Doctors on Riccarton
Policy for Anaphylaxis and Emergency Management

as per section 2.3.3 of the 2017 Immunisation handbook. 2.3.3Anaphylaxis and emergency management, from page 77

Updated 24/09/2020

All Doctors on Riccarton staff who give vaccinations must be trained to ascertain the suitability of a patient for vaccination and recognising post vaccination reactions.

Nurses new to the DOR team who are not authorised vaccinators may only see patients who have been seen by a doctor first and have had the vaccine prescribed. They must be supervised administering vaccines by an authorised vaccinator until they have completed their authorised vaccinator training and are deemed competent.

All authorised vaccinators are required to renew their authorisation certificates every 2 years. If this lapses they will need to practice as an unauthorised vaccinator as above.

All vaccinators must be familiar with and able to follow the emergency procedure below by recognising a reaction, distinguishing what the reaction is and be able to administer adrenaline.

All consultation rooms have a labelled anaphylaxis kit which is kept in a labelled drawer. All vaccinators are to ensure they are familiar with the contents and where the kit is in each room. The contents of each kit are checked monthly and this is recorded in the blue verification of expiry dates folder which is kept on the bench in the steriliser room. These records are required for us to achieve Foundation/ Cornerstone standards.

The anaphylaxis dosages are in the back cover of each vaccination handbook. There should be a copy in each nurses consult room. Please do not remove these.

All vaccinators must be able to distinguish anaphylaxis from fainting, anxiety, breath-holding spells and seizures

Anaphylaxis is a very rare, unexpected and potentially fatal allergic reaction. It develops over several minutes and usually involves multiple body systems. Unconsciousness is rarely the sole manifestation and only occurs as a late event in severe cases. A strong central pulse (eg, carotid) is maintained during a faint (vasovagal syncope), but not in anaphylaxis.

In general, the more severe the reaction, the more rapid the onset. Most life-threatening adverse events begin within 10 minutes of vaccination. The intensity usually peaks at around one hour after onset. Symptoms limited to only one system can occur, leading to delay in diagnosis. Biphasic reactions, where symptoms recur 8 to 12 hours after onset of the original attack, and prolonged attacks lasting up to 48 hours have been described. All patients with anaphylaxis should be hospitalised.

Signs of anaphylaxis

Anaphylaxis is a severe adverse event of rapid onset, characterised by circulatory collapse. In its less severe (and more common) form, the early signs are generalised erythema and urticaria with upper and/or lower respiratory tract obstruction. In more severe cases, limpness, pallor, loss of consciousness and hypotension become evident, in addition to the early signs. Vaccinators should be able to recognise all of the signs and symptoms of anaphylaxis given in Table 2.10.

Table 2.10: Signs and symptoms of anaphylaxis

	Signs and symptoms	Severity
Early warning signs (within a few minutes)	Dizziness, perineal burning, warmth, pruritus, flushing, urticaria, nasal congestion, sneezing, lacrimation, angioedema	Mild to moderate
	Hoarseness, nausea, vomiting, substernal pressure	Moderate to severe
	Laryngeal oedema, dyspnoea, abdominal pain	Moderate to severe
Life-threatening symptoms (from soon after the injection up to 20 minutes after)	Bronchospasm, stridor, collapse, hypotension, dysrhythmias	Severe

There is no place for conservative management of anaphylaxis. Early administration of adrenaline is essential (for more details, see Table 2.12).

Misdiagnosis of faints and other common causes of collapse as anaphylaxis may lead to inappropriate use of adrenaline. Misdiagnosis as a faint could also lead to a delay in the administration of adrenaline.

Vaccinators should therefore be able to distinguish anaphylaxis from fainting (vasovagal syncope), anxiety and breath-holding spells (see Table 2.11). Infants and babies rarely faint. Sudden loss of consciousness, limpness, pallor and vomiting (signs of severe anaphylaxis in children) should be presumed to be an anaphylactic reaction.

In adults and older children, the most common adverse event is a syncopal episode (fainting), either immediately or soon after vaccination. During fainting the individual suddenly becomes pale, loses consciousness and if sitting or standing will slump to the ground. Recovery of consciousness occurs within a minute or two. Fainting is sometimes accompanied by brief clonic seizure activity, but this generally requires no specific treatment or investigation if it is a single isolated event.

