Family Nursing & Home Care

Standard Operating Procedures

Anaphylaxis

November 2021

Document Profile

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Author(s)	Mo de Gruchy, in consultation with Elspeth Snowie, Clinical Effectiveness Facilitator
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Version Control / Changes Made

Date	Version	Summary of changes made
October 2021	1	Previous Anaphylaxis Guidelines transferred to SOP template Content reviewed and revised in line with updated Resuscitation Council UK (RCUK) "Emergency Treatment of Anaphylaxis Guidelines for Health Care Providers" published May 2021. Key changes include: • Greater emphasis on intramuscular adrenaline to treat anaphylaxis, and repeated after 5 minutes if Airway/Breathing/Circulation problems persist. • A specific dose of adrenaline is now included for children below 6 months of age.

		• 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. • Separate algorithms for initial treatment of anaphylaxis and treatment of refractory anaphylaxis.

Contents

Introduction

Anaphylaxis is defined by the World Allergy Organisation as "A serious systemic hypersensitivity reaction that is usually rapid in onset and may cause death. Severe anaphylaxis is characterized by potentially life-threatening compromise in airway, breathing and/or the circulation, and may occur without typical skin features or circulatory shock being present." (RCUK 2021 p.14).

There are approximately 20–30 deaths reported each year due to anaphylaxis in the UK, but this may be a significant underestimate. Around 10 are related to food-induced anaphylaxis; peri-operative anaesthesia also causes around 10 deaths per annum (RCUK 2021 p 15).

Many substances can trigger an anaphylactic reaction but the most common include Insect Stings/Venom; Medications; Foods and others such as Contrast media, latex, hair dye.

Anaphylaxis is likely to occur if a patient who is exposed to a trigger (allergen) develops a sudden illness (usually within minutes of exposure) with rapidly progressing skin changes and potentially life-threatening airway and/or breathing and/or circulation problems. The reaction is usually unexpected and many patients with anaphylaxis are not given the correct treatment because of failure to recognise anaphylaxis.

Analysis of UK hospital admissions with anaphylaxis have indicated an increase of 174% since 1998 (RCUK 2021). Therefore it is important that clinical staff have the knowledge and skills to promptly identify and safely manage anaphylaxis in the community setting.

Resuscitation Council UK guidelines state that patients with anaphylaxis in any setting should expect as a minimum:

- recognition that they are seriously unwell
- an early call for help
- initial assessment and treatments based on an ABCDE approach
- prompt treatment with intramuscular adrenaline
- investigation and follow up by an allergy specialist.

(RCUK 2021)

These SOPs set out the procedures to follow in the event of an anaphylactic event and apply to all Registered Nurses working for or on behalf of Family Nursing & Home Care (FNHC). It may also be of interest to non-registrants working in clinical areas.

SOP 1 Recognition of anaphylaxis

Purpose

This SOP provides information to guide staff how to recognise an anaphylactic episode

Scope

This applies to any staff who may be present when an anaphylactic episode occurs

Core Requirements

A single set of criteria will not identify all anaphylaxis reactions. A range of signs and symptoms may occur, none of which is entirely specific for anaphylaxis; however, certain combinations make the diagnosis more likely.

Look for:
• Sudden onset of **A**irway and/or **B**reathing and/or **C**irculation problems
• Usually, skin and/or mucosal changes (flushing, urticaria, angioedema)

Most reactions develop quickly over minutes: the timing is dependent on the trigger.

This table shows the differences in the presentation of anaphylaxis by trigger.

	Food	**Medication / iatrogenic**	**Venom from sting or bite (e.g. insect)**
Age distribution: anaphylaxis (all severity)	Most common in preschool children, less common in older adults	Predominantly older ages	All ages
Typical presentation	Breathing problems	Circulation problems (breathing problems less common)	Circulation problems (breathing problems less common)
Onset	Less rapid	Rapid	Rapid
History of asthma/atopy	Common	Uncommon	Uncommon

Patients can have either an **A** or **B** or **C** problem, or any combination. They may also have gastrointestinal symptoms e.g. abdominal pain, incontinence, vomiting. These symptoms are more likely when the trigger is an insect bite or sting, snake bite or parenteral administration of drugs.

The **ABCDE** approach should be used to recognise signs and symptoms, as shown in this table.

