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POSITION PAPER

ASCIA guidelines for prevention of anaphylaxis in schools, pre-schools and childcare: 2015 update

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Abstract: The aim of these guidelines is to assist staff in school and childcare settings to plan and implement appropriate risk minimisation strategies, taking into consideration the needs of the allergic child, the likely effectiveness of measures and the practicality of implementation. Although these guidelines include risk minimisation strategies for allergic reactions to insect stings or bites, latex and medication, the major focus relates to food allergy. This is due to the higher relative prevalence of food allergy in childhood (compared with other allergic triggers) and the higher likelihood of accidental exposure in these settings. Care of the allergic child in the school, pre-school or childcare settings requires accurate information obtained from parents and carers, staff training in the recognition and management of acute allergic reactions, planning for unexpected reactions (including in those not previously identified as being at risk), age appropriate education of children with severe allergies and their peers, and implementation of practical strategies to reduce the risk of accidental exposure to known allergic triggers. Strategy development also needs to take into account local or regional established legislative or procedural guidelines and the possibility that the first episode of anaphylaxis may occur outside the home. Food bans are not recommended as the primary risk minimisation strategy due to difficulties in implementation and lack of proven effectiveness.

Key words: anaphylaxis; ASCIA; guideline; prevention.

Anaphylaxis is the most severe form of allergic reaction and is potentially life threatening. Food allergy (FA) and anaphylaxis have become increasing health burdens in Australia and New Zealand (NZ) over the last decade, with a significant impact on quality of life for food allergic children, their families and other carers.[1] A recent Australian study[2] demonstrated confirmed FA incidence at age 12 months to be 10% with lower estimates for older children of 3–5% and 1–3% in adults[3] in other studies.[4] Anaphylaxis to stinging insects may occur (bees, wasps, Jack Jumper ants) and in some regions, from tick bites as well.[5] Allergy to medications or latex are less common in childhood.

Acute allergic reactions frequently occur away from home. One in seven schools and one in 30 childcare services in Western Australia (WA) report having observed at least one episode of anaphylaxis in the preceding year.[6,7] Anaphylaxis can also occur in children not previously identified as being at risk of anaphylaxis. In one US school's study, 55% of adrenaline autoinjectors (AAIs) for general use were administered to individuals not previously identified as being at risk of anaphylaxis,[8] with similar findings (55%) in WA schools.[9] A more recent survey base study of American schools reported that 21.9% of episodes of anaphylaxis occurred in individuals with no known allergy at all.[10]

Most food allergic reactions do not involve anaphylaxis,[11] and the likelihood of a severe allergic reaction from casual exposure when food is not ingested (e.g. from touch or exposure to odours) is very low.[12] However, severe reactions may occur unpredictably, thus any allergic reaction to foods should be taken seriously and treated as a potential medical emergency requiring immediate treatment.

The aim of these guidelines is to assist in reducing the risk of anaphylaxis in children attending out-of-home care (OOHC; e.g. childcare, pre-school, school and after school care), with a focus on FA, the most common trigger of anaphylaxis in this age group. In developing these guidelines, we have examined recommendations from other published guidelines,[13–16] epidemiological information on childhood anaphylaxis, likely sources of significant accidental exposure, the needs of the allergic child and others in the same environment (including parents/guardians and carers/teachers), difficulties in advocating measures that are not proven to be effective and the implications of implementing recommendations throughout Australia and NZ.

These guidelines have been updated to provide age-specific risk minimisation strategies, information about food bans and information relating to AAIs provided for general use, as these are increasingly being included in first aid kits in schools and childcare services. An overview of the key principles is outlined in Table 1.

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Table 1 Reducing the risk of anaphylaxis: key principles

1. Obtain up-to-date medical information and developing a health-care plan.
2. Staff training in recognition and management of acute allergic reactions.
3. Awareness that unexpected allergic reactions might occur for the first time outside of home in those not previously identified as being at high risk.
4. Age appropriate education of children with severe allergies and their peers.
5. Implementation of practical strategies to reduce the risk of accidental exposure to known allergic triggers.
6. Consider institutional provision of AAIs for general use.

