Dear Colleague

This letter authorises the extended use of the following PGD until 1st April 2019:

**Patient Group Direction For The Administration Of Adrenaline (Epinephrine) In Cases Of Suspected Anaphylactic Reactions By Qualified Health Professionals Working within NHS Grampian**

This PGD is currently under consideration to be withdrawn from use as Adrenaline can be administered under exemption under Medicines Legislation. This letter provides permission to continue using the PGD to a new expiry date of 1st April 2019 and should be kept with the PGD records and brought to the attention of the individual nurses and other healthcare professionals who operate under the PGD currently.

If you have any queries regarding this please do not hesitate to contact the Pharmacy and Medicines Directorate.

Yours sincerely

Lesley Thomson
Chair Medicines Guidelines and Policies Group
Patient Group Direction For The Administration Of Adrenaline (Epinephrine) In Cases Of Suspected Anaphylactic Reactions By Qualified Health Professionals Working within NHS Grampian

<table>
<thead>
<tr>
<th>Lead Author:</th>
<th>Consultation Group:</th>
<th>Approver:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicines Management</td>
<td>See relevant page in the</td>
<td>Medicine Guidelines and</td>
</tr>
<tr>
<td>Specialist Nurse</td>
<td>PGD</td>
<td>Policies Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature:</th>
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<tbody>
<tr>
<td>C. Adlamson</td>
<td></td>
<td>S. Reid</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Identifier:</th>
<th>Review Date:</th>
<th>Date Approved:</th>
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<tbody>
<tr>
<td>NHSG/PGD/Adren/</td>
<td>September 2018</td>
<td>September 2016</td>
</tr>
<tr>
<td>MGPG827</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expiry Date:</td>
<td>September 2019</td>
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</tr>
</tbody>
</table>

A Patient Group Direction is a specific written instruction for the supply or administration of named medicines in an identified clinical situation. It is drawn up locally by Doctors, Pharmacists and other appropriate professionals, approved by the Employer and advised by the relevant professional advisory committees. In most cases, appropriate clinical care is provided on an individual basis by a specific prescriber to a specific individual patient. Patient Group Directions should only be considered where they offer a benefit to patient care without compromising patient safety in any way.

Uncontrolled when printed

Version 4
Revision History:

<table>
<thead>
<tr>
<th>Date of change</th>
<th>Approval date of PGD that is being superseded</th>
<th>Summary of Changes</th>
<th>Section heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2016</td>
<td>August 2014</td>
<td>Health care professionals should check with individuals where possible to ascertain if they have already self-administered adrenaline using an auto-injector.</td>
<td>Inclusion Criteria</td>
</tr>
<tr>
<td>September 2016</td>
<td>August 2014</td>
<td>Telephone number for the emergency services changed to include external dialling code i.e. (9)999.</td>
<td>Throughout</td>
</tr>
<tr>
<td>September 2016</td>
<td>August 2014</td>
<td>Hyperlink for the Document of resuscitation form added.</td>
<td>Record of Administration</td>
</tr>
</tbody>
</table>

Subject: Patient Group Direction

Identifier: NHSG/PGD/Adren/MGPG827

Replaces: NHSG/PGD/ADR/MGPG609, Version 3

Keyword(s): PGD patient group direction dental nurse pharmacist physiotherapist podiatrist radiographer Emerade EpiPen Minijet Jext auto-injector

Policy Statement:
It is the responsibility of individual qualified health professional and their line managers to ensure that they work within the terms laid down in this PGD and to ensure that staff are working to the most up to date PGD. By doing so, the quality of the services offered will be maintained, and the chances of staff making erroneous decisions which may affect patient, staff or visitor safety and comfort will be reduced. Supervisory staff at all levels must ensure that staff using this PGD act within their own level of competence.
The lead author is responsible for the review of this PGD as well as its dissemination. Pharmacy and Medicines Directorate is responsible for ensuring registration of this document.