Airway problems	**Breathing problems**	**Circulation problems**	**Disability problems**	**Exposure 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) Hypoxia (O2 sats 94%) which may cause confusion and/or central cyanosis Respiratory arrest	Signs of shock: o pale, clammy o significant tachycardia (increased heart rate) o hypotension (low blood pressure) Dizziness, decreased conscious level or loss of consciousness Arrhythmia Cardiac arrest	Confusion Agitation Loss of Consciousness Anxiety Feeling a “sense of impending doom”	Patchy erythema Generalised rash Urticaria = hives, weals, welts Itchy skin Angioedema = Swelling of deeper tissues eg eyelids, lips, tongue, throat

SOP 2 Initial treatment of anaphylaxis and administration of Adrenaline (Epinephrine)

Purpose

This SOP provides information to guide staff on the appropriate treatment of anaphylaxis including the administration of adrenaline.

Scope

This applies to any nursing staff who may be present when an anaphylactic episode occurs

Core Requirements

Use the **ABCDE** approach to recognise signs and symptoms of anaphylaxis and treat early. The basic principles of treatment are the same for all age groups.

An ambulance must be called for any patient/child who has had an anaphylactic reaction or a suspected reaction

Follow the Anaphylaxis algorithm** (appendix 1). **Re step 3 - FNHC staff will not have bolus IV fluids or equipment available to administer, but should ensure that an ambulance has been called for urgent transfer to hospital.

Adrenaline is the most important drug for the treatment of anaphylaxis and seems to work best when given early after the onset of anaphylaxis symptoms. Delayed administration is associated with protracted reactions, hypotension and fatal outcomes (RCUK 2021 p.28).

Intramuscular (IM) adrenaline is the first-line treatment for anaphylaxis (even if intravenous access is available).

A single dose of IM adrenaline is well-tolerated and poses minimal risk to an individual having an allergic reaction.

Early adrenaline administration has the following physiological benefits in the treatment of anaphylaxis:

- ✓ reverses peripheral vasodilation
- ✓ increases peripheral vascular resistance
- ✓ improves blood pressure and coronary perfusion
- ✓ decreases angio-oedema
- ✓ causes bronchodilation
- ✓ reduces the release of inflammatory mediators

A healthcare professional is legally able to administer an adrenaline injection that has been prescribed to a specific person (e.g. an adrenaline auto-injector) or is from an emergency drug supply, where “this is for the purpose of saving life in an emergency” (RCUK 2021 p.55).

Those at risk of anaphylaxis are often given adrenaline auto-injectors for their own use or for administration by a carer or family member. Adrenaline auto-injectors are generally only available in 0.15mg, 0.3mg and 0.5mg doses, depending on brand and healthcare professionals should be familiar with their use (also see SOP 4).

In an emergency, giving an age-appropriate dose of adrenaline from an ampoule using a syringe and needle is the preferred action. However, if the only available adrenaline preparation is an auto-injector, this can be used in the first instance.

In the community setting, adrenaline should only be given via the intramuscular (IM) route. Whenever possible, consent should be obtained from the patient (or other appropriate person) and documented.

The best site for IM injection is the anterolateral aspect of the middle third of the thigh. The needle used for injection must be sufficiently long to ensure that the adrenaline is injected into muscle; use a green (21G) or blue (23G) needle.

Adrenaline IM doses using 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 pre-pubertal	

Following administration of the appropriate age-related dose of IM adrenaline, the patient's pulse, colour, respiratory rate and blood pressure should be monitored (if the equipment is available).

The casualty's level of consciousness should also be observed using the **AVPU** approach. These observations will help assess the response to the adrenaline.

A = **A**lert

V = Responds to **V**ocal stimuli

P = Responds only to **P**ainful stimuli

U = **U**nresponsive to all stimuli

Sudden changes in posture should be avoided and the patient should be encouraged to maintain a supine position during treatment (or semi-recumbent position if that makes breathing easier for the patient)

Patients should be observed for potential side effects of adrenaline, such as tachycardia, tremor, dizziness, anxiety, headache, dry mouth, pallor and cold extremities.

If there is no improvement in the patient's condition after 5 minutes, repeat the appropriate IM adrenaline dose. If there is still no improvement in Breathing or Circulation despite two doses of adrenaline, follow the algorithm for refractory anaphylaxis (appendix 2). Continue to repeat IM adrenaline after every 5 minutes while life-threatening respiratory or cardiovascular features persist, until specialist help arrives.

