Ashford and St. Peter's Hospitals
NHS Foundation Trust

Guidelines for the Management of Anaphylaxis

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Guideline History		
Date	**Comments**	**Approved By**
2022 Changes	Greater emphasis on intramuscular adrenaline to treat anaphylaxis and repeated after 5 minutes if **A**irway/**B**reathing/**C**irculation problems persist.	Based on APLS/ BSACI and EAACI guidelines (updated 2021)
	Increased emphasis on the importance of avoiding sudden changes in posture and maintaining a supine position (or semi-recumbent position if that makes breathing easier for the patient) during treatment.	Based on APLS/ BSACI and EAACI guidelines (updated 2021)
	A specific dose of adrenaline is now included for children less than 6 months of age	Based on APLS/ BSACI and EAACI guidelines (updated 2021)
Oct 2022	Addition of Anaphylaxis Discharge Proforma as per Surrey Heartlands agreement	Guidelines Meeting 17/10/22
Jun 2026	Emerade removed from market and Neffy due to be added to the market	Paediatric Guideline committee

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Guideline for the management of anaphylaxis

Introduction

Anaphylaxis is a multi-systemic allergic reaction characterised by:

- Sudden onset and rapid progression of symptoms
- **A**irway and/or **B**reathing and/or **C**irculation problems. Remember, some patients may present with only bronchospasm or hypotension.
- Usually with associated skin and/ or mucosal changes (flushing, urticaria, angioedema). Skin and mucosal changes can be subtle or absent in 1-20% of cases. Isolated skin and mucosal changes are **NOT** a sign of anaphylaxis.

A history of exposure to a known allergen supports the diagnosis. However, there may be no obvious trigger in up to 30% of cases.

Most reactions occur within 30 minutes of exposure to the trigger.

For reactions which do not fulfil this definition, see **Urticaria Guideline**

Common causes of anaphylaxis inchildren include:

Cause	
Foods (Most common cause)	• Peanut, • Tree nuts • Cow's milk • Eggs • Soya • Shellfish • Fish • Wheat
Insect bites/ stings	• Bee • Wasp • Jumper ants
Medications	• Beta-lactam antibiotics • monoclonal antibodies Infliximab) • Anaesthetics
Other (List not exhaustive)	• Exercise-induced anaphylaxis, • Idiopathic anaphylaxis, • Latex anaphylaxis, • Hydatid cyst rupture, • Biological fluid • Transfusion (e.g., blood, antivenom), • Food additives

High-risk group of patients for anaphylaxis

- History of anaphylaxis
- Multiple allergies to food and drugs
- Poorly controlled asthma
- Pre-existing lung diseases

Clinical signs:

Airway problems	Breathing problems:	Circulation problems:

• Airway swelling (throat and tongue swelling causing difficulty in breathing/swallowing; patients may feel their throat is closing)
• Hoarse voice
• Stridor (a high-pitched inspiratory noise caused by upper airway obstruction)
	• Increased work of breathing
	• Bronchospasm (wheeze) and/or persistent cough
	• Patient becoming tired with the effort of breathing (fatigue)
	• Hypoxaemia (SpO_2 <94%) which may cause confusion and/or central cyanosis
	• Respiratory arrest
		• Signs of shock:
		  ○ pale, clammy
		  ○ significant tachycardia (increased heart rate)
		  ○ hypotension (low blood pressure)
		• Dizziness, decreased conscious level or loss of consciousness
		• Arrhythmia
		• Cardiac arrest

Gastrointestinal problems	Mucocutaneous problems	Neurological problems
• Nausea • Vomiting • Diarrhoea • Abdominal/ pelvic pain	• Generalised pruritus • Urticarial/ intense erythema • Conjunctival erythema and tearing • Flushing • Angioedema	• Headache (usually throbbing) • Dizziness • Confusion • Collapse with or without unconsciousness

Investigations

Anaphylaxis is a clinical diagnosis…

Note: A raised mast cell tryptase may be a useful clue to the diagnosis of anaphylaxis but should onlybe ordered if the diagnosis is unclear, such as in unexplained and life-threatening cardiac or respiratory collapse. Serum tryptase returns to normal within hours of anaphylaxis, and a normal serum tryptase does not exclude anaphylaxis. Serial measurement (on arrival, 1 hour later and beforedischarge) may improve the sensitivity and specificity of diagnosis of anaphylaxis. Serum tryptase is unstable and must be transported to the laboratory quickly.