**Review date:** At least every 2 years or sooner if current treatment recommendations change.

**Document:**
- **Drafted:** October 2008
- **Completed:** January 2009
- **Approved:** October 2011, July 2014, September 2016 (published – September 2016)
Patient Group Direction For The Administration Of Adrenaline (Epinephrine) In Cases Of Suspected Anaphylactic Reactions By Qualified Health Professionals Working within NHS Grampian

Clinical indication to which this PGD applies

<table>
<thead>
<tr>
<th>Definition of situation/condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>This Patient Group Direction (PGD) will authorise all qualified health professionals to administer adrenaline (epinephrine) by intramuscular injection (IM) to patients suffering from suspected hypersensitivity and anaphylactic reactions.</td>
</tr>
<tr>
<td>Patient groups particularly at increased risk are those with existing hypersensitivity and immune disorders such as asthma, haemolytic anaemia, thyroiditis, systemic lupus erythematosus and rheumatoid arthritis.</td>
</tr>
<tr>
<td>This PGD should be used in conjunction with the recommendations in the current British National Formulary (BNF), British National Formulary for Children (BNFC), individual Summary of Product Characteristics (SPC) and The Resuscitation Council (UK).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration of IM adrenaline (epinephrine) should be considered for individuals who show signs and symptoms of an anaphylactic reaction. Medical advice must be sought as soon as possible from a doctor if any patient develops any signs of hypersensitivity. If there is a delay in medical support arriving and the condition of the patient is deteriorating then an emergency ambulance must be called on (9)999 or direct via ambulance control, or dial 2222 (hospital internal) according to local procedure, or seek urgent medical advice.</td>
</tr>
<tr>
<td>Anaphylaxis is likely when all of the following three criteria are met:</td>
</tr>
<tr>
<td>• Sudden onset and rapid progression of symptoms.</td>
</tr>
<tr>
<td>• Life-threatening Airway and/or Breathing and/or Circulation problems.</td>
</tr>
<tr>
<td>• Skin and/or mucosal changes (flushing, urticaria, angioedema). (Only 20% will experience cutaneous changes).</td>
</tr>
</tbody>
</table>
Please note: A single set of criteria will not identify all anaphylactic reactions. There are a range of signs and symptoms, none of which are entirely specific. See Appendix 3 for the **Airway, Breathing, Circulation, Disability** and **Exposure** (ABCDE) approach to assess and treat a patient which should be followed, as patients can have an airway, breathing or circulation problem or any combination which is life threatening. See Appendix 4 for additional information on recognition of anaphylactic reactions and Appendix 5 for an anaphylaxis algorithm (adapted from the Resuscitation Council (UK) – Anaphylaxis Algorithm March 2008).

Patients displaying the previously described signs and symptoms may receive the administration of adrenaline (epinephrine) if they are:

- Hospital in-patients
- Hospital out-patients attending out-patient or diagnostic departments
- Visitors or members of staff (If possible check with individual to ascertain if they have already self-administered adrenaline using an auto-injector).
- Patients receiving care in the community, including minor injury units, GP practices, Health Centres, clinics, schools, pharmacies, patient’s own houses and other community settings.

### Exclusion criteria

- Previous allergy to adrenaline (if known about).
- Other contra-indications are relative as adrenaline is being administered in an emergency situation.
- Patient declines treatment.

### Precautions and special warnings

Current guidance, Emergency Treatment of Anaphylactic Reactions, Resuscitation Council (UK) January 2008, annotated with links to NICE guidance July 2012, is to monitor the response, start with a safe dose and give further doses if a greater response is needed, i.e. titrate the dose according to effect.

### Referral criteria

Patients who fall into the categories detailed in the exclusion criteria.
**Action if excluded from treatment**

Call (9)999 Emergency services and/or refer to doctor as appropriate. If within the acute hospital setting dial 2222 (hospital internal) according to local procedure, or seek urgent medical advice. Ensure all actions/decisions are documented.

The reason why the patient was excluded under the PGD will be documented in the patient’s medical notes.

**Action if patient declines treatment**

Not considered likely however; Call (9)999 Emergency services and/or refer to doctor as appropriate. If within the acute hospital setting dial 2222 (hospital internal) according to local procedure, or seek urgent medical advice. Ensure all actions/decisions are documented.

**Consent**

If the patient is unable to give consent due to a life-threatening situation adrenaline (epinephrine) should be administered where treatment is judged to be in the best interests of the patient.

