

Anaphylaxis in Children - RCPH Anaphylaxis Care Pathway: Competences

Key Document code:	WAHT-TP- 053	
Key Documents Owner:	Dr Tom C Dawson	Consultant Paediatrician
Approved by:	Paediatric Quality Improvement meeting	
Date of Approval:	26 th March 2021	
Date of review: This is the most current version and should be used until a revised document is in place	26th March 2024	

Key Amendments

Date	Amendment	Approved by
26 th March 2021	Approved with no amendments	Paediatric QIM

RCPH Anaphylaxis Care Pathway: Competences

Ref	Pathway Stage	Competence
1	Self-Care	<p>Know</p> <ul style="list-style-type: none"> • the signs and symptoms of potential anaphylaxis (21) • to call for help (21) • when and how to administer intramuscular (IM) injectable adrenaline (21, 22, 24, 25), if indicated and available • to identify and remove the trigger (21), if possible
2	Ambulance Service/ Primary Care	<p>Know</p> <ul style="list-style-type: none"> • the signs and symptoms of anaphylaxis (21) • to transfer to the ED in all cases (21) <p>Be able to</p> <ul style="list-style-type: none"> • make an initial assessment and treatment based on an ABCDE approach (21) • administer IM injectable adrenaline (21, 22, 24, 25), if indicated • to identify and remove the trigger (21), if possible • provide other treatment (21), if necessary
3	Emergency Care	<p>Know</p> <ul style="list-style-type: none"> • the signs and symptoms of anaphylaxis (21) • how and when to send blood samples for measuring mast cell tryptase (21, 26) <p>Be able to</p> <ul style="list-style-type: none"> • make an initial assessment and treatment based on an ABCDE (21) • administer injectable adrenaline (21, 22, 24, 25), if indicated
4	Emergency Care: Hospital inpatient/ further care	<p>Know</p> <ul style="list-style-type: none"> • to record any suspected trigger(s) • to observe the patient, ideally for at least 6 hours (21), and understand the potential for biphasic reactions • to refer to an allergy clinic (27-29) directly, via the GP using a local clinic or by checking the BSACI website - <p>Be able to</p> <ul style="list-style-type: none"> • provide ongoing observation and treatment of the episode • provide a basic prevention and treatment package that includes <ul style="list-style-type: none"> – basic avoidance advice based on the suspected trigger(s)– provision and training in the use of an adrenaline injector (21-23, 27, 30, 31) – provide access to patient/parent/carer support group information
5	Outpatient care – comprehensive management package: medical care	<p>This is best provided by a multidisciplinary team including allergy specialist doctors, specialist nurse(s), paediatric dietitians and appropriate school nurse liaison for the further management of children with anaphylaxis</p>

6	Outpatient care – Comprehensive management package: Clinical history and examination	<p>Be able to</p> <ul style="list-style-type: none"> • recognise and distinguish the features of anaphylaxis from less severe allergic reactions • recognise the clinical features of conditions which masquerade as anaphylaxis (e.g. panic attacks, vocal cord dysfunction, hereditary angio-oedema) • recognise that anaphylaxis can present as acute severe asthma without any cutaneous or other features • gather relevant information on exposure to potential triggers (e.g. anaesthetic chart for GA anaphylaxis) • recognise the clinical features of anaphylaxis induced by different triggers and appreciate important differences (e.g. food, venom, drug, exercise induced and idiopathic) • take a full history including important co-morbidities (e.g. asthma) and psychosocial issues and interpret the findings • examine and interpret findings in relevant body systems including chest, ENT and skin
7	Outpatient care – comprehensive management package: Referral	<p>Know</p> <ul style="list-style-type: none"> • to refer children with venom, drug allergy, idiopathic and exercise induced anaphylaxis to specialist units with appropriate expertise in investigation and management • to refer onwards, if you do not have access to the appropriate range of diagnostic techniques (refer to boxes 8. and 9. investigation) or knowledge of their indications, limitations and interpretation • when to refer to other services, including safeguarding agencies e.g. CAMHS
8	Outpatient care – comprehensive management package: investigation all allergies	<p>Have access to:</p> <ul style="list-style-type: none"> • sufficient facilities, practical skill and knowledge to undertake and interpret investigations including <ul style="list-style-type: none"> – mast cell tryptase (21, 26) (know the time course of elevation during anaphylaxis) – skin prick testing (26, 32-34) – serum specific IgE (32, 34) – for food allergy - facilities to perform and interpret oral challenges in a safe and controlled environment • appropriate quality control through guidelines and standard operating procedures to ensure the clinical competence of staff conducting SPT and oral food challenges • access to an appropriately accredited laboratory for specific IgE testing <p>Understand the</p> <ul style="list-style-type: none"> • relationship between sensitisation and clinical allergy • performance (sensitivity and specificity) of tests for sensitisation to allergens which commonly cause anaphylaxis <p>Know</p> <ul style="list-style-type: none"> • which allergies commonly occur together in the same individual (e.g. latex and kiwi fruit allergies) and therefore which additional tests should be performed

