

MANITOBA SCHOOL NUTRITION SURVEY



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We gratefully acknowledge the work of the Dietitians of Canada in developing the questionnaire.

The survey could not have been developed and implemented without the generous support of the school divisions throughout Manitoba, and the full co-operation of school administrators, staff and parent councils in completing the questionnaires.

BACKGROUND

The importance of nutritious, well-balanced diets to children's health has long been recognized. Recent research underlines the relationship between nutrition and cognitive development and supports claims that poor nutrition is associated with poorer learning outcomes.

While research-based knowledge is accumulating, there is much experiential evidence based on the observations of classroom teachers, community nutritionists and others who work with school-aged children. Educators have linked decreased attention spans and poor student performance to hunger and missed meals.

The diet of children and youth is an important influence on their current and future health. Poor nutrition can put young people at risk of developing childhood obesity, malnutrition, disordered eating, type 2 diabetes, iron-deficiency anemia and dental cavities. When poor eating habits are established in childhood, they often carry on to adulthood, where heart disease, diabetes and several types of cancer can develop as a result.

In 2004, the provincial government launched the **Healthy Kids, Healthy Futures All-Party Task Force** to engage Manitobans across the province in talking about how to promote healthy eating and active living for young people. The task force report was released in June 2005. As one strategy to address healthy eating, the task force recommended that the provincial government increase access to nutritious foods in schools. Specifically it called on government to require all schools to have a written school food and nutrition policy as part of their school plan.

Over the course of a school year a student may eat up to 200 lunches at school; receive food at numerous parties; dances

or cultural events; buy food and beverages from vending machines; attend a breakfast or snack program; receive food as a classroom incentive or reward; and sell food products for fundraising. This adds up to around 100,000 eating events in Manitoba schools every day. Offering and promoting healthy food and drink choices throughout the school day is, therefore, a big step towards improving the nutrition of children.

The *2006 Manitoba School Nutrition Survey* was designed to obtain information about present school food-service facilities and arrangements, the types of foods sold in schools, and food-related policies and guidelines currently in place in Manitoba schools. The results of the survey can be used in two key ways. Firstly they allow for some comparisons to the 2001 survey conducted by Manitoba Council on Child Nutrition¹ so changes over the past five years can be documented. More importantly, the survey results create a baseline that describes the situation prior to the province wide implementation of the school nutrition policy recommendations stemming from the Healthy Kids, Healthy Futures task force. This means that future studies can assess the effectiveness of this policy in promoting healthy food choices at school.

METHOD

Survey Development

The working group agreed that a written, self-administered questionnaire would be the most efficient and effective method for conducting the study. This method has been successfully used in other provinces that have conducted baseline surveys to collect information about what schools have in place in terms of healthy eating practice and policy. These include British Columbia², Newfoundland³, New Brunswick⁴, Saskatchewan⁵ and

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Manitoba¹. Drawing on these sources, and taking into account the needs and interests of education and health partners, the 2006 *Manitoba School Nutrition Survey* was developed. Questions were examined for face validity and formatted to maximize ease of completion. The final survey was translated into French.

Limitations

There are limitations and constraints with any information-gathering technique and trade-offs must be made.

- Self-administered questionnaires do not yield as rigorous data as, for example, face-to-face interviews or direct measurements and observations. However, they are easier and more cost-efficient to administer and yield valid, cross-sectional data that provides a 'snapshot in time.'
- It was not specified who was to complete the questionnaire, as it was anticipated that this would vary from school to school. As a result there were no means of ascertaining the knowledge or experience base of the respondents or the lengths to which they went to obtain information or consult with others.
- Only quantitative data was collected.

Survey Distribution and Response

According to the Schools in Manitoba's 2006 Directory⁶, there are 686 publicly funded schools in 38 school divisions across Manitoba. Of these schools, 623 are exclusively or partially elementary schools and 329 are exclusively or partially secondary schools. In the spring of 2006, the *Manitoba School Nutrition Survey* was sent to the principal of every school, with a request that they designate an individual within their school community to co-ordinate the completion of the survey, and return it within a four-week period.

Superintendents and parent council chairs were also made aware of the survey.

A quality control check of the surveys was made as they were returned and, where possible, follow-up calls were made to clarify responses or to obtain missing information.

Five hundred and thirty-nine (539) schools returned the survey for an overall response rate of 79 per cent. This is an excellent response rate for a survey of this type, and indicates the interest in, and importance accorded to, the topic of nutritional health of children. One hundred and seventy-one (171) elementary schools, 31 middle schools and 60 high schools responded to the survey (Table 1). In addition, 136 elementary/middle schools, 33 middle/high schools and 108 schools that contained all grades, responded. Thirty-seven (37) school divisions across Manitoba were represented in the response, as well as several independent schools. This reinforces confidence in the broad representation of the sample and the responses. A range of people were involved in answering the survey questions. Eighty-seven (87) per cent of schools had administrators complete the survey, 35 per cent had physical education or health teachers involved, 15 per cent had cafeteria operators assist with answering the questions and 8 per cent involved either a parent volunteer or parent council. Student councils were not well represented as only 3 per cent of the schools involved them in answering the survey. Thirty-four (34) per cent of the respondents indicated that others were involved in filling out the survey. This included paid co-ordinators, food service companies, not-for-profit organizations and school health committees.

Table 1: Response by school level

	Number of Schools (%)
elementary (k-6)	171 (32)
middle School (7-8)	31 (6)
high School (9-12)	60 (11)
elementary/middle school (k-8)	136 (25)
middle/high school (7-12)	33 (6)
all grades (k-12)	108 (20)
Total	539

RESULTS

It is important to keep in mind when reviewing the results that in some instances there is missing data or non-responses that affect the final results.

For the purposes of this report, the data has been broken down into four unique school categories. The first is elementary schools (grades k-6) of which there were 171. Next is a category of schools that includes both elementary and middle-school grades (grades k-8) of which there were 136. The third category includes middle schools and schools that contain both middle and high-school grades (grades 7-12) of which there were 124. The final category is schools that contain all grades (k-12) of which there were 108. While there are other alternative categories possible, this breakdown allowed for the best comparison between the different grade levels with an emphasis on whether there are similarities and differences between elementary schools and schools that contain middle and/or high-school grades.

The data was also analyzed by contrasting rural and urban schools. There were 194 (36%) urban schools and 248 (46%) rural schools. For 18 per cent of the schools, the location could not be determined because the respondents did not provide their school code which was the only way of

identifying the school. Therefore, any analysis in looking at rural and urban schools will not include 18 per cent of the sample. Urban schools were schools located in Winnipeg, Brandon, and Portage La Prairie and rural schools were the remaining schools located outside these three centres and in Northern Manitoba.

Food Services

It is important to determine what facilities and equipment schools have in terms of preparing and providing meals and snacks to students during the school year. This was an issue identified in the *2001 Food and Nutrition in Manitoba Schools Survey*. Schools are limited in what they can serve students by the facilities and equipment available. Schools with more storage and food preparation facilities are able to offer a wider range of food choices than schools with less equipment, though this does not necessarily guarantee greater nutritional value. For example, a school that has adequate refrigeration can readily make milk and other dairy products available to students, whereas, a school without any or insufficient refrigeration is unable to do this. Those schools with fully equipped cafeterias can provide a wider variety of healthy foods than those that have limited facilities; however, they may also be more likely to provide less healthy choices such as deep fried foods.

In the *2001 Food and Nutrition in Manitoba Schools Survey*, many schools reported that they were concerned about the lack of proper equipment required to prepare and provide food to students. In the present survey, schools were asked about the type of equipment they have available for storing and preparing food. The majority of schools had refrigerators, microwaves, an oven, a freezer, a stove and a double or single sink. Less common equipment included a dishwasher, triple sink, grill, fryer, steamer, toaster, hotplate, and heat lamp. A very small percentage of

schools indicated that they had no food preparation or storage equipment.