Otherwise prior to the administration of the drug, valid consent must be obtained. Consent must be in line with current NHSG “Staff Policy for Obtaining Consent for Clinical Procedures and Healthcare Interventions”. See link below.

http://intranet.grampian.scot.nhs.uk/ccc_nhsg/15692.html?pmenuID=460&

**Description of treatment available under the PGD**

<table>
<thead>
<tr>
<th>Name of medicine</th>
<th>Adrenaline (epinephrine) (1 in 1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal status</td>
<td>Adrenaline (epinephrine) is a Prescription-only Medicine (PoM).</td>
</tr>
<tr>
<td>Form/Strength</td>
<td>Adrenaline (epinephrine) 1mg/1mL (1 in 1,000) solution for injection ampoules</td>
</tr>
<tr>
<td></td>
<td>Adrenaline (epinephrine) 500micrograms/0.5mL (1 in 1,000) solution for injection ampoules</td>
</tr>
<tr>
<td></td>
<td>Adrenaline (epinephrine) 500micrograms (single dose) (1 in 1,000) solution for injection (pre-filled syringe) auto-injector.</td>
</tr>
<tr>
<td></td>
<td>Adrenaline (epinephrine) 300micrograms (single dose) (1 in 1,000) solution for injection (pre-filled syringe) auto-injector.</td>
</tr>
</tbody>
</table>
**Route/Method of administration**

Intra-muscular (IM) injection (preferably mid-point in anterolateral thigh).

**Dosage/Total Dose**

**Dose**

**Non-proprietary adrenaline**

**Adults** - 500micrograms (0.5mL) of adrenaline (epinephrine) 1 in 1,000 (1mg/mL).

**Infants and Children** - The scientific basis for the recommended doses is weak. The recommended doses are based on what is considered to be safe and practical to draw up and inject in an emergency.

Table reference - Emergency Treatment of Anaphylactic Reactions. (2008). Resuscitation Council (UK)

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose of Adrenaline</th>
<th>Volume of 1 in1,000 (1mg/mL) solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 6 years</td>
<td>150micrograms IM</td>
<td>0.15mL</td>
</tr>
<tr>
<td>6 - 12 years</td>
<td>300micrograms IM</td>
<td>0.3mL</td>
</tr>
<tr>
<td>Over 12 years</td>
<td>500micrograms IM (300micrograms IM if the patient is small or pre-pubertal)</td>
<td>0.5mL (0.3mL)</td>
</tr>
</tbody>
</table>

**Proprietary adrenaline auto-injectors.**

Healthcare professionals should be familiar with the use of the most commonly available auto-injector devices. The dose recommendations for adrenaline in this guideline are intended for healthcare providers treating an anaphylactic reaction.

If an adrenaline auto-injector is the only available adrenaline preparation when treating anaphylaxis, healthcare providers should use it. **N.B.** Some adult auto-injectors only contain 300micrograms (0.3mL).
### Maximum number of treatments

No limit – *(determined by patient response)*. Repeat the IM adrenaline dose if there is no improvement in the patient’s condition. Further doses can be given at about 5-minute intervals according to the patient’s response.

*For additional information, refer to the Resuscitation Council (UK) Emergency Treatment of Anaphylactic Reactions (2008).*

### Duration of treatment

The same dose can be repeated as necessary at intervals of 5 minutes if there is no improvement in the patient’s condition or on further assessment of ABCDE of the patient.

Continue treatment until the patient's condition improves and no further doses of adrenaline are deemed necessary, or until medical help arrives.

### Storage requirements

Store at less than 25°C and protect from light.

Do not freeze.

### Follow-up (if applicable)

Hospital in-patients require close observation on the ward. They may need to be transferred to a high dependency facility depending on the severity of reaction and medical decision.

Any affected hospital out-patients, staff or visitors, patients in the community or those attending clinics/health centres need to be transferred to a hospital.

The medical practitioner in charge of the patient’s care should be informed.

### Advice to patient (Verbal)

If conscious, prior to the administration of adrenaline (epinephrine) the patient should receive an explanation that they are having an severe reaction and that IM adrenaline (epinephrine) is going to be administered to relieve the symptoms and help reverse the reaction.