Acute Management:

There are 2 algorithms:

1. **Initial treatment** of anaphylaxis, with emphasis on repeating the dose of adrenaline after 5 minutes and giving an IV fluid bolus if Airway/Breathing/Circulation problems persist.

2. Treatment of **refractory anaphylaxis**, defined as anaphylaxis where there is no improvement in respiratory or cardiovascular symptoms despite two appropriate doses of IM adrenaline. IV fluids are recommended for refractory anaphylaxis and must be given early if hypotension or shock is present.

Resuscitation Council UK

GUIDELINES 2021

Anaphylaxis

Anaphylaxis?

A = Airway **B** = Breathing **C** = Circulation **D** = Disability **E** = Exposure

Diagnosis – look for:

- Sudden onset of Airway and/or Breathing and/or Circulation problems[1]
- And usually skin changes (e.g. itchy rash)

Call for HELP

Call resuscitation team or ambulance

- Remove trigger if possible (e.g. stop any infusion)
- Lie patient flat (with or without legs elevated)
  - A sitting position may make breathing easier
  - If pregnant, lie on left side

Inject at **anterolateral aspect** – middle third of the thigh

Give intramuscular (IM) adrenaline[2]

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

If no response:

- Repeat IM adrenaline after 5 minutes
- IV fluid bolus[3]

If no improvement in Breathing or Circulation problems[1] despite TWO doses of IM adrenaline:

- Confirm resuscitation team or ambulance has been called
- Follow REFRACTORY ANAPHYLAXIS ALGORITHM

1. Life-threatening problems

Airway
Hoarse voice, stridor

Breathing
↑work of breathing, wheeze, fatigue, cyanosis, SpO_2 <94%

Circulation
Low blood pressure, signs of shock, confusion, reduced consciousness

2. Intramuscular (IM) adrenaline

Use adrenaline at 1 mg/mL (1:1000) concentration

Adult and child >12 years:	500 micrograms IM (0.5 mL)
Child 6–12 years:	300 micrograms IM (0.3 mL)
Child 6 months to 6 years:	150 micrograms IM (0.15 mL)
Child <6 months:	100–150 micrograms IM (0.1–0.15 mL)

The above doses are for IM injection **only**.
Intravenous adrenaline for anaphylaxis to be given **only by experienced specialists** in an appropriate setting.

3. IV fluid challenge

Use crystalloid

Adults: 500–1000 mL
Children: 10 mL/kg

Treatment of anaphylaxis:

- Posture→ treat the patient in supine position or left lateral position for vomiting patient orsitting at 45 degrees if breathing is difficult. Legs should be elevated in the setting of hypotension. **Do not stand**.

- Intra-muscular adrenaline into anterolateral thigh. Dose should be repeated after 5 minutes if patient not improving. **See table below for doses**

- Do not use subcutaneous adrenaline, as absorption is less reliable than the intramuscular route.

- Do not use IV bolus adrenaline unless cardiac arrest is imminent.

- Give IV fluid bolus **(10ml/Kg of 0.9% sodium chloride or other crystalloid)** early if hypotension or shock is present.

- Corticosteroids (e.g., hydrocortisone) are **no longer advised** for the routine emergency treatment of anaphylaxis.

- Antihistamines are considered a third-line intervention and **should not** be used to treat **A**irway/**B**reathing/**C**irculation problems during initial emergency treatment.

- Non-sedating oral antihistamines, in preference to chlorphenamine, may be given following initial stabilisation especially in patients with persisting skin symptoms (urticaria and/or angioedema).

Auto-injectors are not recommended in healthcare settings for administration of adrenaline in patients needing more than one dose of adrenaline. If the only available adrenaline preparation is an auto-injector, this can be used in the first instance.

