

Healthy Food Provision and Promotion in Elmvale Primary School

What is the impact on food choices?

March 2007



Acknowledgements

Sincere thanks are due to:

- all the pupils who participated in the research and who completed questionnaires;
- the Head Teachers and school staff in the participating schools for their cooperation, openness, and hospitality;
- Barbara Gallagher and the catering staff for all of their practical help with the management of the field work;
- York Consulting Ltd for data collection, input and analysis and to Onyema Ibe as project manager.

Sincere thanks are also due to the food in schools research advisory group who provided guidance and support throughout the whole research process. Advisory group members (past and present) comprise:

- Duncan Booker (Coordinator, Glasgow Healthy City Partnership, Glasgow City Council);
- Sharon Carton (Schools Project Coordinator, Glasgow City Council);
- Jan Cresswell (Senior Health Promotion Officer (nutrition), NHS Greater Glasgow and Clyde);
- Frances Gallagher (Advisor in Home Economics, Education Services, Glasgow City Council);
- Helena Hailstone (Area Operations Manager, Direct and Care Services, Glasgow City Council);
- Marion Hetherington (Professor of Biopsychology, Caledonian University, Glasgow);
- Ruth Kendall (Senior Health Promotion Officer (research and evaluation), NHS Greater Glasgow and Clyde);
- Fiona MacDonald (Senior Health Promotion Officer (nutrition), NHS Greater Glasgow and Clyde);
- Joanne McNish (Health Promotion Officer (nutrition), NHS Greater Glasgow and Clyde);
- David Parry (Head of Operations (education and welfare), Direct and Care Services, Glasgow City Council);
- Carol Tannahill (Director, Glasgow Centre for Population Health).

Finally, last but not least, thanks are due to Rebecca Lenagh-Snow and other members of secretarial staff who have provided unfailing administrative support.

Fiona Crawford, Public Health Programme Manager, GCPH, (Editor of report)

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Executive summary

Qualitative and quantitative research was carried out in 6 Glasgow primary schools to ascertain food and drinks consumed and discarded across the school day and to explore the influence of the physical and social environment on food choices. Results for Elmvale Primary School are as follows:

Breakfast

The breakfast service was attended by 39 pupils, the majority of whom were from P2 and P7. Pupils mixed together well during breakfast and the atmosphere was calm. There was a good rapport between pupils and catering staff. 28% of pupils stated they had eaten before they came to the breakfast service; the most popular food choice was toast and the most popular drink choice was pure apple juice; there was very little wastage.

Lunch

The canteen was relatively small in comparison to other schools. Queuing was managed effectively; there was a relaxed eating environment in the canteen; and a member of teaching staff ate with pupils. Observation and survey results showed that:

- 81% of pupils stated they had breakfast on the day they were surveyed;
- 47% of pupils drank water in class during the morning;
- 74% of pupils had a snack at playtime, usually sweets, chocolate and crisps;
- Overall wastage of meals at lunch was 26% although there was marked variability between meal types;
- There was very little overall wastage (4%) of food and drink from the 'pick n mix' selection.

Fruit

Over the 3 day period, bananas and grapes/bananas were distributed to pupils. Uptake of fruit varied markedly. Primary 6 and 7 pupils were most likely to refuse fruit. Teachers acknowledged that they had the use of the Fruit Plus pack to support the promotion and consumption of fruit at school although none of them used the pack in their lessons

Conclusion

Elmvale employed a number of strategies to make the most of opportunities to promote the uptake of healthy food and drinks. The physical environment of the canteen was less than optimal but the social environment seemed positive and relaxed. All of these factors present a positive picture of healthy food provision and promotion at Elmvale.

Introduction

The Scottish diet is high in fat, salt and sugar and low in fruit and vegetables. Scottish children and young people follow a diet that falls short of national recommendations and is less healthy than that of other European countries.

The school environment has an important role to play in provision and promotion of healthy food and drinks. 'Hungry for Success: a whole school approach to school meals in Scotland', (HFS) presented a range of far reaching and holistic recommendations in relation to: the establishment of nutrient standards; links between the curriculum and food provision in schools; elimination of stigma for free meal recipients; partnership working; and improvements to the social and physical environment in schools.¹ The aims and objectives of 'Hungry for Success' (HFS) resonate with other policy drivers such as 'Being Well – Doing Well', the framework for health promoting schools, which aims to encourage schools to promote the physical, social, spiritual, mental and emotional health and well-being of all pupils and staff and to work with others in identifying and meeting the health needs of the whole school and its wider community.²

Healthy eating initiatives in Glasgow schools

Glasgow City Council provides a spectrum of initiatives and services designed to provide and promote healthy food and drinks throughout Glasgow schools across the school day.

Glasgow's 'Big Breakfast' provides open access to a free breakfast as part of a multi-strand approach which aims to improve nutritional intake of primary school children, improve their attendance and punctuality and contribute towards higher educational attainment.