### Advice to patient (Written)

The patient information leaflet contained in the medicine(s) should be made accessible to the patient, parent, guardian, or person with parental responsibility. Where this is unavailable, or unsuitable, sufficient information should be given in a language that they can understand.

Copies of Patient Information Leaflets and SPCs for all medicines can be found at [http://www.medicines.org.uk](http://www.medicines.org.uk) or
**Concurrent Medications/Drug Interactions**

There are **no absolute contraindications** to the administration of adrenaline under this PGD with any concurrent medication, as adrenaline is intended for use in a life threatening emergency.

However, there is large inter-individual variability in the response to adrenaline. In clinical practice, it is important to monitor the response; start with the recommended dose and give further doses if a greater response is needed. This approach will therefore allow the management of any effects of interacting drugs, e.g. tricyclic antidepressants, cardiac glycosides.

Non selective beta blockers - patients taking these may not respond to the adrenaline injection and may require intravenous salbutamol or aminophylline, however this would be prescribed by a medical practitioner.

**Adverse effects and managing possible adverse reactions**

Adverse effects are extremely rare with correct doses injected intramuscularly. The adverse effects of adrenaline mainly relate to the stimulation of both alpha- and beta-adrenergic receptors. The occurrence of undesirable effects depends on the sensitivity of the individual patient and the dose involved.

The following are possible adverse effects:

- Tachycardia, angina, hypertension and ventricular arrhythmias
- Anxiety, headache, cerebral bleeding
- Nausea and vomiting
- Sweating, weakness, dizziness and hyperglycaemia

This list is not exhaustive. Please also refer to current BNF/BNFC and manufacturers SPC for details of all potential adverse reactions.

**BNF/BNFC:**

[https://www.medicinescomplete.com/mc/bnf/current/](https://www.medicinescomplete.com/mc/bnf/current/)
[https://www.medicinescomplete.com/mc/bnfc/current/](https://www.medicinescomplete.com/mc/bnfc/current/)

**SPCs/PILs:**

[https://www.medicines.org.uk/emc/](https://www.medicines.org.uk/emc/)
<table>
<thead>
<tr>
<th>Facilities and supplies required</th>
<th>The following should be available at sites where the medication is to be administered:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appropriate storage facilities.</td>
<td></td>
</tr>
<tr>
<td>• Access to medical support (this may be via the telephone).</td>
<td></td>
</tr>
<tr>
<td>• Approved equipment for the disposal of used materials.</td>
<td></td>
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</tbody>
</table>

### Characteristics of staff authorised to administer medicine under PGD

<table>
<thead>
<tr>
<th>Professional qualifications</th>
<th>• Registered Nurse, Midwife or Health Visitor as recognised by the NMC.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Registered Practising Pharmacist as recognised by the GPhC.</td>
</tr>
<tr>
<td></td>
<td>• Registered Physiotherapist as recognised by the HPC.</td>
</tr>
<tr>
<td></td>
<td>• Registered Podiatrist as recognised by the HPC.</td>
</tr>
<tr>
<td></td>
<td>• State Registered Radiographer as recognised by the SCoR.</td>
</tr>
<tr>
<td></td>
<td>• Dental Professionals registered with the General Dental Council who are also either dental hygienists or dental therapists.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialist competencies</th>
<th>Be competent to assess the patient's capacity to understand the nature and purpose of the administration in order for the patient to give or refuse consent.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Has undertaken appropriate learning to carry out clinical assessment of patients leading to a diagnosis that requires treatment according to the indications listed in the PGD.</td>
</tr>
<tr>
<td></td>
<td>The practitioner must be familiar with the SPC for all medicines supplied in accordance with this PGD.</td>
</tr>
<tr>
<td></td>
<td>Be aware of current treatment recommendations and be competent to discuss issues about the drug with the patient.</td>
</tr>
<tr>
<td></td>
<td>Is competent in the administration of the drug. <strong>N.B.</strong> Ideally health care professionals should be trained in the use of auto-injectors to avoid inadvertent self-administration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ongoing training and competency</th>
<th>Have attended basic life support training which is required to be updated annually.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have undertaken the NHS e-anaphylaxis training session (and</td>
</tr>
</tbody>
</table>
annual updates) which covers all aspects of the identification and management of anaphylaxis. This can be accessed via eKSF, or the AT Learning® tool.