SOP 3 Supply and storage of Adrenaline (Epinephrine)

Purpose

This SOP provides information to guide staff on the supply and storage of Adrenaline (Epinephrine)

Scope

This applies to any nursing staff who are involved in the supply and storage of Adrenaline (Epinephrine)

Core Requirements

Adrenaline 1 mg in 1 ml [1:1,000] ampoule(s) for intramuscular (IM) use for the treatment of anaphylaxis must be immediately available at all FNHC clinics where immunisation takes place and at all District Nursing clinics.

Relevant FNHC nursing staff are issued with and carry with them two ampoules of 1:1000 Adrenaline. Alternatively an adrenaline supply will be issued to a team rather than individual staff, and team members will carry this with them on visits as required e.g. when administering vaccinations.

Adrenaline should be stored in a cool dark place (below 25°C but not in the refrigerator).

All adrenaline must be replaced every October **even if still in date**. Staff should refer to the SOP Medicines Management Annual Replacement of Adrenaline.

SOP 4 Record keeping and reporting

Purpose

This SOP provides information on requirements for record keeping and reporting related to an anaphylactic episode

Scope

This applies to any nursing staff who may be present when an anaphylactic episode occurs

Core Requirements

Details of an anaphylactic reaction should be recorded in the patient's care record on EMIS and also for children in the parent held record ('Red-Book').

The following information should be recorded:

- description of the reaction with circumstances and timings
- consent obtained (if possible)
- administered treatments - the recording of adrenaline administration should be in line with the organisation's medicines policy
- response to adrenaline - before and after adrenaline administration, blood pressure, pulse, colour, respiratory rate and AVPU (as appropriate) should be recorded - any adverse reaction to adrenaline should also be documented
- time emergency services contacted, time of their arrival and time patient left for hospital
- any advice or treatment declined by the patient or any person with responsibility for them
- advice given about the risks involved should a patient or any person with responsibility for them decline hospital/medical treatment
- advice/information given to patient/carer/parent (as appropriate)

Nursing staff should carry a hard copy of the 'Anaphylactic Reaction Report' (appendix 3) form in their work bags and it should be available in all clinics.

It should be completed (if available) and ideally sent to ED (Emergency Department) with the patient, however, it is appreciated that, as many FNHC clinical staff work alone, there may not be time to do this.

Where it is not possible to send a completed 'Anaphylactic Reaction Report' to ED with the casualty, as much information as possible should be given to the paramedics and the report emailed through as soon as it is practicable to do so.

A copy of the 'Anaphylactic Reaction Report' should also be sent to the patient's GP.

The 'Anaphylactic Reaction Report' should be scanned into the patient's electronic nursing records to document the event or it can be completed electronically via EMIS.

All incidences of anaphylaxis should also be reported via Assure.

It is important that the patient's GP is informed that an anaphylactic reaction/suspected reaction happened and full details should be passed on as soon as it is practicable to do so (see above).

Any anaphylactic reaction thought to be related to a drug or combination of drugs must be reported to the Medicines and Healthcare Products Regulatory Agency (MHRA) using the yellow card scheme. Copies of the yellow card can be found at the back of the British National Formulary (BNF) and at www.mhra.gov.uk.

Line Managers should also be made aware that an emergency situation has occurred and should investigate to identify if there is learning from the event.

Provision must also be made to enable a debrief session for the staff involved and counselling/support must be arranged if required.

SOP 5 Training, Competence and Audit

Purpose

This SOP provides information on the requirements for training, competence and audit

Scope

This applies to any nursing staff who may be present when an anaphylactic episode occurs

Core Requirements

Training

All nursing staff at Family Nursing & Home Care who may be required to administer adrenaline must complete an **annual** mandatory update in Basic Life Support (BLS) and Anaphylaxis training, which includes use of auto-injector devices, and these are available for training purposes.

These training sessions are organised by the Education and Development Department and are available throughout the year.