Fruit Plus provides pre-school children, primary school children and children attending special schools with free fruit 5 times a week during the school year. The main aim of Fruit Plus is to encourage a fruit eating habit amongst pupils that will continue into their adult and home lives. The project places emphasis on integrating the principles of healthy eating into various areas of the school curriculum with the aim of improving health and attainment levels.

Fuel Zones, a 'High Street' style canteen service operates in all primary and secondary schools. This canteen service replaced traditional school dining rooms with the aim of creating a bright, informal and positive atmosphere where pupils could enjoy a tasty, healthy lunch. Fuel Zone menus were developed using a phased approach with the aim of attracting and retaining pupils in the first phase and of influencing food choices and diet during subsequent phases. The Fuel Zone approach was introduced into secondary schools in 1997 and into primary schools during 1999. Following the

publication of HFS, Glasgow retained its Fuel Zone model and repeated a phased implementation which has gradually reduced the presence of processed foods on the menu.

Glasgow's Refresh provides pupils in Glasgow schools with access to free drinking water throughout the school day. This initiative was established in 2003 in order to ensure that pupils had access to adequate amounts of fluids during the school day and to provide fresh, free, chilled drinking water accompanied by drinking cups or glasses within dining rooms.

Monitoring and evaluation of healthy eating initiatives

To date, monitoring and evaluation of Glasgow based initiatives has taken various forms. Methods employed have included pilots, surveys, interviews, consultations (formal and informal), as well as quantitative exercises such as the collection of product control information (daily tallies of foods and drinks distributed during the school day). Past evaluations and consultation exercises indicate that healthy eating initiatives in Glasgow schools appear to have had a positive impact on school-based access to healthy food and on pupils' attitudes and behaviour with regard to healthy eating. Further research and evaluation would allow a scrutiny of impacts on actual consumption in school and in the home and whether differences exist between groups.

The role of the Glasgow Centre for Population Health

The Glasgow Centre for Population Health (GCPH) is a partnership between Glasgow City Council (GCC), Greater Glasgow and Clyde NHS Board and the University of Glasgow, supported by the Scottish Executive. A research and development centre, focused on health inequalities, it seeks to build a better understanding of Glasgow's health and its determinants, evidence of effective approaches for improving health in Glasgow, and new insights and thinking about population health, suited to the 21st century.

Through its core staff team and commissioned projects, the Centre undertakes new research, brings together people from diverse backgrounds, provides opportunities for analysis and debate about past and current approaches to improving Glasgow's health and seeks to inform future public health policy and practice in a range of areas.

The research study

The elected members of Glasgow City Council (GCC) were interested in the conduct of a more formal evaluation to elicit evidence of good practice and effective approaches, explore effects both within and beyond the school in order to identify where further improvements and development could be made to optimise services.

GCPH in collaboration with Direct and Care Services (DACs) and the Education Department of GCC conducted quantitative and qualitative research in selected Glasgow primary schools to ascertain types of food and drinks consumed across the school day and to explore the influence of the physical and social environment on food choices. Six primary schools situated in the North of Glasgow were selected to participate in the research. All six schools were located in areas of high socio-economic deprivation.

This report presents results for Elmvale Primary School and provides an overview of findings and trends from a combined analysis of data gathered from the 6 participating schools.

Aim and research questions

The overall **aim** of the research was to investigate the impact of the availability of healthy choices through GCC's school meals service on actual consumption of food/drinks by pupils, to identify differences in consumption between groups, and to identify important influences in relation to the physical/social environment.

Research questions were:

1. What foods/drinks are currently consumed and discarded by Glasgow school pupils?
2. What is the quality of the physical/social environment with regard to provision of food and drinks in schools?
3. Are there differences in consumption between different groups of pupils?

Methods

A research agency was commissioned to conduct fieldwork, analyse data and to collate and write up results.

Data collection took place in 6 primary schools during May 2006; researchers spent three days in each school collecting the following data:

- Photographs of the general physical environment of the school and activity during breakfast and lunchtime;
- Observations of the physical and social environment during breakfast and lunchtime; consumption and wastage of food and drinks during that period;
- A questionnaire survey with a sample of P1 – P7 pupils at breakfast and after lunch;
- A questionnaire survey with class teachers in each school regarding distribution and consumption of fruit.

Results

School characteristics



The school was housed in a traditional Victorian building with wide corridors and staircases. Just over half the school population had a free meal entitlement and a total of 146 pupils attended the school.

General atmosphere and environment

On entering the school there was a positive and inclusive atmosphere, walls were decorated with a selection of pupils' work, as well as information for children and parents on topics such as bullying, road safety, racism, recycling etc. The school also had a showcase board where photos of the 'pupil of the week' (from a selection of year groups) were displayed, as well as press cuttings about the school.



The dining room had a high ceiling and was relatively small with painted wooden panelling on the walls and a series of windows at a higher level limited the amount of natural light. There was a selection of posters about healthy eating, and oral hygiene, but not in the same quantity and variety of other schools visited during the research.