Maintain their skills, knowledge and their own professional level of competence in this area according to their individual Code of Professional Conduct.

<table>
<thead>
<tr>
<th>Professional managers/Lead Nurses will be responsible for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring that the current PGD is available to staff providing care under this direction.</td>
</tr>
<tr>
<td>Ensuring that staff have received adequate training in all areas relevant to this PGD and meet the requirements above.</td>
</tr>
<tr>
<td>Maintain up to date record of all staff authorised to administer drug specified in PGD.</td>
</tr>
</tbody>
</table>

**Documentation**

<table>
<thead>
<tr>
<th>Authorisation of administration</th>
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</thead>
<tbody>
<tr>
<td>Qualified Health Professionals working within NHS Grampian can be authorised to administer the drug specified in this PGD as per the following:</td>
</tr>
<tr>
<td>Nurses working in GP surgeries can be authorised to administer the drug specified in this PGD by practice GPs. (NB. GP practices must have adopted NHS Grampian PGD for use in their practice).</td>
</tr>
<tr>
<td>Nurses in Occupational Health can be authorised to administer the drug specified in this PGD by the Consultant in Occupational Health Medicine, NHS Grampian.</td>
</tr>
<tr>
<td>Nurses, Midwives or Health Visitors working within NHS Grampian can be authorised to administer the drug specified in this PGD by their senior line manager.</td>
</tr>
<tr>
<td>Registered practising Pharmacists can be authorised to administer the drug specified in this PGD by the Director of Pharmacy.</td>
</tr>
<tr>
<td>Radiographers working within NHS Grampian can be authorised to administer the drug specified in this PGD by a Consultant Radiologist.</td>
</tr>
<tr>
<td>Registered Physiotherapists working within NHS Grampian can be authorised to administer the drug specified in this PGD by their Head of Service.</td>
</tr>
</tbody>
</table>
Registered Podiatrists working within NHS Grampian can be authorised to administer the drug specified in this PGD by their Head of Service.

TB Nurse Specialists and Health Protection Nurse Specialists can be authorised to administer the drug specified in this PGD by the Consultant in Public Health Medicine.

Registered Dental Professionals working within NHS Grampian who are also either dental hygienists or dental therapists can be authorised to administer the drug specified in this PGD by their Head of Service.

All authorised staff are required to read the PGD and sign the Agreement to Administer Medicines Under PGD (Appendix 1).

A certificate of authorisation (Appendix 2) signed by the authorising doctor/manager should be supplied. This should be held in the individual practitioner’s records, or as agreed locally.

**Record of administration**

An electronic or paper record for recording the administration of the drug specified in this PGD must be completed in order to allow audit of practice. This should include:

- Name and address of patient.
- Patient CHI No and date of birth.
- Details of parent/guardian, or person with parental responsibility where applicable.
- Consultant/General Practitioner details.
- Risk group, if appropriate.
- Findings of physical examination, if appropriate.
- Exclusion criteria, record why drug not administered.
- Reason for giving.
- Consent to the administration (if not obtained elsewhere).
- Drug manufacturer, batch number and expiry date.
- Site where drug administered, dose and route of administration.
- Signature and name in capital letters of practitioner who administered the drug.
- Date drug given.
- Record of any adverse effects (advise patient’s doctor).

A record of the administration must be made. This can either be done electronically or into the patient’s case notes or an out-patient report form completed giving full details of the
incident and the treatment given. The incident must always be
reported to the medical practitioner in charge of the patient’s
care. The health professional involved must ensure that the
use of drug specified in this PGD is recorded appropriately
and reported to the appropriate manager.

If the anaphylactic reaction was caused by a drug/medication
being administered to a patient, the event should be recorded
on Datix, where this is available.

The event should also be recorded on a Document of
Resuscitation Form available from NHSG intranet under
Resuscitation department. A copy must be sent to NHSG
resuscitation department) and then filed in the patient’s
medical records. All serious adverse events related to
medicines should be reported to the MHRA via the Yellow
Card Scheme or on the website at www.yellowcard.gov.uk.

