Introduction

It is important to promote healthy eating to children as eating habits are likely to be developed in childhood and maintained into adulthood (1). It has also been established that some disease processes such as atherosclerosis start in the first decade of life (2). In addition it is critical that food provided to children is prepared hygienically as food poisoning is a significant public health issue in Australia and children are considered as a group at risk (3).

Good nutrition for children is important for a number of reasons. Both calcium and iron have been identified as important nutrients for growth and development in children (4). Iron intake has a significant effect on cognitive processes, work capacity and immune function while calcium intake in childhood has a long-term effect on bone mass (5). The National Nutrition Survey indicates that Australian children consume low intakes of some foods, especially fruit and vegetables (6). In addition, the prevalence of overweight and obesity in Australian children is increasing (7). It is also recognised that socioeconomic status effects health throughout the lifecycle (8) and that within NSW high rates of obesity and overweight are associated with socioeconomic disadvantage (9).

Several health promotion projects have addressed nutrition and food safety in child-care settings including long-day child-care services (both where the centre provides food and where parents send lunch) and family day care services. These projects have demonstrated statistically significant improvements in the food provided to

Insight

‘What’s to eat?’—Nutrition and food safety needs in out-of-school hours care

Janice Sangster, Lara Cooke and Philippa Eccleston

Abstract

Objective: Investigate the nutrition and food safety needs of out-of-school hours care (OSHC) services.

Design, subjects and setting: Forty-one OSHC services were visited once during their afternoon session. The nutritional quality of food provided for afternoon tea for five consecutive days, and food safety and serving practices were determined using checklist-based qualitative assessments. The availability of written nutrition and food safety policies was determined and concerns of coordinators recorded.

Main outcome measures: The proportion of services that met the criteria for nutritional quality of afternoon tea provided over five consecutive days and the median number of days each nutritional quality criteria was met.

Statistical analyses: The proportion of services that met the afternoon tea checklist criteria for the whole five days studied was calculated. In addition, the median and interquartile ranges were calculated for the number of days on which the services met the afternoon tea checklist criteria. The proportion of services that met the food safety checklist criteria was also calculated.

Results: Seventeen percent of services offered a high calcium food each day for afternoon tea, 20% offered a good or moderate source of iron and 44% offered a fruit or vegetable. Nearly half of the services (46%) served cordial, however no services offered sticky/high-sugar snack foods. Thirty-four percent of services had policies on food provided, 37% had food safety policies, 39% had a written afternoon tea menu and 58% of these displayed this menu for parents. Service coordinators were most concerned about lack of kitchen facilities, low food budgets and attracting and retaining experienced staff.

Conclusions: The results of this needs assessment raises concerns regarding the foods provided and food safety and serving practices in OSHC, similar to those demonstrated in child-care settings for younger children. Strategies used in child care are likely to be successful in the OSHC setting, however, differences such as the older age of children, lack of regulations, limited kitchen facilities and lower levels of qualifications of OSHC staff need to be considered.

Key words: nutrition, food safety, out-of-school hours care

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children while in care, nutrition and food safety policies, and food safety practices (10–13). However, to date, little work has been done in child-care settings catering for older children. While children may spend less time in out-of-school hours care (OSHC) compared to long-day child-care, the setting potentially provides useful health promotion opportunities.

Out-of-school hours care services provide care for primary school children aged five to 12 years before and after school and during school holidays. Some children attend every day and others attend on a part-time basis. Generally OSHC services operate before school from 7:00–9:30am and after school from 2:30–6:00pm and provide opportunities for children to be involved in structured and unstructured activities. Services may provide breakfast, afternoon tea and a late snack, so the food provided can make an important contribution to children’s daily intake. Some services also provide children with the opportunity to participate in food activities such as cooking.

The OSHC sector is the second largest provider of child care in Australia with 2494 services in Australia caring for 162,000 children. Ninety-nine percent of services are community based with approximately two-thirds of the services located in schools and one-third in other community venues such as council and church halls. Over 7600 staff are employed in the OSHC sector (14). However, only 39% of staff in OSHC have formal child-care qualifications compared to 54% of long-day child-care staff (15). At the time of the study OSHC staff were not required to have formal child-care qualifications and services in some states (including NSW) were not licensed or regulated. However a national OSHC quality assurance program was introduced to the OSHC sector in July 2003 (16).