		<ul style="list-style-type: none"> that complementary and alternative medicine (CAM) allergy tests, including kinesiography, serum specific IgG and Vega tests have no place in the diagnosis and management of anaphylaxis <p>Be able to</p> <ul style="list-style-type: none"> interpret the results of investigations in the context of the clinical history (26, 33)
9	Outpatient care – comprehensive management package: investigation – drug and venom allergy	<p>Have access to</p> <ul style="list-style-type: none"> sufficient facilities, practical skill and knowledge to undertake and interpret investigations including facilities to perform and interpret (in a controlled and safe environment): – intradermal tests for venom and drug anaphylaxis – oral or subcutaneous challenges for drug allergy. For venom allergy, understand potential cross reactivity between species and the relative value of serum specific IgE and skin tests <p>For drug allergy be able to</p> <ul style="list-style-type: none"> exclude allergy to alternative related drugs (e.g. antibiotics and anaesthetics)
10	Outpatient care – comprehensive management package: identify trigger (21)	<p>Be able to</p> <ul style="list-style-type: none"> synthesise information gathered from history, examination and diagnostic tests to identify the likely trigger factor exclude non-relevant triggers which the patient may be inappropriately avoiding
11	Outpatient care – comprehensive management package: risk assessment (22)	<p>Know</p> <ul style="list-style-type: none"> the natural history of individual food allergies, venom, drug, exercise induced, and food and exercise induced anaphylaxis to be able to provide the patient with a reasonable risk assessment indicating the likelihood of further anaphylactic episodes and the need for provision of emergency medication <p>Be able to</p> <ul style="list-style-type: none"> recognise potential high risk situations and provide appropriate advice to minimise the risk
12	Outpatient care – comprehensive management package: assess and optimise management of other allergies/atopic disease	<p>Be able to</p> <ul style="list-style-type: none"> appreciate the importance of maintaining good asthma control in children with anaphylaxis assess asthma control using history, examination and investigations (including spirometry) identify allergic and non-allergic triggers for asthma recognise that rhinitis control affects asthma and treat appropriately give written and verbal advice on reducing allergic triggers prescribe asthma medication appropriately provide a written emergency management plan for asthma as Required
13	Outpatient care – comprehensive management package: provide trigger avoidance advice for family	<p>Have the relevant skills and information to educate and empower families on avoidance strategies including</p> <ul style="list-style-type: none"> food allergy: be able to provide comprehensive written and verbal advice based on knowledge of the natural history of the food allergy and the age of the child. Also, be able to provide

	members	<p>sufficient information to interpret labelling on food and nonfood products.</p> <ul style="list-style-type: none"> • drug allergy: be able to provide written and verbal advice on which specific drugs to avoid (main trigger and any crossreacting drugs). Also, the ability to inform the family which drugs can be tolerated in future. • venom allergy: be able to provide advice to reduce chance of further stings including practical measures and information on cross reacting species. • for exercise induced and food and exercise induced anaphylaxis be able to provide written and verbal advice on reducing exposure to predictable high risk situations. <p>Be able to</p> <ul style="list-style-type: none"> • provide additional appropriate information on patient support groups and/or other sources
14	Outpatient care – comprehensive management package: provide dietary advice	<p>Have access to</p> <ul style="list-style-type: none"> • a state registered dietitian competent in dealing with children with food anaphylaxis <p>Be able to</p> <ul style="list-style-type: none"> • recognise the potential effect of food allergen avoidance on growth and nutrition • supplement trigger avoidance advice and recommend suitable alternatives to avoided foods
15	Outpatient care – comprehensive management package: communication	<p>Be able to</p> <ul style="list-style-type: none"> • communicate with patients, parents and carers (35), primary care, other health care professionals, schools and early years settings (SEYS) and where necessary social services <p>Know</p> <ul style="list-style-type: none"> • how to share appropriate information to support other health care professionals in performing a risk assessment
16	Outpatient care – comprehensive management package: patient/parent/carer support and minimising impact on quality of life	<p>Know</p> <ul style="list-style-type: none"> • how anaphylaxis may impact on different aspects of daily life of the patient and family • what resources are available locally and nationally to support patients and their families e.g. Anaphylaxis Campaign (36) Latex Allergy Support Group (37) Food Standards Agency (38) <p>Be able to</p> <ul style="list-style-type: none"> • provide support to patients to help minimise the impact of anaphylaxis on quality of life through education, ongoing access for patient queries • provide details of resources including patient charities, websites and local support groups as well as psychosocial support if required • provide age and culturally appropriate verbal and written information about anaphylaxis
17	Outpatient care – comprehensive management package: immunotherapy	<p>Have access to</p> <ul style="list-style-type: none"> • a specialist unit, with full paediatric resuscitation facilities • the appropriate expertise and experience in performing immunotherapy <p>Know</p>