Cooked food was not prepared at the school but delivered pre-made on a daily basis. Although the serving counter had a Fuel Zone façade, it did not have the same impact as the frontage in more modern schools because of the size and height of the walls. There were the usual Fuel Zone stations where cutlery was collected and fridges containing drinks and yoghurt.

Brightly coloured tables and benches (approximately 13) were laid out across the dining hall and the water machine was located on one side of the room.

Breakfast service

Organisation and activity at breakfast



The school operated a pick n mix¹ breakfast menu and during the two day observation period, 39 pupils attended breakfast service on a daily basis. On entering breakfast service, pupils registered with the catering assistant, picked up a tray and selected a bowl of cereal or waited for toast to be made for them. They helped themselves to drinks from the fridge and cutlery from the Fuel Zone Station. Like other breakfast

services, there were a series of tables and benches set out for eating breakfast and some for use when playing indoor games. The pupils interacted well with each other and the catering staff, there was low level chatter and the atmosphere was calm. On one of the research days, two football coaches were also present and led a football session which the pupils were very excited about.

Breakfast survey

All 39 breakfast service attendees completed a short questionnaire. Main findings are as follows:

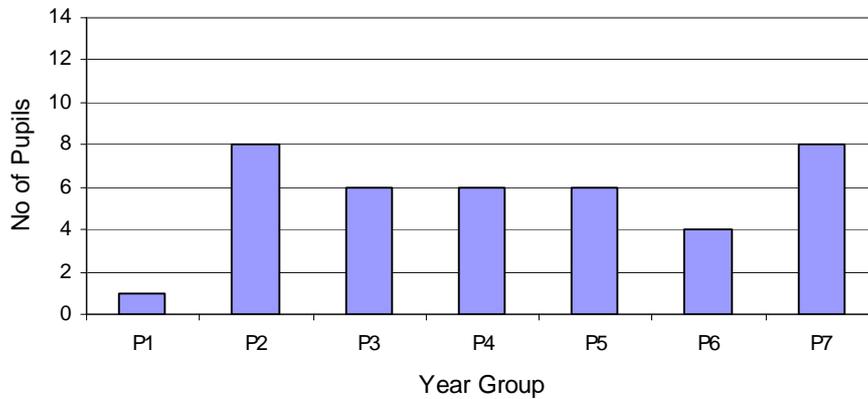
- The majority of pupils were in P2 and P7;
- P1 children represented the smallest proportion attending the breakfast club;
- 28% of pupils ate before they came to the breakfast club;
- 54% of children stated they were hungry when they arrived at breakfast club;
- The most popular food choice was toast (20 children);
- The most popular drink choice was pure apple juice (16 children);

¹ Two breakfast menus are in use in Glasgow's primary schools. The standard menu offers pupils the choice of cereals, toast, pure fruit juice, milk and once a week, cheese, raisins or yoghurt. The pick n mix menu includes these items plus an additional daily choice e.g. porridge or beans on toast

- 69% of pupils did not leave any food/drink behind.

Figure 1 shows the breakdown of pupil numbers by class who attended breakfast service

Figure 1: Breakfast Club Attendees by Class



(N=39, Missing=0)

Wastage of food and drink at breakfast

There was very little food discarded at breakfast. Table 1 provides a more detailed breakdown of wastage of food and drink by category during the two days when the breakfast service was observed.

Table 1: Breakfast wastage

Food/drink:	Estimated wastage
Cereals	12%
Milk	9%
Fruit juice	0%
Other ²	0%
Toast	3%

² Other food including: porridge; yoghurt; fruit; cheese; raisins.

Lunchtime

Organisation



The dining hall was set up with approximately 13 brightly coloured tables with capacity for 6-8 children on each table. Pupils entered the hall by class and queued immediately by the door passing a display of the available meal choices. Teachers explained the choices to the youngest pupils and there were no more than 17 in the queue at any one time. The teaching staff sometimes intervened to ensure that pupils

waited in an orderly fashion, but on the whole the system worked well without staff intervention.

Activity at lunchtime

Once the pupils reached the serving counter they handed over their dinner ticket or money and placed their order for food. Frequently they stipulated that they should be given only one part of the meal (e.g. “*no carrots please*”) and although canteen staff usually resisted this, they did serve incomplete meals to insistent children on occasions.



Pupils moved then to the fruit display and the fridges where they selected items from the ‘pick n mix’ bar and before taking a seat. Class groups sat together encompassing pupils taking school meals as well as those eating packed lunches. A member of staff always had lunch with the pupils and was pleasant and friendly encouraging pupils to finish their meals.

There was an equally positive relationship between the catering staff and the pupils, as evidenced by some joking and returning for seconds.



All staff were patient and friendly towards pupils with limited English. The noise level in the canteen was reasonable – pupils chatted amicably and meals were not rushed, even very slow eaters were not unduly pressurised, only encouraged to finish up if they wanted to go outside and play.