The nutrition and food safety quality assurance requirements to achieve a satisfactory level of care are presented in Table 1. In addition to meeting these requirements services can aim for higher levels of accreditation (good quality and high quality care). Higher levels of nutrition quality require involving children in planning and preparing the menu, ensuring children experience foods from different cultures, making the menu and nutrition information available to families, promoting healthy eating and encouraging staff to attend updates on children’s dietary needs. Higher levels of food safety quality require internal and external review of food handling and hygiene procedures and regular updates on food handling and hygiene procedures for staff (16).

A review of the literature indicated that there were no published reports of health promotion programs conducted in OSHC and few nutrition and food safety resources suited to the setting. The aim of this needs assessment was to investigate the nutrition and food safety needs of OSHC services in order to develop health promotion strategies to address these needs.

### Method

All of the 48 services in the most disadvantaged local government areas of south-eastern Sydney were invited by letter and phone to participate in the needs assessment and 41 agreed to take part. SEIFA indices of relative disadvantage were used to determine the most disadvantaged local government areas (17). Project officers visited each service once to collect a menu of the food and drink provided for afternoon tea for five days and copies of nutrition and food safety policies. In addition, food preparation facilities and serving practices were observed during afternoon tea on one occasion. A structured interview, which included open and closed questions was conducted with coordinators to collect information on the operation of their service, estimates of their weekly food budget for afternoon tea and their nutrition and food safety concerns.

The menu data collected at the visit was assessed using an afternoon tea checklist and the food preparation facilities and serving practices assessed using a food safety checklist. The afternoon tea checklist was developed by project officers and was based on the Dietary Guidelines for Children and Adolescents (5). The checklist assessed types of foods provided, not quantities. To meet the checklist standard, afternoon teas for the five survey days needed to meet the criteria outlined in Table 2.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Indicators of satisfactory care</th>
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<tbody>
<tr>
<td><strong>6.1 Balanced and healthy eating</strong> is promoted by the service</td>
<td>The service has a written nutrition policy that was developed/revised in consultation with families and is consistent with advice from recognised nutrition authorities. The service provides food that is consistent with the service’s nutrition policy or actively encourages families to supply food that is consistent with the policy. Drinking water is readily available to all children whilst at the service. The needs of children with special dietary requirements are met.</td>
</tr>
<tr>
<td><strong>6.2 Staff implement effective and current food handling and hygiene procedures</strong></td>
<td>The service has documented procedures for food handling and hygiene based on current advice from recognised health authorities. Food handling and hygiene procedures are followed at all times. Staff wash their hands effectively before preparing, serving or eating food. Surfaces are cleaned and sanitised before and/or after food preparation. Drinking and eating utensils are washed thoroughly between uses. Children are encouraged to follow good food handling and hygiene practices.</td>
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Table 1. Nutrition and food safety quality assurance requirements in out-of-school hours care (OSHC) (16)
The food safety checklist was based upon the National Standards for OSHC (20) and model health and safety policies developed by the School of Community Medicine, University of NSW (21). The food safety checklist was designed to highlight food handling practices, food preparation facilities and indicators of a service’s educational approach to food.

In addition, it was noted whether services had the following documents: a policy on food provided; a policy on food safety and a written menu.

Approval to conduct the needs assessment study was obtained from the coordinators of the OSHC services. In addition, the local Superintendent of Schools was notified of the study. Although some of the OSHC services are located on school sites they operate independently of the schools, and therefore Education Department permission was not required to conduct the needs assessment with these services. A representative of the relevant ethics committee advised that, due to the nature of the study, the researchers were not required to seek formal ethics committee approval.

Analysis

The SAS statistical package (SAS Institute Inc, Cary NC, SAS for Windows, version 6.12 1996) was used to calculate the proportion of services that met the afternoon tea checklist criteria for the whole five days studied. In addition, the median and interquartile range were calculated for the number of days on which the services met the afternoon tea checklist criteria. The proportion of services that met the food safety checklist criteria was also calculated.

Results

Typical foods served for afternoon tea included sandwiches or crackers with spreads, sometimes with fruit. A popular hot option was two-minute noodles. Drinks provided typically included water or cordial. Table 2 shows the proportion of services that met each criteria for afternoon tea for the five days surveyed and the median number of days (and the interquartile range) each criteria was met. The proportion of OSHC services meeting the food safety criteria on the day observed is presented in Table 3.

With regard to written menus and policies, 34% of services had a written policy on the food provided, 37% had a written food safety policy, 58% had a written menu of the food and drink provided and 39% of services displayed their menu for parents.