Figure 1 shows the availability of equipment by school categories. It is evident that the majority of the schools do have the basics for food preparation and storage, such as refrigerators, freezers, stoves and microwaves. A moderate number of middle/high schools are equipped with additional utilities, such as fryers and grills. The k-12 schools appeared to be the least equipped overall, perhaps a reflection of their size. Even though basic equipment is available, it may be insufficient to meet actual needs because it is too small, too old or inaccessible to the general school community. Anecdotally, the insufficiency of refrigeration has been noted in the past. In this survey, a separate question asked whether the schools had adequate refrigeration for their current refrigeration needs. Eighty (80) per cent of the total respondents said yes, indicating that one in five schools have insufficient refrigeration to meet their needs. This may be a compromising factor in the viability of school milk programs.

A breakdown of the data into urban and

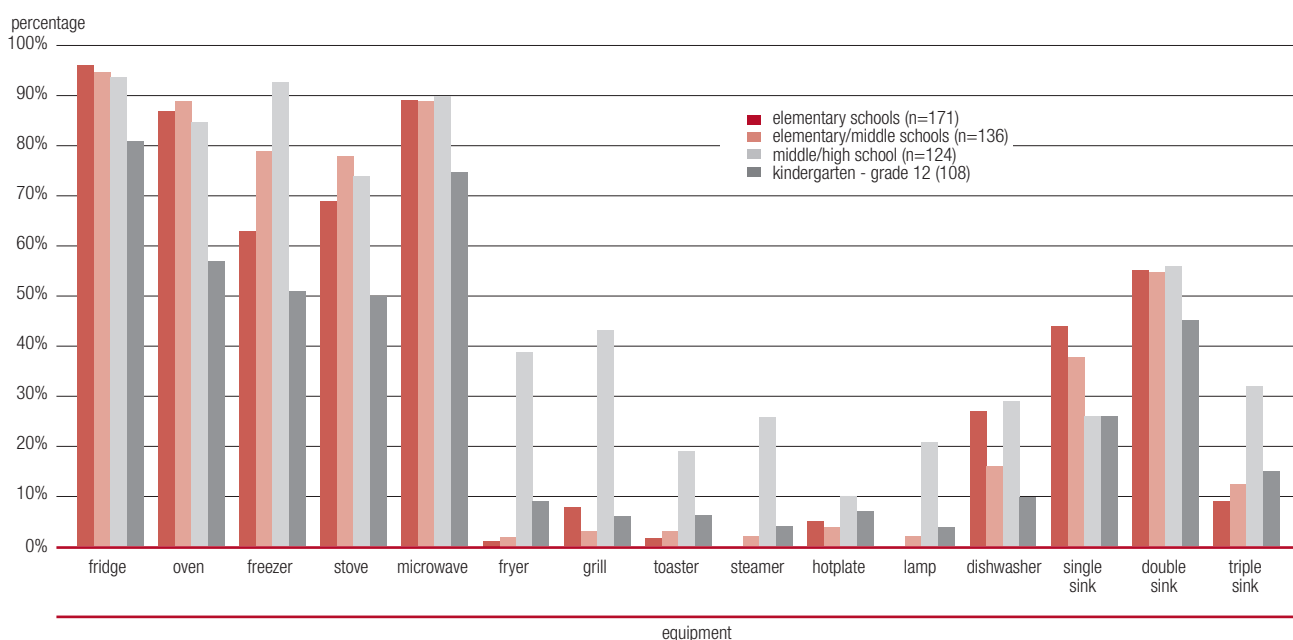
rural showed very little difference in the type or per cent of equipment between the groups. Urban schools had only slightly higher percentages of the majority of the equipment, except for a dishwasher, which was three times more likely to be available in urban schools than rural schools.

Food Provision

Cafeterias & Canteen/Tuck Shops

Many schools have the ability to provide food to students in the school through a cafeteria or canteen/tuck shop. It is often the primary facility on school campus through which students can purchase food. The food options and availability of healthy food choices for students to purchase may have nutritional impacts, especially if students are regularly purchasing lunch and snack foods from these facilities during the entire 200-day school year. These facilities also model what is considered to be a normal range of appropriate food choices. What is sold in the cafeteria or canteen can reinforce or contradict healthy eating messages embedded in the curriculum. Obtaining a baseline of information about what is sold

Figure 1: Percentage of schools indicating availability of equipment for storing and preparing food



in cafeterias and canteens will help determine if the implementation of school nutrition policies and guidelines will have a positive impact on the range of healthy, and less healthy, choices available for students to purchase.

For the purpose of the survey a distinction is made between these two types of facilities. A cafeteria is defined as “a designated area of the school where food is prepared (ex: where sandwiches are made or hot meals are prepared) and served to students. It includes a space for students to sit and eat. A cafeteria may be a fully operating food service establishment or it may have limited food preparation capabilities due to space constraints.”

A canteen/tuck shop is defined as “an outlet in the school (other than the cafeteria) that sells snack items and/or pre-packaged food items. Food sold here has been prepared elsewhere (ex: pre-wrapped sandwiches)”.

Of the total number of schools that responded to the survey, 121 (22%) operated a cafeteria and 188 (35%) schools indicated that they operated a canteen/tuck shop. Thirty six (7%) schools said they operated both. When compared to the results from the 2001 Manitoba Food and Nutrition Survey cafeterias seem to have increased in number as it was indicated that approximately 6 per cent of the schools in 2001 had a cafeteria. The percentage of canteen/tuck shops was more consistent with 2001 data, showing that a little over 40 per cent of the schools had this service. When analyzed by school category (Figure 2), middle/high schools had the largest number of schools operating a cafeteria, while elementary, elementary/middle school and k-12 schools were more likely to operate a canteen/tuck shop. It is important to note that about 40 per cent or two in five schools did not have a cafeteria or a canteen/tuck shop. The availability of food at school is certainly not consistent across the province.

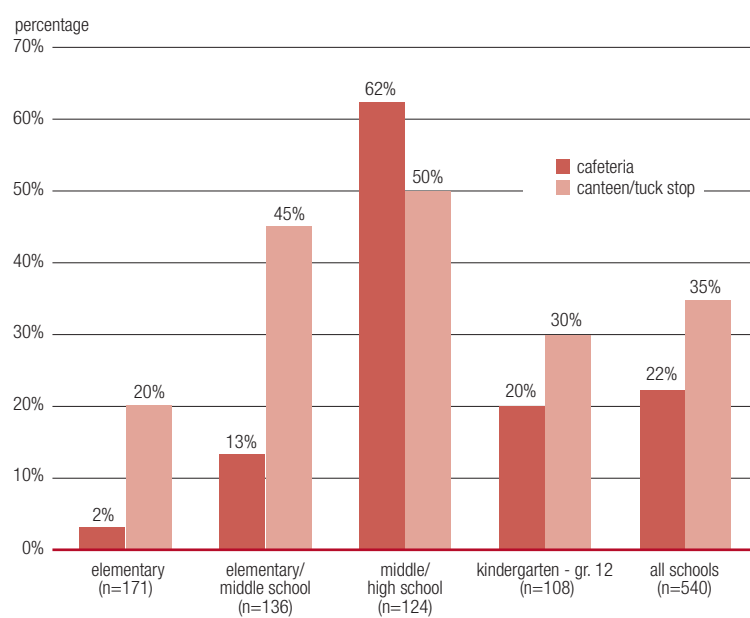
Rural schools were slightly more likely to operate a tuck shop or a cafeteria compared to the urban schools, although the differences were minimal. Twenty-five per cent of rural schools operated a cafeteria compared to 23 per cent of urban schools, while 37 per cent of rural schools and 34 per cent of urban schools operated a canteen/tuck shop.

Access

Access to the school cafeteria/canteen may be a challenge for students, particularly if hours of operation are limited or if timetables result in variable lunch periods.

Of the total number of schools that operated a cafeteria, the majority (88%) were open at noon to serve lunch, 50 per cent were open mid-morning and 37 per cent were open at breakfast. Cafeterias also operated fairly frequently mid-afternoon (34%), before school (28%) and during special events (24%). Few schools (13%) operated their cafeterias all day. Student use of cafeteria facilities also varies. The majority of schools (43%) indicated that between 25 to 50 per cent of their students purchased food from the cafeteria on a typical day. Twenty-four (24) per cent of

Figure 2: Percentage of schools that operate a cafeteria or a canteen/tuck shop



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the schools said that less than 25 per cent of the students purchased food from the cafeteria, 18 per cent said that 50 to 74 per cent of their students purchased food, while a smaller number (5.8%) indicated that 75 to 100 per cent of the students purchased food from the cafeteria.