Managing Food Allergy and Anaphylaxis in Out of Home Care: General Principles

Obtaining up-to-date medical information and developing a health-care plan

Up-to-date medical information should be obtained from parents upon enrolment in writing, with specific requests regarding known allergic triggers. Documentation should include an ASCIA Action Plan, completed and signed by a registered medical practitioner to include:

- Identification of the child (photo), parent/guardian contact details and details of the medical practitioner completing the Action Plan;
- Documentation of confirmed allergens, the first aid response and prescribed medication;
- Instructions on AAI administration (if prescribed).

A signed ASCIA Action Plan with photo identification of the child should provide sufficient medical confirmation. Action Plans should be updated when the AAI is replaced (approximately every 12–18 months) and provided to the school, preschool or childcare service by the parents along with an AAI (where prescribed). Those with FA and/or risk of anaphylaxis should be encouraged to visit their usual general practitioner (GP) for review when they obtain a new AAI prescription and ASCIA Action Plan (approximately every 12–18 months). For those with food allergy and asthma, asthma management should be optimised. Additional identification of children by medical identification jewellery (e.g. MedicAlert, Emergency ID), badges or special clothing is not considered necessary in young children but may be helpful in some situations (e.g. medication or latex allergy where accidental exposure may occur in the healthcare setting where no other source of information is immediately available). The school principal or deputy principal and the parents of children with identified allergies should meet face-to-face to discuss appropriate risk minimisation strategies and develop a health-care plan should occur, and will normally include the child at risk if they are in high school.

Staff training in recognition and management of acute allergic reactions

Recognition and treatment of allergic reactions (including anaphylaxis) is essential. Training should address:

- What is allergy and anaphylaxis?
- Common causes of allergic reactions including anaphylaxis.
- Signs and symptoms of mild to moderate and severe allergic reactions.
- Using ASCIA Action Plans as the emergency guide to manage allergic reactions including anaphylaxis.
- Instruction on how to use AAIs including hands-on practice with AAI trainer devices.
- Risk minimisation strategies to prevent accidental exposure to allergic triggers.

ASCIA recommends training of *all staff* (including casual and part time staff, not just those nominated as first aid providers) that is provided by appropriately qualified professionals (e.g. trained nurse educators, first aid trainers accredited to provide anaphylaxis training) and reinforced every 1–2 years, in conjunction with regular practice using AAI trainer devices. Where access to face-to-face anaphylaxis training is unavailable (or if staff require interim or refresher training), ASCIA anaphylaxis e-training for schools and childcare is freely available from the ASCIA website (https://etraining.allergy.org.au/). ASCIA anaphylaxis e-training for childcare is approved by the Australian Children's Education and Care Quality Authority. Currently New South Wales (NSW) is the only Australian region with mandated training for all staff. In Victoria there is legislation for the majority of staff to be trained. Other regions and NZ have variable staff training recommendations.

In responding to an allergic reaction, the following principles should be followed:

- ASCIA Action Plans should be used as emergency guides as to whether the person is experiencing a mild to moderate or severe allergic reaction.
- Lay child flat; do not allow them to stand or walk. If breathing is difficult, allow them to sit.
- If in doubt, administer the AAI first and other medication second.
- Adrenaline is the only medication of proven benefit in treating anaphylaxis.
- Antihistamines, corticosteroids and asthma medicines are *not* suitable alternatives for treating anaphylaxis. If in doubt, administer the AAI first and ancillary medication second.
- After the AAI is administered the child must be transported to hospital by ambulance (where possible) for further observation.
- Anaphylaxis can sometimes present with isolated life-threatening asthma-like symptoms without other signs such as rash or swelling. If someone with a known food or insect allergy has sudden severe breathing difficulty, staff should treat for anaphylaxis first, administer the AAI and follow the ASCIA Action Plan.
- Staff should be prepared to administer an AAI in an anaphylaxis emergency, as even older children and adults may be too unwell to self-administer an AAI. No child, teen or adult

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experiencing anaphylaxis should be expected to be fully responsible for self-administration of an AAI.
- Staff should also be trained to administer cardiopulmonary resuscitation if the person is unresponsive and they have shallow breathing or no breathing.