When coordinators were asked about their concerns 58% nominated lack of facilities, in particular kitchen equipment and space. Twenty-seven percent of coordinators also reported that low budgets were a barrier to providing healthy food. Estimates of the budget for afternoon tea ranged from $0.40 to $6.67 per child per week (median = 1.78, interquartile range = 1.59). Twenty-four percent of coordinators identified staffing as a difficulty, with many services finding it hard to attract and retain experienced staff.

Discussion

This is the first known published needs assessment of nutrition and food safety in Australian OSHC services. The results highlight that there is room for improvement in the nutritional quality of foods provided for afternoon tea.

### Table 2. OSHC services meeting the criteria for afternoon tea for the five consecutive days surveyed (based on menus provided) (n = 41)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Proportion of services that met criteria for 5 days</th>
<th>Median number of days criteria met (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A high calcium food offered each day(^{(a)})</td>
<td>17</td>
<td>2 (2)</td>
</tr>
<tr>
<td>A good or moderate iron source offered each day(^{(b)})</td>
<td>20</td>
<td>3 (3)</td>
</tr>
<tr>
<td>A cereal-based food offered each day(^{(c)})</td>
<td>39</td>
<td>4 (2)</td>
</tr>
<tr>
<td>A fruit or vegetable offered each day(^{(d)})</td>
<td>44</td>
<td>4 (2)</td>
</tr>
<tr>
<td>No cordial or soft drinks offered(^{(e)})</td>
<td>54</td>
<td>5 (4)</td>
</tr>
<tr>
<td>No high-fat/high-salt snack foods offered(^{(f)})</td>
<td>66</td>
<td>5 (1)</td>
</tr>
<tr>
<td>No high-fat/high-sugar snack foods offered(^{(g)})</td>
<td>68</td>
<td>5 (1)</td>
</tr>
<tr>
<td>No sticky/high-sugar snack foods offered(^{(h)})</td>
<td>100</td>
<td>5 (0)</td>
</tr>
</tbody>
</table>

(a) Includes milk, cheese, yoghurt, custard and calcium fortified soy milk. Does not include cream and sour cream (18).

(b) Includes red or white meats, fish, iron fortified breakfast cereals, wholemeal bread or flour, dried fruit and ‘Milo’ (18).

(c) Includes bread, cereal, rice, pasta, noodles and crackers not excluded in (f) (13, 18, 19).

(d) Includes any fresh, frozen or canned fruits or vegetables, not juice (18).

(e) Includes all cordials or carbonated drinks (13, 19).

(f) Includes salted savoury snacks which contain > 750 mg sodium/100 g and > 25 g fat/100 g such as potato crisps, savoury snacks, pretzels and savoury crackers (13, 19).

(g) Includes chocolate bars, chocolate biscuits, chocolate or yoghurt coated muesli bars, cream-filled biscuits and cream or iced cakes (13, 19).

(h) Includes lollies, confectionery and fruit straps (13, 19).
Table 3. The proportion of OSHC services meeting the food safety criteria on the day observed (n = 41)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Proportion of services that met the criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff sit with children during afternoon tea</td>
<td>23</td>
</tr>
<tr>
<td>Children sit when eating</td>
<td>60</td>
</tr>
<tr>
<td>Children wash hands before eating</td>
<td>61</td>
</tr>
<tr>
<td>Children help with food preparation</td>
<td>38</td>
</tr>
<tr>
<td>Staff discuss positive aspects of food</td>
<td>39</td>
</tr>
<tr>
<td>Paper towels are available for drying hands</td>
<td>54</td>
</tr>
<tr>
<td>Access to hot, running water</td>
<td>83</td>
</tr>
<tr>
<td>Sufficient refrigerator space is available to store all perishable foods</td>
<td>88</td>
</tr>
<tr>
<td>Bench tops are clean and in good repair</td>
<td>78</td>
</tr>
<tr>
<td>Enough food was provided from each food group for all children to have a serve if they wished</td>
<td>98</td>
</tr>
<tr>
<td>There was enough food for children to be offered second servings if they wished</td>
<td>95</td>
</tr>
</tbody>
</table>

In addition, too few fruits and vegetables and cereal-based foods were offered at afternoon tea. This is of concern, as Australians typically do not consume enough fruits and vegetables for optimal health. For example, the National Nutrition Survey found that approximately one-third of children surveyed did not eat fruit in the previous 24 hours, more than 20% did not eat any vegetables (4). Cereal foods are of particular importance for their satiety value when the afternoon snack needs to sustain children until the evening meal (22).

