

REVIEW ARTICLE

Anaphylaxis management in Australian schools: Review of guidelines and adrenaline autoinjector use

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Abstract: Food allergy and anaphylaxis is increasing in Australian children, and anaphylaxis is relatively common in Australian schools. This review aims to provide an overview of current policies and practices for anaphylaxis management in Australian schools, including approaches to risk mitigation and anaphylaxis training. We reviewed literature related to anaphylaxis training in the school setting published between 2010 and 2018. Current anaphylaxis policies/guidelines were obtained from Australian education and health departments, and reports of suspected anaphylaxis and adrenaline autoinjector (AAI) use for 2016–2017 were obtained from education departments where available. Our review of policies/guidelines across Australian jurisdictions indicates inconsistent approaches to anaphylaxis management training. Almost half of Australian school anaphylaxis events required a general-use AAI, administered to students not identified as at risk of anaphylaxis. Development of clear, evidence-based, consistent guidelines related to anaphylaxis management and training in the school setting is imperative to minimise risk.

Key words: anaphylaxis; food allergy; school.

Why Is Anaphylaxis in the School Setting an Issue?

Food allergy (FA) is common in Australia, with up to 1 in 20 school aged children having proven FA.^{1,2} There has been a commensurate increase in anaphylaxis presentations to

emergency departments^{3,4} and fatalities from anaphylaxis⁵ over the last two decades, most notably among young people.⁴ Of great concern are the five deaths due to food-related anaphylaxis in Australian schools since 2002, including a death in 2018, and two resulting in coronial inquests.^{6,7} Recommendations arising from these inquests focus on improved staff training, systematic approaches to policy and risk mitigation in schools.⁶ Internationally, there is a trend towards systematic approaches to anaphylaxis management at schools, following anaphylaxis-related deaths at schools in the UK, USA and Canada.^{8,9} A review of anaphylaxis-related fatalities in Australia obtained from the Australian National Coronial Information System identified modifiable risk factors, including delayed administration of adrenaline and upright posture during anaphylaxis.⁵ These factors can be modified by timely intervention from first aid providers and appropriate staff training. Australian school systems are legally obliged to equip staff with the skills to identify and manage anaphylaxis appropriately.

This review aims to summarise current Australian policies and practices for the management of anaphylaxis in schools, including risk mitigation approaches and anaphylaxis recognition and management training. We also discuss the role of 'general-use' adrenaline autoinjectors (AAI) – devices that are not individually prescribed but available for use when needed. Childcare and out-of-school hours care also present significant risk but are beyond the scope of this review.

Key Points

- 1 Anaphylaxis occurs relatively commonly in the school setting in children known to be at risk of anaphylaxis and may occur in individuals not previously identified as at risk of severe allergic reactions.
- 2 There is no national mandated approach to training school staff in the recognition and management of anaphylaxis in schools, and significant variations exist in the approach between states and the public and independent school sectors.
- 3 Timely administration of adrenaline and correct positioning of individuals experiencing anaphylaxis are key modifiable factors that can potentially save lives during anaphylaxis.

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Literature Review and Data Gathering

Current anaphylaxis policies and guidelines were obtained from each state and territory's education and health departments. Where policies were not publicly available, we directly approached the relevant department. Anaphylaxis policies or guidelines were obtained for Victoria, New South Wales (NSW), Western Australia (WA), Queensland, Northern Territory (NT), Australian Capital Territory (ACT), South Australia (SA) and Tasmania. A search of publications (2010–2018) related to anaphylaxis education and training in the school setting was undertaken using PubMed, Medline and Embase.

Reports of suspected anaphylaxis and AAI use during 2016–2017 were obtained from the NSW, Victoria and WA education departments (other states did not systematically collect data). Reports were assessed by authors for likelihood of actual anaphylaxis, severity and likely triggers, and where required, further details were sought from individual schools.

International Approaches to Anaphylaxis Risk Management and Training in Schools

Management of children with food allergies, particularly those at risk of anaphylaxis, is a significant risk management issue for schools. This challenge is not unique to Australia, with rising rates of FA observed world-wide.¹⁰ However, there is a lack of data evaluating the effectiveness of risk management and training approaches in preventing, and improving the management of, anaphylaxis. Internationally, there is no example of country-wide mandated anaphylaxis training for school staff, although many countries have voluntary guidelines.