Awareness that unexpected allergic reactions might occur for the first time outside of home in those not previously identified as being at risk

Anaphylaxis may occur for the first time outside of the home in a child not previously identified by school staff to be at high risk in up to 25% of cases[17] or in one recent study, with no known identified allergies at all.[10] Policies for dealing with such an event must be considered and developed. These should include instructions on a general ASCIA Action Plan. They may also include provision of general use AAIs in first aid kits in OOHC according to local school, pre-school or childcare and state/territory education or children's services department policies. General use AAIs do not replace the need for parents to supply their child's prescribed AAI to the school and should therefore be considered additional to personal prescribed AAIs. At the time of writing, the supply of at least one AAI for general use is mandatory in WA (1 per 300 students), NSW, Queensland and Victoria; they are recommended in Tasmania; there are no recommendations for South Australia, Northern Territory, Australian Capital Territory and NZ. Although policies are directed to government schools in most regions, Catholic and independent schools usually follow similar policies. Childcare services, Catholic and independent schools do not have a mandate to provide general use AAIs. Issues surrounding provision of general use AAIs are summarised in Table 2. A discussion paper on the availability and use of AAIs for general use is available on the ASCIA website.[18]

Age appropriate education of children with severe allergies and their peers

Strategies to minimise the risk of accidental allergen exposure underpin the care of the child with food or other allergic triggers for anaphylaxis. In childcare services, pre-schools and schools, very young children are dependent on carers for providing a safe environment. As children mature they are able to take more responsibility for their own care. It is primarily the responsibility of parents to teach allergic children to care for themselves as they mature. The school, pre-school and childcare service also has a role to implement a health-care plan and reinforce appropriate avoidance and management strategies.

Education is required for:
- The *child* with allergy (to tell others of the nature of their allergy, enquire about the presence of allergic triggers in food and to refrain from accepting food from others);
- *Other students* (about the potentially serious nature of allergy, hand washing after eating, not sharing food with a child with FA, how to help the child having an allergic reaction);
- *Parents and guardians* (about school policies to minimise the risk of anaphylaxis); and
- *School staff* (to consider risks when planning school activities; to communicate with parents/guardians and the student at an age appropriate level; to have policies discouraging swapping of food among children; and to have policies addressing the potential for bullying and teasing of the allergic child).

Implementation of practical strategies to reduce the risk of exposure to known allergic triggers

Because it is not possible (nor practical) to remove all possible allergic triggers from a school/childcare environment, the aim therefore is to implement age-appropriate and practical strategies to *reduce the risk* of inadvertent exposure, and review these policies annually, or if a reaction does occur. The following focuses on FA as the most common trigger in OOHC settings. A comprehensive risk minimisation strategy for other triggers is available on the ASCIA and Allergy & Anaphylaxis Australia websites:
- http://www.allergy.org.au/schools-childcare; and
- http://www.allergyfacts.org.au/how-to-manage/schooling-childcare.

Table 2 Issues to be considered in purchasing adrenaline autoinjectors (AAIs) for general use

- An individual known to be at risk of anaphylaxis may not have their own AAI immediately available (e.g. expired, broken and used but misfired).
- A second dose of adrenaline may be required before an ambulance arrives.
- A previously diagnosed individual with mild or moderate allergy who was not prescribed an AAI has anaphylaxis.
- An undiagnosed individual, not previously known to be at risk of any allergic reaction, may have their first ever episode of anaphylaxis away from home.
- General use AAIs should be considered as being *additional* to prescribed AAIs, not a substitute for prescribed AAIs.
- AAIs may be purchased from pharmacies without prescription at full price.
- An AAI brand-specific ASCIA Action Plan (general) should be stored with the AAI.
- AAIs should be replaced before their expiry date.
- The number of AAIs required will consider issues such as the number of children at risk of anaphylaxis attending offsite activity compared with the number of children remaining at school, the number of simultaneous activities, the location of out of school activities (access to emergency care, mobile phone coverage and likelihood of exposure to allergic triggers, particularly food or insect stings).