		<ul style="list-style-type: none"> • the indications and contraindications for immunotherapy • when to cease immunotherapy <p>Be able to</p> <ul style="list-style-type: none"> • select patients appropriately for immunotherapy
18	Outpatient care – comprehensive management package: emergency management package for patients, their families and other carers	<p>Be able to provide an emergency management package that includes:</p> <ul style="list-style-type: none"> • a written or electronic emergency treatment plan for future anaphylactic reactions that includes (31, 39-41) <ul style="list-style-type: none"> – contact details (31) – allergen avoidance advice (41) – advice on recognising symptoms (31) – guidance when to use each medication during a reaction – age, language and psychosocially appropriate information sources • appropriate emergency medication (21) based on risk assessment (22) (refer to competence set 11) • training in the use of emergency medication, including an adrenaline injector (21-23, 27, 30, 31) • provision to review the management plan • repetition of training
19	Outpatient care – comprehensive management package: Schools and Early Years Settings (SEYS) care	<p>Have</p> <ul style="list-style-type: none"> • adequate liaison with SEYS <p>Be able to:</p> <ul style="list-style-type: none"> • advise SEYS on the provision of rescue treatment • train SEYS personnel (30) (e.g. Be AllergyWise - Training for school nurses) (42) <ul style="list-style-type: none"> – in recognition of anaphylaxis – on avoidance of identified trigger(s)
20	Outpatient care – comprehensive management package: follow up	<p>Have</p> <ul style="list-style-type: none"> • facilities and expertise to be able to provide adequate follow up <p>Know</p> <ul style="list-style-type: none"> • the natural history of allergy in childhood <p>Be able to</p> <ul style="list-style-type: none"> • diagnose new allergies • modify allergen avoidance advice according to new information • adjust the dose of adrenaline injectors according to change in body weight • update dietetic advice • access trained personnel to update school training as required • detect possible resolution by repeating investigations including allergen challenges if required • update emergency management plan, including training on emergency medication • assess asthma control and adjust therapy, as required • inform children and families about the process and appropriate timing for obtaining a medical alert talisman (e.g. medical identity bracelet) <ul style="list-style-type: none"> – to be able to use emergency medication when appropriate • repeat training annually

Glossary

Acronym Means

CAHMS Child & Adolescent Mental Health Services
 CAM Complementary and Alternative Medicine
 EAACI European Academy of Allergy and Clinical Immunology
 ED Emergency Department
 ENT Ear, Nose and Throat
 GEMNet Guidelines in Emergency Medicine Network
 IM Intramuscular
 NSF National Service Framework
 RCPCH Royal College of Paediatrics and Child Health
 ResusUK Resuscitation Council, United Kingdom
 SEYS Schools and Early Years Settings

References

1. Care pathway: Self Care.
2. Care pathway: Ambulance Service/Primary Care.
3. Care pathway: Emergency care: hospital (initial).
4. Care pathway: Emergency care : hospital (inpatient/further care).
5. Care pathway: Medical Care.
6. Care pathway: Clinical History and Examination.
7. Care pathway: Referral.
8. Care pathway: Investigation - all allergies.
9. Care pathway: Investigation - Drug and Venom Allergy.
10. Care pathway: Identify trigger.
11. Care pathway: Risk Assessment.
12. Care pathway: Assess and optimise management of other allergies/atopic disease.
13. Care pathway: Provide trigger avoidance advice for family members.
14. Care pathway: Provide dietary advice.
15. Care pathway: Communication.
16. Care pathway: Patient/parent/carer support and minimising impact on quality of life.
17. Care pathway: Immunotherapy.
18. Care pathway: Emergency management package for patients, their families and other carers.
19. Care pathway: Schools and Early Years Settings (SEYS) care.
20. Care pathway: Follow up.
21. Resuscitation Council UK. The emergency treatment of anaphylactic reactions - guidelines for healthcare providers. London: Resuscitation Council UK: 2008. *Evidence level: CPG*
22. Muraro A, Roberts G, Clark A, et al. The management of anaphylaxis in childhood: position paper of the European academy of allergology and clinical immunology. *Allergy*. 2007;62(8):857-71. doi:10.1111/j.1398-9995.2007.01421.x.
Evidence level: CPG
23. Doshi D, Foex B, Body R, et al. Guideline for the management of acute allergic reaction. London: College of Emergency Medicine 2009. *Evidence level: CPG*
24. Gold MS, Sainsbury R. First aid anaphylaxis management in children who were prescribed an epinephrine autoinjector device (EpiPen). *J Allergy Clin Immunol*. 2000;106(1 Pt 1):171-6. doi:10.1067/mai.2000.106041.
Evidence level: 3
25. Sheikh A, Shehata YA, Brown SG, et al. Adrenaline (epinephrine) for the treatment of anaphylaxis with and without shock. *Cochrane Database Syst Rev*. 2008(4):CD006312. doi:10.1002/14651858.CD006312.pub2. *Evidence*