Adrenaline IM dose	Use 1 mg/mL [1:1000] adrenaline	
Adult and child* > 12 years:	500 micrograms IM	(0.5 mL of 1 mg/ml adrenaline)
6 – 12 years:	300 micrograms IM	(0.3 mL)
6 months – 6 years:	150 micrograms IM	(0.15 mL)
< 6 months:	100 – 150 micrograms IM	(0.1 to 0.15 mL)

*Give 300 micrograms IM (0.3 mL) in a child who is small or prepubertal

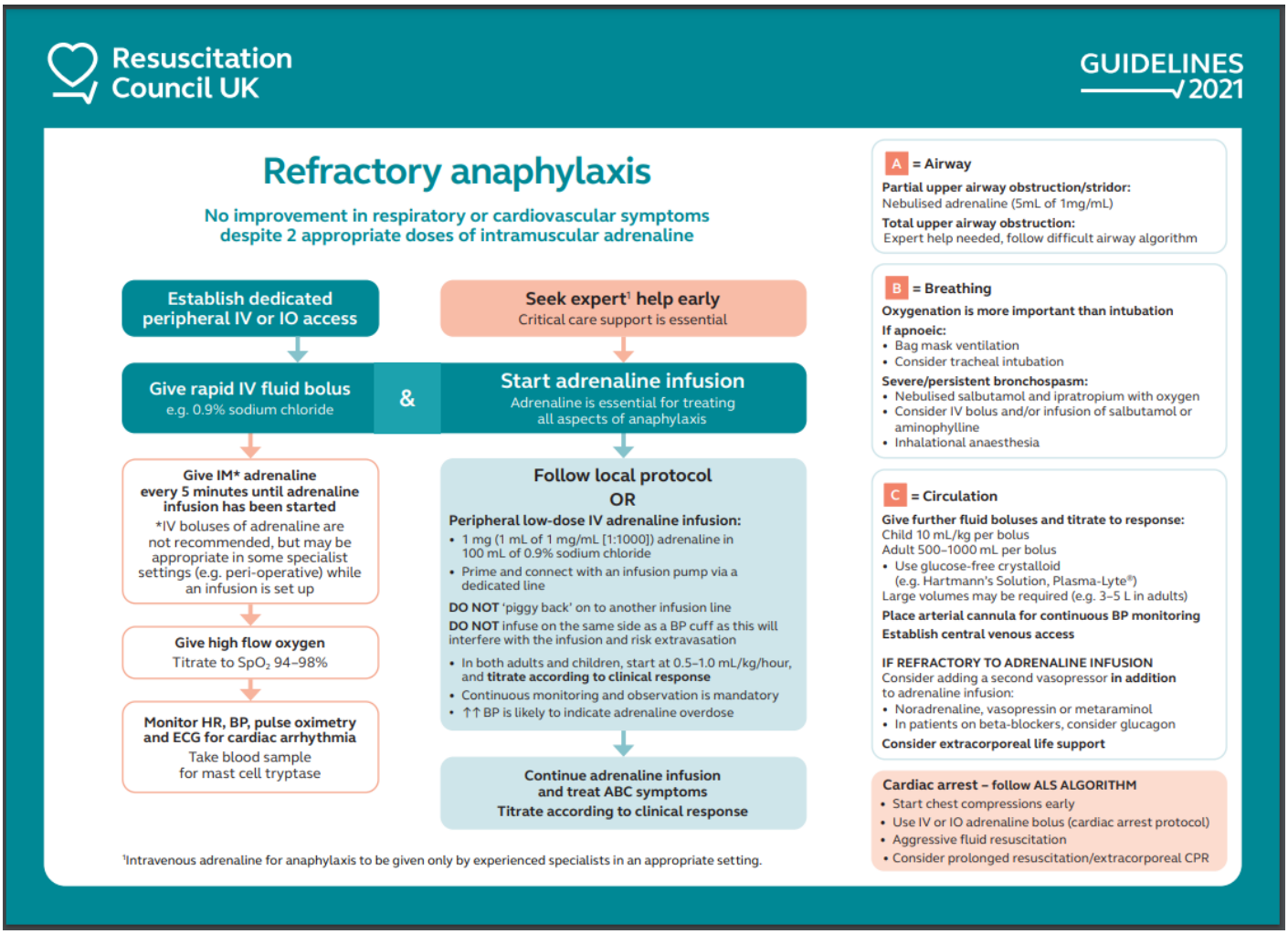
If no improvement in respiratory or cardiovascular symptoms despite two appropriate doses of IM adrenaline:

Inform Consultant and Anaesthetist.