The majority (88%) of schools that had a canteen/tuck shop operated during lunch hour; however very few were open at other times of the day except for 35 per cent that indicated they were open during special events such as sporting activities.

School canteens or tuck shops can serve multiple purposes. When asked to rank them, the large majority of respondents (95%) said the primary purpose of the canteen/tuck shop was as a service to students. About two-thirds (63%) indicated that it was a service for staff, and 60 per cent said it provided fundraising dollars. About one-third of schools (29%) said the canteen/tuck shop was used to serve community events or groups.

The operator of a food service facility has a great opportunity to influence what food choices are provided. The responsibility for food service in schools varies. Cafeteria operation was most commonly undertaken by a paid co-ordinator, as indicated by 32 per cent of the schools. Other arrangements included operations by school administration (21%), independent operators (18%) and a mixed category (20%), which included school clubs, culinary arts or home economics programs, food service instructors and students, business education departments, classes, sports teams and staff specifically hired to run the cafeteria. Student council (28%) and school administration (28%) were most likely to be responsible for operating the canteen/tuck shop often in co-operation with other groups such as parent council or a paid co-ordinator.

Nutrition Guidelines

Just over one half (57%) of schools with cafeterias followed some type of nutritional guidelines or standards to

determine what was being sold to students. Nutritional guidelines are a tool for schools to use to determine what foods should be available to students with the goal of providing good nutritional value. The most common resource was *Canada's Food Guide to Healthy Eating*, used by 77 per cent of those who did follow some of the guidelines. Other guides included *Breakfast for Learning Guidelines* and recommendations from a dietitian; very few schools said they used the latter. Exactly how these guidelines were interpreted and implemented was not explored in this survey.

Guidelines were used less often by the schools that operated canteen/tuck shops. About a third (35%) of these said they used *Canada's Food Guide to Healthy Eating*. *Breakfast for Learning Guidelines* and recommendations from a dietitian were used less than 15 per cent of the time, while a larger percentage (42%) of schools used other local guidelines, such as "no junk-food" rules, peanut and nut awareness, division and school policies, and directions from advisory groups, including the parent council and other school committees.

Approval for Food Sold in Cafeterias & Canteen/Tuck shops

In schools that operated cafeterias, approval of the food to be served was most often the responsibility of school administrators (50%). Other sources of approval were relatively infrequent. For example, approval from a paid co-ordinator was indicated by 12 per cent of the sample, while a health committee was mentioned by only 7 per cent of the respondents. It can be very valuable to involve all partners in the selection of food items to be sold in school facilities so that issues such as health, pricing and profit can be thoughtfully discussed. These discussions could include input from parent groups, students, health committees, the vendor, those who prepare the food, and others. In the survey it was often reported that more than one

group provided approval such as the parent council along with the school administration, the school administration in co-operation with the vendor, or the health committee along with the parent council and/or the health co-ordinator. One in five respondents indicated there was no approval mechanism in place for food choices in the cafeteria.

The school administration was also most likely (58%) to be responsible for approving items sold in canteen/tuck shops, often in partnership with the parent council, the vendor, the health/nutrition committee, or the paid co-ordinator. Forty-five per cent of the schools responded that various groups such as parent committees, paid coordinator, and health committees were involved in approving food items. No approval process was indicated by 19 per cent of the schools.

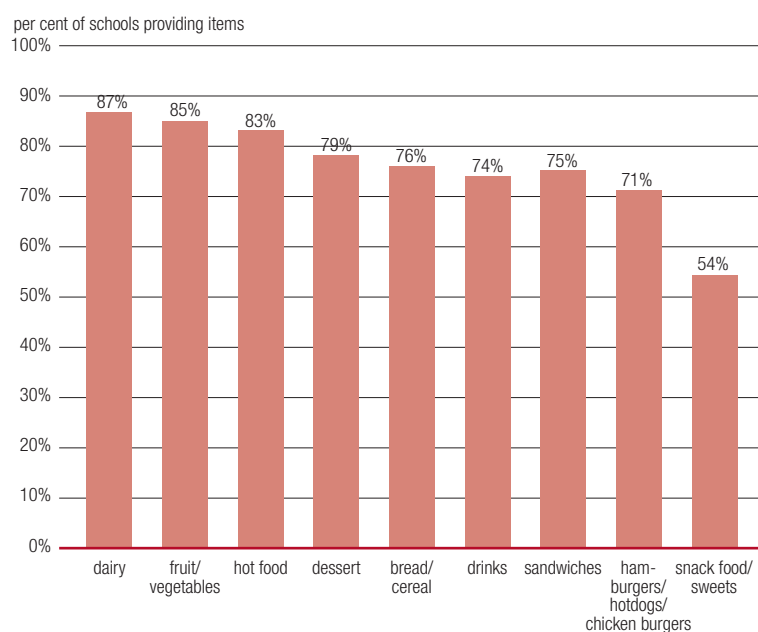
Food Items Sold in the Cafeteria

The survey asked respondents to indicate what food items were sold in the cafeteria and the amount sold on a random day of the week of their choosing. This was done to avoid systematic bias of a particular day, such as treat days on Fridays or special event days. Although picking one day of the week does not tell us the kinds of choices students are making on a daily basis, (in terms of healthy or poor food choices), it does provide some insight into what foods tend to be offered most frequently to students by the schools, as well as what students tend to consume.

Figure 3 shows the range of food items most commonly offered to students through cafeteria services in the schools, based on the information the schools provided about items sold. For ease of reporting, the items have been organized and listed as food categories. This is not an exhaustive list as some schools with cafeterias did not fill out the food item list. In addition, schools were asked to pick a certain day to record food items sold, so items not sold on the chosen day were not included.

Dairy products were offered by the majority of the schools and included white milk and chocolate milk, which were the most popular items offered in this category. Seventy-four (74) per cent of the schools offered white milk and 85 per cent offered chocolate milk. Additional dairy products included yogurt, cheese and milkshakes. Fruits and vegetables included fresh fruit, 100% fruit juice, salad, raw vegetables and cooked vegetables. Of the food in this category, the 100% fruit juice and the raw vegetables appeared to be offered most often to students by the school cafeterias at 68 per cent and 63 per cent respectively. Hot foods contained a variety of nutritious, and not so nutritious choices and included pizza, lasagne, chili, chicken nuggets, french fries, gravy, fish, spaghetti, soup, tacos, poutine and onion rings. Soup was offered in 81 per cent of the school cafeterias, pizza was offered in 65 per cent and french fries in 56 per cent. These were the most popular items served. Many schools offered items from the dessert category, including cake, ice cream, cookies and pudding. Bread and cereal was another category that included toast, bagels, granola bars, cereal and muffins.

Figure 3: Food items offered in school cafeterias



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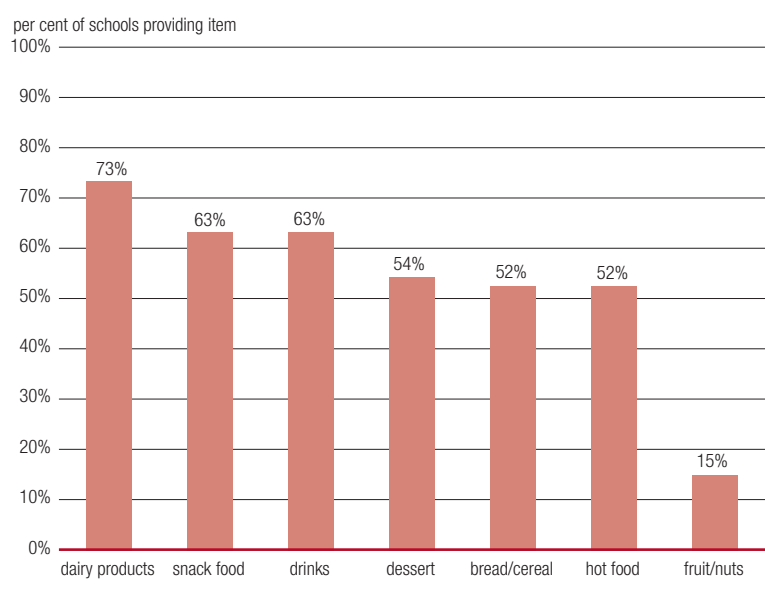
Sandwiches, which included subs, were served in many school cafeterias, along with wraps and grilled chicken sandwiches, although these were served less often. Drinks included soft drinks, hot chocolate, coffee, sports drinks, fruit drinks and water. In this category, water (88%), fruit drinks (62%) and soft drinks (55%) were most frequently offered in the cafeterias. Finally, snack foods were provided by a little over half the schools that had a cafeteria. These included chips, the most common item offered, followed by chocolate bars and candy.