In the USA, national voluntary guidelines are produced by the Centers for Disease Control and Prevention¹¹ and the American Academy of Pediatrics and American Public Health Association.¹² In addition, the School Access to Emergency Epinephrine Act (2013)¹³ provides a financial incentive for states enacting laws requiring schools to keep general-use AAI.⁹ Provision of general-use AAIs in schools remains voluntary in most states, and training policies vary widely. Moreover, unlike Australia, the USA does not have a single standardised anaphylaxis plan, and many US jurisdictions rely solely on school nurses for anaphylaxis recognition and management. Some school regions dictate allergen-free schools (usually peanut), although this policy is not associated with lower rates of AAI use or anaphylaxis.¹⁴

In the Canadian province of Ontario, all public schools must comply with Sabrina's Law, enacted in 2006 following the death of a teenage girl in her first year of high school.¹⁵ Sabrina's Law requires school boards to have an anaphylaxis and FA policy and outlines that school principals must develop individual health-care plans for students deemed at risk of anaphylaxis. The effectiveness of this legislation was assessed in 2010 by comparing legislated (Ontario) and non-legislated provinces (Alberta, British Columbia, Newfoundland and Labrador and Quebec), finding significant differences in school compliance with policy, staff awareness and capacity to effectively administer an AAI.¹⁶

In the UK, regulations are region specific. England, Wales, Scotland and Northern Ireland have guidance documents produced by various arms of government. Provision of general-use

AAIs in schools is voluntary in England, and currently, general-use AAIs may only be used for individuals identified as at risk of anaphylaxis.

Approaches in Europe vary widely, in part influenced by relative FA prevalence in the region.^{17–19}

Australian Approaches to Anaphylaxis Risk Management and Training in Schools

All Australian states and territories have anaphylaxis policies and guidelines outlining anaphylaxis recognition and management in schools. All jurisdictions require nominated staff to undergo theoretical training in anaphylaxis management, with variable legislation, policies/guidelines, frequency of training, number of staff and type of training (Table 1). Moreover, although only 65% of school-aged students attend public schools in Australia (35% attend Catholic and independent schools),³⁹ only Victoria has mandated policies applying to all schools. Catholic and independent schools' guidelines are often consistent with those of the education departments in their jurisdiction; independent schools are not obliged to follow the Association of Independent Schools guidelines.

The main components of anaphylaxis guidelines and policies relate to individual student and school-based management plans, staff training, availability of general-use AAIs and reporting systems. The peak specialist body for allergy and immunology in Australasia, the Australasian Society of Clinical Immunology and Allergy (ASCIA), recommend all school staff undertake theoretical anaphylaxis management training every 1–2 years and regular hands-on AAI trainer device practice.²⁰ Hands-on practice with AAI training devices improves later ability to demonstrate correct administration.^{40,41} No Australian guidelines promote 'allergen-free schools' as this approach does not reduce rates of anaphylaxis.¹⁴

Consistent with ASCIA guidelines,²⁰ NSW and Victoria require theoretical training every 2 years, while other jurisdictions require training less often or at unspecified intervals. While some jurisdictions require all staff to undergo theoretical training, other jurisdictions require only nominated staff (e.g. teachers of classes attended by student at risk) to undergo training. Tasmania is the only jurisdiction that does not use the ASCIA e-training, recommending a combined asthma and anaphylaxis training.

The requirements for practical hands-on AAI training vary among jurisdictions (Table 1). Victorian legislation requires an AAI competency check to be completed every 2 years, and the NSW policy stipulates that a significant proportion of school staff must complete a NSW Anaphylaxis Education Program practical course annually. Requirements for delivery and frequency of practical AAI training vary in the other jurisdictions.

Consistent with ASCIA guidelines,²⁰ all jurisdictions require students at risk of anaphylaxis to have an individual health-care/management plan, including an individual emergency response plan, completed and signed by a medical practitioner. Victoria, NSW, WA, Queensland, NT, Tasmania and ACT use the standardised ASCIA Action Plan for Anaphylaxis,⁴² and SA offers the ASCIA Action Plan as one option but also accepts an alternative. All jurisdictions require individual health-care/management

Table 1 Comparison of anaphylaxis policy and training requirements across Australian jurisdictions