Call STRS 02071885000

Follow the Refractory Anaphylaxis Algorithm

Algorithm 2: Refractory management



- If patient is not improving after repeated doses of IM adrenaline, consult senior staff, Anaesthetist and inform STRS. **Start adrenaline infusion: 1mg (1mL of 1mg/mL [1:1000]) Adrenaline in 100mL of 0.9% Sodium chloride. Run at 0.5 - 1 mL/kg/hr and titrate according to clinical response). Continuous monitoring and observation is mandatory.**
- In addition to adrenaline, resuscitate with fluid; repeated boluses of 10ml/Kg of 0.9% sodium chloride/ other crystalloid may be required. When giving large volumes of fluid, use a non-glucose-containing crystalloid (e.g., Hartmann's or Plasma-Lyte®) rather than 0.9% sodium chloride to reduce the risk of causing hyperchloraemia.
- Nebulised adrenaline is not recommended as first-line therapy but may be a useful adjunct toIM adrenaline if upper airway obstruction is present.
- If airway oedema is not responding to parenteral and nebulised adrenaline,

early intubation is indicated.

When to consider transfer to tertiary referral:

- Inadequate adrenaline response.
- Multiple doses of adrenaline.
- Adrenaline infusion.
- Immediate life-threatening situations.
- Child requiring care beyond the comfort level of the hospital.

Other therapies to consider:

- If patient is known to have asthma, consider giving 4-10 puffs inhaled sabutamol in the context of anallergic reaction, even if no wheeze initially audible.
- Nebulised salbutamol is recommended if the patient has respiratory distress with wheezing orconsider other anti-asthma medications.
- It is reasonable to consider corticosteroids (such as hydrocortisone) for refractory reactions after initial resuscitation. Corticosteroids should not be prioritised over adrenaline infusion and fluid resuscitation.
- Antihistamines may be given for symptomatic relief of pruritus. Second generation/ non-sedating antihistamines are preferred (promethazine can cause hypotension).

Admission:

All children with anaphylaxis should be observed for at least 4 hours.

Admission should be considered if any of the following circumstances apply:

- Greater than one dose of adrenaline (including nebulised adrenaline) required.
- A fluid bolus required (10ml/kg).
- Inadequate response to treatment.
- The child had previous anaphylaxis.
- Patient has severe asthma or reaction involved severe respiratory compromise.
- Possibility of continuing absorption of allergen e.g., slow-release medicines.

- Patient presents late at night or may not be able to respond to any deterioration.
- Patients in areas where access to emergency care is difficult.
- If still symptomatic, give oral antihistamines and steroids for up to 3 days

Discharge:

- Complete the **Anaphylaxis Hospital Discharge Proforma** (see below) for all patients discharged from A&E and Paediatric ward. The proforma is mandatory in Surrey Heartlands. Print a copy, complete and send for uploading to patient records when the patient is discharged.

Adrenaline auto-injectors:

- Jext and EpiPen devices are in the TTO cupboard in A&E
- 2 devices should be prescribed and given to the patient prior to discharge. A further 2 devices to be prescribed by the GP for use in school/nursery.
- Training should occur before discharge. Basic training should be provided by the doctors and nurses available at the time of discharge.
- Demonstration pens are in the cupboard at the back of A&E (shelf above the linen) and in the weighing cupboard in outpatients at SPH
- Further training can be arranged with our Allergy nurses (email Katharine Saunders and Angela Cormier to arrange)

Allergy clinic follow up:

- Complete a paper referral form and make a request on Cerner (Paed Allergy). Patients are seen within 18 weeks hence it is essential that appropriate management advice is provided on discharge and not delayed until Allergy clinic.
- If urgent dietician advice is required e-mail c.casewell@nhs.net
- Ensure that asthma control is addressed before patient is discharged. Poorly controlled asthma is a risk factor for severe anaphylaxis and death.