Table 2.11: Distinguishing anaphylaxis from a faint (vasovagal reaction)

	Faint	**Anaphylaxis**
Onset	Usually before, at the time, or soon after the injection	Soon after the injection, but there may be a delay of up to 30 minutes
System		
Skin	Pale, sweaty, cold and clammy	Red, raised and itchy rash; swollen eyes and face; generalised rash
Respiratory	Normal to deep breaths	Noisy breathing due to airways obstruction (wheeze or stridor); respiratory arrest
Cardiovascular	Bradycardia; transient hypotension	Tachycardia; hypotension; dysrrhythmias; circulatory arrest
Gastrointestinal	Nausea/vomiting	Abdominal cramps
Neurological	Transient loss of consciousness; good response once supine/flat	Loss of consciousness; little response once supine/flat

Distinguishing a hypotonic-hyporesponsive episode from anaphylaxis

A hypotonic-hyporesponsive episode is a shock-like state defined by the sudden onset of limpness (muscle hypotonia) and decreased responsiveness with pallor or cyanosis in infants and children aged under 2 years after immunisation.

A hypotonic-hyporesponsive episode can occur from immediately to 48 hours after immunisation, typically lasts less than 30 minutes, and resolves spontaneously.[12]

A hypotonic-hyporesponsive episode is a recognised serious reaction to immunisation and should be reported to CARM (see section 1.6.3).

Avoidance of anaphylaxis

Before immunisation:

- ensure there are no known contraindications to immunisation
- if in doubt about administering the vaccine, consult the individual's GP or a paediatrician.

Individuals should remain under observation for 20 minutes following vaccination in case they experience an immediate adverse event requiring treatment.

Emergency equipment

Vaccinators, providers and quality managers are responsible for:

- ensuring emergency procedures are known by all staff
- practising emergency procedures regularly
- having an emergency kit (see Table 2.12) and adrenaline in every room where vaccinations/medications are given
- checking emergency kits regularly
- not giving vaccines when working alone.

Remember, events happen without warning. Appropriate emergency equipment must be immediately at hand whenever immunisations are given, and all vaccinators must be familiar with the practical steps necessary to save lives following an anaphylactic reaction (see Tables 2.12 and 2.13).

Table 2.12: Emergency equipment

An emergency kit should contain: • adrenaline* 1:1,000 (3 ampoules) and dosage chart • syringes: 1.0 mL (a minimum of 3) (tuberculin not insulin, as the insulin needle is too short for IM injection) • needles: a range of needle lengths and gauges, including 23 or 25 G × 25 mm, 22 G × 38 mm • a range of airways, including paediatric sizes if vaccinating children.
Other emergency equipment required: • an oxygen cylinder (check that it is filled) • adult and paediatric bag valve mask resuscitator (eg, Ambu bag), oxygen tubing and a range of oxygen masks • access to a telephone.

The expiry date of the adrenaline and other medicines should be written on the outside of the emergency kit, and the kit should be checked every 4 weeks. Adrenaline is heat and light sensitive and should be stored appropriately. Adrenaline that has a brown tinge must be discarded.

The emergency kit may need to have additional equipment for non-clinical settings (see Appendix 4).

Hydrocortisone injection is used only under the direction of a medical practitioner (available on Medical Practitioner Supply Order).

Emergency management

An IM injection of 1:1,000 adrenaline is the mainstay of the treatment of anaphylaxis, and adrenaline should be universally available when vaccinating. A tuberculin syringe should be used to ensure the accuracy of measurement when drawing up small doses.

In an emergency situation there is no absolute contraindication to the use of adrenaline. It is, however, a very potent agent, and if used when anaphylaxis has not occurred or in excessive doses, adrenaline can cause dysrrhythmias, severe hypertension and left ventricular failure. Tissue necrosis can occur if the same injection site is used repeatedly.

Intravenous adrenaline should be administered by a medical practitioner with extreme caution, in small boluses, and under careful monitoring, and it is not appropriate as the first line of treatment of anaphylaxis.