Document/s	ASCA	Victoria	NSW	WA	Queensland	NT	Tasmania	ACT	SA
	Guidelines for prevention of anaphylaxis in schools, pre-schools and childcare: 2015 update ²⁰	Ministerial Order 706 (2015) ²¹ DET Anaphylaxis Guidelines (2017) ²²	NSW Anaphylaxis Procedures for Schools (2012) ²³ First aid procedures (2012) ²⁴	Anaphylaxis Management Guidelines for Western Australian Schools (2010) ²⁵ Policy Support Guidelines – Anaphylaxis (2014) ²⁶	Anaphylaxis Guidelines for Queensland State Schools (2013) ²⁷ Administration of medications in schools (2017) ²⁸ School Alerts Procedure (2018) ²⁹	DoE Guidelines for Students at Risk of Anaphylaxis (2013) ³⁰ 2014 Procedures - Administration of Medications to Students with Notified Medical Conditions (2014) ³¹ Policy -Administration of Medications to Students with Notified Medical Conditions (2011) ³²	Specific Health Issues – Procedures, Information and Contacts, Version 4 (2017) ³³	Anaphylaxis Management Procedure (2017) ³⁴ First aid facilities procedure (2017) ³⁵ First aid kit contents list (2017) ³⁶ First aid training procedure (2015) ³⁷	Procedure - Anaphylaxis and severe allergies in education and care settings (2017 draft) ³⁸
IHCP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inclusion of AAP in IHCP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes-but option of alternate Health Care Plan, for example those who 'cannot' have adrenaline
Risk minimisation included in IHCP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Theoretical anaphylaxis management training	ASCA anaphylaxis e-training	ASCA anaphylaxis e-training (Victorian schools)	ASCA anaphylaxis e-learning (NSW schools)	ASCA anaphylaxis e-training (WA schools)	ASCA anaphylaxis e-training (Queensland schools)	ASCA anaphylaxis e-training	Anaphylaxis active training session from Asthma Foundation of Tasmania	ASCA anaphylaxis e-training or 1 h Asthma training session funded by Australian Capital Territory health directorate	ASCA anaphylaxis e-training

Table 1 (Continued)

	ASCA	Victoria	NSW	WA	Queensland	NT	Tasmania	ACT	SA
Who should undertake theoretical training	All staff	Required for those who conduct classes attended by student at risk; others nominated by principal; recommended for all school staff	All Staff	An adequate number determined by principal	A range of staff (guidance provided regarding how to determine numbers and which staff)	Recommended for all principals and staff	All staff	All staff	All staff
How often should theoretical training occur?	Every 1–2 years	Every 2 years	Every 2 years	Every 3 years	Not specified	Not specified	Every 3 years	Every 3 years	Every 3 years
Practical training using AAI trainer devices	Yes	Yes - AAI competency check	Yes - Recognition and Management of Anaphylaxis Programme (designed by NSWAEF, delivered by RTP trainers)	Yes - Provided by community health nurses	Yes - Education Queensland RNs, or RTOs (Red Cross, ambulance, St John Ambulance)	Yes - A range of providers such as St John Ambulance and Asthma Foundation	Yes - Anaphylaxis active training session from Asthma Foundation of Tasmania; credentialing: A certificate of attainment form must be completed	Yes	Yes
Who should undertake practical training?	All staff	Required for same staff as theoretical training	A significant proportion of staff	As requested by principal (no minimum)	A range of staff, 'sufficient number'	A range of staff as determined by principal	All staff	All staff	All staff
How often should practical training occur?	Regularly	Within 30 days of theoretical training (every 2 years) and at least twice yearly at briefings	Annually	Regularly	Not specified	Not specified	Regularly	Regularly	Regularly
General-use AAI	Guidance provided	Required where school has a student at risk, recommended for all	Required	Required	Required	Not specified	Discussed but not mandated	Discussed but not mandated	Required
Number of general-use AAIs?	Guidance provided	At least one, more as determined by principal	At least 1	1/300 students	At least 1	Not specified	Not specified	Sufficient in accordance with the site-based	At least 1; more at principal's discretion

Table 1 (Continued)

	ASCIA	Victoria	NSW	WA	Queensland	NT	Tasmania	ACT	SA
General-use AAI use on students not previously recognised as at risk of anaphylaxis	Yes	Yes	Yes	Yes	Yes	Not specified	No	Not specified	Yes
Centralised reporting mechanism for AAI use?	Not applicable	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes

AAI, adrenaline autoinjector; AAP, ASCIA Action Plan; ACT, Australian Capital Territory; ASCIA, Australasian Society of Clinical Immunology and Allergy; DET, Department of Education and Training; IHCP, Individual Health Care Plan; NSW, New South Wales; NSWAP, New South Wales Anaphylaxis Education Program; NT, Northern Territory; RN, registered nurse; RTO, registered training organisation; RTP, registered training providers; SA, South Australia; WA, Western Australia.

plans to include risk minimisation strategies preventing exposure to known allergens.

