Using the care pathway

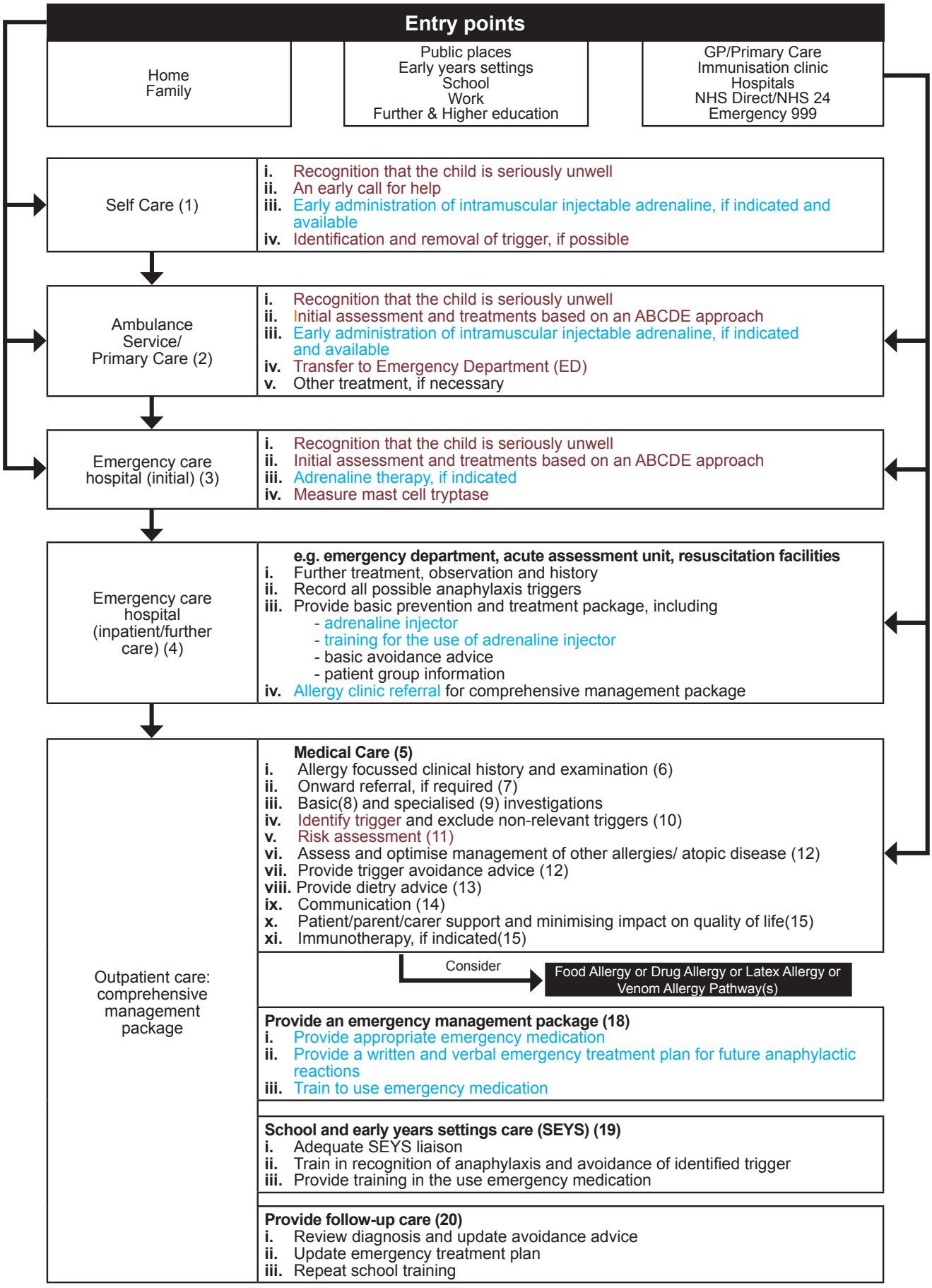
The Royal College of Paediatrics and Child Health (RCPCH) care pathway for anaphylaxis is presented in two parts: an algorithm with the stages of ideal care and a set of competences required to diagnose, treat and optimally manage anaphylaxis. The algorithm has numbers which correspond to the competences outlined within the body of the document. These competences have not been assigned to specific health professionals or settings in order to encourage flexibility in service delivery. Each pathway has a set of core knowledge documents of which health professionals should be aware. These documents are the key clinical guidance that inform the pathways.

We recommend that this pathway is implemented locally by a multidisciplinary team with a focus on creating networks between staff in primary and community health care, social care, education and hospital based practice to improve services for children with allergic conditions. All specialists should have paediatric training in line with the principles outlined in the Children's National Service Framework - particularly standard 3 which states that staff training should reflect the common core of skills, knowledge and competences that apply to staff who work with children and young people.

For the purposes of the RCPCH care pathways children is an inclusive term that refers to children and young people between the ages of 0-18 years. It is important to recognise that, while the RCPCH anaphylaxis pathway is linear, entry can occur at any part in the pathway.

Further information regarding the RCPCH allergy care pathways can be downloaded at: www.rcpch.ac.uk/allergy.