Table 2.13: Initial anaphylaxis response/management

CALL FOR HELP – send for professional assistance (ambulance, doctor). Never leave the individual alone.	
ASSESS – Assess responsiveness, and check Airway, Breathing, Circulation. If they are conscious, lie the individual down in the recovery position. If they are unconscious and breathing normally, lie the individual down in the recovery position, ensuring that the airway is open. If they are unconscious and not breathing normally, institute standard procedures for basic life support. If cardiorespiratory arrest occurs, administer age-appropriate CPR and life-support measures.	
ADMINISTER ADRENALINE by deep intramuscular injection – dosage: 1:1,000 (adrenaline 1:1,000 = 1 mg/mL). Adrenaline dosage for 1:1,000 formulation is 0.01 mL/kg up to a maximum of 0.5 mL.	
If the individual's weight is unknown, use the following guidelines:	
Infant aged under 1 year:	0.05–0.1 mL
Child aged under 2 years:	0.1 mL
Child 2–4 years:	0.2 mL
Child 5–10 years:	0.3 mL
Adolescent ≥11 years:	0.3–0.5 mL
Adult:	0.5 mL
Route: deep IM. Where possible, administer in a non-injected limb, in either the deltoid or vastus lateralis.	
You can expect to see some response to the adrenaline within 1–2 minutes. If necessary, adrenaline can be repeated at 5–15-minute intervals, to a maximum of 3 doses, while waiting for assistance. Use alternate sites/limbs for additional doses.	
ADMINISTER OXYGEN at high flow rates where there is respiratory distress, stridor or wheeze.	

IF HYPOTENSIVE, ELEVATE LEGS.
IF STRIDOR IS PRESENT, ELEVATE HEAD AND CHEST.
RECORD VITAL SIGNS every 5–10 minutes. All observations and interventions need to be clearly documented in medical notes and should accompany the individual to hospital.
ADMIT TO HOSPITAL – all cases of anaphylaxis should be admitted to hospital for observation. Rebound anaphylaxis can occur 12–24 hours after the initial episode.

Note: Only medical practitioners should administer IV adrenaline.

Ongoing management in hospital or by a medical practitioner

Individuals who experience vaccine-related anaphylaxis should be being admitted to hospital. If in an unstable or deteriorating condition, and not being transported by ambulance, the individual must be accompanied by the attending health professional so that treatment can be continued during transfer.

Hydrocortisone may be used as adjunctive medication. Nebulised salbutamol is helpful for bronchospasm. For further information, refer to the product data sheet.

Additional drugs that may be administered under the direction of a medical practitioner include:

- nebulised adrenaline: for laryngeal oedema
- bronchodilators: salbutamol 5 mg nebulised, to help reverse bronchospasm
- corticosteroids: prednisone 2 mg/kg (up to 40 mg) orally, or hydrocortisone 4 mg/kg IV, to help resolve tissue swelling (for young children and infants prednisolone syrup may be more appropriate).

Observation for a period of up to 24 hours after stabilisation of the individual's condition is recommended due to the risk of late deterioration from delayed and biphasic reactions.

All anaphylaxis reactions should be reported to CARM (see section 1.6.3).

Documentation and insurance

Accurate documentation, including information on the NIR, School-Based Vaccination System (SBVS) and practice management system, (PMS) is essential. If the vaccinator has not kept accurate clinical records, it is difficult to prove what action/care was or was not taken/delivered if the patient notes are subject to legal scrutiny.

In addition to the information recorded on the NIR (see section 2.3.5), SBVS or PMS, information that should be collected in the patient's clinical notes includes:

- confirmation that informed consent was given
- confirmation that the individual was observed for the recommended time and no adverse events occurred during the observation period (if an adverse event does occur, it is essential to document the action and treatment given and inform CARM – see section 1.6.3).

The vaccinator should also complete the relevant sections in the *Well Child Tamariki Ora My Health Book* and, where applicable, the child's immunisation certificate (see Appendix 5), the Ministry of Health payment claim form (where applicable), and an NIR notification form if not using a computerised PMS.

Indemnity insurance

All vaccinators should carry indemnity insurance. Most employers have indemnity cover, but vaccinators do not have an automatic right to claim under that cover. Indemnity insurance should cover vaccinators/health professionals for disciplinary proceedings, coroners' inquiries, and claims of negligence or error that may lead to injury, death or damage.