potentially more confusing for costers
14. Consider providing a digital tool in the future since many people have tablets or phones to reduce messiness of sheets, and it’s easy to email data afterwards

15. Explore alternative methods for getting an average weight of produce items that are priced per item (e.g. having an average weight ahead of time and apply the same weights to all stores). Weighing and handling the fresh produce risks damaging the items
16. Include more information on the tool about certain items (e.g. for the peanuts, a small note that says “try the snack aisle” or “shelled means the shell has been removed”)
17. Include more ‘white space’ on the tool to provide more space for costers to do the math right on the sheet