Competence

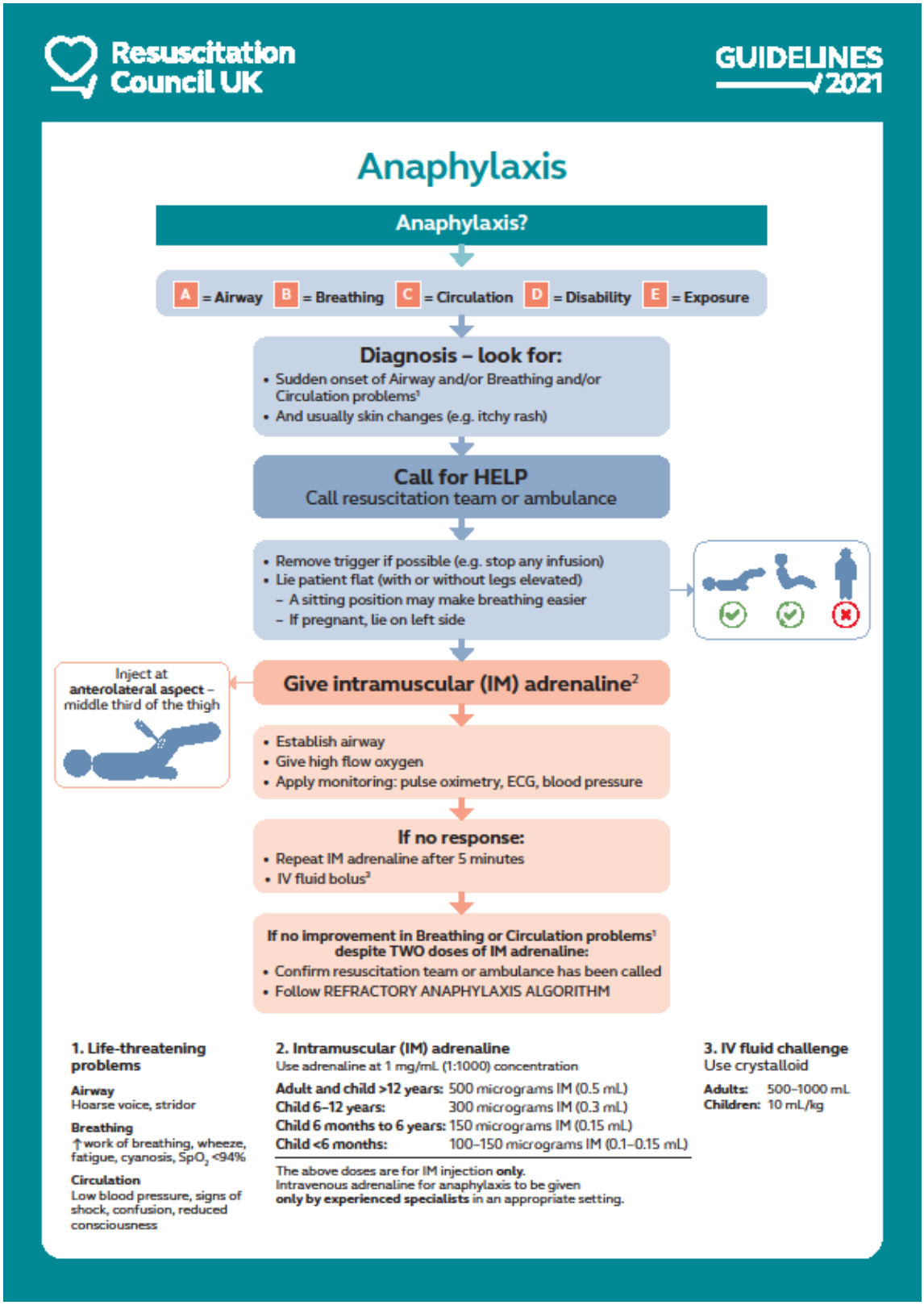
Registered nurses have a duty to maintain their competence in recognising and treating an anaphylactic reaction.

A competency framework (appendix 4) is available and it is recommended that nurses use it to demonstrate that they remain competent in this area. Where training needs are identified, appropriate educational support should be sought.

Audit

The Adrenaline Users Process Audit (appendix 5) will be undertaken annually by the Quality and Governance Team. All areas where adrenaline is used will be included in the audit.