Royal College of General Practitioners
Royal College of Nursing
The College of Emergency Medicine
Royal College of Physicians
Setting higher medical standards
The Royal College of Pathologists
Pathology: the science behind the cure
RCPCH Royal College of Paediatrics and Child Health Leading the way in Children's Health



Notes: 1. The colours on the pathway and compatence table correspond to the relevant SIGN grade:
GRADE A GRADE B GRADE C GRADE D GOOD PRACTICE POINT WORKING GROUP CONSENSUS
2. The numbers on the pathway correspond to the competences required to provide care - these are on the following pages
3. Links to the references can be found within the competence statements

Anaphylaxis definition

Anaphylaxis is a severe, life-threatening, generalised or systemic hypersensitivity reaction which is likely when **both** of the following criteria are met:

1. Sudden onset and rapid progression of symptoms
2. Life-threatening airway and/or breathing and/or circulation problems

Skin and/or mucosal changes (flushing, urticaria, angioedema) can also occur, but are absent in a significant proportion of cases.

Core knowledge documents

The core knowledge documents relating to this pathway are:

- The Resuscitation Council UK (Resus UK) guideline on the emergency medical treatment of anaphylactic reactions (21)
- The European Academy of Allergy and Clinical Immunology (EAACI) guideline on the management of anaphylaxis in childhood (22)
- The Guidelines in Emergency Medicine Network (GEMNet) guideline for the management of acute allergic reaction (23)

Key Recommendations

The Anaphylaxis Working Group (AWG) identified 4 key recommendations from the evidence base, these are:

1. Prompt administration of adrenaline by intramuscular injection is the cornerstone of therapy both in the hospital and in the community.
2. Children and young people at risk of anaphylaxis should be referred to clinics with specialist competence in paediatric allergies.
3. Risk analysis should be performed for all patients with suspected anaphylaxis.
4. Provision of a management plan may reduce the frequency and severity of further reactions and is a recommended part of anaphylaxis management.

Additionally, we recommend that all deaths from suspected anaphylaxis should be recorded on a local register. We strongly support the creation of a National Anaphylaxis Register.

RCPCH Anaphylaxis Care Pathway: Competences

Ref	Pathway stage	Competence
1	Self Care	Know • 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	Know • the signs and symptoms of anaphylaxis (21) • to transfer to the ED in all cases (21) Be able to • 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**: hospital (initial)	Know • the signs and symptoms of anaphylaxis (21) • how and when to send blood samples for measuring mast cell tryptase (21, 26) Be able to • 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)	Know • 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 - Be able to • provide ongoing observation and treatment of the episode • provide a basic prevention and treatment package that includes – 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

Ref	Pathway stage	Competence
5	**Outpatient care – comprehensive management package:** medical care	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
6	**Outpatient care – comprehensive management package:** clinical history and examination	Be able to • 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	Know • 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

Ref	Pathway stage	Competence
8	**Outpatient care – comprehensive management package:** investigation – all allergies	Have access to: • sufficient facilities, practical skill and knowledge to undertake and interpret investigations including – 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 Understand the • relationship between sensitisation and clinical allergy • performance (sensitivity and specificity) of tests for sensitisation to allergens which commonly cause anaphylaxis Know • which allergies commonly occur together in the same individual (e.g. latex and kiwi fruit allergies) and therefore which additional tests should be performed • that complementary and alternative medicine (CAM) allergy tests, including kinesiology, serum specific IgG and Vega tests have no place in the diagnosis and management of anaphylaxis Be able to • 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	Have access to • 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 For drug allergy be able to • exclude allergy to alternative related drugs (e.g. antibiotics and anaesthetics)
10	**Outpatient care – comprehensive management package:** identify trigger (21)	Be able to • 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

Ref	Pathway stage	Competence
11	**Outpatient care – comprehensive management package:** risk assessment (22)	Know • 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 Be able to • 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	Be able to • 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 members	Have the relevant skills and information to educate and empower families on avoidance strategies including • **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 sufficient information to interpret labelling on food and non-food products. • **drug allergy**: be able to provide written and verbal advice on which specific drugs to avoid (main trigger and any cross-reacting 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. Be able to • provide additional appropriate information on patient support groups and/or other sources

Ref	Pathway stage	Competence
14	**Outpatient care – comprehensive management package:** provide dietary advice	Have access to • a state registered dietitian competent in dealing with children with food anaphylaxis Be able to • 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	Be able to • communicate with patients, parents and carers (35), primary care, other health care professionals, schools and early years settings (SEYS) and where necessary social services Know • 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	Know • 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) Be able to • 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	Have access to • a specialist unit, with full paediatric resuscitation facilities • the appropriate expertise and experience in performing immunotherapy Know • the indications and contraindications for immunotherapy • when to cease immunotherapy Be able to • select patients appropriately for immunotherapy

Ref	Pathway stage	Competence
18	**Outpatient care – comprehensive management package:** emergency management package for patients, their families and other carers	Be able to provide an emergency management package that includes: • a written or electronic emergency treatment plan for future anaphylactic reactions that includes (31, 39-41) – 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	Have • adequate liaison with SEYS Be able to: • advise SEYS on the provision of rescue treatment • train SEYS personnel (30) (e.g. Be AllergyWise - Training for school nurses) (42) – in recognition of anaphylaxis – on avoidance of identified trigger(s) – to be able to use emergency medication when appropriate • repeat training annually
20	**Outpatient care – comprehensive management package:** follow up	Have • facilities and expertise to be able to provide adequate follow up Know • the natural history of allergy in childhood Be able to • 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)

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.
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