NHS
Surrey Heartlands
Clinical Commissioning Group

Anaphylaxis hospital discharge proforma (PAEDIATRIC)

Discharge date:

Hospital:

Ward:

Consultant:

Form completed by: *name and designation*

Weight (kg) & date:

Attach addressograph label here

Name: .....

Date of birth: .....

Address: .....

This proforma is intended for use in PAEDIATRIC patients only (under 18 years of age)

Please complete the proforma below for patients presenting with anaphylaxis **prior** to discharge. Use in conjunction with local Trust specific paediatric anaphylaxis guidelines.

If this is not the first anaphylaxis presentation, ensure patient's existing Action Plan is reviewed/up-to-date prior to discharge.

Patients should only be discharged following risk-stratified approach to minimum recommended length of time of observation following anaphylaxis (Resuscitation Council UK, NICE CG134).

Review by a senior clinician experienced in the management of anaphylaxis **must** be completed prior to discharge.

Discharge checklist:

☐ **Causative allergen suspected/identified?** *(Tick answer)* ☐ **YES** ☐ **NO**

Please state allergen(s) (if known):

Advice to be given on avoidance of suspected trigger/allergen if known/applicable. Advise patient to obtain and wear medical alert bracelet.

☐ **Information provided on anaphylaxis including:**

- Signs and symptoms of anaphylaxis
- Risk of biphasic reactions (and clear instructions provided to return to hospital immediately)
- How to manage suspected anaphylaxis (use of adrenaline auto-injectors and call 999)

☐ **Individual Action Plan completed and discussed with patient and parent/carer**

Ensure 3 copies are supplied to patient and family (1 personal copy, 1 copy shared with school/nursery & 1 spare copy). Provide information on any additional medicines recommended on Action Plan e.g. antihistamines, salbutamol easyhaler etc. Plans can be completed manually or electronically and can be accessed via:
https://www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/

☐ **Confirm brand of adrenaline auto-injector device issued** *(Tick brand & strength supplied)*

Patients must be supplied with **TWO** devices and be advised to carry them at **ALL** times. Confirm weight and ensure appropriate strength provided. For patients issued the lower strength devices, ensure parent/carer aware to re-weigh patient regularly and seek review of dose (once weight ≥25kg for EpiPen Jr® or ≥30kg for Jext® and Emerade® 150microgram/dose)

- ☐ EpiPen Jr® 150microgram/dose
- ☐ EpiPen® 300microgram/dose
- ☐ Jext® 150microgram/dose
- ☐ Jext® 300microgram/dose

Neffy may become available *

❒ Training on use of adrenaline auto-injector device with patient and parent/carer provided

Ensure the **SAME** brand of training device is used as the device issued to the patient when providing training. Training devices should be kept in A&E and available for use at all times. Advise patient and relative/carer of storage requirements and to check expiry date of devices regularly and keep a record of when replacement devices need to be requested.
N.B. Inform patient and parent/carer that brand supplied may vary in future prescriptions and administration instructions **ARE** different between brands. Inform that if in doubt, to contact healthcare professional for advice and training on new device.

❒ Referral to local specialist paediatric allergy clinic *(this should be completed by the discharging team)*

Include information in referral that may be useful for allergy clinic to be aware of e.g., details of reaction and timings, administered treatments and results of any investigations completed.
Provide patient (and parent/carer) with information on why referral to allergy clinic needed and referral process.

❒ Record keeping of information given to patient made in notes

Include a copy of individual Action Plan, referral to allergy clinic, and discharge letter and discharge proforma checklist in medical notes. Ensure patient receives copies of discharge proforma, discharge summary and other useful information to share with GP and allergy clinic.