Food Items Sold in the Canteen/Tuck Shop

The survey asked the schools to indicate what foods they sold in the canteen/tuck shop and the amount they sold on a random day of the week. From this information, it can be determined what food items are being offered to students (see Figure 4). Like the cafeteria food items in Figure 3, this is not an exhaustive list as some surveys were incomplete. In addition, schools were asked to pick a certain day to record food items so items not sold on the chosen day were not included. Figure 4 shows the food items that canteen/tuck shops carry, vary from the cafeteria.

Dairy products were sold in the majority of canteen/tuck shops and included white milk, chocolate milk, milkshakes and cheese. Chocolate milk was the most popular dairy item offered in this category. It was offered in 63 per cent of the schools with canteen/tuck shops. White milk followed at 45 per cent. Snack food included chips, chocolate bars, gum, hot rods, fruit gels, and candy, and was offered quite frequently. However, of all the snacks, chips (47%) and chocolate bars (30%) were offered most frequently. Drinks included 100% fruit juice, fruit drink, sports drinks, water, soft drinks, coffee and tea, with 100% fruit juice (43%) and water (37%) being offered most often. Dessert items included pudding, ice cream, cake, pastries and cookies. Bread and cereal items included sandwiches, cheese and crackers, muffins, peanut butter and crackers, and granola bars. Cheese and crackers and granola bars were sold most often out of this category. Hot food items included pizza, hamburgers, hot dogs, soup, pasta and french fries again with pizza (31%) and soup (30%) being the most popular items offered. French fries were sold in only 2 per cent of the canteen/tuck shops. Very few schools sold fresh fruit or nuts in their canteens/tuck shops.

Figure 4: Food items offered in school canteen/tuck shops



Whereas cafeterias provided more lunch-type items, such as hot foods, sandwiches, and fruit and vegetables, canteen/tuck shops provided more snack food items and drinks. Dairy products were popular with both. It is interesting to note the lack of fruits and vegetables offered in canteens, in comparison to cafeterias. These results are not much different from the 2001 *Food and Nutrition in Manitoba Schools Survey* results, where schools with cafeterias provided a greater variety of food items that appeared to be more lunch-oriented, while canteens seemed to provide more snack foods and drinks.

Top Ten Foods Sold

What is offered for sale in cafeterias and canteens may reflect what is known or

assumed to be, popular in the market. But it can also be a determining factor shaping food choices; students can only buy what is available. In terms of most popular food items sold in the cafeteria, Table 2 provides a breakdown of the Top 10 single food items sold in both the cafeterias and the canteen/tuck shops. This is based on the frequency that these food items were indicated as sold on a specific day chosen by the respondent. While chocolate milk was the most popular food item sold by both types of facilities, differences in the offerings between cafeterias and canteen/tuck shops are paralleled by differences in what foods are actually purchased. The cafeterias tend to have a few more lunch-type items to choose from while the canteen/tuck shop leans more towards snack food. It is interesting to note that although fruits and vegetables were offered by 85 per cent of the schools that operated cafeterias (see Figure 3), it was not a category that made the Top 10.

Table 2: Top ten foods sold in school cafeterias and canteen/tuck shops

Cafeteria	Canteen/Tuck Shop
chocolate milk	chocolate milk
sandwiches/wraps	candy
cookies	pizza
pizza	chips
french fries	hotdogs
soft drinks	chocolate bars
soup	soft drinks
100% fruit juice	ice cream
water	100% fruit juice
white milk	water

Restaurant Food

While it is a common discussion point that students who leave the school premises at lunchtime may choose to eat at neighbourhood restaurants (commonly fast food outlets), it is also the case that commercial restaurants are establishing more of a direct presence in schools. To

determine the nature and extent to which commercial restaurants, including fast food outlets, contribute to food availability in schools, respondents were asked if restaurant food was sold in their schools.

Forty-nine (49) per cent of the schools surveyed did sell products from restaurants. Thirty-one (31) per cent indicated that they sold products from local pizza restaurants while 18 per cent sold products from fast food chains. These products were usually not sold often, with the majority (15%) of the schools selling restaurant food “*several times a year,*” or “*once a month*” (13%). However, 8 per cent of this subgroup sold restaurant products “*on a daily or weekly basis.*” This represents about one in 25 schools in Manitoba. The remainder of the schools that sold restaurant products did not indicate how often they were sold. For the most part, the sale of restaurant products was for either fundraising (22%) or service to students and parents (22%) and most likely occurred as a result of a classroom/school party or special occasion. The regularity with which restaurant products are brought into Manitoba schools suggests there is a need to pay attention to the nutritional value of such foods, and to explore options for ensuring that healthy choices are available.

Vending Machines

Vending machines also contribute to the type and availability of foods that students have access to in school. They can provide both healthy and less healthy food and beverage choices as in these examples: water vs. soft drinks; milk vs. sports drinks; crackers and cheese vs. potato chips; granola bars vs. cookies. Many schools do not have cafeterias or canteens so vending machines are the only point-of-purchase within the school. In this case, they assume relatively greater importance as an opportunity to provide healthier choices to students. By creating a baseline

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of what vended food and beverage products are currently offered, and how they are accessed by students, it is possible to assess the significance of vending to the school food environment, and to monitor vending changes over time. As previously noted, students spend a large percentage of their primary and adolescent years in school, consuming a lot of snacks and drinks, and if students are not being provided with healthy food choices, this may have long-term nutritional implications. The aspects of vending that were explored in the survey included the products vended, the positioning of products in the vending machine, pricing of products and access to vending machines.

Fifty-nine (59) per cent, or 319 of the schools surveyed, indicated that they had vending machines, though this varied considerably by type of school. This is up slightly from the *2001 Food and Nutrition in Manitoba Schools Survey* results that indicated vending machines were installed in 54 per cent of the schools surveyed.

Fifty-nine (59) per cent, or 319 of the schools surveyed indicated that they had beverage vending machines. The majority

(46%) had only one machine while 29 per cent had two and 25 per cent had three or more. In total, there are approximately 650 beverage vending machines in Manitoba schools. (The number is not completely accurate as a result of non-reporting as well as some schools indicating more than five machines in response to the survey).

Snack vending machines were less common than beverage vending machines, with only 66, or 12 per cent of schools indicating they had them. Approximately 76 per cent of these schools had one snack machine, while 21 per cent had two or more. In total, there were approximately 88 snack vending machines.

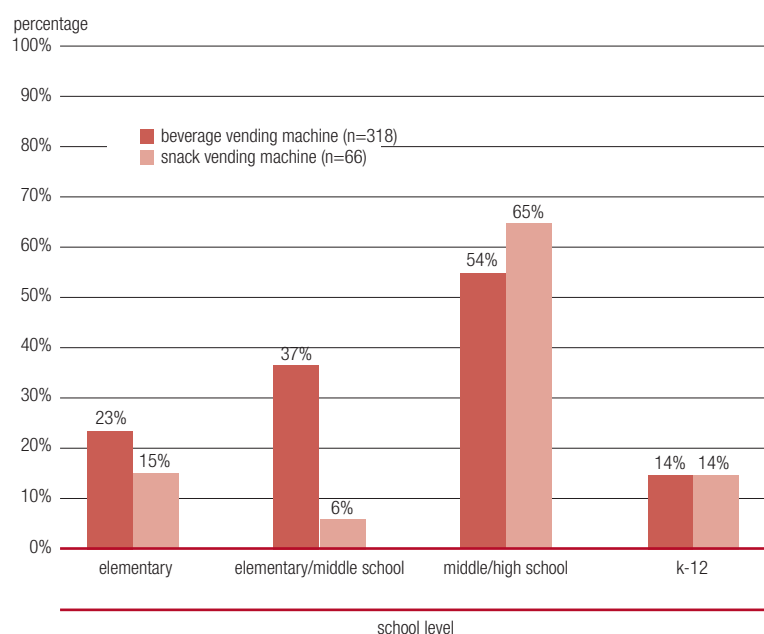
When broken down by school level, it was found that the middle/high school category had the highest percentage of both beverage and snack vending machines. Figure 5 provides this breakdown.