Whole-of-school anaphylaxis management plans, in addition to individual plans, are required in Queensland, ACT and SA. Victoria mandates a whole-of-school anaphylaxis management plan only if a student diagnosed as being at risk of anaphylaxis attends the school but recommends such plans for all schools. NSW, WA, NT and Tasmania do not require such plans (Box 1).

Reporting Systems for Episodes of Suspected Anaphylaxis in the School Setting

Effective reporting systems allow for the estimation of incidence of suspected anaphylaxis in schools and are useful to monitor change in prevalence following policy or training changes. However, requirements for systematic reporting of AAI use and/or suspected anaphylaxis in Australian schools vary between regions. Based on a state-wide survey in Victoria, the estimated prevalence of students at risk of anaphylaxis increased over 2009–2014 to 1 of 70 students at risk.⁴³ Reporting systems in NSW, WA and Victoria over 2016–2017 provide some insight into school anaphylaxis rates across Australia; however, data could not be obtained from the other states (Table 2). In 2017, 234 episodes of anaphylaxis at school (primary and secondary) were reported across NSW, WA and Victoria. Based on Australian Bureau of Statistics population data and known proportion of students attending public schools across these three states, we estimate that anaphylaxis at school occurs in 8.3–19.1 students per 100 000 per year. In NSW and Victoria, episodes were relatively evenly distributed across primary and secondary schools. Information collected by the education departments in these regions relies on schools. It is possible that both under-reporting and under- or over-recognition of anaphylaxis affect the reliability of these figures; however, they are consistent with international reports. In the USA, approximately 18% of children with FA were reported to have experienced an allergic reaction while at school,⁴⁴ and over 10% of 5683 schools reported at least one episode of anaphylaxis during the 2013–2014 academic year.⁴⁵ In a surveillance study of 6574 US schools, 1140 episodes

Box 1 Recommended minimum data to be collected following anaphylaxis in school setting

- Was the student known to be at risk of anaphylaxis?
- If yes, was the student exposed to a known allergen and how did the exposure occur?
- Was a personal AAI device used?
- Was a general use AAI device used? If so, why (e.g. second dose)?
- Was the child positioned appropriately during the episode (not walked, feet elevated)?
- Was there delay in AAI administration?
- Was the child transported via ambulance to hospital following incident?
- Was the episode consistent with anaphylaxis based upon the clinical details provided?

Table 2 Anaphylaxis incidents and adrenaline autoinjector (AAI) use in public schools (Victoria, New South Wales (NSW) and Western Australia (WA)), 2017

Reported incidents	Victoria	NSW	WA
Anaphylaxis incidents (total), <i>n</i>	116	95	23
Incidents at primary school, <i>n</i> (%)	49 (42)	52 (55)	16 (70)
Personal AAI used, <i>n</i>	116	43	11
General-use AAI used, <i>n</i>	NA	47	8
Anaphylaxis (but no adrenaline given/ unrecognised anaphylaxis), <i>n</i>	NA	4	4
No. of students enrolled, <i>n</i> †	606 475	791 763	276 914
Anaphylaxis events per 100 000 students	19.13	12.00	8.31

†Source: ABS 4221.0 – Schools, Australia, 2017.³⁹ Education Departments in WA, NSW and Victoria shared the data they collected in 2017 regarding AAI use in public schools. The Victoria data were extracted from a survey of 1500 Victorian government school principals. To allow comparison of the number of anaphylaxis events across WA, NSW and Victoria, the number of anaphylaxis incidents per 100 000 students has been calculated using Australian Bureau of Statistics data for school enrolments in public schools. NA, not available.

of anaphylaxis requiring AAI administration were reported over the 2013–2014 school year.⁴⁶ A quarter of these events occurred in individuals with no previously diagnosed allergies. Efforts to improve the reporting systems in US schools are underway.⁴⁷

What Allergens Causes Anaphylaxis in Schools?