Lunchtime survey

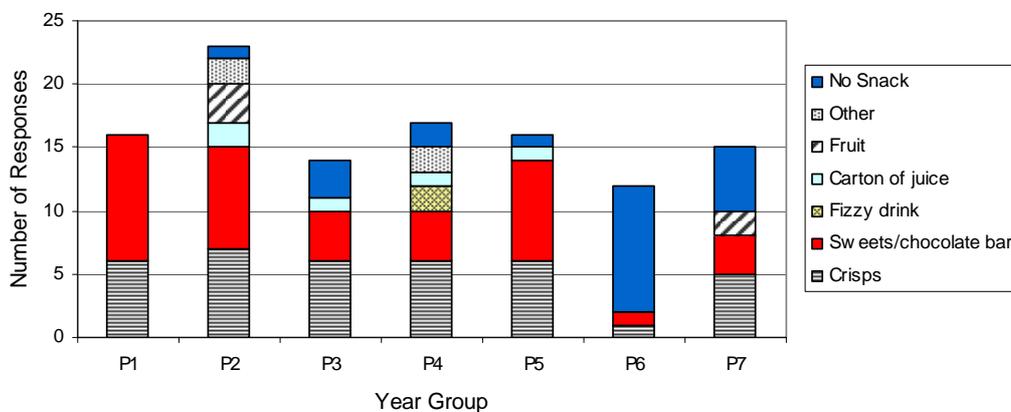
The consumption and wastage of all Fuel Zone meals was observed and 86 pupils³ were surveyed - 46 boys and 40 girls. Twenty three of the pupils came from a black or minority ethnic background.

The survey identified that:

- 81% of children stated they had breakfast on the day they were surveyed. Of those children who had had breakfast, 51% had breakfast at home and 49% at the breakfast club;
- 47% of children drank water in class on the morning when they were questioned;
- 74% of children surveyed had a snack at playtime.

Figure 2 shows snacks eaten, broken down by primary class. It shows that the majority of pupils ate sweets, chocolate and crisps at break time. This was a multiple response question and therefore the number of responses is higher than the number of pupils who answered the question.

Figure 2: Type of snack eaten by pupils at break time



(N=113, Missing=0) * 'Other' includes: water; biscuits; yoghurt and lucozade.

³ 11 P1s, 14 P2s, 10 P3s, 15 P4s, 10 P5s, 12 P6s, 14 P7s

Survey responses that related to pupils' lunchtime meal selection were as follows:

- 94% of children selected items from the 'pick n mix' bar;
- the most popular choices selected from the 'pick n mix' bar were fruit juice, followed by milk;
- 77% of children made the menu choices because they liked them, 17% only liked that option and 5% of children wanted to make a healthy choice.

The pupils were asked if they were hungry before and after lunch:

- 51 (59%) children said that they were hungry by lunchtime;
- of the 35 (41%) that were not hungry, (10) 29% were in P7 and (6)17% were in P4;
- 25 (29%) of children said that they were still hungry after lunch and they had generally eaten the snack meal or the vegetarian meal. Of these pupils, the majority (15) were in P3, P4 or P5.

Further analysis of responses identified that:

- 69% agreed that they left some food/drink behind;
- The most common reason pupils gave for leaving food/drink behind was not liking it, followed by feeling full;
- The snack meal was the most popular amongst the younger pupils (P1-P4).

Wastage of food and drink at lunch

During the research period Elmvalle provided meals from one day of week 3 and two days of the week 1 Fuel Zone Menu. Table 2 displays the six meal options available over the 3 day period of the research.

Table 2: Lunch menu

	Main meal	Vegetarian main meal	Snack meal	Cold sandwich	Hot sandwich	Salad fayre
Day 1	Roast Turkey Mashed potatoes Brussel sprouts	Cheese and coleslaw Baked potato	Beans and toast	Salmon and cucumber granary	Cream cheese and roast vegetable	Swedish chicken salad
Day 2	Breaded fish Baby jacket potatoes Marrowfat peas	Vegetarian enchiladas	Baked beans on toast	Salmon and cucumber granary sandwich	Chicken tikka Toasted baguette	Ham and potato salad
Day 3	Roast beef and yorkshire pudding Baby jacket potatoes Baby carrots	Macaroni cheese Baby potatoes Garden peas	Chicken sweetcorn baked potatoes	Cheese triangle and banana morning roll	Gammon and tomato toastie	Prawn curried savoury rice salad

Catering staff recorded the total number of portions sold on product control sheets. By subtracting the total number of portions discarded, as observed and recorded by researchers, wastage was estimated. The level of food wastage varied significantly between the various food and drink categories and meal types that were on offer, for example, 40% of the roast beef main meal provided on day 3 was discarded compared to 25% of the main meal comprising fish and baby jacket potatoes provided on day 2. Overall, Elmvale had the second lowest wastage of meals at lunchtime of all 6 schools.

The estimated wastage according to meal type is shown in Table 3.