There was no difference between urban and rural schools in frequency of beverage vending machines (41% and 44% respectively), but urban schools were much more likely to have snack vending machines (53% vs. 29%).

In terms of students having access to the vending machines, lunchtime was when the majority of the schools allowed access. This included both beverage and snack vending machines. This was followed by access after school and before school. In 24 per cent of the schools, students were not allowed any access to the vending machines. This percentage is much higher than what was found in the *2001 Food and Nutrition in Manitoba Schools Survey*, where only 5 per cent of the schools reported that the vending machines were restricted to staff. Figure 6 describes students' access to vending machines.

In terms of who decided what was to be sold, in both the beverage and snack vending machines, 58 per cent of the respondents indicated that the school administrator was responsible for this

Figure 5: Percentage of vending machines by school level



decision, followed by the vendor (20%). In many cases, it was the school administrator, along with the vendor or another group such as parent council or the health committee, who made this decision. School administration was also most likely to operate the vending machines (34%), followed by a food service company (18%), independent operators (14%), student council (12%) and school clubs and programs (7%). Schools that own their vending machines may have more ready control over what is vended. In this survey, only 27 schools reported owning their vending machines.

The majority of the schools that responded to the survey said that service to students was the primary purpose of the vending machines. This was followed by service to staff, fundraising, and service to community events and groups. It seems that fundraising may not be as important an aspect of vending machines than is commonly assumed. If this is true, and service to students is indeed the prime purpose, then the opportunity exists to explore healthier options for vending in schools.

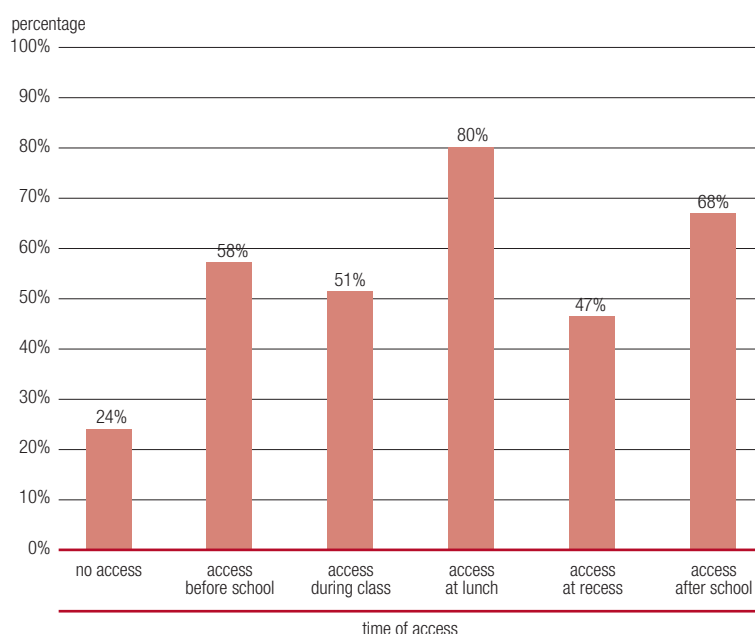
Items Sold in the Beverage Vending Machines

Table 3 provides a breakdown of what drinks are commonly found in vending machines in the schools. It is interesting to note that soft drinks are fifth in popularity. This is a much different story than in 2001, where the *Food and Nutrition in Manitoba Schools Survey* reported that soft drinks were the most common vended item. One reason for this decline in popularity may be that many schools have removed soft drinks from their machines in response to growing awareness of the high sugar content of these beverages and the health concerns this poses. [Also, in 2003, the Coca Cola® company announced that it would no longer provide full-sugar soft drinks in elementary schools.] This is certainly a positive step; however, there does tend to be a high number of other beverages, such

as diet soft drinks, fruit drinks and sports drinks, available which are not necessarily better choices, as they often have a high sugar and/or caffeine content. Water, the drink found in the majority of vending machines in schools, is the most popular choice as indicated in Table 3. This, again, is a much different result than the one reached in the 2001 survey, where only 10 per cent of the schools mentioned water as a vending machine item. In the past five years, there has been intense marketing of bottled water products, perhaps partially in response to the declining demand for soft drinks in schools. Milk products were not represented adequately in this data, as most vending machines are not able to accommodate milk, and these items would likely be sold in a cafeteria or a canteen/tuck shop.

The portion size of the beverage is also an important consideration. In line with the food retail trend of ‘supersizing,’ many vended drinks provide more than one standard serving. Large sizes of drinks such as sports drinks, energy drinks, and fruit punch/cocktails contain high quantities of sugar and have little additional food value. One-hundred (100) per cent fruit juices provide more

Figure 6: Student access to vending machines



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nutritional value; however, there is a high natural sugar content and this, combined with the large serving sizes, may pose a concern for excess calories. If bottled beverages are to be sold, water is a good choice from a nutritional viewpoint, and the large serving size is not detrimental in terms of calories and sugar content.

Respondents were asked to pick one vending machine and record the size, cost, and, location of beverage items in the vending machine. The reason for this was to determine what sizes are most popular. The results in Table 4 show that 250 mL, although being a “normal,” portion is vended less often than the larger sizes of drinks. The shaded cells show that soft drinks, fruit punch and 100% juice seem to come most often in the 350 mL size, while sports drinks and water come in sizes greater than 500 mL.

Table 4 also shows the average price point for these items. Most of the beverages sold in school vending machines are, on average, \$1.00 regardless of the size. The exceptions are sport drinks, which range in price from \$1.50 to \$1.75, and water, which has an average price point of \$1.50.

The way in which drink items are displayed in the beverage vending machine may also have implications in terms of healthy and less healthy choices. The shelf placement of drinks in vending machines can affect purchasing decisions. For example, beverages that are placed in the upper and middle rows of drink vending machines are more visible and may be purchased more frequently than those in the lower rows. By asking schools to identify where specific types of drinks are located in the vending machines, it is possible to see if any changes occur in the future (for example, if better health choices are placed in prime locations

Table 3: Number of vending machines that offer drink selections

Beverage	# of vending machines that offer selections (n=650)
water	373 (57%)
iced tea; sports drinks; energy drinks	365 (56%)
fruit punch/cocktails (ex: Five Alive®, Snapple®, Tropicana Twister®, V8 Splash®, Fruitopia®)	355 (55%)
100% fruit or vegetable juice (ex: V8 original, orange juice, apple juice)	269 (41%)
soft drinks	250 (38%)
milk (white milk)	12 (1.8%)
coffee; tea; hot chocolate	12 (1.8%)
basic flavoured milk drinks (chocolate, strawberry, vanilla, banana)	7 (1.1%)
candy bar flavoured milk drinks (ex: Rolo®); milkshakes	2 (.3%)

Table 4: Most common size & price of popular drinks found in beverage vending machines

Beverage	250 mL	350 mL	500 mL	>500 mL	Most common price of most popular size
soft drinks	29	63	29	45	\$1.00
sports drinks	8	21	36	103	\$1.50 – \$1.75
fruit punch	32	115	49	33	\$1.00
water	17	4	63	103	\$1.50
100% juice	26	102	40	17	\$1.00

while those that are less healthy are placed in lower levels or eventually taken out of the machines).

The survey results showed that various types of drinks were found in different rows of the vending machines, soft drinks were most often placed in the upper half of the beverage vending machines while sports drinks were found in the middle to lower rows. Fruit punch was placed most often in the middle rows and this was the same for 100% fruit juice. Water was placed in all sections of the vending machine.

Items Sold in the Snack Vending Machines

Snack vending, in the context of food provision in the schools, is less of an issue because of the limited number of snack vending machines in the schools. Schools responding to the survey identified approximately 88 snack vending machines, although this number may not be completely accurate as a result of under-reporting. Table 5 describes the types of items that are found in the snack vending machines. Fried snacks, and coated granola bars and chocolate bars were found in the greatest number of vending machines. This was followed by baked snacks.