Appendix 1 Anaphylaxis Algorithm



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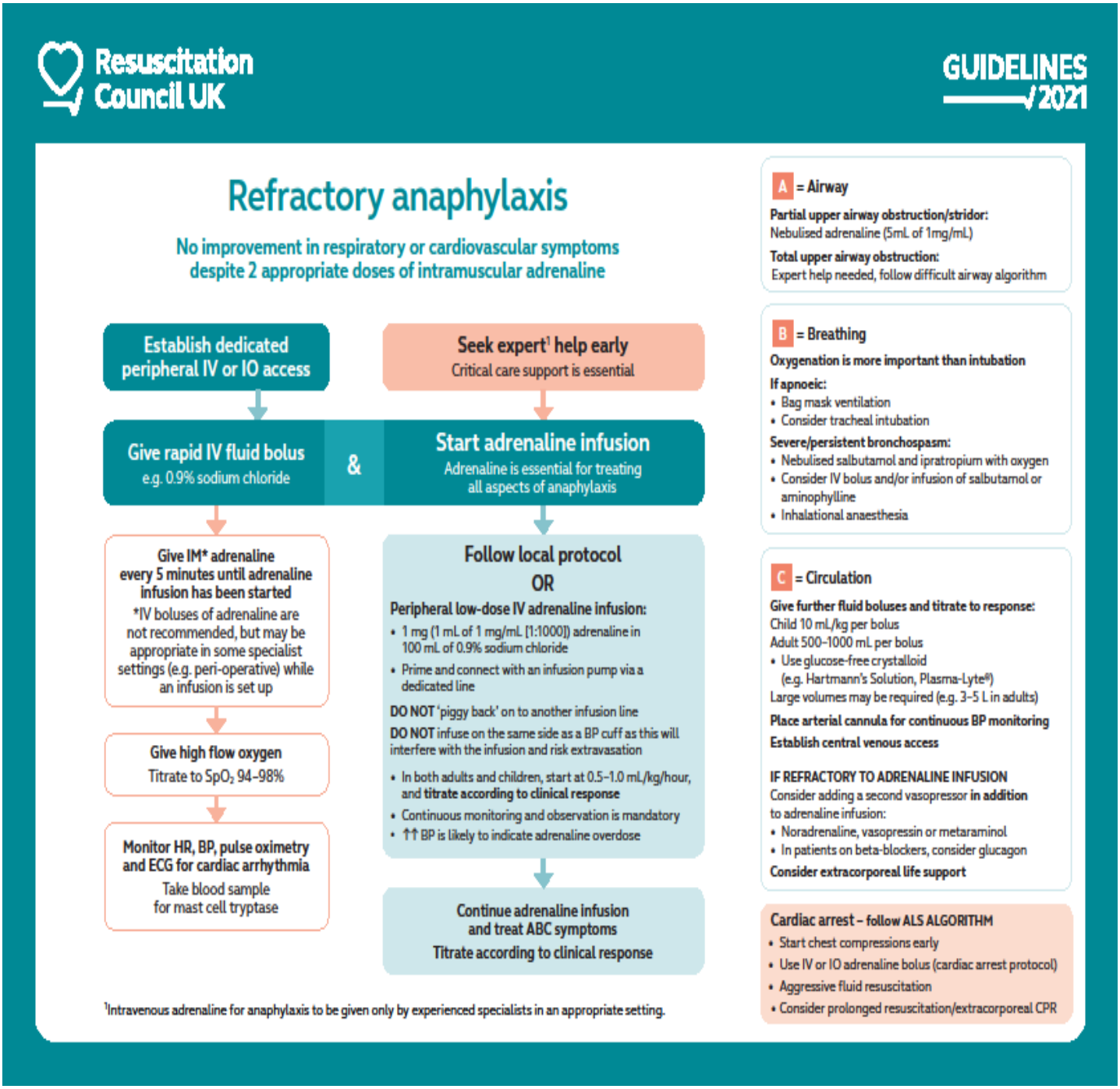
Appendix 2 Refractory Anaphylaxis Algorithm



Appendix 3 Anaphylactic Reaction Report

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Anaphylactic Reaction Report

Name.....

Date of Birth.....

URN.....

Or affix patient label

For hospital staff only:

If patient no longer in the Emergency Department (ED), please forward this document to the appropriate ward, or file in the patient's medical records

Date and Time of Reaction Onset: .....

Description of Reaction: **e.g.** ABCDE, onset/signs/symptoms/location of patient etc

Suspected Trigger: *(tick as appropriate)*

Sting ☐

Nut ☐

Food ☐

Drug ☐ Tick if "Yellow Card" completed ☐

Other ☐ please give details.....