level: 4

26. Mirakian R, Ewan PW, Durham SR, et al. BSACI guidelines for the management of drug allergy. Clin Exp Allergy. 2009;39(1):43-61. doi:10.1111/j.1365-2222.2008.03155.x. *Evidence level: CPG*
27. Clark AT, Ewan PW. Good prognosis, clinical features, and circumstances of peanut and tree nut reactions in children treated by a specialist allergy center. J Allergy Clin Immunol. 2008;122(2):286-9. doi:10.1016/j.jaci.2008.05.015. *Evidence level: 3*
28. Kapoor S, Roberts G, Bynoe Y, et al. Influence of a multidisciplinary paediatric allergy clinic on parental knowledge and rate of subsequent allergic reactions. Allergy. 2004;59(2):185-91. doi:10.1046/j.1398-9995.2003.00365.x. *Evidence level: 3*
29. Singh J, Aszkenasy OM. Prescription of adrenaline auto-injectors for potential anaphylaxis--a population survey. Public Health. 2003;117(4):256-9. doi:10.1016/S0033-3506(03)00034-9. *Evidence level: 3*
30. Murphy KR, Hopp RJ, Kittelson EB, et al. Life-threatening asthma and anaphylaxis in schools: a treatment model for school-based programs. Ann Allergy Asthma Immunol. 2006;96(3):398-405. *Evidence level: 2+*
31. Nurmatov U, Worth A, Sheikh A. Anaphylaxis management plans for the acute and long-term management of anaphylaxis: a systematic review. J Allergy Clin Immunol. 2008;122(2):353-61, 61 e1-3. doi:10.1016/j.jaci.2008.05.028. *Evidence level: 4*
32. Nowak-Wegrzyn A, Assa'ad AH, Bahna SL, et al. Work Group report: oral food challenge testing. J Allergy Clin Immunol. 2009;123(6 Suppl):S365-83. doi:10.1016/j.jaci.2009.03.042. *Evidence level: CPG*
33. Sporik R, Hill DJ, Hosking CS. Specificity of allergen skin testing in predicting positive open food challenges to milk, egg and peanut in children. Clin Exp Allergy. 2000;30(11):1540-6. *Evidence level: 2+*
34. Rance F, Abbal M, Lauwers-Cances V. Improved screening for peanut allergy by the combined use of skin prick tests and specific IgE assays. J Allergy Clin Immunol. 2002;109(6):1027-33. *Evidence level: 2+*
35. Hu W, Grbich C, Kemp A. Parental food allergy information needs: a qualitative study. Arch Dis Child. 2007;92(9):771-5. doi:10.1136/adc.2006.114975. *Evidence level: 3*
36. Anaphaxis.org.uk. The Anaphylaxis Campaign. Farnborough2008 [19/11/2009]; Available from: <http://www.anaphylaxis.org.uk/about-us/about-us.aspx>.
37. Lasg.org.uk. Latex Allergy Support Group. 2009 [01/12/2009]; Available from: <http://www.lasg.org.uk>.
38. Food.gov.uk. Food Standards Agency. 2009 [01/12/2009]; Available from: <http://www.food.gov.uk/safereating/allergyintol>.
39. Choo K, Sheikh A. Action plans for the long-term management of anaphylaxis: systematic review of effectiveness. Clin Exp Allergy. 2007;37(7):1090-4. doi:10.1111/j.1365-2222.2007.02711.x. *Evidence level: 4*
40. Ewan PW, Clark AT. Efficacy of a management plan based on severity assessment in longitudinal and casecontrolled studies of 747 children with nut allergy: proposal for good practice. Clin Exp Allergy. 2005;35(6):751-6. doi:10.1111/j.1365-2222.2005.02266.x. *Evidence level: 2++*
41. Kemp AS, Hu W. New action plans for the management of anaphylaxis. Aust Fam Physician. 2009;38(1-2):31-5. doi: *Evidence level: 4*
42. Anaphylaxis Campaign. Be Allergy Wise - training for school nurses. Farnborough [05/10/2009]; Available from: <http://www.anaphylaxis.org.uk/allergywise.aspx>.