In terms of the location of certain snacks in the vending machine, fried and baked

snacks were found more often in the upper rows of the vending machines while chocolate bars and granola bars were located in the middle. Cookies and cereal-based squares were more likely to be located in the lower half of the vending machine. All the snacks reported cost between \$1.00 and \$1.25 per unit.

Lunch at School

Schools were asked to identify the number of students who remained at school during lunch hours. The results show that 466, or 86 per cent of schools, permitted their students to remain at school for lunch. This could mean that approximately 90,000 students are eating lunch at school on a daily basis. The implications for the nutritional health of students can be great, particularly since such a high number are eating their lunches at school, with many of them eating food that is provided through the school cafeteria and canteen/tuck shop. Schools have a major opportunity to support healthy eating through food options for a healthy lunchtime.

Eating environment is also important, for eating is a social as well as a nutritional activity. *“Students are more likely to maintain good eating habits in an atmosphere where nutrition is emphasized,*

Table 5: Items sold in snack vending machines

Snack	# of vending machines that offer selections (n=88)
fried snacks (potato, corn, wheat or rice chips; cheesies; crackers)	67 (76%)
chocolate or yogurt-coated granola/breakfast/sports bars; chocolate bars; nut bars	67 (76%)
baked snacks (pretzels; popcorn; potato, corn, wheat or rice chips; crackers)	42 (48%)
pastries; cookies; squares; donuts; cakes; rice cereal squares	37 (42%)
uncoated granola/breakfast/sports bars; nut bar	28 (32%)
100% fruit or vegetable leathers; dried fruits; nuts/trail mix	19 (22%)
cheese & crackers	11 (13%)
peanut butter and crackers	0
sandwiches	1
fresh fruit (ex: oranges, apples, etc.)	1

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healthy food is available and enough space and time is allocated for both eating and socializing.”⁷ An analysis of three studies that looked at the time allotted for students to eat their lunch found that students needed a minimum of 20 minutes to eat lunch once they had their food in hand.⁸ Ensuring adequate time and appropriate space sends a clear message that mealtime is valued. The findings of this survey suggest that most children had adequate time to eat their lunches as the majority (58%) of the schools allowed 20 to 28 minutes for lunch, while 14 per cent allowed 30 to 39 minutes and 17 per cent allowed 40 minutes. Eight per cent of the schools allowed less than 20 minutes for lunch, which may not be sufficient.

Lack of adequate eating facilities can be a challenge for some schools. The classroom is the location of choice for students to eat their lunch for 62 per cent of the schools. This is followed by a room that has been established as a lunch room (30%), a formal cafeteria (20%) and the hall (13%). Other miscellaneous locations made up 12 per cent and include the gymnasium (where many schools indicated they set up tables on the stage or balcony), multi-

purpose rooms and other available spaces, such as the band room, classrooms, study hall, student lounge and the front foyer of the school, where tables were set up. Eating outside when weather permitted was also mentioned. In the absence of custom-built cafeterias or other eating areas, it seems that schools solve the problem of providing places for food consumption in a variety of creative ways.

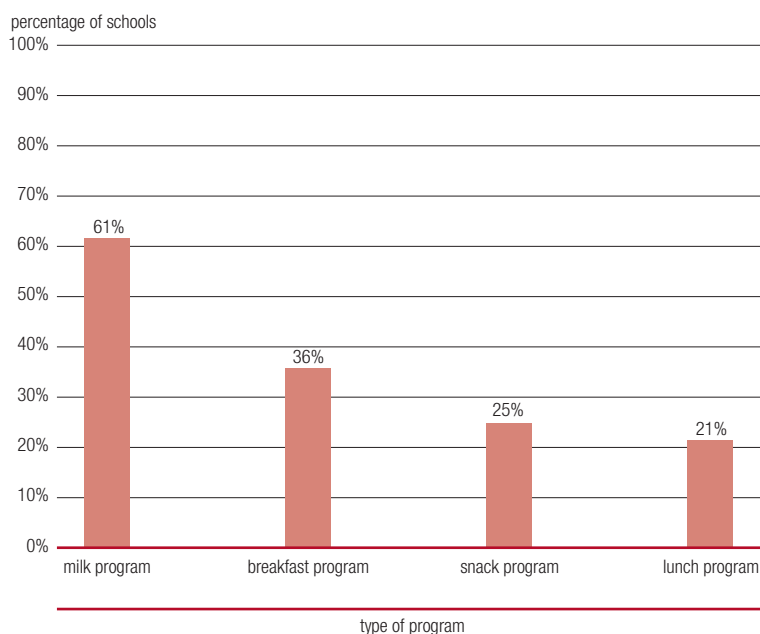
School Food Programs

School food programs are becoming more and more common in the school system as concerns about children not getting enough food to eat, or not eating properly, continue to grow. Having food programs in the schools can assist in offsetting the negative effects of hunger on learning, and improve children’s ability to focus on classroom tasks. The survey asked questions about the nature and extent of food programs that exist in Manitoba schools.

Two hundred and thirty-five (235) or 44 per cent of schools that participated in the survey have funded school food programs. Of these schools, 61 per cent operated a milk program, 36 per cent operated a breakfast program, 25 per cent had a snack program and 21 per cent had a lunch program (Figure 7). Thirty-five (35) per cent of the schools operated more than one funded program. The majority of the funded food programs were in the elementary/middle schools category. All 37 of the school divisions had schools offering some type of food program.

Compared to the 2001 *Food and Nutrition in Manitoba Schools Survey* results, there has been a considerable increase in the number of schools that offer a breakfast program. In 2001, breakfast programs were offered in only 13 per cent of the schools that responded to the survey, compared to 36 per cent in 2006. Snack programs increased slightly from 22 per cent in 2001 to 25 per cent in 2006. It appears that the 2001 survey did not explore the presence of milk programs or

Figure 7: Percentage of schools operating food program



funded lunch programs; therefore, any changes in these programs cannot be determined.

About two-thirds (153) of the schools that operated a food program used nutrition guidelines to assist them. Nutrition guidelines are a useful tool that schools can use to assist them in determining what foods would provide the most nutritional value. The guidelines are designed to take the guess-work out of what to serve students, allowing for variation in menus depending on availability and cost. The guidelines used by the majority (73%) of the schools that had a food program, was *Canada's Food Guide to Healthy Eating. Breakfast for Learning Guidelines* was used by 30 per cent, predominantly for breakfast programs. A small number of schools also used the *Breakfast for Learning Guidelines* for their snack and milk programs. Nineteen (19) per cent indicated they used both *Breakfast for Learning Guidelines* and *Canada's Food Guide to Healthy Eating*.

The food programs were funded through various sources, the most common being student fees/purchases (35%), donations/sponsorships (27%), school division or district budgets (25%) and school funds (20%). Granting agencies (13%), private business (10%) and government (8%) were less likely to provide funding to these programs. Twenty (20) per cent of the schools had multiple funders. This is fairly consistent with the *2001 Food and Nutrition in Manitoba Schools Survey* results in terms of who is paying for these funded programs; however, it appears that the contribution of student fees to school food programs has increased since 2001.

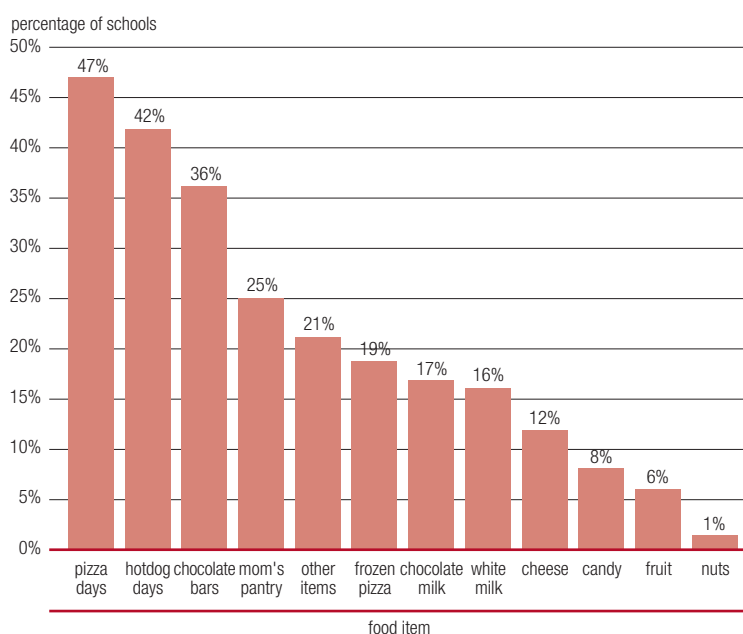
The operation of funded food programs are most often the responsibility of the staff at the school, as indicated by 62 per cent of those who offer such programs. Other groups that were indicated frequently by the respondents were parents and volunteers (31%) and a paid co-ordinator (23%). Many of these groups worked together to deliver a program.