Table 3: Lunch wastage by meal type

Meal type:	Estimated wastage
Main meal	28%
Vegetarian main meal	28%
Snack meal	23%
Cold sandwich	39%
Hot sandwich	21%
Salad fayre	N/A (none sold)
Total	26%

Once pupils had selected their meal they could then select items from the ‘pick n mix’ menu. There was very little wastage (4%) of these items. Table 4 shows that milk was the most likely ‘pick n mix’ item to be discarded.

Table 4: Pick n mix wastage

Pick n mix item:	Estimated wastage
Milk	14%
Pure fruit juice	2%
Fruit	7%
Salad bowl	0%
Other ⁴	2%
Total	4%

⁴ Other food including: bread; cheese; soup; yoghurt.

Fruit plus

The fruit consumption questionnaires were completed daily by classroom teachers during the three day research period. Analysis provided the following results.

Fruit consumption

Over the three-day research period, bananas and bananas/grapes were distributed to pupils. Table 5 displays the uptake of fruit over the three days by different classes.

Table 5: Fruit uptake by type and class group

	Day 1:	Day 2:	Day 3:
Fruit type	Bananas	Grapes & bananas	Bananas*
Percentage of pupils who accepted fruit	93%	87%	N/A
Pupils who most frequently refused fruit (as a percentage of total refusals)	P7, (43%) & P6 (43%)	P7 (54%) & P6 (46%)	N/A

* Bananas were considered unripe by many teachers on day 3 and were therefore not generally distributed.

Promotion of fruit during class

The fruit distribution surveys completed by classroom teachers identified that 5 teachers acknowledged that they had the use of the Fruit Plus Pack to support the promotion and consumption of fruit at school. However none of the teachers stated that they used the Fruit Plus Pack in their lessons.

Conclusion

Elmvale as a school employed a number of strategies to make the most of opportunities to promote the uptake of healthy food and drinks. These strategies included:

- A relaxed, pupil-centred breakfast service
- Effective management of queuing at lunchtime and explanation of meal choices
- Teachers eating/sitting alongside pupils during lunchtime.

Although the physical environment of the dining room was a limiting factor and meals were not cooked on the school premises, the social environment within the school and at lunchtime was positive and relaxed. The breakfast service operated well, with school staff catering for pupils according to their expressed needs and providing access to games after breakfast. A member of teaching staff ate with pupils at lunchtime and overall staffing levels were good. All of these factors present a positive picture of healthy food provision and promotion in Elmvale.

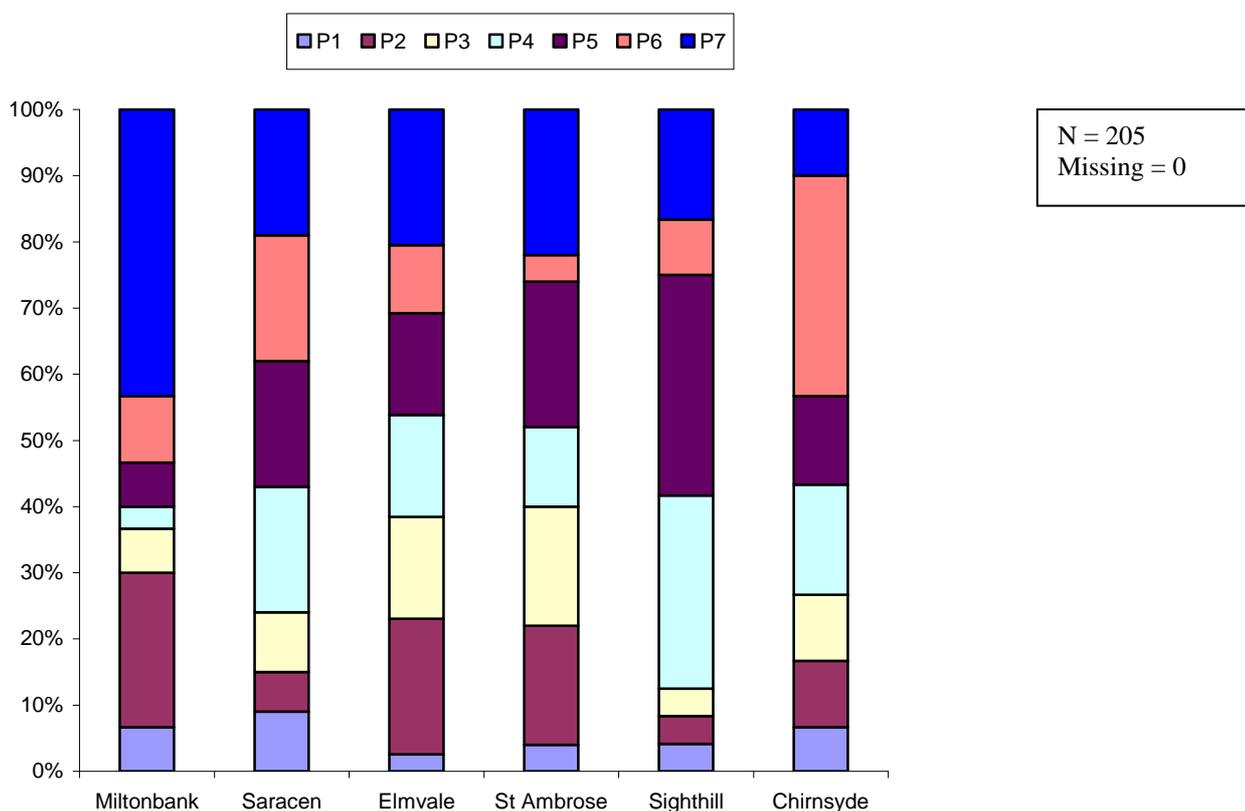
Overall results (from all 6 schools)