These records should be retained:

For children and young people, retain until the patient's 25th
birthday or 26th if the young person was 17 at the conclusion
of treatment.

For 17 years and over retain for 6 years after last date of
entry, for 3 years after death, or in accordance with local
policy, where this is greater than above.

Audit

All records of the drug specified in this PGD will be filed with
the normal records of medicines in each practice/service.
A designated person within each H&SCP/practice/service will
be responsible for auditing completion of drug forms and
collation of data.

References

Electronic Medicines Compendium
http://www.medicines.org.uk

British National Formulary current online version
https://www.medicinescomplete.com/mc/bnf/current/

British National Formulary for Children current online version
https://www.medicinescomplete.com/mc/bnfc/current/

Resuscitation Council (UK) guidelines, January 2008.
http://www.resus.org.uk/
Management and Monitoring of Patient Group Direction

PGD Consultative Group

The consultative group is legally required to include a medical practitioner, a pharmacist and a representative of the professional group who will provide care under the direction

Frances Adamson Lead Author: Medicines Management Specialist Nurse
Elaine Allan Lead Nurse for School Nursing (Aberdeen City H&SCP)
Moira Dickson Resuscitation Officer
Sandra Lowe Dental Clinical Lead
Morag Hives Lead Occupational Health Adviser
Elaine Neil Pharmacist: Lead Pharmacist, North Aberdeenshire H&SCP
Dr Fiona Mair Medical Professional: Associate Specialist in Accident and Emergency

Authorising Managers

Dr Nick Fluck
Medical Director, NHS Grampian

Mr David Pfleger
Director of Pharmacy and Medicines Management, NHS Grampian

Ms Amanda Croft
Executive Director of Nursing, Midwifery and AHPs, NHS Grampian
Appendix 1

Health Care Professional Agreement to Administer Medicines Under Patient Group Direction

I: ________________________________ (Insert name)

Working within: ________________________________ e.g. H&SCP, Practice

Agree to administer medicines under the direction contained within the following Patient Group Direction

**Patient Group Direction For The Administration Of Adrenaline (Epinephrine) In Cases Of Suspected Anaphylactic Reactions By Qualified Health Professionals Working within NHS Grampian**

I have completed the appropriate training to my professional standards enabling me to administer medicines under the above Patient Group Direction. I agree not to act beyond my professional competence nor outwith the recommendations of the Patient Group Direction.

Signed: _______________________________________

Print Name: _______________________________________

Date: ____________________________________________

Professional Registration No: ________________________
Certificate Of Authorisation To Administer Medicines Under Patient Group Direction

This authorises: ________________________________

Working within: ________________________________ e.g. H&SCP, Practice

To administer medicines under the following Patient Group Direction

**Patient Group Direction For The Administration Of Adrenaline (Epinephrine) In Cases Of Suspected Anaphylactic Reactions By Qualified Health Professionals Working within NHS Grampian**

The above named person has satisfied the training requirements and is authorised to administer medicines under the above Patient Group Direction. The above named person has agreed not to act beyond their professional competence nor outwith the recommendations of the Patient Group Direction

Signed: ________________________________ Authorising Manager/Doctor

Print Name: ________________________________

Date: ________________________________
The ABCDE approach:

**Airway**

- Airway swelling, e.g. throat and tongue swelling (pharyngeal/laryngeal oedema). The patient has difficulty in breathing and swallowing and feels that the throat is closing up.
- Hoarse voice.
- Stridor – this is a high-pitched inspiratory noise caused by upper airway obstruction.

**Breathing**

- Increased respiratory rate.
- Shortness of breath.
- Wheeze.
- Hypoxia- which can lead to confusion/agitation.
- Cyanosis (appears blue) – this is usually a late sign.
- Patient becoming tired.

**Circulation**

- Signs of shock – pale, clammy.
- Increased pulse rate (tachycardia).
- Low blood pressure (hypotension) – feeling faint (dizziness) which may lead to collapse.
- Decreased conscious level or loss of consciousness.
- Anaphylaxis can cause myocardial ischaemia and electrocardiograph (ECG) changes even in individuals with normal coronary arteries.
Disability

Airway, Breathing and Circulation problems can all alter the patient’s neurological status because of decreased brain perfusion. Using the Alert, responds to Vocal stimuli, responds to Painful stimuli, or Unresponsive to all stimuli (AVPU) method of assessment can determine a patient’s conscious level.