Fundraising

Fundraising is an ongoing concern for most schools as they try to seek creative ways to raise money to support additional student activities. Selling food items, either to the students in the school, or the greater community, has always been a popular means of raising money. The concern around selling these food items is that they are not necessarily healthy food options, and may be counteractive to the messages regarding healthy nutrition that are being delivered to children in school. Seventy-nine (79) per cent of the schools that responded to the survey sold some type of food item for fundraising in the 2005/06 school year. Figure 8 provides a breakdown.

The top three food activities for fundraising in school were in-school hot dog days (47%) and pizza days (42%), and the sale of chocolate bars outside of school (36%). Other items used for fundraising included a vast array of different foods, the most popular being cookie dough, cheesecakes, baked goods, fast foods (such as submarine sandwiches, fried chicken and tacos) and a variety of hot lunches (such as soup lunches, perogies, spaghetti, pizza and BBQ

Figure 8: Food items sold for fundraising



hamburgers). The type of food that was being sold for fundraising in schools in 2006 did not differ significantly from that sold in 2001, according to the *Food and Nutrition in Manitoba Schools* report.

When it came to making a decision about what foods to sell for fundraising, the majority of the respondents indicated that profit margin was the primary factor. This was followed by availability of the product, and finally, the nutritional value of the item. Since the primary reason for fundraising is to make a profit, it is important that food sold for this purpose is appealing. A balance has to be struck between what is going to be a popular sell and what is nutritious and healthy. Foods such as home-baked goods, fruit and homemade perogies may be better options for fundraising than chocolate bars and cheesecakes.

Other Food-Related Events

Food is an important part of the social and cultural fabric of the school and as a result, food is often a part of special events and occasions. Dances, classroom parties, sports days and cultural events often

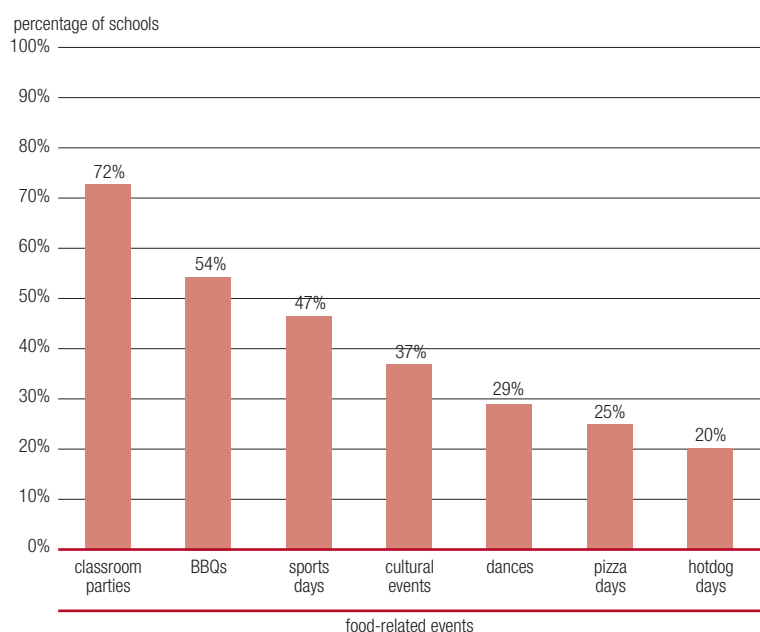
involve a food component. In addition, some special events focus on food, such as hot dog days, pizza days and BBQ's. Figure 9 shows the percentage of the schools that participated in non-fundraising activities where food was involved. Classroom parties were the most popular food-related event with 72 per cent of the respondents indicating that they participated in this activity. This was followed by BBQ's (54%) and sports days (47%). Cultural events were mentioned by 37 per cent of schools; examples included learning about other people's cultures through experiencing traditional dishes and/or attending special religious or ethnic occasions where food is involved, such as powwows, Rosh Hashanah or Christmas celebrations. Dances occurred at 29 per cent of the schools and non-fundraising pizza days (25%) and hotdog days (20%) also occurred.

Food as a Reward

One of the goals of a nutrition policy is to promote healthy eating and one way to accomplish this is to lead by example. If food is being used as a reward or incentive in the classroom, then it is important to ensure that it is healthy. Rewarding a child with food that does not have good nutritional value may not be supporting that child adequately to make healthy food choices for him/herself when the opportunity arises.

When asked if they used food as a reward or incentive, 59 per cent of the schools said yes. Food treats in the classroom were the most popular reward/incentive, used by 72 per cent of the schools. This was followed by restaurant food coupons (27%) and trips to restaurants (15%). Other incentives were indicated by 36 per cent, the most popular being pizza parties, and cafeteria or canteen coupons. Lunch was also indicated as an incentive/reward; however, it was not indicated what lunch consisted of. Other reward items included hot chocolate, candy, popcorn parties and BBQs.

Figure 9: Food-related activities in schools



School Food Policies

One way to promote and support school health and nutrition is by organizing a committee that will lead the initiatives related to health in the school. It takes change at many levels to create a healthier food environment for children in school; therefore, it takes participation at many levels. Ideally, the committee should be well represented by the students, administration, teachers and community, all of whom have a stake in the health of school-aged children and youth.

One hundred and eighty four (184) schools, or 34 per cent, had committees in place to promote healthy eating. When asked who was represented on their committees, 89 per cent of the schools indicated teachers, 82 per cent indicated school administration and 44 per cent had a parent council representative on their committee. Figure 10 provides a further breakdown of who is represented on these committees.

A school nutrition policy is a tool that can be used to help ensure that good nutrition is taught both in theory and practice. An important purpose of this survey is to provide a baseline for evaluation of the impact of the provincial government requirement—that all Manitoba schools develop a written nutrition policy. It was, therefore, important to document the current status of school food and nutrition policy in Manitoba.

Schools were asked to describe the current status of written food policies. The results are shown in Table 6. These percentages are quite small and it is important to be aware of the fact that many of the policies and guidelines around food are unwritten

and often communicated informally, so they would not be in the form of a written document. However, there were two areas where a larger percentage of the schools who responded to the survey indicated that written policies were in place. These include a policy on providing adequate time to eat lunch, where 44 per cent of the schools indicated this was in place and six per cent indicated it was under development, and a food allergy policy

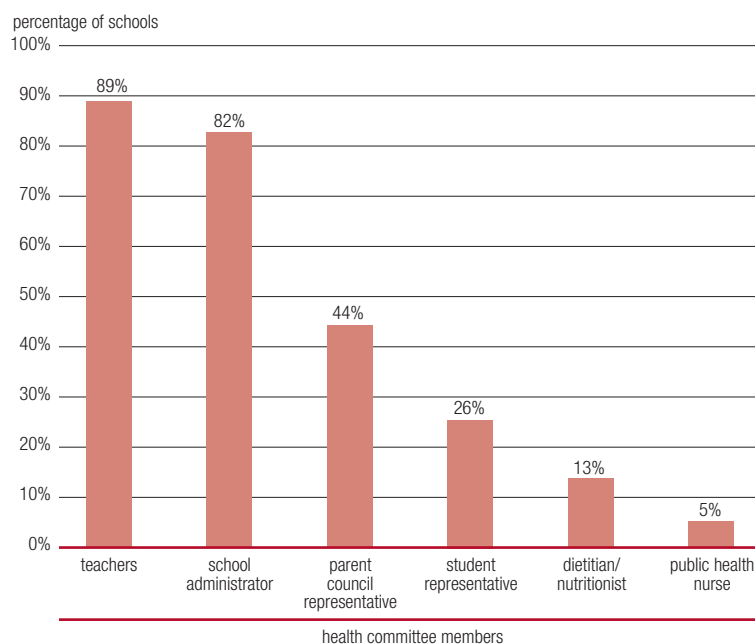
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Table 6: Current status of written school food policies

	In Place	Under Development
types of food sold in vending machines	7%	10%
types of food sold in school cafeterias	5%	11%
types of food sold in canteen/tuck shops	5%	11%
types of food sold at school special events	9%	13%
fundraising	14%	15%
competitive pricing to promote healthy food choices	7%	11%
discouraging the use of food as a reward	6%	12%
limiting access to less nutritious foods during school hours	18%	18%
providing adequate time for lunch	44%	6%
food allergy policy	56%	10%

Figure 10: Health committee representation



where 56 per cent of the schools indicated they had a written policy in place, and 10 per cent said it was under development.