The six schools involved in this research study varied in terms of pupil population, physical and social environment, school management and organisation during mealtimes although all schools were situated in a relatively deprived area of the city. Exact comparisons across the schools with regard to consumption and waste were not possible as different menu options were offered during the 3 day period in each school. Nevertheless, the research highlighted some useful findings and trends across the 6 schools.

Breakfast service

Figure 3 displays breakfast service attendees by year group across the schools. Primary 4-7 pupils comprised the majority of attendees.

Figure 3: Breakfast service attendees by school



- 205 children (all attendees during the period of research) were surveyed at breakfast service across the six schools;
- Approximately 65% of attendees had free meal entitlement;
- 31% of respondents had breakfast at home before attending the breakfast service;
- Toast and pure apple juice were the most popular food and drink choice;
- On average, 6% of food and drinks was discarded at breakfast time.

Lunchtime

Across the 6 schools, there were significant differences in the organisation of lunchtime, management of pupils and the promotion of food. Senior teachers eating lunch with pupils, effective queue management systems and constructive interaction with the pupils all had a positive impact on the dining environment.

There were 6 meal options at lunchtime and when teachers described the meals to their pupils, it helped them to make their selection. The order in which classes went to lunch varied across the week in each school. When pupils were in the early lunch sitting they had the full choice of meals on offer. Pupils who had lunch in the later sittings often had limited meal choices.

Table 6 provides an overview of dining arrangements and promotion of healthy messages in each school.

Table 6: Dining environment and promotion of healthy eating during lunchtime

School	Dining arrangements				Promotion of healthy food
	Adequate space	Adequate staffing	Effective queue management	Senior management team (SMT) present	
A	✓	✓	✓	✓	Display table Sample pots Explanation of choices Encouragement to select 'pick n mix' items
B	✗	✓	✓	✓	Display table SMT eating/sitting alongside children during lunchtime Wall displays relating to healthy food and fuel zone rules Teeth cleaning activity
C	✓	✓	✓	✓	Display table SMT eating/sitting alongside children during lunchtime Explanation of choices
D	✓	✗	✗	✓	Display table Sample pots Encouragement to select 'pick n mix' items SMT eating/sitting alongside children during lunchtime
E	✓	✗	✗	✓	Display table
F	✓	✓	✓	✓	Display table Some displays relating to healthy food Explanation of choices Teeth cleaning activity

In addition to their meals, pupils could also choose from a ‘pick n mix’ selection which included soup, bread, vegetables, fruit, yogurt, milk, and pure fruit juice. The average numbers of ‘pick n mix’ items sold to individual pupils were estimated by dividing the total number of pick n mix items sold by the number of pupils in each school. This calculation illustrated that there were marked differences in the average number of ‘pick n mix’ items sold per pupil between the 6 schools. In the schools where these items were placed on the main serving counter rather than elsewhere in the canteen, pupils selected more items. Active encouragement by staff also increased uptake.

Table 7 identifies the ratio of ‘pick n mix’ items per child in each school across the 3 day period of the research.