Patients can also have gastro-intestinal symptoms (abdominal pain, incontinence, vomiting).

Exposure

The patient must be exposed ensuring dignity to observe for skin and/or mucosal changes. This is often the first feature and present in over 80% of anaphylactic reactions.

They can be subtle or dramatic.

There may be just skin, just mucosal, or both skin and mucosal changes.

There may be erythema – a patchy, or generalised, red rash.

There may be urticaria (also called hives, nettle rash, weals or welts), which can appear anywhere on the body. The weals may be pale, pink or red, and may look like nettle stings. They can be different shapes and sizes and are often surrounded by a red flare. They are usually itchy.

Angioedema is similar to urticaria but involves swelling of deeper tissues, most commonly in the eyelids and lips, and sometimes in the mouth and throat.

ANAPHYLAXIS CAN RESULT IN RESPIRATORY AND CARDIAC ARREST
Anaphylactic reactions – Initial treatment

Anaphylactic reaction?

Airway, Breathing, Circulation, Disability, Exposure

Diagnosis - look for:
- Acute onset of illness
- Life-threatening Airway and/or Breathing and/or Circulation problems
- And usually skin changes

- Call for help
- Lie patient flat
- Raise patient’s legs (if breathing not impaired)

Intramuscular Adrenaline

1 Life-threatening problems:
- Airway: swelling, hoarseness, stridor
- Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion
- Circulation: pale, clammy, low blood pressure, faintness, drowsy/coma

2 Intramuscular Adrenaline
- IM doses of 1:1000 adrenaline (repeat after 5 min if no better)
  - Adult: 500 micrograms IM (0.5 mL)
  - Child more than 12 years: 500 micrograms IM (0.5 mL)
  - Child 6 - 12 years: 300 micrograms IM (0.3 mL)
  - Child less than 8 years: 150 micrograms IM (0.15 mL)

March 2003
**Appendix 5: Anaphylaxis algorithm**

**N.B.** This anaphylaxis algorithm is based on the Resuscitation Council (UK) Anaphylaxis algorithm (March 2008) and has been adapted to exclude the use of chlorphenamine and hydrocortisone for the purposes of this PGD.

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**Anaphylactic reaction?**

**Airway, Breathing, Circulation, Disability, Exposure**

**Diagnosis** – look for:
- Acute onset illness
- Life-threatening Airway and/or Breathing and/or Circulation problems
- And usually skin changes

**Call for help**
- Lie patient flat
- Raise patient’s legs (if breathing not impaired)

**Adrenaline**

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**When skills and equipment available::**
- Establish airway
- High flow oxygen
- IV fluid challenge

**Monitor:**
- Pulse oximetry
- ECG
- Blood pressure

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1 **Life-threatening problems:**
- Airway: swelling, hoarseness, stridor
- Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion
- Circulation: pale, clammy, low blood pressure, faintness, drowsy/coma

2 **Adrenaline** (give IM unless experienced with IV adrenaline)
- IM doses of 1 in 1,000 adrenaline (repeat after 5 minutes if no better)
  - Adult: 500 micrograms IM (0.5mL)
  - Child more than 12 years: 500 micrograms IM (0.5mL)
  - Child 6 – 12 years: 300 micrograms IM (0.3mL)
  - Child less than 6 years: 150 micrograms IM (0.15mL)

Adrenaline IV to be given only by experienced specialists

Titrate: Adults 50 micrograms; Children 1 microgram/kg

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3 **IV Fluid challenge:**
- Adult: 500 – 1000mL
- Child – crystalloid 20 mL/kg

Stop IV colloid if this might be the cause of anaphylaxis

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N.B. This anaphylaxis algorithm is based on the Resuscitation Council (UK) Anaphylaxis algorithm (March 2008) and has been adapted to exclude the use of chlorphenamine and hydrocortisone for the purposes of this PGD.