Reminder: If suspected adverse drug reaction please complete "Yellow Card" available from www.mhra.gov.uk

Initial Observations:

Pulse (per minute)	
Respiratory Rate (per minute)	
Blood Pressure	
Colour	
Level of Consciousness (AVPU) **A** – alert **V** – responds to vocal command **P** – responds only to pain **U** - unconscious	

Time ambulance called: .....

Treatment: *(tick as appropriate)*

Positioning (ideally lying flat with legs elevated) ☐

Information about adrenaline (including side effects) given ☐

Verbal consent obtained from patient/family/carer/other *(delete as appropriate)* ☐

Adrenaline (Epinephrine) 1:1000 IM ☐

High Dose Oxygen Therapy ☐

Cardio-Pulmonary Resuscitation ☐

Adrenaline (Epinephrine) Administration Record:

	Date	Time	Dose	Route	Site	Manufacturer	Batch number	Expiry date	Signature
1				IM					
2				IM					
3				IM					

Response Following <u>First Dose</u> Adrenaline (Epinephrine):

Pulse (per minute)	
Respiratory Rate (per minute)	
Blood Pressure	
Colour	
Level of Consciousness (AVPU) **A** – alert **V** – responds to vocal command **P** – responds only to pain **U** - unconscious	

Caution: Do not sit/stand casualty up too early

Response Following Second Dose Adrenaline (Epinephrine):

Pulse (per minute)	
Respiratory Rate (per minute)	
Blood Pressure	
Colour	
Level of Consciousness (AVPU) **A** – alert **V** – responds to vocal command **P** – responds only to pain **U** - unconscious	

Caution: Do not sit/stand casualty up too early

Response Following Third Dose Adrenaline (Epinephrine):

Pulse (per minute)	
Respiratory Rate (per minute)	
Blood Pressure	
Colour	
Level of Consciousness (AVPU) **A** – alert **V** – responds to vocal command **P** – responds only to pain **U** - unconscious	

Caution: Do not sit/stand casualty up too early

If any adverse reaction to Adrenaline (Epinephrine) observed give details here:

.....

Ambulance Arrival Time: .....**Patient Departure Time:**.....

Name of Nurse (please print):.....Workplace:.....

Signature: .....Date & Time:.....

Please forward completed form to ED and a copy to the patient's GP

Appendix 4 Anaphylaxis Competency Framework

Date of last anaphylaxis update: ……

Following training and self-study I can:	**Yes**	**No**
Give a working definition of anaphylaxis		
State the incidence of anaphylactic shock		
List the common triggers for anaphylaxis		
State who may be at increased risk of anaphylaxis		
Use the ABCDE approach to recognise anaphylactic reaction		
Discuss differential diagnoses		
Explain the importance of calling for an ambulance		
Explain what to do in the event of anaphylaxis		
State the adult dose of adrenaline (epinephrine)		
State the dose of adrenaline required for children of different ages		
State the preferred site for administering IM adrenaline		
Explain how to use an adrenaline auto injector device		
Describe what adrenaline does to the body		
List the side effects of adrenaline		
I have read and understood the most current version of the Anaphylaxis Guidelines for Family Nursing & Home Care		
I have read and understood the most current version of the Resuscitation Council (UK) Emergency Treatment for Anaphylactic Reactions – guidelines for healthcare providers		
I feel that I have the necessary knowledge and skills to safely deal with an anaphylactic reaction		

If you have answered 'no' to any of the above statements please reassess your competence following further training/study.

Name of Nurse…….. Signature of Nurse……

Date(s) of Self Assessment/Reassessment……..

Please retain this document in your revalidation portfolio. Updated 2019

Appendix 5 Adrenaline Users Process Audit Tool

Date of Audit:	**Name of Auditor:**
Name of Service/Team:	

Guidance:

This audit should be undertaken in January using the data for the previous year as it stands on the 31st December (with the exception of the collection of the adrenaline supply information). Information will be located in the 'live' adrenaline register on 'central filing'

Criteria	**No. of YES**	**No. of NO**	**%**
Staff who carry adrenaline have replaced their adrenaline supply by the end of October			
Staff have completed annual anaphylaxis training			
Staff have completed annual Adult Basic Life Support training			
School Nursing, Children's Community Nursing and Health Visiting staff have completed annual Paediatric Basic Life Support training			

% compliance