Table 7: Ratio of pick n mix items sold per pupil by school

School	Number of pick n mix portions
A	3
B	5
C	2
D	2
E	2
F	3

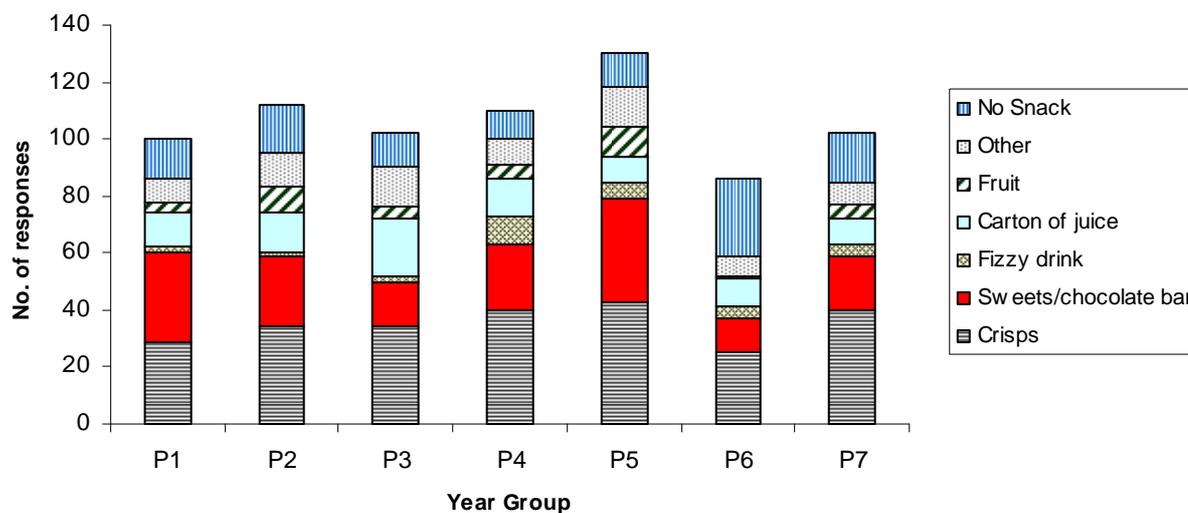
Approximately 11% of food and drinks was wasted at lunchtime but the amount of food discarded varied markedly. Meals containing vegetables such as peas, sprouts etc had higher proportions of waste than those where the vegetables were ‘hidden’ such as chicken curry and beef casserole.

515 pupils from P1 – P7 classes were surveyed across the 6 participating schools. This sample represented 65% of the pupil population who took school lunch. 58% of pupils were entitled to free meals (the Glasgow average for primary schools in June 2006 was 39%). Results highlighted that, on the day that pupils were surveyed:

- 85% had eaten breakfast, the majority of whom had it at home;
- 53% had drunk water in class during the morning;
- 79% had eaten a snack at playtime – usually crisps and/or sweets/chocolate.

Figure 4 illustrates snack consumption by year group. A higher proportion of P7s consumed crisps at break time than younger age groups (although less consumed sweets in comparison to younger pupils). A smaller proportion of P7s drank juice at break time

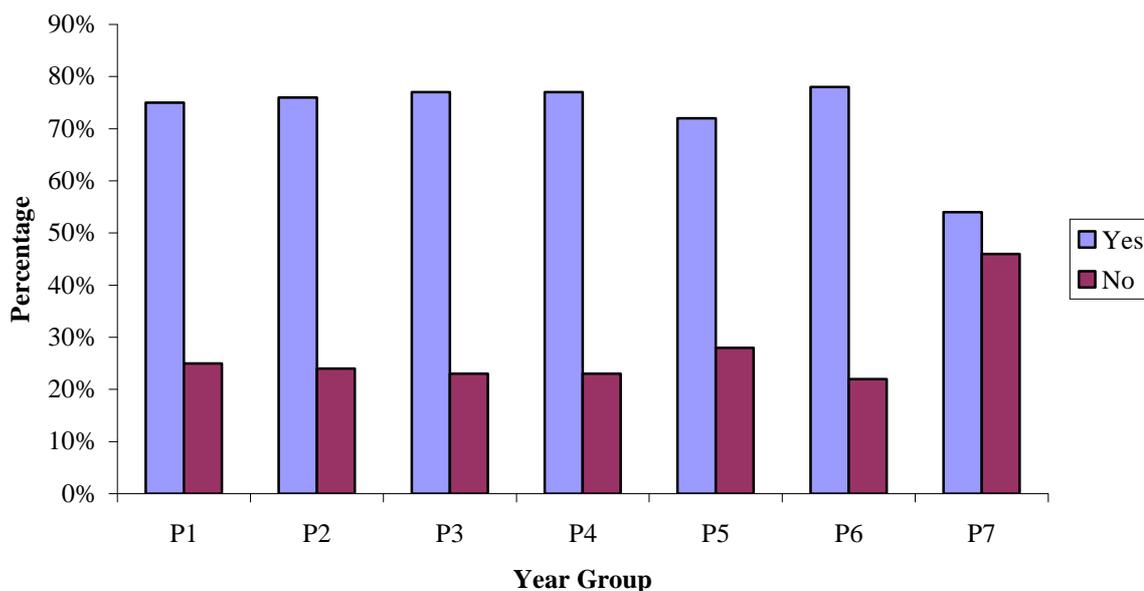
Figure 4: Break time snack consumption by year group



(N = 742 Missing = 0)

Pupils were asked if they were hungry by lunchtime. Figure 5 displays responses. Fewer P7 pupils said they were hungry by lunchtime than pupils in other age groups.

Figure 5: Pupil responses regarding whether hungry by lunchtime or not



(N=515 Missing = 0)

Fruit plus

Fruit was distributed during the afternoon in all of the schools. According to the fruit questionnaires, completed by class teachers:

- The majority of teachers considered the fruit that was distributed to be of good/excellent quality;
- Bananas and grapes were the most popular fruits and pears were the least popular;
- Over 90% of teacher responses indicated that most pupils ate a piece of fruit over the 3 day period;
- A significantly greater proportion of P7s than other class groups refused fruit;
- The majority of teachers were aware of the Fruit Plus pack, designed for use in class to support the promotion and consumption of fruit at school but only 19% of them stated that they had used the pack in their lessons.