NB: General use AAIs are not mandatory in all regions of Australia and regional guidelines and legislation should be consulted for up-to-date information on regional policy. Whether funding is provided by the institution itself or available from educational authorities will depend on local policies. General use AAI may reduce the quandary of having to use another person's AAI device. Further information is available from the ASCIA website: http://www.allergy.org.au/health-professionals/anaphylaxis-resources/adrenaline-autoinjectors-for-general-use.

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Table 3 Reducing the risk of allergen exposure in children with food allergy (FA)

- Young children with FA ideally should only consume food provided by parents/guardians from home.
- Bottles, other drinks and lunch boxes provided by the parents for their children with FA should be clearly labelled with the name of the child for whom they are intended. This is of particular importance in infants with cows milk allergy to minimise consumption of incorrect baby formula.
- If food is purchased from the school canteen, parents should check the appropriateness of foods by speaking directly to the canteen manager.
- Where food is provided in OOHC settings, food preparation personnel should be educated about how to read labels for FA and instructed about measures necessary to prevent cross-contamination during the handling, preparation and serving of food. Examples include preparing food for children with FA first, careful cleaning (using warm soapy water) of food preparation areas after use and cleaning of utensils when preparing allergenic foods.
- Food should not be given to children with FA in childcare and primary school without parental engagement and permission (e.g. birthday parties, food treats).
- Where food needs to be consumed inside the classroom (e.g. lunches consumed inside classrooms on rainy days), the risk of accidental exposure to the allergic child should be minimised. .
- Implement policies to avoid trading and sharing of food, food utensils or food containers.
- Unlabeled food poses a potentially greater risk of allergen exposure than packaged food with precautionary labelling suggesting a risk of contamination with allergen.
- Use of food in crafts, cooking classes, science experiments and special events (e.g. fetes, BBQs, assemblies, cultural events) needs to be considered and may need to be restricted depending on the allergies of particular children and their age.
- In craft, an appropriate alternative ingredient can be substituted (e.g. wheat-free flour for play dough or cooking) and substitution of non-food containers for egg cartons, particularly in younger children.
- When planning for out-of-school activities such as excursions (e.g. restaurants and food processing plants), or school outings or camps, catering requirements of the food allergic child and emergency planning (including access to emergency medication and medical care) should be considered early.

Issues surrounding food bans in school and childcare settings are based on the following two *incorrect* assumptions:

- Skin contact exposure may result in severe allergic reactions; and
- Banning specific foods from an environment will *eliminate* the risk of accidental exposure.

While skin contact (e.g. touching the allergen, hugging and kissing) may result in localised itching, swelling and discomfort (including eye and facial swelling), oral ingestion is almost always required to trigger anaphylaxis.[12] Simple personal and food hygiene measures such as hand washing and bench-top cleaning are considered appropriate measures to reduce skin contact with allergens.[19]

Banning specific foods will not eliminate the risk of accidental exposure and cannot be enforced. However, food restrictions, with appropriate education and communication, may have a role to play in very young children who have insufficient maturity to protect themselves (e.g. childcare through to early primary school or children with developmental delay). Young children often share toys where cross-contamination with food may result in allergic reactions from oral exposure or greater person-to-person contact. Much of the focus is on accidental peanut or tree nut exposure, as reactions may occur after exposure to tiny amounts, and as these foods are the most common trigger for childhood anaphylaxis. Thus, some childcare services, pre-schools and early years of primary schools may request that nut products are not sent in lunch boxes, to reduce the risk of accidental exposure in very young children. However, it is impractical to restrict cow's milk and other dairy products or other common food allergens such as egg and wheat, in the same way as nut product restrictions in childcare settings that care for babies and toddlers.