❒ Signposting to patient resources

- Anaphylaxis campaign website: https://www.anaphylaxis.org.uk/
- Allergy UK website: https://www.allergyuk.org/
- Spare pens in schools website: https://www.sparepensinschools.uk/
- EpiPen® patient website: https://www.epipen.co.uk/en-gb/patients
- Jext® patient website: https://adults.jext.co.uk/resource/
- Neffy® patient website: https://Neffy.com/

References:

1. Resuscitation council UK Emergency treatment of anaphylactic reactions: Guidelines for healthcare providers (2021). https://www.resus.org.uk/library/additional-guidance/guidance-anaphylaxis/emergency-treatment
2. NICE CG134. Anaphylaxis: assessment and referral after emergency treatment (2020). https://www.nice.org.uk/guidance/cg134/chapter/1-Recommendations
3. Public Assessment Report of the Commission on Human Medicines' Adrenaline Auto-injector Expert Working Group: Recommendations to support the effective and safe use of adrenaline auto-injectors. https://www.gov.uk/government/publications/public-assessment-report-recommendations-to-support-the-effective-and-safe-use-of-adrenaline-auto-injectors/public-assessment-report-of-the-commission-on-human-medicines-adrenaline-auto-injector-expert-working-group-recommendations-to-support-the-effectiv
4. Adrenaline auto-injectors: reminder for prescribers to support safe and effective use (2021). https://www.gov.uk/drug-safety-update/adrenaline-auto-injectors-reminder-for-prescribers-to-support-safe-and-effective-use?utm_source=e-shot&utm_medium=email&utm_campaign=DSU_November2021Main2

Guideline Supporting References

NICE Anaphylaxis guidelines

RCPCH anaphylaxis guidelines

BSACI

Anagnostou K, Turner PJ. *Arch Dis Child 2019;* ***104:83-90 2018-314867***

Dodd A, Hughes A, Sargant N, Whyte AF, Soar J, Turner PJ. Evidence update for the treatment of anaphylaxis. Resuscitation. 2021 Apr 23;163:86-96. doi: 10.1016/j.resuscitation.2021.04.010. Epub ahead of print. PMID: 33895231; PMCID: PMC8139870.

Supporting relevant trust guidelines

To be used in conjunction with the urticaria guidelines

2. Guideline Governance

a. Scope

This guideline is relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

c. Duties and Responsibilities

All healthcare professionals responsible for the care of all children 0-18years should be aware of practice according to this guideline.

d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

f. Review and Revision Arrangements

a. This policy will be reviewed on a 3 yearly basis by the appropriate persons.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

g. Equality Impact Assessment

Background • Who was involved in the Equality Impact Assessment
Josephine Yeboa-Henaku and Dr Fiona MacCarthy.
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
This guideline is appropriate for use.

h. Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

Title of the document: Guidelines for the management of anaphylaxis in children

Policy (document) Author: Dr Yeboa Henaku and Dr Fiona MacCarthy

Executive Director: N/A

		Yes/No/ Unsure/NA	Comments
1.	**Title**	**Guidelines for the management of anaphylaxis in children**	
	Is the title clear and unambiguous?	**x**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**x**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**x**	
	Is the purpose of the document clear?	**x**	
	Are the intended outcomes described?	**x**	
	Are the statements clear and unambiguous?	**x**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**x**	
	Who was engaged in a review of the document (list committees/ individuals)?	**Reviewed at the Guidelines meeting (doctors/nurses)**	
	Has the policy template been followed (i.e. is the format correct)?	**x**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**x**	

		Yes/No/ Unsure/NA	Comments
	Are local/organisational supporting documents referenced?	**x**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**x**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?	**x**	
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Discussed at induction training**	
	Does the plan include the necessary training/support to ensure compliance?	**x**	
7.	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**x**	
8.	**Review Date**	**Feb 2027**	
	Is the review date identified and is this acceptable?	**x**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Dr Fiona MacCarthy**	
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	x	

Committee Approval (Paediatric Guidelines Group)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	**Dr Alexandra Jones**	**Date**	**03/07/2026**
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			