The teachers made some additional points about the Fruit Plus Pack and the distribution of fruit:

“Great way of encouraging children to eat fruit”;

“The pack is outdated and other resources may be more appropriate”;

“The children are disappointed when the fruit does not arrive or is late”;

“It would be great if the children could try some less mainstream, more unusual fruit”.

Implications for policy and practice

Physical and social dining environment

Features of the physical and social environment that had a positive impact on the general atmosphere and on pupils’ experience at lunchtime were:

- The appearance of the dining room – plenty of natural light, brightly coloured tables and chairs, decorated walls and ample spacing of the tables and chairs;
- The management and co-ordination at mealtimes – well ordered, short queues often resulted in less noise, less disorder and more relaxed catering and teaching staff;
- The presence of teachers eating the same meals amongst the pupils appeared to add to a relaxed and more positive eating environment.

Every school is limited by the physical dimensions of its dining hall but certain measures would lead to an improvement in the eating experience for pupils. These measures could be as simple as opening the curtains to let in more sunlight, changing the management of the lunch queue or improving the décor or artwork on the walls.

Break time snacks

The majority of pupils ate crisps, sweets or chocolate during break time and there would be clear improvements to eating habits at break time if teachers were able to exert more control over food and drinks that children bring on to the school premises. In addition, if the distribution of fruit was moved to the morning it might also help to reduce the amount of unhealthy snacking.

Lunchtime

Meal options - making decisions

There appeared to be a number of factors that influenced pupils in their selection of food and drinks at lunchtime. The display tables, used in all schools were a helpful way of showing children what food was available. The descriptions provided by some teachers in conjunction with the display tables assisted younger pupils to choose and this practice could be extended to other schools.

One school employed a ‘traffic light system’ as a signal to the children about the ‘healthiness’ of the meals on offer. Although well intended, all the Fuel Zone meals are nutritionally balanced and incorrectly labelling some foods as ‘unhealthy’ sends out confusing messages to the pupils and the staff.

The uptake of items from the ‘pick n mix’ – fruit, yoghurt, soup etc varied significantly across the 6 schools. The opportunities for pupils to consider their choice and for staff to encourage pupils to select items were influenced by the location of the ‘pick n mix’ items. Where space allows, ‘pick n mix’ items should be located next to or on the serving counters.

Meal options - availability

Pupils’ meal selection was influenced by the order in which they came to lunch, with far fewer options for pupils towards the end of the rota system. On a daily basis, the number of portions per meal category to be made available was estimated based on the perceived popularity of the meal and number of portions sold previously. Whilst minimising the number of unsold meal portions is important to the efficient management of the catering service, balancing this against the ability to offer pupils a variety of choice can be difficult. It would be beneficial to consider ways to ensure that pupils towards the end of the lunch period still have a similar meal choice to those who come down first to lunch.

Meal consumption

The most frequently discarded food was vegetables. When the vegetables were incorporated into the main meal there was less wastage. The importance of overtly influencing the healthy eating

behaviour of school-aged children is recognised but it is likely that the use of vegetables by stealth, alongside the promotion of eating 'visible' vegetables needs to continue to promote uptake.

Water consumption at meal times

The amount of water consumption during mealtimes was extremely low, partly due to the availability and promotion of cartons of pure fruit juice and milk, but also because in most schools, pupils did not have access to their water bottles and no glasses/cups were provided to allow them to drink water. Schools could ensure that fresh, chilled water and glasses/cups are available during all mealtimes.

Fruit Plus

The distribution of fruit appeared to be successful within the six schools and in general the fruit was considered to be of good quality. There were some clear favourites such as bananas and consistently unpopular fruit such as pears. Some teachers suggested the introduction of more unusual fruit for pupils to try with their pupils and that existing fruit supplied could be reviewed to reflect the popularity of some fruits and to test out the opportunities to try less common fruits.

The Fruit Plus Pack was largely unused by the teachers; reasons included lack of time and a view that the pack was outdated. Some consideration could be given to emphasising the holistic value of the pack, rather than seeing it only for use at fruit time or during fruit lessons, and greater links could be made to other areas of the curriculum so that teachers view the pack as relevant and useful.

Conclusion

This research has provided useful information regarding the provision and promotion of healthy food and drinks in primary school. It has given participating schools useful feedback regarding consumption and wastage of food and drinks supplied by DACS throughout the school day and the effectiveness of local systems and approaches employed to promote healthy food and drinks and to manage meal times. This study highlights examples of management and practice that should prove useful to the wider primary school sector. Research findings will help to inform future planning and service delivery and an action plan for Direct and Care Services and the Education Department has been drawn up in response to findings. The final phase of the evaluation will provide further important insights regarding the relationship between school based provision of healthy food and drinks and the home.

References

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