While no services offered soft drink, nearly half of the services served cordial. OSHC services should be encouraged to serve water or milk to drink, and discouraged from offering cordial. This is supported by the Australian Dietary Guidelines for Children and Adolescents (6) and reflected in the OSHC quality assurance program, which requires children to have access to drinking water when at OSHC (16).

In the main, OSHC services limited foods that were known to be unhealthy choices. Foods of low nutrition value (for example high fat, high sugar, high salt foods) were only offered once a week or less and no sticky/high sugar foods were offered at all on the days surveyed.

Child-care settings provide an opportunity to promote healthy eating patterns to children and reinforce appropriate hygiene and social behaviours associated with food. However only one-third of services were observed to allow children to help in food preparation or to discuss positive aspects of the food served and less than two-thirds of services observed to encourage children to wash their hands before eating. As these practices are now listed in the OSHC quality practices guide as indicators of good or high quality care (16), services need to be supported to implement them more widely.

In addition, less than one-third of services were observed to have staff sit with children during afternoon tea and less than two-thirds of services encouraged children to sit when eating. These practices are not explicitly described in the OSHC quality practices guide and, given the lower staff to student ratios, possible lack of seating facilities and older age of children in OSHC compared to long-day care, it is important to consider whether these recommendations for younger children are appropriate for OSHC settings. However, despite the potential difficulties of implementing these practices in OSHC there is evidence that positive interaction between children and role models (peers or staff) during meals helps create a supportive eating environment (1). Encouraging children and staff to sit together at meal times is one way of doing this and also helps prevent accidents with food such as choking and scalds from hot drinks and soup. It will be important to consult widely with OSHC providers to find practical ways that these practices can be encouraged in OSHC.

Compared to other child-care sectors, few OSHC services had written policies on the food provided and food safety (10,13). Resources suited to the OSHC sector are needed to assist services with policy development. Similarly few services had written, planned menus and will require menu planning tools suited to the needs of OSHC services.

Those working with OSHC services will need to consider the significant constraints under which these services operate. These include lack of facilities such as refrigerators and appropriate food preparation space and the difficulty of obtaining and retaining experienced staff. Low food budgets were also identified as an issue for some services. However, firm conclusions about the relationship between food quality and budget cannot be drawn from this study as coordinators stated that the figures provided were rough estimates as they found it difficult to separate the afternoon tea budget from the total food and/or craft budget. With regard to quantities, most services were able to provide enough food for all children to have a serve from each of the food groups offered and most offered second servings to children.

As OSHC services are now required to participate in a national quality assurance system, the sector, including...
state and national peak bodies, is likely to be responsive to health promotion strategies that appropriately address its needs. Strategies likely to be successful in assisting OSHC services improve nutrition and food safety standards are similar to those used previously in other child-care settings. They need to be directed at the local, state and national levels. Local strategies could include visits and feedback by public health nutritionists regarding nutrition services and food safety practices, as well as local training and support such as grants to improve OSHC facilities. State and national strategies could include coordinated training programs taking into account the specific needs of OSHC staff, development of menu planning resources, policy development and support for the development and implementation of nutrition and food safety standards in the OSHC quality assurance system (16). It has recently been suggested that the OSHC setting provides one of the best opportunities to promote physical activity as well as other healthy behaviours (23). Many of the factors that make it timely to address nutrition issues in the OSHC sector also apply to physical activity. A resource that addresses both nutrition and physical activity in OSHC is currently being trialled in Victoria (24).

Conclusions and implications for practice

This needs assessment has shown that provision of high calcium, iron rich foods, fruit and vegetables and food safety practices are of concern in OSHC as they have been in long-day child-care settings for younger children (10–13,19). Hence strategies successful in other child-care settings such as feedback on the food provided, the development of menu planning and food safety tools, sample food and food safety policies and training for staff are required and likely to be successful in the OSHC setting.

However differences in the OSHC setting such as the older age of children, lack of regulations in some states, generally limited kitchen facilities, limited budgets and lower levels of qualifications of OSHC staff need to be taken into account when planning health promotion strategies for the OSHC setting. The recent introduction of a national quality assurance system for OSHC provides an incentive for services to improve nutrition standards and an opportunity for nutritionists to support OSHC services to meet quality assurance requirements and to advocate for appropriate nutrition and food practice guidelines for this setting. The OSHC setting also provides an opportunity to address childhood obesity by combining nutrition with strategies to increase physical activity in children.

References

24. Van Herwerden E, Cooper C. Eat Smart Play Smart, a manual for out of school hours care. Melbourne; National Heart Foundation of Australia; 2002.