NSW data for 2017 provide insight into the common triggers of anaphylaxis in Australian schools (Table 3). In NSW, 58% of episodes were attributed to food triggers and 9% to insect stings and a third of episodes had no identified trigger. These figures are consistent with the results of three US-based studies reporting anaphylaxis and AAI use in schools where food caused 55–62% of reported episodes.^{45,48–50} Reports on the administration of general-use AAI in schools from WA⁵¹ and NSW suggest that food and insect stings are the most common triggers for anaphylaxis at school, similar to US reports for general AAI triggers.^{45,48,49} Of note, approximately one third of episodes in NSW and WA necessitating general-use AAI administration (31% in

Table 3 Likely triggers for anaphylaxis at school

Trigger	NSW 2017 data: All devices, <i>n</i> (%)	NSW 2017 data: General-use devices only, <i>n</i> (%)	WA 2010 data: General-use devices only, <i>n</i> (%)
Food	55 (58)	23 (49)	8 (31)
Insect sting	9 (9)	7 (15)	10 (38)
Unknown cause	31 (33)	17 (36)	8 (31)
Total	95	47	26

NSW, New South Wales; WA, Western Australia.

WA and 36% in NSW) had unknown triggers, consistent with the US reports study (20.3%),⁴⁵ Chicago study (34.2%),⁴⁸ New York (47%)⁵² and 24% of cases reported in a 2005 Istanbul cross-sectional study.⁴⁹

General-Use AAI in Australian Schools

Department of education anaphylaxis policies and guidelines of all jurisdictions except NT discuss the availability of general-use AAI. In Victoria, only schools with a student diagnosed as being at risk of anaphylaxis are required to have a general-use AAI; however, they are recommended for all schools. In NSW, WA, Queensland, ACT and SA, every school must have a general-use AAI. The number of general-use AAI stipulated varies from one (NSW, Queensland) to unspecified numbers determined by factors such as principal's discretion (Victoria, SA) or site-based risk assessment (ACT). WA requires one AAI per 300 students.

Where general-use AAI are available, Tasmanian policy specifies that the device must only be used on students previously identified as at risk of anaphylaxis. ACT does not address this issue. Victoria, NSW, WA, Queensland and SA explicitly allow the use of general-use AAI on anyone experiencing symptoms of anaphylaxis.

Based on school reports, general-use AAI were administered in 34 and 49% of total anaphylaxis incidents in WA (2010) and NSW (2017) schools, respectively (Table 4). The most common reason for general-use AAI was that the child was not previously identified as being at risk of anaphylaxis. NSW (2017) and WA data (2010) indicate that, in 59 and 50% of cases, respectively, the risk of anaphylaxis was previously unknown. This is consistent with reports from New York where over 50% of AAI administered were general use, with 75% of cases not previously identified as being at risk of anaphylaxis.⁵² Similarly, in the USA, Sicherer *et al.*¹² reported that 25% of children with a peanut allergy experienced their first episode in school. Importantly, in Australia, general-use AAI were used for children requiring a second adrenaline dose (4% in WA; 6% in NSW) and as emergency treatment for students with unavailable or expired devices (44% in WA; 38% in NSW).

The large number of anaphylaxis cases treated with general-use AAI highlights the importance of their availability in schools.

Table 4 Reason for general adrenaline autoinjector (AAI) use

Reported reason for use	NSW (2017 data)	WA (2010 data)
Risk of anaphylaxis previously unknown	28	13
Prescribed AAI had been given and a second dose needed	3	1
Prescribed AAI was not easily accessible	8	1
Prescribed AAI was expired	1	3
Prescribed AAI but was not at school	8	4
Prescribed AAI was spent before being administered	0	4
Total	47	26

NSW, New South Wales; WA, Western Australia.

Although it is impossible to verify that an AAI was required in each instance, based on our review of the reports, it is highly probable that several deaths or near fatalities were prevented by general-use AAI provision.

ASCIA Guidelines

ASCIA developed and published guidelines for the prevention of anaphylaxis in schools, pre-schools and childcare²⁰ to support the governing bodies of all schools by providing evidence-based anaphylaxis management guidance. To promote consistent messaging across Australia, ASCIA has also developed standardised Action Plans for Anaphylaxis, which are used widely across Australia.⁴² Using standardised plans for training and emergency response avoids confusion during an anaphylaxis emergency. In addition, ASCIA provides free evidence-based educational resources.⁵³

In terms of alignment with the ASCIA guidelines, NT has adopted the ASCIA guidelines,²⁰ Action Plans and e-training largely unchanged. Other policy documents adhere to and expand on the ASCIA recommendations (Victoria, NSW, WA, Queensland, ACT, SA, Tasmania). The Tasmanian guidelines do not use the ASCIA e-training.