This situation, however, is not applicable to older children or teenagers, who should have sufficient maturity and education to minimise their exposure, unless language or intellectual disability impairs their ability to do so. Routine food bans in this setting have not been proven to reduce risk, are difficult to enforce, may result in a false sense of security, may trigger resentment and lack of co-operation with more important measures and may at times result in bullying of the individual with FA. Food bans are not recommended in other guidelines or position statements,[13,14,20–22] by patient consumer organisations such as Allergy & Anaphylaxis Australia, Allergy New Zealand or by ASCIA, although some published guidelines state that such a policy may be 'considered' for a specific foodstuff such as peanut[16] rather than recommended. Even if policies are present, one cannot assume or rely on an institution being 'allergen free', and such claims should not be made. Instead, policies should concentrate on more practical and more effective risk minimisation strategies (Table 3).

Managing Food Allergy and Anaphylaxis in Out of Home Care: Age-Specific Issues

Managing food allergen exposure in pre-school and childcare

While food restrictions for avoiding peanut/tree nut exposure may be implemented in caring for very young children, it is more difficult to restrict other foods such as egg, dairy products, wheat or other common allergens. Thus, strategies to reduce the risk of environmental cross-contamination may be considered, such as restricting egg in its pure form (e.g. pure egg and meringue) but allowing egg cooked in cake. Cow's milk and

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other dairy products also cannot realistically be removed. Instead, careful supervision is required for cows milk allergic children at times when other children are consuming cows milk, other dairy products or goat's milk products (that contain similar allergens). If children drink from cups with lids, this may reduce the risk of spills, and being careful when serving dairy products that may splatter may reduce the risk of environmental contamination. In some circumstances, it may be appropriate that a child with FA sits at another table with other children (but not isolated) when food to which they are allergic is served.

While the best option is for parents or guardians to provide meals prepared from home, where that is not possible, the meal prepared for the food-allergic child *must not* contain the allergen/ingredients to which the child is allergic. Meals prepared at pre-schools or childcare services that contain ingredients with precautionary labelling (e.g. 'May contain traces of (the allergen)') may be given to other children at the same institution but should *not* be given to the allergic child without parental permission. Exceptions to this may be applicable only in consultation with the allergic child's parent who has sought advice from their child's medical specialist. Risk management strategies should also consider activities that may increase the risk of accidental exposure even when food is not overtly consumed (e.g. craft or cooking food). It is also important to care for a child's emotional well-being to minimise the risk of social isolation and to not make young children (infancy and primary school) responsible for carrying the AAI with them or for administration of the AAI in an emergency.

Managing food allergen exposure in primary school, high school and after school care

In later primary school and high school, food restrictions or bans are not useful risk minimisation strategies, and items summarised in Table 3 remain applicable. While anaphylaxis due to FA is only one of many potential risks of school camps,[23] it is a major source of parental anxiety and notification of all staff involved in childcare and catering is essential. Additional resources for dealing with school camps are available: http://www.allergyfacts.org.au/shop/product/16-preparing-for-camp-overnight-school-trips-with-food-allergies.

Teenagers and young adults with FA are an age group identified as being at increased risk of fatal anaphylaxis. While issues surrounding food allergen avoidance are applicable to all age groups, as children approach their teenage years, education regarding self-management and issues surrounding parties (e.g. exposure to unlabeled food) and alcohol exposure (e.g. reduced vigilance) is important. In addition, up to 15% nut allergic patients complain of adverse reactions with kissing, sometimes severe.[24] Education of teenagers to carry their AAI and ASCIA Action Plan at all times is also essential. Learned behaviours at school can assist with compliance outside the school setting. Additional resources for teenagers and young adults are available: http://www.allergyfacts.org.au/living-with-the-risk/life-stages/13-18-years/teens.

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