***Physical Education/Health
Education Curriculum***

Much of the information provided to children about nutrition, as it pertains to a healthy and active lifestyle, is taught via the physical education/health education curriculum. The survey explored how much instructional time is spent on physical education and health education. Table 7 provides a breakdown of the survey responses. Please note that since some schools use a six-day cycle, and others do not, the breakdown of k-6 and 7-8 grades is provided for each scenario (per day and per six-day cycle).

The results show that not all students receive the recommended time for instruction in physical education and/or health education across the grades. Forty-seven (47) per cent of k-6 schools using a six-day cycle do not meet the recommended instructional time for physical education and 56 per cent do not

meet the recommended instructional time for health education. For grades 7 to 10 students, the percentage of schools that meet the recommended minimum-time allocation increases for physical education (by approximately 20 per cent at grades 7 and 8 and about 25 per cent at grades 9 and 10) and for health education (by about 20 per cent at grades 9 and 10). Time for health instruction is significantly less at grades 7 and 8 with 72 per cent not meeting the recommended time. As the results show, it is crucial that schools ensure that this curriculum is supported.

The survey also looked at who is teaching physical education and health education. Table 8 shows a breakdown of the overall school responses, by grade and instructor, for both these areas. The results show that physical education specialists are more likely than classroom teachers to be teaching children physical education, and this tends to increase as the grades increase. The opposite is true in nutrition instruction (Table 9), where classroom teachers are more likely than health and physical education specialists to teach children about nutrition, as well as other health-related material. This may have

Table 7: Time spent on teaching Physical Education/Health Education Curriculum (PE/HE)

Grade	Minutes	%	Minutes	%
PE: gr. k-6 — 6 day cycle (n=342)	<150 minutes	47%	150 minutes or >	54%
HE: gr. k-6 — 6 day cycle (n=266)	<48 minutes	56%	48 minutes or >	44%
PE: gr. 7-8 — 6 day cycle (n=210)	<134 minutes	25%	134 minutes or >	75%
HE: gr. 7-8 — 6 day cycle (n=170)	<44 minutes	72%	44 minutes or >	58%
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PE: gr. k-6 (n=102)	<25 minutes	12%	25 minutes or >	88%
HE: gr. k-6 (n=85)	< 8 minutes	18%	8 minutes or >	82%
PE: gr. 7-8 (n=86)	<22 minutes	7%	22 minutes or >	93%
HE: gr. 7-8 (n=72)	<8 minutes	15%	8 minutes or >	85%
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PE/HE: gr. 9 (n=205)	<110 minutes	20%	110 minutes or >	81%
PE/HE: gr.10 (n=168)	<100 minutes	23%	110 minutes or >	77%

implications for the physical education/health education curriculum as the overall results imply that physical education may be more of a focus than nutrition. On the other hand, there could be a joining of forces among physical education specialists and classroom teachers to ensure that the entire physical education/health education

curriculum is being taught. If this is the case, it is imperative that classroom teachers have pre-service training and/or are provided with comprehensive in-servicing, to ensure the strong knowledge base required to teach the many issues related to nutrition.

Table 8: Physical Education instruction

Grade	PE Specialist	Classroom teacher	Both
k (n=407)	49.1%	38.6%	11.1%
1 (n=407)	59.2%	27.0%	12.5%
2 (n=404)	59.9%	25.5%	13.1%
3 (n=406)	61.6%	23.9%	13.3%
4 (n=404)	62.1%	23.3%	13.1%
5 (n= 400)	65.3%	21.0%	12.8%
6 (n=384)	61.4%	23.0%	14.8%
7 (n=308)	61.7%	25.3%	12.3%
8 (n=304)	62.2%	24.3%	12.8%
9 (n=219)	67.6%	25.1%	6.4%

Table 9: Nutrition instruction

Grade	PE Specialist	Classroom teacher	Both
k (n=400)	5.0%	78.3%	16.0%
1 (n=396)	6.3%	75.0%	17.7%
2 (n=397)	6.8%	74.0%	18.4%
3 (n=398)	7.3%	73.9%	17.8%
4 (n=397)	8.3%	71.3%	18.9%
5 (n= 395)	12.4%	67.3%	19.5%
6 (n=382)	12.8%	65.4%	20.4%
7 (n=304)	27.0%	53.9%	16.8%
8 (n=301)	25.9%	54.2%	17.3%
9 (n=221)	42.5%	38.9%	14.0%
10 (n=194)	46.9%	38.1%	11.3%

SUMMARY

The results of the 2006 *Manitoba School Nutrition Survey* shows quite clearly that food is an integral part of school life. Whether it is through lunch in school cafeterias or canteens/tuck shops, refreshments and snacks through vending machines, holiday parties and special occasions, breakfast or lunch programs, or fundraising endeavours, many Manitoba children are frequently eating food at school. This can have either positive or negative implications on the health of our children depending on what food choices exist in the schools.

The frequency of food consumption by students at school provides an excellent opportunity for schools to encourage healthy food options through the curriculum, as well as in practice, and many are doing so already. According to the survey results, there are some encouraging trends as well as issues of continuing concern.

- Bottled water has now replaced soft drinks as the most popular vended item in schools and soft drinks have actually fallen to fifth place in popularity.
- The majority of the schools reported having the basic equipment for food storage and preparation, compared to 2001, where a greater number of schools were concerned with the lack of equipment.
- Over 50 per cent of those who operated cafeterias followed some type of nutritional guidelines, primarily *Canada's Food Guide to Healthy Eating*.
- Many schools are quite involved in the approval of items sold in the cafeterias, canteen/tuck shops and vending machines.
- Approximately one-third of the schools had a health committee in place to assist in planning and leading school health initiatives, which include nutrition.
- Breakfast programs have increased quite significantly since the first survey was implemented in 2001.
- The number of schools who run a cafeteria has risen more than 15 per cent since 2001. Canteen/tuck shops decreased by five per cent.
- Fruit and vegetables, although frequently offered in school cafeterias, did not make the list of Top 10 foods sold to students at lunch. French fries, pizza and cookies are in the Top 5 most popular items sold in school cafeterias. Hot dogs, chips, pizza and candy are in the Top 5 most popular items sold in canteen/tuck shops.
- Although soft drinks have become less popular, schools are stocking their vending machines with super-sized portions of drinks that contain a lot of sugar and little nutritional value.
- One in five schools do not have adequate refrigeration facilities. This could compromise the quality of certain food initiatives, such as a milk program or providing fresh food for students at lunch.
- A very small percentage of schools owned their vending machines, which can have an impact on what gets vended, as schools that own their machines may have more control over what they sell.
- Policies on food and nutrition are not well developed in the majority of schools across Manitoba, with the exception of policies for food allergies and providing adequate time for lunch.
- The top three fundraising activities are hot dog days, pizza days and selling chocolate bars.
- Some schools do not provide the recommended instructional time for physical education/health education, which includes nutrition education and fitness management.

- Health education, including nutrition, is primarily taught by classroom teachers, especially at the lower grades; therefore, teaching education programs should ensure that nutrition education is included in the programs.

The results from the 2006 *Manitoba School Nutrition Survey* has allowed us to see some of the changes that have been made in schools since the 2001 survey. Now, with the implementation of school nutrition policies (as one of the recommendations of the Healthy Kids, Healthy Futures task force), there is a baseline established with the most recent survey data that will allow for future comparisons of the promotion and implementation of healthy food policies in Manitoba's schools.

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To request a copy of the survey instrument used in this study, please send an email to healthyfood@gov.mb.ca with "School Nutrition Survey" in the subject line.