Recommendations and Future Goals

Anaphylaxis in the Australian school setting is not uncommon, and recent deaths at Australian schools highlight the risk. Coroner's inquests recommend improved training and access to AAIs.^{6,7} However, management policies, guidelines, training, recommendations for general-use AAIs and incident reporting vary significantly across Australia. To date, no published research has examined if mandated staff training or access to general-use AAIs at schools improves health outcomes for students at risk of anaphylaxis. However previous reports have demonstrated that school personnel often lack the knowledge and skills necessary to recognise and treat anaphylaxis,^{16,54,55} and the Ontario experience suggests that legislation improves school preparedness and training.¹⁶ Further evidence will assist driving change; however, as fatalities are thankfully rare events, proxy outcome measures will be required to show improved outcomes.

Current requirements for reporting anaphylaxis events are inconsistent (Box 1). Collection of standardised, centralised data across all jurisdictions will facilitate improved risk-minimisation strategies and inform policy at all levels.

Available data from Australia and USA⁵⁶ indicates that many reported suspected anaphylaxis episodes in schools occur in students *not previously identified* as being at risk of anaphylaxis, highlighting the importance of general-use AAI availability to treat anaphylaxis in these individuals. Jurisdictions requiring general-use AAIs only in schools with an enrolled student diagnosed as at risk of anaphylaxis, or not requiring general-use AAIs at all, leave this group without access to appropriate medication. We consider that one general-use AAI should be stocked as a minimum in all schools, with further risk assessment at a school level to determine if additional devices are required.

Education regarding prevention, recognition and treatment of anaphylaxis should be standardised across Australia for all school staff. This will assist staff moving within and across jurisdictions

and will ensure that relief staff also receive adequate training. Hands-on training^{57,58} improves knowledge, confidence and skills in AAI administration. Regular reinforcement of training is also important for retention of emergency response skills.⁵⁹ Whilst evidence is gathered on the health outcomes associated with reinforcement of skills using both online and face-to-face staff anaphylaxis training, we recommend that all school staff in all school systems should undertake theoretical training every 1–2 years and regular practical training, consistent with ASCIA guidelines.

Australia has led the world in the anaphylaxis epidemic, and current figures indicate that 1 in 20 secondary school students now have FA.¹ Development of clear, evidence-based, consistent guidelines related to anaphylaxis management and training in the school setting is imperative to minimise risk and keep these students safe.

Multiple Choice Questions

1 Modifiable risk factors for fatal anaphylaxis include:

- a) Delayed administration of salbutamol
- b) Delayed administration of adrenaline
- c) Ensuring an upright posture during anaphylaxis management
- d) Amount of allergen ingested
- e) Use of non-sedating rather than sedating antihistamines during an acute episode of anaphylaxis

Answer: b. Prompt administration of adrenaline and a supine posture during anaphylaxis has been shown to improve anaphylaxis outcomes. Adrenaline is the first-line medication for anaphylaxis and should be administered as soon as possible. Australasian Society of Clinical Immunology and Allergy recommends that a person experiencing anaphylaxis should lay flat or be allowed to sit (with legs outstretched) if they are having breathing difficulty – they should not be allowed to stand or walk to prevent empty ventricle syndrome. Antihistamines have no role in the acute management of anaphylaxis.

2 Hands-on practice with adrenaline autoinjector (AAI) trainer devices:

- a) Has no impact on later ability to demonstrate correct administration
- b) Has been shown to improve later ability to demonstrate correct administration
- c) Should be undertaken every 3 years
- d) Is currently mandated by all schools in Australia
- e) Is only required for schools where a child at risk of anaphylaxis has been identified

Answer: b. Regular hands-on practice with AAI trainer devices is important to improve staff confidence and ability to correctly administer the device. It is currently not mandated in most Australian jurisdictions. Because many children have their first episode of anaphylaxis at school, and are not previously identified as being at risk, all schools should have regular training in the correct delivery of adrenaline.

3 General-use adrenaline autoinjectors are:

- a) Too expensive to be stocked in every school across Australia

- b) Required for only schools where a student at risk of anaphylaxis has been identified
- c) Supplied by parents of children at risk
- d) Most commonly used in Australia for staff not parents
- e) Most commonly used in Australia for children who were not previously diagnosed to be at risk of anaphylaxis

Answer: e. NSW and WA data suggest that the most common reason for general-use adrenaline autoinjector (AAI) administration is for the management of anaphylaxis in a student not previously known to be at risk (Table 4). The departments of education in Australia fund general-use AAIs in schools, and they are generally recommended for all school irrespective of whether there are students currently enrolled at the school who are known to be at risk of anaphylaxis.

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